Hemphill Diversion Structure Project

Draft Environmental Impact Report

CEQA Lead Agency:

Nevada Irrigation District

April 2021

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ENVIRONMENTAL CONSULTANTS

Draft
Environmental Impact Report

Hemphill Diversion Structure Project

Nevada County, California

SCH No. TBD

CEQA Lead Agency:

Nevada Irrigation District

1036 W Main Street
Grass Valley, California 95945

April 2021

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Executive Summary

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 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 Nevada Irrigation District (NID) is proposing the Hemphill Diversion Structure Project (Project; Proposed Project) in order to eliminate impediments to the passage of migrating anadromous fish species that spawn in Auburn Ravine upstream of the diversion while still maintaining water deliveries to customers currently served by Hemphill Canal. This Draft Environmental Impact Report (Draft EIR; DEIR) has been prepared by NID to analyze the potential environmental effects associated with implementation of the Proposed Project. The DEIR analysis focuses on potential environmental impacts that could arise from implementation of the Proposed Project, as regulated and guided by the large number of federal, state, and local regulations, including ordinances, General Plan policies, and local resource plans. The DEIR is intended to provide a credible worst-case scenario of the impacts resulting from Project implementation.

CEQA requires that the Lead Agency, in this case, NID, consider the information contained in the EIR prior to taking any discretionary action. This DEIR may also be used by other public agencies that must make discretionary actions related to the Proposed Project.

ES-1.2 PROJECT LOCATION AND SETTING

Located in Placer County, just east of the City of Lincoln, the Hemphill Diversion structure is located within Auburn Ravine.

The structure diverts water from Auburn Ravine into the Hemphill Canal located south of the ravine for delivery to Nevada Irrigation District (NID) raw (untreated) water customers. The Hemphill Diversion Structure is located in Section 13, Township 12 North, and Range 6 West (Mount Diablo Base and Meridian) of the "Lincoln" 7.5-minute quadrangle (Figure 2-1. *Regional Location* and Figure 2-2. *Site Location*). The structure is located at latitude 38.896731˚ and longitude -121.251885˚.

The area in which the Project is located is relatively flat, with elevations ranging from 196-450 feet above mean sea level (AMSL). Auburn Ravine at this location is a perennial stream with a cobbly/rocky/sandy

bottom in an incised channel that averages approximately 100 feet in width. When the Hemphill Diversion flashboards are in place during spring and summer, the stream is impounded to form a slack pond behind the diversion structure. The stream supports a band of riparian vegetation dominated by narrow-leaved willow (*Salix exigua* var. *exigua*) and red alder (*Alnus rubra*) below the ordinary high-water mark (OHWM). Incising of the channel has resulted in the stream being mostly isolated from its historic floodplain.

ES-1.3 PROJECT SUMMARY

Hemphill Diversion has historically presented an impediment to the passage of migrating anadromous fish species that spawn in Auburn Ravine upstream of the diversion. NID is considering three alternatives to eliminate this impediment while still maintaining water deliveries to customers currently served by Hemphill Canal. These three alternatives, briefly described below, include:

- *Alternative 1 - Riverbank Infiltration Gallery Alternative*: Includes the removal of the diversion structure, site stabilization, and construction of a subterranean riverbank infiltration structure and pipeline connection to Hemphill Canal.
- *Alternative 2 - Fish Passage Alternative:* Includes the removal of the diversion structure, site stabilization, construction of a nature-like roughen rock ramp instream fish passage, installation of a fish screen and improvements to a portion of the Hemphill Canal.
- *Alternative 3 - Pipeline Alternative:* Includes the removal of the diversion structure, site stabilization, and installation of the majority of the pipeline within roadway right-of-way (ROW) from the NID Placer Yard facility to the Hemphill Canal near the existing diversion structure.

A detailed description of each alternative is provided in Section 2.4 of this DEIR.

ES-1.4 PROJECT OBJECTIVES

Project objectives are required to be provided in an EIR. CEQA Guidelines Section 15124(b) provides the following reasoning for the inclusion of Project objectives:

> (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.

The Project objectives are defined as follows:

1) Provide for passage for anadromous fish at Hemphill Diversion Structure through elimination or modification of the existing structure.
2) Provide for a project that limits operational and maintenance activities within Auburn Ravine.
3) Maintain NID's water rights (pre- and post-1914) within Auburn Ravine.
4) Continue to provide raw water deliveries via the Hemphill Canal.
5) Minimize or eliminate fish passage into Hemphill Canal.

6) Provide for a project that reduces the risk of further upstream erosion.
7) Provide a project that is economically feasible to implement, operate, and maintain.

ES-1.5 PROJECT ALTERNATIVES

CEQA requires an evaluation of the comparative effects of a reasonable range of alternatives to the Proposed 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 Proposed Project. The Draft EIR provides an equal level analysis of three alternatives considered to be feasible potential projects for implementing the main objective of the Project, that of providing the ability for fish passage beyond the Hemphill diversion structure. In addition to these three alternatives, the No Project Alternative was included as potential alternative. While this alternative does not meet the main objective of the Proposed Project, CEQA Guidelines Section 15126.6(e) requires that an analysis of this alternative must be included in the EIR. All alternatives were deemed feasible and reasonable alternatives to the Proposed Project. A number of alternatives were rejected based on a variety of reasons. These are fully discussed in Section 4.2 of this DEIR. Alternative 2, *Fish Passage Alternative*, was found to be the environmentally superior alternative as discussed in Section 4.6 of this DEIR.

ES-1.6 INITIAL STUDY AND PROJECT SCOPING

An Initial Study was completed for the Proposed Project. This Initial Study was noticed as to its availability for review in three local newspapers: The Union, the Auburn Journal, and the Lincoln News Messenger. The NOP and Initial Study was also posted at the California State Clearinghouse. The 30-day public scoping period was from September 3 to October 5, 2020. Multiple comments were received from the public or government agencies regarding the Initial Study analysis, scope of the EIR or the Proposed Project. A summary of these comments is provided in Section 1.6 of this DEIR.

As a result of Initial Study analysis ad input received during scoping, NID determined that there was a potential for significant impacts for certain environmental resources and that an EIR was required for specific impact areas. Those environmental resources include air quality, biological resources, cultural resources, geology and soils (paleontological resources), greenhouse gas and climate change, hydrology and water quality, noise, tribal resources, and utilities (water supply). These analysis areas are the subject of this EIR.

ES-1.7 AREAS OF CONTROVERSY

Two areas of controversy with the Proposed Project were identified during the EIR scoping period. These controversies involved to the loss of ground water recharge from Auburn Ravine north of Hemphill Diversions Structure and potential for increased water temperatures affecting fish because of lower water levels with the implementation of Alternative 3 Pipeline. A full water availability analysis for Alternative 3 is provided in Section 3.8 *Hydrology and Water Quality*.

ES-1.8 ISSUES TO BE RESOLVED BY THE LEAD AGENCY

The major issues to be resolved by NID 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-1 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-1. 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 Proposed Project could conflict with or obstruct implementation of an applicable air quality plan.	NI	None required	NI
Impact 3.2.2: Implementation of the Proposed 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 Proposed 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 Proposed 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: Cumulative Air Quality Impacts	LCC	None required	LCC
Biological Resources			
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.	S	**BIO-1** ***Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Non-Wetland Waters (applies to all alternatives)*** The Project will comply with all construction site BMPs specified in the Storm Water Pollution Prevention Plan (if required), and any other permit conditions 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 will address soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-stormwater management, and waste management practices. The BMPs will be based on the best conventional and best available technology. The Project may require a Section 404 Permit from the U.S. Army Corps of Engineers, a Section 401 Water Quality Certification from the Central Valley RWQCB and/or a Lake or Streambed Alteration Agreement from the California Department of Fish and	LTS SU for Alternative 3 for impacts to special status fish

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		Wildlife, which will contain BMPs and water quality measures to ensure the protection of water quality. These permit conditions and BMPs shall also be implemented as part of the project. *Timing/Implementation: Prior to and during construction* *Monitoring/Enforcement: NID/Consultant* **BIO-2 *Install Fencing and/or Flagging to Protect Sensitive Biological Resources (applies to all alternatives)*** Prior to construction, the Project contractor will install high-visibility orange construction fencing and/or flagging, as appropriate, along the perimeter of the work area where adjacent to Environmentally Sensitive Areas (ESAs) (e.g., adjacent riparian areas and any special-status species habitat and/or active bird nests that may be identified during per-construction surveys). The NID will ensure that the final construction plans show the locations where fencing will be installed. The plans also will define the fencing installation procedure. The NID or contractor (at the discretion of the NID) will 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. The project's special provisions package will provide clear language regarding acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs. All temporary fencing will be removed upon completion of construction. *Timing/Implementation: Prior to and during construction* Monitoring/Enforcement: NID/Consultant **BIO-3 *Conduct Environmental Awareness Training for Construction Personnel (applies to all alternatives)*** Before any work occurs within the project limits, including equipment staging, grading, and tree and/or vegetation removal (clear and grub), the Project will 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 will 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 will inform all construction personnel about the life history and habitat requirements of special-status species with potential for occurrence onsite,	

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		the importance of maintaining habitat, and the terms and conditions of any permit, Biological Opinion or other authorizing document (e.g. letter of concurrence) that may be prepared for the project. The environmental training will 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. *Timing/Implementation: Prior to construction* *Monitoring/Enforcement: NID/Consultant* **BIO-4 *Conduct Preconstruction Surveys for Western Spadefoot (applies to all alternatives)*** A qualified biologist shall conduct surveys for western spadefoot in areas of potential habitat that would be impacted by the Project. The surveys shall be conducted at the appropriate time of year to detect western spadefoot, generally the breeding season, according to methods approved by CDFW. If western spadefoot is found in habitat that will be eliminated or made unsuitable for western spadefoot, then a plan will be prepared, in consultation with CDFW, to collect and relocate adult and larval western spadefoot and egg masses to suitable habitat that will be preserved in perpetuity. *Timing/Implementation: Prior to construction* *Monitoring/Enforcement: NID/Consultant* **BIO-5 *Conduct Section 7 Consultation with USFWS for Elderberry Long Horn Beetle and Implement Required Mitigation (applies to all alternatives)*** The following shall be implemented, either through the standard Corps Section 404 permitting process or through the PCCP, to minimize potential impacts to VELB: • If elderberry shrubs would be removed or if construction ground disturbance would occur within 100 feet of an elderberry shrub, an evaluation using the 2017 USFWS guidance entitled USFWS 2017 Framework for Assessing Impacts to the VELB shall be conducted to determine the appropriate mitigation needs to minimize impacts to VELB and its host shrub. • Section 7 consultation would take place with USFWS to establish mitigation, avoidance, and/or minimization measures as part of the Section 404 permitting process. • A preconstruction survey shall be conducted by a qualified biologist in all riverine/riparian habitat within 165 feet of Project disturbance areas before any construction activity. The surveys shall be conducted according to the protocol	

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		outlined in USFWS Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017c) (Framework). If elderberry shrubs are not present, no further mitigation is necessary. If elderberry shrubs are located 165 feet or more from project activities, direct or indirect impacts are not expected. Shrubs shall be protected during construction by establishing and maintaining a high visibility fence at least 165 feet from the drip line of each elderberry shrub. If elderberry shrubs can be retained within the project footprint, project activities may occur up to 20 feet from the dripline of elderberry shrubs if precautions are implemented to minimize the potential for indirect impacts. An avoidance area shall be established at least 20 feet from the drip line of an elderberry shrub for any activities that may damage the elderberry shrub (e.g., construction staging, trenching, access road construction, canal modifications and instream and near stream improvements). The project proponent will implement avoidance and minimization measures specified in the USFWS Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017c). As much as feasible, all activities that could occur within 165 feet of an elderberry shrub shall be conducted outside of the flight season of the valley elderberry longhorn beetle (March - July). Herbicides shall not be used within the drip line of the shrub. Insecticides shall not be used within 100 feet of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method. Mechanical weed removal within the drip-line of the shrub shall be limited to the season when adults are not active (August - February) and shall avoid damaging the elderberry. Final design shall include realignment of the southern access road to avoid direct impact to elderberry shrubs. If any elderberry shrubs cannot be avoided according to the USFWS 2017 Framework, the Project proponent shall compensate for the loss of valley elderberry longhorn beetle habitat by purchasing appropriate credits at an agency approved mitigation bank, or through participation in the PCCP, if it has been adopted and is available for Project participation. If trimming elderberry shrubs is proposed, trimming shall be conducted between November and February and shall not result in the removal of elderberry branches that are ≥ one inch in diameter. If trimming results in removing branches that are ≥ one inch in diameter, the project proponent shall mitigate for the loss of the valley elderberry beetle habitat via the standard permit process consistent with the USFWS	

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		2017 Framework, or via the PCCP (should NID opt for and the PCA grant PCCP coverage to the Project). The project proponent shall comply with ESA and consult with USFWS and will compensate for the unavoidable loss of elderberry shrubs according to USFWS 2017 Framework. The Framework uses presence or absence of exit holes, and whether the affected elderberry shrubs are in riparian habitat to determine the number of elderberry seedlings or cuttings and associated riparian vegetation that would need to be planted as compensatory mitigation for affected valley elderberry longhorn beetle habitat. Compensatory mitigation may include purchasing credits at a USFWS-approved conservation bank, providing onsite mitigation, or establishing and protecting habitat for valley elderberry longhorn beetle as follows: 1. For elderberry shrubs in riparian habitat: • For each shrub that is trimmed, the Project proponent shall purchase two credits at a USFWS-approved bank. • For each shrub that is removed, the entire shrub may be transplanted to a USFWS- approved location in addition to the purchase of two credits. 2. For elderberry shrubs in non-riparian habitat: • The project proponent shall purchase one credit at a USFWS-approved bank for each shrub that will be trimmed if exit holes have been found in any shrub on or within 165 feet of the project area. • If no exit holes are present and the shrub is not in riparian habitat, no further action is required. If the shrub will be completely removed by the activity, the entire shrub shall be transplanted to a USFWS-approved location in addition to a purchase of one credit. Because VELB is a PCCP covered species, mitigation for this species could also be accomplished via the PCCP. *Timing/Implementation: Prior to construction* Monitoring/Enforcement: NID/Consultant **BIO-6 *Conduct Preconstruction Survey for Sensitive Reptiles – Blainville's horned lizard (applies to all alternatives)*** A qualified biologist shall conduct surveys for Blainville's horned lizard in areas of potential habitat that would be eliminated by the Project or subject to ground disturbance due to construction access and staging. The surveys shall be conducted at the appropriate time of day to detect Blainville's horned	

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		lizard is found in habitat that will be eliminated or made unsuitable for Blainville's horned lizard, then a plan will be prepared, in consultation with CDFW, to potentially collect and relocate individual(s) to suitable habitat that will be preserved in perpetuity. *Timing/Implementation: Prior to construction* *Monitoring/Enforcement: NID/Consultant* **BIO-7 *Conduct Preconstruction Northwestern Pond Turtle Surveys (applies to all alternatives)*** 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 required, as well as the development of a relocation plan for northwestern pond turtle encountered during construction. If no special status reptiles are detected during surveys, no further measures are needed. Because the western pond turtle is a PCCP covered species, mitigation for this species could be accomplished via the standard permit process, or via the PCCP as further discussed below. *Timing/Implementation: Prior to construction* *Monitoring/Enforcement: NID/Consultant* **BIO-8 *Survey for Swainson's Hawk and Other Protected Raptor Nests and Protect Nesting Activity (applies to all alternatives)*** For ground-disturbing activities with potential to affect Swainson's hawk and other raptor nests, or remove Swainson's hawk foraging habitat, the Project proponent shall consult with CDFW with respect to the following measures proposed to mitigate for habitat removal and potential nest disturbance. As part of the consultation, the Project proponent may seek take authorization under Section 2081 of the Fish and Game Code. The following measures will be implemented and are intended to avoid, minimize, and fully mitigate impacts to Swainson's hawk, as well as other raptors: • For construction activities that would occur within 0.25 mile of a known or likely Swainson's hawk nest site, the Applicant shall attempt to initiate construction activities before nest initiation phase (i.e., before March 1). Depending on the timing, regularity, and intensity of construction activity, construction in the area before nest initiation may discourage a Swainson's hawk pair from using that site and eliminate the need to implement further nest-protection measures,	

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		such as buffers and limited construction operating periods around active nests. Other measures that could be used to deter establishment of nests (e.g., reflective striping or decoys) may be used before the breeding season in areas planned for active construction. However, deployment of nest deterrents does not guarantee success. If breeding raptors establish an active nest site, as evidenced by nest building, egg laying, incubation, or other nesting behavior, near the construction area, they shall not be harassed or deterred from continuing with their normal breeding activities. • For Project activities, including tree removal, that begin between March 1 and September 15, qualified biologists shall conduct preconstruction surveys for Swainson's hawk and other nesting raptors and to identify active nests on and within 0.5 mile of the Project site. The surveys shall be conducted before the beginning of any construction activities between March 1 and September 15, following the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). • Impacts to nesting Swainson's hawks and other raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. 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 likely result in nest abandonment. CDFW guidelines recommend implementation of 0.25-mile-wide buffer for Swainson's hawk and 500 feet for other raptors, but the size of the buffer may be adjusted if a qualified biologist and the Applicant, 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 and after construction activities shall be required if the activity has potential to adversely affect the nest. • Trees shall not be removed during the breeding season for nesting raptors unless a survey by a qualified biologist verifies that there is not an active nest in the tree. Because Swainson's hawk is a PCCP covered species, mitigation for this species could also be accomplished via the PCCP as further discussed below. *Timing/Implementation: Prior to and during construction* *Monitoring/Enforcement: NID/Consultant*	

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		BIO-9 ***Survey for Western Burrowing Owl and Protect Nesting Activity (applies to all alternatives)*** Before ground-disturbing activities, the following measures shall be implemented. • The Applicant shall retain a qualified biologist to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 1,500 feet of areas subject to disturbance (only with landowner permission where this would include private property). Surveys shall be conducted before the start of construction activities and in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012) or the most recent CDFW protocols. • If no occupied burrows are found, a letter report documenting the survey methods and results shall be submitted to CDFW and no further mitigation will be required. • If an active burrow is found during the nonbreeding season (September 1 through January 31), the Applicant shall consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan shall be developed, as described in Appendix E of CDFW's 2012 Staff Report. Burrowing owls shall not be excluded from occupied burrows until the Project's burrowing owl exclusion plan is approved by CDFW. The exclusion plan shall include a plan for creation, maintenance, and monitoring of artificial burrows in suitable habitat proximate to the burrows to be destroyed, that provide substitute burrows for displaced owls. • If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer shall depend on the time of year and level disturbance as outlined in the CDFW Staff Report (CDFG 2012) or the most recent CDFW protocols. The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented to ensure burrowing owls are not detrimentally affected. Once the fledglings are capable of independent survival, the owls can be evicted, and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl	

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		exclusion plan developed in accordance with Appendix E of CDFW's 2012 Staff Report or the most recent CDFW protocols. Because Western burrowing owl is a PCCP covered species, mitigation for this species could also be accomplished via the PCCP as further discussed below. *Timing/Implementation: Prior to and during construction* Monitoring/Enforcement: NID/Consultant **BIO-10 *Survey for Tricolored Blackbird and Protect Nesting Activity (applies to all alternatives)*** The following measures shall be implemented to avoid or minimize loss of active tricolored blackbird nests: • To minimize the potential for loss of tricolored blackbird nesting colonies and other nesting birds, vegetation removal activities shall commence during the nonbreeding season (September 1-January 31) to the extent feasible. If all suitable nesting habitat is removed during the nonbreeding season, no further mitigation would be required. Before removal of any vegetation within potential nesting habitat between February 1 and August 31, a qualified biologist shall conduct preconstruction surveys for nesting tricolored blackbirds (colonies). The surveys shall be conducted no more than 14 days before construction commences. If no active nests or tricolored blackbird colonies are found during focused surveys, no further action under this measure will be required. If active nests are located during the preconstruction surveys, the biologist shall notify CDFW. If necessary, modifications to the Project design to avoid removal of occupied habitat while still achieving Project objectives shall be evaluated and implemented to the extent feasible. If avoidance is not feasible or conflicts with Project objectives, construction shall be prohibited within a minimum of 100 feet of the nest to avoid disturbance until the nest colony is no longer active. These recommended buffer areas may be reduced or expanded through consultation with CDFW. Monitoring of all occupied nests shall be conducted by a qualified biologist during construction activities to adjust the 100-foot buffer if agitated behavior by the nesting bird is observed. Because Tricolored blackbird is a PCCP covered species, mitigation for this species could also be accomplished via the PCCP as further discussed below. *Timing/Implementation: Prior to and during construction* *Monitoring/Enforcement: NID/Consultant*	

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		BIO-11 ***Survey for White-tailed Kite, Cooper's Hawk and Other Protected Raptors and Protect Nesting Activity (applies to all alternatives)*** For construction and other ground-disturbing activities with potential to affect white-tailed kite, Cooper's hawk, or other raptor nests (e.g., activities proposed to occur in or within 500 feet of suitable habitat), the following measures shall be implemented to prevent potential impacts to active raptor nests. • For Project activities, including tree and other vegetation removal, that begin between February 1 and September 15, qualified biologists shall conduct preconstruction surveys for white-tailed kite and Cooper's hawk and to identify active nests on and within 500 feet of the Project site. The surveys shall be conducted before the beginning of any construction activities between February 1 and September 15. • Impacts to nesting raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. 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 likely result in nest abandonment. CDFW guidelines recommend implementation of a 500-foot-wide buffer for these raptor species, but the size of the buffer may be adjusted if a qualified biologist and the Project proponent, 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 and after construction activities shall be required if the activity has potential to adversely affect the nest. • Trees shall not be removed during the breeding season for nesting raptors unless a survey by a qualified biologist verifies that there is not an active nest in the tree. *Timing/Implementation: Prior to and during construction* *Monitoring/Enforcement: NID/Consultant* **BIO-12** ***Survey for Nuttall's Woodpecker, Loggerhead Shrike, Yellow-Billed Magpie, Oak Titmouse, Wrentit, Song Sparrow and other MBTA-Protected Birds and Protect Nesting Activity (applies to all alternatives)*** Before any ground-disturbing Project activities begin, a qualified biologist will identify potential habitat for nesting Nuttall's woodpecker, loggerhead shrike, yellow-billed magpie, oak titmouse, wrentit, and song sparrow, and other bird species protected	

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		under the MBTA in areas that could be affected by construction during the breeding season (February 1—August 31). To the extent feasible, construction-related vegetation removal shall occur outside the nesting season. If vegetation removal or other disturbance related to construction is required during the nesting season, focused surveys for active nests of special-status birds will be conducted before and within 14 days of initiating construction. A qualified biologist will conduct preconstruction surveys to identify active nests that could be affected. The appropriate area to be surveyed and timing of the survey may vary depending on the activity and species that could be affected. If no active nests are found during focused surveys, no further action under this measure will be required. If an active loggerhead shrike, song sparrow, grasshopper sparrow, or other special-status bird nest is located during the preconstruction surveys, the biologist will notify CDFW. If necessary, modifications to the Project design to avoid removal of occupied habitat while still achieving Project objectives will be evaluated and implemented to the extent feasible. If avoidance is not feasible, construction will be prohibited within a minimum of 100 feet of the nest to avoid disturbance until the nest is no longer active. These recommended buffer areas may be reduced or expanded through consultation with CDFW. Monitoring of all occupied nests shall be conducted by a qualified biologist during construction activities to adjust the 100-foot buffer if agitated behavior by the nesting bird is observed. *Timing/Implementation: Prior to and during construction* *Monitoring/Enforcement: NID/Consultant* **BIO-13 *Survey for Townsend's big-eared bat and western red bat and Protect Nesting Activity (applies to all alternatives)*** Bat roost surveys shall be conducted by a qualified wildlife biologist within 14 days before any tree removal or clearing during each construction season. Locations of vegetation and tree removal or excavation will be examined for potential bat roosts. Specific survey methodologies will 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 will be avoided to the extent feasible. If it is determined that an active roost site cannot be avoided and will be affected, bats will 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	

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		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. *Timing/Implementation: Prior to construction* Monitoring/Enforcement: NID/Consultant **BIO-14 *Conduct Fish Rescue and Relocation (applies to all alternatives)*** Prior to initiation of construction, a fish exclusion, rescue, and relocation plan shall be prepared and approved by NMFS and CDFW and implemented during construction. The plan shall identify the methods, equipment, fish protection measures, and release location(s) for all fish collected during dewatering of the site. The fish rescue and relocation effort shall be conducted by qualified fisheries biologists during the dewatering process to minimize the potential injury or death of juvenile steelhead, lamprey, or other fish and aquatic species potentially stranded in isolated pools during dewatering of the Project site. Because Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook are PCCP covered species, mitigation for these species could also be accomplished via the PCCP as further discussed below. *Timing/Implementation: Prior to and during construction* *Monitoring/Enforcement: NID/Consultant* **BIO-15 *Conduct Section 7 and Magnuson-Stevens Act Consultation with NMFS for CCV DPS Steelhead and EFH for Pacific Salmon and Implement Required Mitigation (applies to all alternatives)*** Prior to initiation of construction, the Project will be required to undergo ESA and MSA consultation with NMFS, either through the Corps Section 404 permitting process or through the PCCP and shall comply with all terms and conditions of the consultation. Conservation measures to reduce the likelihood of take of CCV DPS steelhead, designated critical habitat for CCV DPS steelhead, and EFH for Chinook salmon may include, but are not limited to: • Conduct all in-channel work during the June 15 – October 15 in-water work window. • Conduct worker environmental awareness training. • Conduct fish exclusion, rescue, and relocation efforts during dewatering activities.	

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		All dewatering pumps and the intake to the canal diversion pipe will be fitted with fish screens meeting NMFS fish screen criteria. Because Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook Salmon are PCCP covered species, mitigation for these species could also be accomplished via the PCCP as further discussed below. *Timing/Implementation: Prior to and during construction* *Monitoring/Enforcement: NID/Consultant* **BIO-16 *Conduct Preconstruction Survey for Spawning Fish (applies to all alternatives)*** Prior to construction, a qualified fisheries biologist shall conduct a visual survey of the Project Area to determine the suitability for and presence of special-status fish spawning activity within the Project footprint. If spawning activity by special-status fish is observed during this survey, a plan will be prepared, in consultation with CDFW and NMFS (for anadromous salmonids only) to minimize, avoid, or mitigate for disturbance to spawning fish and/or incubating eggs. If no spawning activity by special-status fish is observed during the survey, no further measures are needed. Because Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook Salmon are PCCP covered species, mitigation for these species could also be accomplished via the PCCP as further discussed below. *Timing/Implementation: Prior to and during construction* *Monitoring/Enforcement: NID/Consultant* **BIO-17 *Conduct Preconstruction Survey for Sensitive Plant Species (applies to all alternatives)*** *Focused special-status plant surveys shall be performed prior to construction ground disturbance. The survey guidelines, at a minimum, shall require the following:* • *All plant species encountered on the Project site shall be identified to the taxonomic level necessary to determine species status.* • *The surveys shall be conducted no more than five years prior and no later than the blooming period immediately preceding the approval of a grading or improvement plan or any ground-disturbing activities, including grubbing or clearing. If special-status plants are identified on the Project site, the NID shall*	

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		implement the following measures to mitigate the potential loss of special-status plant species: 1. *Avoid special-status plant occurrences through Project design to the extent technically feasible and appropriate. Avoidance shall be deemed technically feasible and appropriate if the habitat occupied by special-status plants may be preserved onsite while still obtaining the Project purpose and objectives and if the preserved habitat features could reasonably be expected to continue to function as suitable habitat for special-status plants following Project implementation.* 2. *If, after examining all feasible means to avoid impacts to potential special-status plant species habitat through Project site planning and design, adverse effects cannot be avoided, then impacts shall be mitigated in accordance with guidance from the appropriate State or federal agency charged with the protection of the subject species.* 3. *Notify CDFW, as required by the California NPPA, if any special-status plants are found on the Project site. Notify the USFWS if any plant species listed under the federal ESA are found.* 4. *Develop a mitigation and monitoring plan to compensate for the loss of special-status plant species found during preconstruction surveys, if any. The mitigation and monitoring plan shall be submitted to CDFW or USFWS, as appropriate depending on species status, for review and comment. Placer County as the CEQA lead agency shall consult with these entities, as appropriate depending on species status, before approval of the plan to determine the appropriate mitigation measures for impacts on any special-status plant population. Mitigation measures may include preserving and enhancing existing onsite populations, creation of offsite populations on Project mitigation sites through seed collection or transplantation, and/or preserving occupied habitat offsite in sufficient quantities to offset loss of occupied habitat or individuals.* 5. *If transplantation is part of the mitigation plan, the plan shall include a description and map of mitigation sites, details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements, and sources of*	

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		funding to purchase, manage, and preserve the sites. The following performance standards shall be applied: *i. The extent of occupied area and the flower density in compensatory reestablished populations shall be equal to or greater than the affected occupied habitat and shall be self-producing. Re-established populations shall be considered self-producing when:* *1. plants re-establish annually for a minimum of five years with no human intervention, such as supplemental seeding; and* *2. re-established habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types.* *6. If offsite mitigation includes dedication of conservation easements, purchase of mitigation credits, or other offsite conservation measures, the details of these measures shall be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, and other details, as appropriate to target the preservation of long-term viable populations.* *Timing/Implementation: Prior to construction* *Monitoring/Enforcement: NID/Consultant* ***Alternative Mitigation for PCCP Covered Species*** *Should the Project participate in the PCCP and programmatic permits are available for use as a mitigation strategy, the following PCCP Species Conditions could be implemented as an alternative mechanism for avoiding, minimizing, and mitigating potential Project impacts to PCCP covered special-status species and their habitats (for the full text of PCCP minimization measures see DEIR Appendix 3.3-A, Attachment F: PCCP Measures and Conditions):* *Species Condition 1. Swainson's Hawk* *The Project applicant shall comply with PCCP Avoidance and Minimization Measure (AMM) Species Condition 1 for Swainson's Hawk (PCCP Section 6.3.5.6; Attachment F). Swainson's hawk surveys will be conducted according to PCCP Section 6.3.5.6.1 and if an occupied nest is identified, minimization measures according to PCCP Section 6.3.5.6.2 must be adopted, and PCCP Section 6.3.5.6.3 if construction monitoring is required.* *Species Condition 3. Western Burrowing Owl*	

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		The Project applicant shall comply with PCCP AMM Species Condition 3 for Western Burrowing Owl (PCCP Section 6.3.5.8). Burrowing owl surveys will be conducted according to PCCP Section 6.3.5.8.1. If a burrowing owl or evidence of presence at or near a burrow entrance is found to occur within 250 feet of the Project, applicable measures in PCCP Section 6.3.5.8.2 shall be implemented, and PCCP Section 6.3.5.8.3 if construction monitoring is required. *Species Condition 4. Tricolored Blackbird* *The Project applicant shall comply with PCCP AMM Species Condition 4 for Tricolored Blackbird (PCCP Section 6.3.5.9; Tricolored blackbird surveys will be conducted according to PCCP Section 6.3.5.9.1 and applicable measures in PCCP Section 6.3.5.9.2 will be implemented if a tricolored blackbird nesting colony is found and PCCP Section 6.3.5.9.3 implemented if construction monitoring is required.* *Species Condition 6. California Western Pond Turtle* *The Project applicant shall comply with PCCP AMM Species Condition 6 for western pond turtle (PCCP Section 6.3.5.11).* *Species Condition 7. Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook Salmon* *The Project applicants shall comply with PCCP AMM Species Condition 7 for Central Valley steelhead and Central Valley fall-/late fall-run chinook salmon (PCCP Section 6.3.5.12).* *Species Condition 8. Valley Elderberry Longhorn Beetle* *The Project applicants shall comply with PCCP AMM Species Condition 8 for VELB (PCCP Section 6.3.5.13).*	
Impact 3.3-2: The Project could affect riparian habitat or sensitive natural communities.	S	**BIO-18** ***Compensate for the Loss of Riparian Habitat and Restore Temporary Disturbed Areas (applies to all alternatives)*** To compensate for the total permanent loss of riparian habitat communities, prior to construction NID 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 will purchase riparian credits at a 3:1 ratio. The final mitigation ratio and acreage will be confirmed during review of final engineering drawings and may be modified during the CDFW Section 1602 permitting process (if actual increase or decrease) which will dictate the ultimate compensation. NID shall provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits.	LTS

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		All areas subject to temporary construction disturbance shall be restored 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 and developed as part of the CDFG Streambed Alteration Agreement process and shall be reviewed and approved by CDFG prior to implementation. Because fish passage improvements for the Project site are identified in the PCCP/CARP, should NID request and the PCA grant Special Entity Status to NID, Project permitting, and the above mitigation, could also be fulfilled via the PCCP In-Lieu Fee program. *Timing/Implementation: Prior to and following construction* *Monitoring/Enforcement: NID/Consultant*	
Impact 3.3-3: The Project would require construction and fill within waters of the U.S. and waters of the State.	S	**BIO-19** ***Compensate for the Permanent Loss of Waters of the United States/Waters of the State and Restore Temporary Disturbed Areas (applies to all alternatives)*** Authorization to fill waters of the U.S. under the Section 404 and 401 of the federal CWA (Section 404 Permit and Section 401 Water Quality Certification) shall be obtained from USACE and RWQCB prior to discharging any dredged or fill materials into any waters of the U.S. Since the waters of the U.S. are likely also waters of the State, the 401 Water Quality Certification will authorize fill to waters of the State. Specific impact avoidance, minimization, and/or compensation measures shall be developed and implemented as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit and an application for a 401 Water Quality Certification for the Project shall be prepared and submitted to USACE and RWQCB and will include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. would consist of a minimum of a 1:1 replacement ratio for direct impacts; however final mitigation requirements shall be developed in consultation with USACE. These measures may include: Purchase of mitigation credits at an USACE-approved mitigation bank; and/or Permittee-responsible mitigation (e.g., preservation and creation) at an off-site mitigation property or Participation in the PCCP In Lieu fee program. *Timing/Implementation: Prior to and following construction* *Monitoring/Enforcement: NID/Consultant*	LTS

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		BIO-20 ***Survey and Protect Pipeline Alignment Staging Area Environmentally Sensitive Resources (applies to Alternative 3 only)*** *All road segment pipeline alignment staging areas shall be surveyed by a qualified biologist for sensitive biological resources prior to use. Should any sensitive biological resources be identified within proposed staging areas, they shall be protected consistent with Mitigation Measures BIO-1 and BIO-2. Should the Project require temporary impacts to staging area wetlands, these areas shall be restored following construction consistent with Mitigation Measure BIO-19.* *Timing/Implementation:* *Prior to, during and following construction* *Monitoring/Enforcement:* *NID/Consultant*	
Impact 3.3-4: The Project could affect wildlife movement and/or migration.	LTS and S	None required for Alternatives 1 and 2. No feasible mitigation for Alterative 3 impacts on aquatic wildlife movement and/or migration	LTS SU for Alternative 3 for impacts on aquatic wildlife movement and/or migration
Impact 3.3-5: The Project would not conflict with local policies and ordinances associated with protection of biological resources.	S	**BIO-21** ***Obtain a Placer County Tree Permit (applies to all alternatives)*** Tree removal shall be avoided to the maximum extent feasible. Should the Project require removal of trees protected by County Article, NID shall submit a tree permit application to Placer County and implement all conditions outlined in the final tree permit issued to the Project or implement equivalent mitigation consistent with PCCP requirements. *Timing/Implementation:* *Prior to and during construction* *Monitoring/Enforcement:* *NID/Consultant*	LTS
Impact 3.3-6: The Project could conflict with HCPs, NCCPs, or other conservation plans.	LTS	None required.	LTS

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Cultural Resources			
Impact 3.4.1: Potential for Impacts to Historical Resources	S	**CUL-1** ***Protect Historical Resources as Environmentally Sensitive Areas*** All known Historical Resources shall be avoided by the Project through a combination of project design and establishment of Environmentally Sensitive Areas under the direction of a qualified professional archaeologist, as follows. Resources TCE-1/2, HD-009, HD-012, P-31-1693, P-31-1694, and P-31-1696 shall be designated Environmentally Sensitive Areas prior to construction activities. High-visibility temporary exclusionary fencing shall be installed surrounding the known boundaries of these sites, plus a 5-meter (approximately 16 foot) buffer, as shown on the *confidential* Environmentally Sensitive Area Fencing map on file with NID. No ground-disturbing activities shall be allowed within the exclusionary fencing. Additionally, resources P-31-1691, HD-006, HD-008, HD-010, HD-005, HD-007, P-31-5897, HD-011, and HD-013 will be avoided by all project activity. These measures will be documented by the archaeological monitor (mitigation measure **CUL-3**) and tribal monitor (mitigation measure **TCR-2**), and forwarded to NID as proof of compliance. This environmentally sensitive area fence installation and documentation is to be carried out in coordination with mitigation measure **TCR-2**. If the preferred alternative does not overlap or occur adjacent to the location of resources cited herein, the environmentally sensitive area and avoidance measures for those resources can be omitted. *Timing/Implementation:* *Prior to and during construction* *Monitoring/Enforcement:* *NID* **CUL-2** ***Cultural Resources Awareness Training*** A consultant and construction worker cultural resources awareness brochure and an in-field training program for all personnel involved in ground-disturbing activities will be developed and disseminated by a cultural resources professional to all operators of ground-disturbing equipment prior to construction commencing. The program will include relevant information regarding sensitive cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The worker cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources located in, or have the potential to be located in the project area and will outline the communication protocols in the event of the discovery of any potential cultural resources or artifacts during ground-disturbing activities (as outlined in **CUL-1**, **CUL-3**, and **CUL-4**). The	LTS

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		program will outline the requirement for confidentiality and culturally appropriate treatment of cultural resources. All ground-disturbing equipment operators shall be required to receive the training and sign a form that acknowledges receipt of the training. A copy of the form shall be provided to NID as proof of compliance. This training is to be carried out in coordination with mitigation measure **TCR-1**. *Timing/Implementation:* *Prior to construction* *Monitoring/Enforcement:* *NID/Consultant* **CUL-3** ***Monitor Ground Disturbance and Stop Work if Cultural Resources or Remains are Detected*** Ground-disturbing activities in the Project Area shall be monitored by an archaeological monitor under the supervision of a qualified professional archaeologist who meets the Secretary of the Interior's (SOI) Professional Qualification Standards for prehistoric and historic archaeology. The archaeological monitor will be present to observe and assist in the installation of environmentally sensitive area fencing around resources TCE-1/2, HD-009, HD-012, P-31-1693, P-31-1694, and P-31-1696 and provide documentation of the implementation. The archaeological monitor will be present for ground disturbing activity within 100 feet of resource HD-010, and within 200 feet of the environmentally sensitive area zones for TCE-1/2, HD-009, HD-012, P-31-1693, P-31-1694, and P-31-1696. The monitor shall also be present for all ground disturbing activity in the Hemphill Canal Study Area and Near and Instream Improvements Study Area. All other ground-disturbing activity in other areas of the project will be spot-checked daily by the archaeological monitor at the outset of the project, after which the frequency of monitoring checks in these areas may be re-assessed based on the observations and professional judgement of the SOI-qualified archaeologist. If subsurface deposits believed to be cultural or human in origin are discovered during construction by the monitor, all work must halt within 100 feet of the discovery. The monitoring archaeologist will evaluate the significance of the find and shall have the authority to modify the no-work radius as appropriate, in communication and coordination with the tribal monitor, 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, work may resume immediately, and no agency notifications are required. Should tribal monitors desire to take possession	

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		of any such materials, they may do so as long as the possession is documented by the archaeologist and tribal monitor, and as long as removal has been approved in writing by the property owner and authorized by NID. • If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify NID and the on-site tribal monitor. NID, the archaeologist, and UAIC shall consult on a finding of eligibility. If the find is determined to be a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines, appropriate treatment measures will be implemented. Work may not resume within the no-work radius until NID, through consultation as appropriate, determines that the site either: 1) is not a 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 its satisfaction. This mitigation measure will be carried out in concert with TCR-2. If preferred alternative does not overlap or occur adjacent to the location of resource cited herein, avoidance measures and monitoring for those resources can be omitted. *Timing/Implementation:* *During construction* *Monitoring/Enforcement:* *NID/Consultant*	
Impact 3.4.2: Potential for Impacts to Archaeological Resources.	S	Implement mitigation measures CUL-1, CUL-2 and CUL-3	LTS
Impact 3.4.3: Potential for Impacts to Human Remains.	S	**CUL-4** ***Stop Work if Human Remains Detected*** If construction activity encounters human remains, or remains that are potentially human, the contractor shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641). The archaeologist shall notify the Placer 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 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will 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 will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, then the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, and after the mediation process with NAHC is carried out, the landowner must rebury the remains where they will not be further	LTS

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		disturbed (§ 5097.98 of the PRC). This will 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 (AB 2641). 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. *Timing/Implementation:* *Prior to and during construction* *Monitoring/Enforcement:* *NID/Consultant*	
Impact 3.4.4: Cumulative Impacts to Cultural Resources	LCC	None required.	LCC
Energy Consumption			
Impact 3.5.1: Implementation of the Proposed Project would result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	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: Cumulative Energy Impacts	LCC	None required.	LCC
Geology, Soils, and Paleontological Resources			
Impact 3.6.1: The proposed project could result in soil erosion or the loss of top soil	LTS	None required.	LTS
Impact 3.6.2: The project could directly impact a unique paleontological resource during excavation activities.	S	**PALEO-1 Discovery of Unknown Paleontological Resources** If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the NID. The NID shall retain a qualified paleontologist to evaluate the find and to prescribe mitigation measures to reduce impacts to a less than significant level. In considering any suggested mitigation proposed by the consulting paleontologist, NID shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design,	LTS

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		costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out. *Timing/Implementation:* *Prior to and during construction* *Monitoring/Enforcement:* *NID/Consultant*	
Impact 3.6.3: Cumulative Geology, Soils and Paleontological Resources Impacts	LCC	None required.	LCC
Greenhouse Gas Emissions			
Impact 3.7.1: 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 3.7.2: 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 3.7-3: Cumulative Greenhouse Gas Emissions Impacts	LCC	None required.	LCC
Hydrology and Water Quality			
Impact 3.8-1: The proposed Project could adversely affect water quality during construction by increasing the concentration of pollutants in surface runoff from the Project site.	LTS	None required.	LTS
Impact 3.8-2: The Project would alter flow conditions in Auburn Ravine by removing Hemphill Diversion and constructing new diversion facilities to service Hemphill Canal which could result in increased erosion and or siltation within the ravine.	S	**HYD/WQ-1 Bank Stabilization Measures** Following selection of the preferred project alternative and initiation of final project design, the project design engineer will develop bank stabilization measures as appropriate to minimize the anticipated effects of increased channel incision and channel widening. Specific measures to address the geomorphic impacts will be identified and detailed during final project design. The specific measures will be developed using hydraulic models of the post-project condition as grading limits and features of the selected Project alternative are refined. Measures needed within the upstream 200 feet of the existing dam will likely be incorporated during the dam	LTS

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		removal construction with the coffer dam in place. Features further upstream may be installed at the time of dam removal, or as part of an adaptive management program. The adaptive management approach would address locations where some initial erosion may be tolerable but would intervene if erosion progresses beyond established thresholds. The criteria for adaptive management would be coordinated with landowners, fisheries agencies, and other interested parties on approaches that minimize risk to landowner, resource impacts, and cost. Measures may include upstream flow deflection structures such as log groynes or engineered log jams, key in rock bank protection, or regrading/planting the bank lines and channel to be employed at the time of dam removal if either Alternative 1 or 3 is selected as the proposed project. Measures likely to be required for Alternative 2 would include the placement of flow deflections structures on the right bank upstream of the fish passage structure, and at the toe of the existing rock riprap on the right bank upstream of the existing diversion to be stabilize the channel adjacent to the fish passage structure to prevent undercutting. *Timing/Implementation:* *Prior to and during construction* *Monitoring/Enforcement:* *NID/Consultant*	
Impact 3.8-3: Implementation of Alternative 3 would divert existing and future stream flow in Auburn Ravine at the Gold Hill diversion for delivery at Hemphill Canal and could reduce groundwater recharge along the reach of Auburn Ravine between Gold Hill and the Hemphill Canal diversion sites.	LTS	None required.	LTS
Impact 3.8-4: Stream channel downcutting due to the Project could affect groundwater well production upstream of the Hemphill Diversion site.	LTS	None required.	LTS
Impact 3.8-5: Cumulative Hydrology and Water Resources	LCC	None required.	LCC
Noise			
Impact 3.9.1: The proposed project could result in short-term construction generated noise in excess of City or County standards.	S	**NOI-1 Equipment Use** The use of all heavy-duty construction equipment shall be prohibited during all Project construction occurring between 7:00 a.m. and 8:00 a.m. on Saturdays. *Timing/Implementation:* *During construction*	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			
		Monitoring/Enforcement: *NID* **NOI-2 Imports and Exports** All Project material deliveries and material export hauling during all Project construction shall be restricted during 7:00 a.m. and 8:00 a.m. on Saturdays, to the extent feasible. *Timing/Implementation:* *During construction* *Monitoring/Enforcement:* *NID*	
Impact 3.9.2: Implementation of the Proposed Project could generate excessive groundborne vibration or groundborne noise levels.	LTS	None required	LTS
Impact 3.9.3: Cumulative Noise Impacts	LCC	None required	LCC
Tribal Resources			
Impact 3.10.1: Impacts to Tribal Cultural Resources.	S	**TCR-1 *Worker Awareness Training*** A consultant and construction worker tribal cultural resources awareness brochure and in-field training program for all personnel involved in ground-disturbing activities will be developed and disseminated by a UAIC tribal representative to all operators of ground-disturbing equipment prior to construction commencing. The program will include relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The worker tribal cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources that have the potential to be located in the project area and will outline the communication protocols in the event of the discovery of any potential tribal cultural resources or artifacts are encountered during ground-disturbing activity. The program will underscore the requirement for confidentiality and culturally appropriate treatment of any find of significance to Native Americans, and behaviors consistent with Native American tribal values. All ground-disturbing equipment operators shall be required to receive the training and sign a form that acknowledges receipt of the training. A copy of the form shall be provided to NID as proof of compliance. This mitigation measures shall be carried out in coordination with mitigation measure **CUL-2**. *Timing/Implementation:* *Prior to construction*	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			
		Monitoring/Enforcement: *NID/UAIC* **TCR-2** ***Monitor Ground Disturbance, Installation of Environmentally Sensitive Area Fencing, and Stop Work if Cultural Resources or Remains are Detected*** Resources TCE-1/2, HD-009, P-31-1696 (Alternative 1), P-31-1693, P-31-1694 (Alternative 2), and HD-012 (Alternative 3) shall be designated Environmentally Sensitive Areas prior to construction activities with high-visibility temporary exclusionary fencing installed surrounding the known boundaries of these sites, plus a 5 meter (approximately 16 foot) buffer, as shown on the *confidential* Environmentally Sensitive Area Fencing map on file with NID. No ground-disturbing activities shall be allowed within the exclusionary fencing. A tribal representative from UAIC shall be present to observe the installation of environmentally sensitive area fencing around these resources. The tribal monitor shall also be present for all ground disturbing activity within the Project Area at the outset of the project, after which the frequency of monitoring in areas deemed less sensitive for TCRs may be re-assessed based on the observations and judgment of the UAIC tribal monitor. If subsurface deposits believed to be cultural or human in origin are discovered during construction by the monitor, all work must halt within 100 feet of the discovery. The UAIC tribal monitor will work with the onsite archaeologist to evaluate the significance of the find and shall have the authority to modify the no-work radius as appropriate, in communication and coordination with the archaeologist, using professional judgment. The following notifications shall apply, depending on the nature of the find: If the tribal representative determines that the find does not represent a TCR, work may resume following the procedures outlined in mitigation measure **CUL-3**. • If the tribal monitor determines the find represents a TCR, he or she shall immediately notify NID and the on-site archaeologist, and the parties shall consult on appropriate treatment measures. Work may not resume within the no-work radius until NID, through consultation as appropriate, determines that the find either: 1) is not a TCR under CEQA, as defined in Section 21074(a) of the Public Resources Code; or 2) that the treatment measures have been completed to its satisfaction. • Should tribal monitors desire to take possession of any materials the archaeologist does not deem a cultural resource, they may do so as long as the possession is documented by the archaeologist and tribal monitor, and as long as removal has been approved in writing by the property owner and authorized	

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			
		by NID. • This mitigation measure will be carried out in concert with mitigation measure CUL-3. *Timing/Implementation:* *Prior to and during construction* *Monitoring/Enforcement:* *NID/UAIC*	
Impact 3.8.2: Cumulative Impacts to Tribal Cultural Resources	LCC	None required	LCC

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Section 1.0
Introduction

1.0 INTRODUCTION

This Draft Environmental Impact Report (Draft EIR; DEIR) identifies and evaluates the potential environmental impacts associated with the implementation of the Hemphill Diversion Structure Project (Proposed Project, Project). Auburn Ravine is identified as a salmon and steelhead habitat and the Hemphill diversion structure has been identified as a barrier within Auburn Ravine. The Nevada Irrigation District (NID), who owns and operates the diversion structure, proposes to remove/alter the Hemphill diversion structure in order to allow for fish passage beyond the structure.

The analysis for this Project includes three different alternatives including Alternative 1 - Riverbank Infiltration Gallery Alternative, Alternative 2 - Fish Passage Alternative, and Alternative 3 - Pipeline Alternative. All of these alternatives are described in Section 2.0 Project Description and are evaluated at an equal level of detail in Section 3.0 Environmental Analysis.

1.1 PURPOSE AND USE OF THE EIR

This DEIR was prepared in accordance with the California Environmental Quality Act (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 potentially 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 of a project (the lead agency).

NID is the lead agency for the Proposed Project. Lead agencies are charged with the duty to consider and minimize environmental impacts of proposed development, where feasible, and are obligated to balance a variety of public objectives including economic, environmental, and social factors in their decision making. NID 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 Draft EIR evaluates the existing environmental resources in the area, analyzes potential 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 that could avoid or reduce the magnitude of those impacts. This EIR provides an analysis and evaluation of on- and offsite environmental impacts resulting from the construction and operation of the Proposed 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 Proposed Project. Interested agencies may have a general interest in the proposal with respect to issues germane to their organization. The following agencies have

been identified as potential responsible, trustee, or interested agencies with direct or indirect interest in the project:

- California Department of Fish and Wildlife (CDFW), Region 2
- City of Lincoln
- National Oceanic and Atmospheric Administration - National Marine Fisheries Service (NOAA-NMFS)
- Placer County Air Pollution Control District
- Placer County Community Development Department
- Placer County Flood Control and Water Conservation District
- Placer Conservation Authority
- Placer County Water Agency
- Regional Water Quality Control Board, Region 5
- South Sutter Water District
- U.S. Army Corps of Engineers

This EIR may also be used by other public agencies to issue approvals and permits related to the Proposed 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 the development project. The EIR shall examine all phases of the project including planning, construction, and operation."

1.4 INTENDED USE OF THE EIR

This Draft EIR is intended to evaluate the environmental impacts of the Project based on an equal level analysis of the three proposed alternatives. This EIR in its final form will be used by NID in considering approval of the Proposed Project. 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 Proposed 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 reduce or eliminate potential impacts.

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

Section 5.0 addresses long-term effects of the Proposed Project, including cumulative impacts, growth-inducing impacts, and significant irreversible and/or unavoidable impacts.

Section 6.0 includes the references used to prepare the DEIR.

Section 7.0 provides a list of the DEIR preparers.

Section 8.0 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, NID prepared a Notice of Preparation (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 September 3, 2020 and concluding on October 5, 2020. Along with the NOP, the Hemphill Diversion Structure Project Initial Study (State Clearinghouse [SCH] # 2020090032) was circulated by NID for the 30-day scoping period.

CEQA Guidelines Section 15063 (c) provides the purpose and use of an Initial Study. Section 15063(c) is as follows:

(c) Purposes. The purposes of an Initial Study are to:

(1) Provide the Lead Agency with information to use as the basis for deciding whether to prepare an EIR or a Negative Declaration.
(2) Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a Negative Declaration.
(3) Assist in the preparation of an EIR, if one is required, by:

(A) Focusing the EIR on the effects determined to be significant,
(B) Identifying the effects determined not to be significant,
(C) Explaining the reasons for determining that potentially significant effects would not be significant, and
(D) Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project's environmental effects.

(4) Facilitate environmental assessment early in the design of a project;
(5) Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment;
(6) Eliminate unnecessary EIRs;
(7) Determine whether a previously prepared EIR could be used with the project.

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

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

The NOP and Initial Study are provided in **Appendix 1.0-A1**.

Scoping Meeting

On September 21, 2020, NID held an online scoping meeting from 4:00 pm to 6:00 pm in order to allow early public/agency input and comments about the Project, Initial Study and future environmental review. The scoping meeting was attended by 28 members of the public and agencies as well as NID staff and their environmental consultant, ECORP Consulting, Inc. A list of scoping meeting verbal comments and responses, if responded to during the meeting, provided in a discussion format and in order of comment, are shown in Table 1.0-1 below. The full scoping meeting transcription is included in **Appendix 1.0-A2**.

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
Chris Shutes, CSPA	The fish passage alternative number two does not appear to have a fish screen included as part of it that I think would not meet agency criteria, and also would not really meet the overall purpose. So, I would ask that you modify the alternative number two to include a screen or something that functionally does the same thing. I believe that the technical committees working on this looked at a number of options and I would recommend that you evaluate some of those and see what all people recommended or discussed in that context. Also, it seems to me	

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	that it may be appropriate to have more than one fish passage alternative, or some sub-alternatives. There may be several different designs. I'm not sure what the best CEQA way to go about doing that might be, but it does seem like limiting it to one alternative might unnecessarily limit the options, and then make you have to back up. I think that having gone through this and having watched this evolve for many years it would be in everyone's interests to try to get this complete the first time. And make sure that whatever CEQA documentation you have, covers a range of options, that one of which is going to be feasible for you all to construct. One other comment I think that is important, is that when you're looking at the impacts of alternative three, the pipeline, it's important to consider the hydrology impacts, assuming not only that the existing use of the Auburn Ravine for water conveyance by Placer County Water Agency continues, but in the event that it doesn't. That might have much more significant impacts. It's my understanding, and I may be incorrect, that NID doesn't have customers downstream of Hemphill, and so if the diversion for Hemphill were discontinued and Placer County Water Agency were to find that it was no longer economic, or there was no longer demand for water downstream, the impacts would be very different than they are under the current delivery regimen that exists today.	
James Haufler, FAR	Regarding the riverbank infiltration gallery as it was described, has it been decided that, in fact, the infiltration gallery would be truly in the riverbank? The reason I ask that is that in the documentation in the Initial Study, the diagram of the infiltration gallery shows it extending about halfway into the stream bed, about halfway across the stream bed,	So, it will be, the majority of it will be featured within the bank. But there are some improvements within the stream bed that would have to be made just as shown on that diagram.
Ricki Heck	I just didn't understand how a canal on option four allows for fish passage? So again, what happens to the fish in that? Okay, but then you're talking about NID would take its water, right, and so we would not be putting water in the ravine, the water would be coming from whatever natural sources, is that what I'm understanding?	So, with the alternative four, we would remove the diversion structure so that would meet the goal for the fish passage. So with alternative four though, we would fill in the canal so there would be no water going down Hemphill canal, and service would either be from Auburn Ravine through private pump accounts or we would look at other potential avenues to make sure that our existing customers have some sort of raw water service. They would be within the ravine within Auburn Ravine natural. So, the fish, the barrier, the Hemphill Diversion, would be removed in that alternative. So that would open up that section of Auburn Ravine natural for fish passage. We would, depending on what, if, there's individual pumps, it can help. We would

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
		potentially no longer be importing water into Auburn Ravine natural in order to feed Hemphill Canal, because Hemphill Canal would no longer exist.
Steve Hubbard, FAR	I'd just like to follow up on one of Chris's statements, and that is with the suggestion that as you look at alternatives for number two and the actual structure that a fish ladder might take, that you might take a look at the project that NID completed in 2012 in Lincoln. At the Lincoln gauging station there's a fish passage, and it's not mentioned in the document at all, but it's something that I would suggest you might take a look at to see if it has any bearing at all on your plans for the Hemphill project.	
Ron Otto, SARSAS	I guess at this point it's almost more procedural just trying to get my arms around how you folks arrived at the four alternatives? An example would be alternative three, the pipeline. Which agencies and experts were contacted and what were their responses to this, that was, that were considered, you know, in the alternative selection, things such as concerns or recommendations. What level of feedback did you get? So, basically after the TAC, that you have not worked more with say, NMFS or Fish and Wildlife, or anybody as far as honing your selection process or anything?	The alternatives first started, there was a few studies done, one of which was done by Kleinschmidt back in 2017. There was also some work done within a Technical Advisory Committee, and those reports, and those committees framed basic alternatives for the District to look at and determine the feasibility. We did a feasibility analysis internally to determine which alternatives to go forward with a preparation of a Draft EIR. The level of agencies really was just the TAC Committee. We have not gone into formal consultation with any particular agency as we progress through this draft process. I mean we're reaching out now for a public scoping meeting, we have provided notification at the office of, oh my goodness I'm blanking the state office, we provide notification so that that particular office can actually distribute to the different agencies, so that they can review the alternatives and provide feedback to the District as we prepare this Draft EIR. We've entered, now we've entered into the CEQA process at this point, so with this with the CEQA process ,that does engage the agencies for comment.
Beth Lawson, CA DFW	Couple questions about, we were active participants in that TAC process through the public grant that was done for some of the last phases of work, in large part was used to develop some background modeling and some of the infiltration gallery concepts that are here. And throughout that process we've been submitting some questions and comments about fish screen criteria, and the sediment transport study, and how that could be used to inform future thought about how, and where to place an infiltration gallery. And how to think about the infiltration gallery and its effectiveness long term. Are those going to be, are the	You should resubmit them in our NOP comment period. With the grant project, we, I was under the understanding that we have satisfied comments received when we finalized the Grant. So, if you have outstanding concerns, please do submit them. Any comments that you made during the TAC meeting, yes, resubmit them.

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	questions that we've already submitted going to be considered in your documentation going forward, or should we expect to resubmit the same comments that we've had on your infiltration gallery concepts? Okay, and similarly for the concepts are the comments that were submitted as a part of the TAC process about the infiltration gallery concepts, should we resubmit those comments	
Steve Hubbard	I was wondering at which stage in this process are you going to evaluate the fiscal impact of these various alternatives on the ratepayers of NID? That's my question.	Aside from the CEQA process we are going to be doing an internal investigation of the cost for each of these projects. We will be reporting on that.
Jack Sanchez - Robert Hane, SARSAS:	My comment is the fact that basically you're talking about putting in a two-foot pipe, taking it down the road, drop an elevation of roughly 200 feet. It's not going to be fed by a pond, just going to be fed by whatever NID one would come down to your yard and then go underground in a pipe. So, it's basically a pipe that is going to have Venturi effect, I know you guys are talking about selling water down the line Venturi effects will not allow water to flow out of it, which I've witnessed, and so that's all I was trying to do is make you aware of the fact that there might be an inherited problem that maybe Board members, or people senior in NID, might not be aware of the problem of a pipeline. And so, it is called a siphon, but it's identical to what you're talking about, so I just want to raise that point. And again, I would like to talk about the financial impact to ratepayers, like myself. I've heard figures of 8 to 10 million dollars to put this pipe in, and I consider that to be out of the ballpark when there's methods and analogies that can be studied to get fish over, stop entrainment, and to address the fact that you guys have been taking natural water out of Auburn Ravine for many years, for free, and those things need to be addressed	
James Haufler	I did see on one of the diagrams in the Initial Study, various parcels, indicated with little dots, that those could be potential new customers if the pipeline was put along in that particular route, there would be some potential for new customers along that route. So, when thinking about the pipeline, and how that would achieve the possibility of delivery to those customers? I would assume, therefore, that the pipeline would be under pressure so that there could be service points along the pipeline where the pressure in the pipeline, of the water, would allow water to flow out to particular customers, is that correct?	Yes, there would be some pressure in the pipeline
	It has been documented that there are Pacific Lamprey in Auburn Ravine. We've observed them and photographed them in both life stages, in their youth, you might say, and as older spawning adults. Will the passage designs accommodate Pacific Lamprey.	I can't answer that right now. We'll have to investigate that in the document.
	Regarding the pipeline, it's noted in the Initial Study that the pipeline would begin at the NID maintenance yard, I think it's	We'll be looking at, and this is something that we'll figure out with final design, but

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	near the intersection of Gold Hill and Fruitvale right? So where does that water come from?	where the water would be coming from is still Auburn Ravine. However, it's diverted up at what's called the Gold Hill Diversion and it goes into Auburn Ravine One. So, our canal system Auburn Ravine One.
	Will that be part of the analysis? The impact on that particular canal, that you know, maintenance of the canal, the ability of the canal to handle that much volume safely. Because it's going to be increased flow there so you have a potential maintenance issue and a safety issue.	We will talk about the increased flows in Auburn Ravine 1. we'll also talk about the decreased flows in Auburn Ravine Natural.
	Related to the pipeline and the intake there at Auburn Ravine1, NID 1, Gold Hill Dam, as it's called, that increased flow into that diversion would probably have an impact on fish in that area that might be entrained into that diversion. some already are, you know you can observe fish in that canal frequently with increased flow that would potentially increase entrainment. Will NID be considering screening that particular intake because of that issue?	I can't answer that one, it's something that we could look at in in the Draft EIR as a potential impact.
Steve Hubbard	Somewhere referred to that there's some uncertainty about the Hemphill Dam, and its structural integrity, given its age, and how it was constructed. And so, I was wondering, throughout this process, when and how are you going to evaluate that, you know, how what's the soundness of the dam, and what bearing that might have upon the eventual project?	Yes, we currently have, ECORP has a sub-consultant, NHC, that is going to be evaluating the dam. We are just in that early stages of that process right now, and we'll be reporting on that condition.
Beth Lawson	Just wanted to ask a little bit about some of the other alternatives that were considered during the TAC process. We sort of went back and forth about the option of using cone screens at this location. Many people are probably familiar with the cone screens that are down at Pleasant Grove, and we had kind of gone back and forth after a site visit to the location about whether or not there would be adequate depth and adequate sweeping velocities for a cone screen. I think we corrected the record that the sweeping velocities are not needed, but is this an alternative that was further looked at before you got to the NOP, and has already been dismissed in consideration, or is this the type of thing that we should be submitting in our comments for further consideration?	Yeah, please submit that in your comments for further consideration. Okay yeah I would highly recommend, if there was a potential project that was discussed in the TAC, please do indicate it in comments here with the scoping meeting, email exchanges back and forth with my predecessor, it's out outside of any project record that that I am aware of unfortunately.
James Haufler	I had a question about the existing sewer pipe that runs from north Auburn through various pathways and also down Virginia Town Road, it actually crosses underneath Auburn Ravine just maybe a couple hundred yards upstream from the Hemphill Dam. And reading the sediment study, I did I become concerned that possible reformation of the creek bed upstream from the existing dam, might dig down kind of deep, so I would suggest that the ECORP team and NID double check on that just to make sure how deep that existing sewer pipe is. We were told at one point that it was going to be bored through bedrock underneath the creek bed and if that in fact was done that's probably a pretty	Yes, we did talk to Stantec about that crossing. I do have as-builts. We will actively talk to city of Lincoln with regards to that crossing.

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	good sign but if not, there might be some concern as to danger to that underground pipe	
	in the presentation this afternoon it was mentioned that the pipeline would cross overheads above Auburn Ravine . In the Initial Study, it also mentioned underground. Is underground still being considered?	Underground is still a consideration
Steve Hubbard	You said that you're going to look at the structures structural soundness of the current dam and you'd be reporting on that, and I was wondering is that reporting going to take place in the EIR documentation, or just how are you going to handle that reporting out to the public, or to groups like us?	Yeah, it will be made public I can't answer right now whether or not it'll be made public during the Draft EIR process, or if we'll make the report public ahead of time. I'm not sure honestly.
	So, if it were the latter case, then how would we go about ensuring that we're staying current with the information and the reports that you might publish on issues like this?	When they are finalized, we will release them to the public on the website.
Chris Shutes	In the past I think there's been a lot of concern expressed by NID, and others, regarding the regulatory framework in which this project would have to, would be constructed and developed. I would recommend that you be very thorough and careful about describing the regulatory setting in your CEQA document. I think in the past there has been some concerns that may not have been as warranted as some people may have thought they were. And I think it would be helpful and instructive to the public and people reading these documents to get it, to be very thorough and stepwise in your description of the regulatory setting. I will say that I'm hopeful that different entities are seeking to get this done and want to cooperate. I know that on the Lincoln fish passage project, that was accomplished a number of years ago, in the end there was a lot of regulatory cooperation that came together and that's not to say that people won't do the things that they're supposed to do, but I think a good solid description of the regulatory settings and if there are any options or paths that would be more advantageous or more efficient, if you all can lay those out in your document, I think that would help everyone.	
James Haufler	about the pipeline route. On one of the diagrams, one of the aerial maps, with the pipeline route indicated on it, it looks like there's like a double line at a certain section of Virginiatown Road, so it kind of looks to me like there's really kind of like, one route that's being considered, with one possible alternative to the route along Virginiatown Road, but I didn't understand the meaning of that. It might be that one route would go in that section of Virginiatown Road would go down Virginiatown Road like under the pavement and the other one might go through nearby property, do I have that right	Yes, that's correct.
Laura Peters	First, on alternative three, this alternative was investigated in the April 2016, Kleinschmidt Alternative Analysis. See their conclusion below from page 20 of that report.	

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	5.7, Option 6, Lincoln Canal-Auburn Ravine 1 connection, another option for providing water to the Hemphill Canal in the event of the removal of the diversion structure includes providing flow via a pipeline from nearby canals such as the Lincoln Canal-Auburn Ravine 1. While simple on paper, an extensive study would be required to ensure that the adequate flow is available in the supply canal. Current demand for the Lincoln Canal indicates that it does not currently have sufficient capacity. Modifications to expand carrying capacity in the Lincoln Canal would be needed in order to consider this a possible option. Construction of the pipeline, and the required permitting could greatly increase costs, and these would also be major factors in assessing the viability. So questions from that, have the necessary studies been completed to confirm this is a viable, feasible alternative?	
	Second question: Why wasn't this segment of property, or excuse me segment of the project, necessary to get water to the NID Placer yard, included in the alternative three project description? Then she had a comment on the Initial Study section 2-1, the last sentence regarding Alternative 3 notes that in quotes "so those parts of the pipeline west of Virginiatown Road are actually in the City" end quote. Virginiatown Road runs east to west. Do you mean west of Fowler Road, please clarify?	And we talked a little bit about this before the meeting. Just to clarify that comment. Yes, Virginiatown Road does run east to west, but then it makes a turn going north to south. And so that area west, is actually within the City of Lincoln.
	Page 2-10, the second paragraph notes that historically NID's goal is to keep the customer whole. With modifications, projects such as these. Questions: How does this alternative propose provide access to the ravines to facilitate pump accounts for existing customers not adjacent to it?	And that's something we'll look at in the Draft EIR.
	Page 4-35, the first paragraph states that additionally, implementation of Alternative-3 would result in the diversion of creek water at NID Placer yard on Gold Hill Road. Note that the creek is not adjacent to NID Placer yard, thus it would not be direct diversion. What is the proposed alignment from the creek to the Placer yard?	So, in the description earlier we're going to be diverting the water, not from the creek in the Placer yard, rather Auburn Ravine-1, most likely, in the Placer yard, if that project goes forward to design. The impacts to the diversion point, we said that we would look at that in the Draft EIR, during this meeting.
	The impact of the diversion point as well as the selected alignment proposed to transport the water from the creek to the Placer yard needs to be analyzed?	
James Haufler	I had a question about page 4-54. On that page, part of the Q&A, this part of the package, there's a statement made that telecommunication facilities would not be needed at that particular site. I would suggest that that be reconsidered because, whatever change is made at that site to allow for fish passage, it would be a really good idea to have some way to count the fish. And modern fish passage technologies similar to what we, Friends of Auburn Ravine, use in downtown Lincoln at the Lincoln gauging station work best when you have a combination of A/C power and telecommunication facilities. So,	

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	I'd suggest that that be changed to include that capability at that site, so you can quantify the benefits of all the work you do.	
	Question on page 2-1-3, there's a list of agency approvals, and I didn't see Placer County Flood Control on the list. I think there was another flood control agency, but not Placer County, so I won't tell them they were left off, but I'd suggest that maybe they should be involved.	
	On the page 2-1-4, of course I know this was written some time ago, there's a statement about the Placer County Conservation Program, whether as whether or not it was actually approved. But it has now been approved, so I think everybody's aware of that, but just for the record we should note that that has been approved.	
	Think about some potential impacts to the golf course. One, of course, as you guys mentioned earlier, is the size of that staging area which would be right next to the golf course. And the result in noise and potentially dust, and so forth. But then also if any of the solutions involve a pump, there might be some noise from the pump. Of course, we know that like a self-cleaning conical screen the pump is under water and there's very little noise from that but there might be other solutions that would involve noise for the golfers.	
	And if there is an overhead bridge going across there, there might be a visual impact for the golf course because one of the holes of the golf course is right near that Hemphill Canal.	
Laura Peters	My first question about the studies that were in 2016. They wanted to make sure that that we did studies to make this sure this was a viable project, this Alternative-3.	So, alternative three you were talking specifically about Lincoln Canal. We did do an internal investigation on that one, and that's something that we'll talk about in the Draft EIR. Of the alternatives not considered, we will cover that in the Draft EIR. And let's see, why wasn't this segment of a project necessary to get… So Lincoln, can you please elaborate on your question number two "why wasn't this segment of the project necessary to get water to the NID Placer yard included in the Alternative-3 project descriptions"? Are you talking about the Auburn Ravine-1 or Auburn Ravine Natural
	The Auburn Ravine-1, in the 2016 document, they spoke about both either the Lincoln Canal or AR1 and they said "while an extensive study would have to be required…" well when, in this particular Initial Study, it said the boundary of the project began at Placer yard, but most of the impacts are at the diversion to get water out of the creek and to the Placer yard. But that does not seem to be part of the project description. And so, I'm	And as part of the Draft EIR, we will look at the impacts.

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	wondering, why we didn't start at the beginning of the project? In order to meet the objective of the problem we would need to get water into that pipeline that we're going to start from the Placer Yard.	
	So, you'll expand the boundary of the project, of that alternative, I mean	Well, it's looking at the impacts that that project potentially causes, so yes, we'll investigate whatever impacts that we need to.
	And I would just like to make sure that the project starts where the water starts. That's my point.	We will investigate all the impacts including impacts upstream of the actual physical construction of the project, so that means looking at impacts at the Gold Hill diversion.
	And that should be included in the alternative boundary?	That will be discussed in the Draft EIR.
James Haufler	I'm referring now to the sediment study, sediment transport study done by Balanced Hydraulics, Hydrologics I should say. They mentioned in there that they didn't have access to year-round flow data, just because mainly Nevada Irrigation District keeps data on irrigation season flows, but not Wintertime flows. I'd like to point out that the Lincoln wastewater treatment plant west of Lincoln does collect data all year long, because they need that data for their mix ratios when they discharge water into Auburn Ravine down there west of Lincoln so there's a good potential source of data there, it doesn't go back decades because that facility is not quite that old but it would give some better information. That being said the estimates that I saw in the sediment transport study looked to me to be pretty reasonable, they did a pretty good analysis of the catchment area, you might say the area of the watershed that flows into Auburn Ravine, and took into account the rain events that we do have. We need to always remember that Auburn Ravine can go from six cubic feet per second at Lincoln, up to 600 overnight. If you get two to three inches of rain in two to three days it's going at least 600 cfs at Lincoln, which is very similar to what would be at Hemphill just a mile and a half upstream.	
	You know in reading the sediment study, they talked about various alternatives for how to deal with the sediment. And they talked about the idea of reducing the seal of the dam down two feet, maybe five feet, maybe first two feet, then five feet before eventual, total removal, that sort of thing. They also talked about what they call, sediment management, where they describe the idea that they would actually dig a new channel for the creek upstream from the dam, removing eight thousand cubic feet of material, so as to produce a new, smooth, continuous gentle slope all the way from the upstream end of that new channel, down to the Hemphill Dam. That has some charm to it, but obviously very expensive option. But one of the good things about that is it avoids a situation you get sometimes when you remove a dam and there's a whole bunch of sediment, you get a	

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	situation where over a period of time there's a break what I call "the Niagara Falls problem", where you get a drop as the creek eats away at that sediment, you'll have a precipitous point where it's almost like a, you know, a 90 degree angle where the creek goes over, falls down four or five feet, in this case, maybe a little bit more, and then proceeds on downstream, and then gradually that break point moves upstream as the creek eats away at the sediment. So that's something I think should be considered. The sediment study didn't talk about fish passage. They said that right up front. But some of the sediment, some of the design alternatives, would result in potential sediment behavior, that could create a new fish passage impediment for some period of years upstream from the dam, as that break point moves back upstream until the channel is totally reformed. So just a suggestion there for something to consider.	
Gary Mapa	Is there data available, or will there be data available, applicable to how many new customers you'd have to acquire along that pipeline to justify that expense? And what effort being put out forward to market, to get confirmation from individuals that genuinely want water service. I look at cost and return, and how long does it take to recapture. I know in Penn Valley they've got a water system that I think a hookup fee approaches almost 30 grand. So how these people are going to reimburse for the installation of ...What kind of reimbursement is going to be set up to compensate NID and the ratepayers for the installation of a six to eight million dollar pipeline? Right, but I would like it to be looked into because if you can't afford to do it, it shouldn't even be a consideration?	Okay that's, yeah that's not something we could look into that's not a question we can address right now. Yes, understood, and part of, or the separate from the CEQA process, we are going to be doing an investigation of the potential costs for each alternative, and we will be reporting on that.
James Haufler	I think I might have misspoke when I was talking about the sediment transport management plan where the new channel will be dug upstream from the dam I think I said 8 000 cubic feet I meant to say 8 000 cubic yards. okay so I just wanted to correct myself	
Jack Sanchez	In Auburn Ravine, when you take this large amount of water out, and put it in a pipe, no aquatic (inaudible) survive in a pipe, and there should be some relationship established by NID to cover that. And secondly, when you take water out of the Auburn Ravine and send it down pipe, you're doing is minimizing the groundwater recharge for which Camp Far West dam was built. Because it's a necessity to increase the groundwater recharge in the Sacramento Valley. Has NID considered either these, or do you have plans to consider the effect of the pipeline on aquatic life, and the weakening of groundwater recharge?	I understood it to be, "are we going to look at the impact of aquatic life by putting water into a pipeline, and then if we were going to look at groundwater recharge. Yeah we'll investigate the impacts in the draft document. If I misunderstood your question, please, definitely submit it in writing, because I had a bunch of feedback.
James Haufler	Just two items the public review period mentioned in the Notice of Preparation that we got, the two-page document said September 3rd through October 2nd. But then I think I heard you say through October 5th today, so I want to make sure which one it was.	It's October 5th, Monday.

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	The other thing regarding the potential decommissioning of the Hemphill Canal of course, in that diagram that you showed earlier, the Hemphill Canal goes from Hemphill dam, you know out across, what's now called, Village One within the City of Lincoln, and then eventually gets over towards Sun City-Lincoln Hills where it goes underground. But then it does come up above ground and actually flows into Orchard Creek, and Orchard Creek flows out near the casino, the Thunder Valley Casino, and serves the black angus rancher out there. Another thing about Orchard Creek is that when the casino was put in, there were special provisions made to provide nesting sites for a particular type of swallow. So, if the water into Orchard Creek was reduced dramatically by decommissioning the canal, that might have an impact on the swallows as well. So just something to watch out for on that particular alternative.	
	I just have a little bit of good news to report. You know we operate our one overhead camera, and three underwater cameras in Auburn Ravine, right near downtown Lincoln. In fact, at the Lincoln gauging station. Thank you very much to NID for letting us do that since the fall of 2016. And we have the good news to report that for the 2019-2020 season, in other words October 2019 through April 2020, we've so far counted over 60, 6-0, 60 fall run chinook salmon right there going through Lincoln. So that's a pretty good number that matches up with some numbers we've had in some years over the past, you know, six or eight years. It's a little low compared to our top year. Our top year was the 2016-2017 season when we had 302 come through Lincoln. There was another year when it was about 200, that's based on Cal Fish and Wildlife estimate, based on counting reds, and then we had some other years, one was like 25, a couple of years around 60. So we're pretty happy, really, that we got 60 this season, because if you count back four years, that was the middle of the drought. Bad ocean conditions, bad river conditions, here we are four years later with pretty good returns at the midpoint of the typical life cycle, anywhere from three to five years. And we'll be putting the salmon cameras back in the creek on October 15, and hoping for a lot of rain this season.	
Moore, Fowler Nursery	Why is part of the considered pipeline along Virginiatown Road on private property?	That's something that we wanted to explore for the purposes of cost savings. Generally, it's more cost effective to construct in the dirt, because we don't have the pavement restoration required.
	Will the reduced flows affect the current user farms?	I believe you're talking about the Alternative-four. If we eliminated the service, we will investigate that impact in the Draft EIR. If that's not your question, please expand on it so we can capture that in the Draft EIR.

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
	Will agricultural impacts be considered in the EIR?"	The agricultural impacts were actually all considered less than significant in the Initial Study. However, if people do think that's wrong, they can make comments on it, we can re-evaluate it in the EIR, if it's that way.
		To expand on that a bit, the issues that you were just talking about largely relate to a project's effect on the conversion of prime ag land. Direct conversion through the creation or construction of a project. I think the issue that the commenter was referring to is, will the effect of the project on water supply delivered to existing customers, result in a loss of the use of existing farmland, and that's kind of a separate issue in terms of water supply and we will be looking at the impact of the project on water supply and that could affect agricultural users as well.
	"It's nice to know that a sixth generation farm, 108-year old, agricultural business, and the largest ag producer of Placer County, is less significant"	
	They also expanded to say you might want to actually talk to a farmer to discuss what the land is used for, look into crop rotation.	
Ricki Heck	Did I understand the consultant to say the impacts to the ag/raw water were not part of the Draft EIR unless someone asked that to be included? Seems like it should be included.	I think Mike probably addressed that with the clarification from Rick, potential impacts on water supply that may impact agricultural uses. That is included in the scope of the EIR as currently proposed.
James Haufler	I think this project will have some effect on how and where, could have impact on how and where, Nevada Irrigation District delivers water. But it would not have an impact on how and where PCWA delivers water, is that correct?	That is correct
	It's my understanding that Nevada Irrigation District, at the present time, at least for the last few years, doesn't deliver any water via Auburn Ravine downstream from Hemphill dam. Is that correct?	I'm not aware of any but, we can we'll follow up and look into that and make sure we include that in the comments.
	I'm pretty sure that it's entirely PCWA water anywhere west of Hemphill dam, downstream of Hemphill dam. That water that's delivered to farmers and ranchers down there comes from PCWA, And nothing on this discussion relates to PCWA changing their plans. They may have some plans to make some changes, but I sure haven't heard of them.	

Table 1.0-1 Scoping Meeting Comments and Responses

Name of Commenter - Affiliation	Comment or Question:	Response
D. Moore	"You're missing speaking with the farmer. You can call Fowler Nursery and ask for D. Moore to discuss I would be more than happy to tell you about our less-than-significant operations.	When we talk about projects and the impacts, we're looking at the impacts of our construction of the project, to the particular checklist items in the Initial Study. It's not to say that your operation is less-than-significant. It's that our particular project would not have an effect, or less-than-significant effect, on that particular identified checklist item.
Laura Peters	"How will the pipeline alternative affect future groundwater replenishment as part of the west Placer GSA, as a participant in the west Placer GSA.	Groundwater recharge is looked at under hydrology. Which is a full section in the EIR, and we'll look at that as well as, not just stream flow, but also groundwater recharge, and the water supply area. We'll look at groundwater use as well because if these Hemphill Canal users no longer get water from that, we have to determine where they're going to possibly get water from. And a lot of it could be from groundwater, so we'll look at that as well.
James Haufler:	Regarding the water diversion at Hemphill dam as it presently stands, that water flows into the Hemphill Canal, and serves various customers along that canal. Lincoln Crossing Community Association, a couple of golf courses, the Black Angus farmer out there by the casino, maybe some other folks I'm unaware of. Upstream from there, upstream from Hemphill dam is where Fowler Nursery is. So, I would think that NID would still have the option to continue to send enough water down Auburn Ravine to where Fowler Nursery, right by Fowler Road, where they are, so they still could get their water is that correct?	I don't know Jim, what the Fowler Nursery, where they receive the water, because there's also a canal that runs through portions of their property. So, I can't specifically answer to that, as to where they get their water. But obviously that water that would be delivered to them, should they be taking it from Auburn Ravine, would be taken prior to the Hemphill Diversion, so I would assume that that water would continue to flow to them if they have some type of account in the ravine itself.
Tony Frayji	Do you know if the raw water flow in the Hemphill Canal that goes through 193 and Village-one will be changed at all, or should we assume the same flow will continue after this is constructed?	If you're talking about alternative for the abandonment of the canal, it does have the potential to affect the customers. We have to investigate alternative ways to supply raw water to our customers. The other alternatives that are proposed would continue to make deliveries to our existing customers on the Hemphill Canal.

NID also received a total of 10 written comment letters on the NOP/Initial Study. These comments were considered during preparation of the EIR and a generalized summary of the written comments are shown in Table 1.0-2 below. The NOP and comments received from interested parties and agencies are presented in **Appendix 1.0-A2**.

Table 1.0-2. List of NOP Comment Letters and Summary of Comments

Interested Party/Agency	Date	Summary of Comment(s)
Nancy Gonzalez-Lopez, NAHC	9/2/2020	The commenter discusses the Native American Heritage Commissions responsibilities and recommends that a consultation with California Native American tribes should be completed pursuant to AB 52 and SB 18. The letter provides information on the requirements of AB 52 and SB 18.
James Haufler, Friends of Auburn Ravine	9/13/2020	The commenter provides a number of goals should be addressed as part of the Hemphill diversion structure project. These include: • Provide for continued delivery of untreated water to existing NID's customers with the potential to increase capacity as needed, • Minimize the risk of unplanned interruptions, • Avoid unnecessary negative impacts to NID's financial position, • Provide unimpeded passage for steelhead and salmon, • Prevent entrainment of juvenile salmonids, • Avoid adverse impacts on other important aspects and functions related to the Auburn Ravine watershed, • Conform to relevant state and federal regulatory requirements, and • Complete the project by mid-October 2022.
Tom Beattie SARSAS	9/17/2020	The commenter forwarded a letter written to the Nevada Irrigation District Business Center by SARSAS (Save Auburn Ravine Salmon and Steelhead) Inc. on August 6, 2020. The forwarded letter requests that NID resume the Technical Advisory Committee (TAC) meetings as they provide useful information and insights by citizen groups and private individuals concerned with the obstruction to fish migrations at the Hemphill dam. Of note: while this letter was forwarded to NID during the Initial Study public review period, this letter was written prior to issuance of the NOP and initial Study and therefore could not have provided any comments or concerns with the Initial Study.
Scott Johnson	9/23/2020	The commenter urges that NID Board of Directors adopt Alternative 2, including an in-stream "riffle and pool" system.
Greg Hendricks, Central Valley RWQCB	9/28/2020	The commenter discusses the Board's responsibilities regarding the Basin Plan and requirements of the Basin Plan. States that the EIR should evaluate potential impacts to surface and ground water quality per the Antidegradation Implementation Policy. Discusses permitting requirements including: the Construction Storm Water General Permit, the Phase I and II Municipal Separate Storm Sewer System (MS4) Permits, the Industrial Storm Water General Permit, the Clean Water Act Section 404 Permit, the Clean Water Act Section 401 Permit, the Waste Discharge Requirements, the Dewatering Permit, Limited Threat General NPDES Permit, and the NPDES Permit.
Kelley Barker, CDFW	10/1/2020	The commenter identifies that CDFW is a Trustee Agency and Responsible Agency. Identifies that the project may be subject to CDFW's lake and streambed alteration regulatory authority. To enable CDFW staff to adequately review and comment on the Project, the EIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. The comment identifies five specific areas of analysis which should be included in the biological assessment. Additionally, the EIR should provide a thorough discussion of the Project's potential direct, indirect, and cumulative impacts on biological resources. The comment letter provides suggestions for analysis for each alternative such as: Alternative 1, include potential sedimentation or scour with implementation of infiltration galley; Alternative 2, analysis of existing bypass flows and sufficiency of flow for upstream fish passage; Alternative 3, analyze the impacts to juvenile salmonids and resident fish populations due to the reduction in flows within Auburn Ravine also include a fish screen at the Gold Hill diversion; and Alternative 4, analyze the impacts of unscreened diversions multiple new pump systems. Identify rational for selecting alternatives and discuss which additional alternatives were not chosen. The commenter discusses the Placer County Conservation Program (PCCP) and states that it is soon to be adopted and as such the EIR should discuss any inconsistencies and benefits between the project and the

Table 1.0-2. List of NOP Comment Letters and Summary of Comments

Interested Party/Agency	Date	Summary of Comment(s)
		PCCP. Finally, the commenter provides recommendations for possible biological mitigation measures.
Laura L. Peters	No date	Have the necessary studies been completed to confirm that Alternative 3 is a viable and feasible alternative as there may not be enough water available in either the Lincoln canal or Auburn Ravine 1 canal? Why wasn't the segment of the project necessary to get water to the NID Placer Yard included in the Alternative 3 project description? How does Alternative 3 propose to provide access to the ravine to facilitate pump accounts for existing customers not adjacent to it? What is the proposed alignment from the creek to the Placer Yard? The impacts at the diversion point, as well as to the selected alignment proposed to transport the water from the creek to the Placer Yard, need to be analyzed.
Leigh Chavez, County of Placer	10/2/2020	The EIR should address any proposed project phasing. The Placer County Flood Control and Water Conservation District should be included as responsible agencies. For Alternatives 1 and 2: the EIR should address whether the proposed project is within existing NID easements on the northeastern portion of the project boundary, the EIR should evaluate the grading required for all proposed alternatives, both on and off site, including waterline installation, the EIR should include a preliminary grading plan, the EIR should indicate that either a Grading Permit and/or Improvement Plans/Encroachment Permit will be required, the EIR should discuss if the existing access road from Virginiatown Road will be improved or relocated, and the EIR should address that Placer County General Plan policy prohibits developing within a flood zone and policy states that the County shall attempt to maintain natural conditions within the 100-year floodplain of all rivers and streams. For Alternative 3: impacts to County roads, both during and after construction, should be discussed in the EIR and appropriate mitigations included, requirement of an encroachment permit should be included, moratorium on pavement cutes on Virginiatown Road should be included, identify and discuss any impacts to the wetland culvert crossings, discuss the potential impacts to any existing utilities within the roadways, the potential to place structures and/or improvements within a 100-year Special Flood Hazard Area (SFHA), the potential to modify a 100-year SFHA as mapped on FEMA FIRMs, list FEMA in Section 2.2.1 of the initial study under other public agencies. Revision to the PCCP discussion and Section 4.4.2(f) of the initial study updating the information provided in the initial study. The commenter also provides a consistency discussion with the PCCP and provides sections of the PCCP that should be referred to in the development of the EIR.
Cathy Marcinkevage, NMFS	10/5/2020	NMFS recommends all proposed alternatives meet the 2011 NMFS Anadromous Salmonid Passage Facility Design guidelines. Comments on Alternative 1: the commenter states that an improperly sited riverbank infiltration gallery may result in habitat impacts and as such, the site proposed for an infiltration gallery must follow the experimental process described in section 16 of the 2011 Anadromous Salmonid Passage Facility Design document. Given the geologic conditions along Auburn Ravine, and the observed sediment accumulation, plugging of the infiltration gallery is considered likely. NMFS recommends the EIR include a design report addressing limitations mentioned in the comment letter and an Operation and Maintenance plan demonstrating the backwashing capability of the system to prevent clogging of the infiltration pipes for operation of the gallery under a variety of environmental conditions, the full range of water diversion operations, and the procedures for periodic inspection and maintenance required to achieve fish screening effectiveness over the life of the facility. Comments on Alternative 2: NMFS encourages continued consideration of a passage solution looking at existing successful facilities, such as NID's Lincoln gauging station just downstream from Highway 65. This technology, coupled with fish screening at the diversion, could be a viable option for safe, timely and effective fish passage.

Table 1.0-2. List of NOP Comment Letters and Summary of Comments

Interested Party/Agency	Date	Summary of Comment(s)
		Comments on Alternative 3: this alternative would reduce flows within the 6.25 mile section from Gold Hill Dam to Hemphill Dam during the irrigation season from April 15 to October 15, potentially causing an effect on water temperatures. Reductions in flow may result in severe adverse habitat impacts and loss of habitat access due to poor flows, increased temperatures, and degraded water quality. NMFS recommends functional flows at a minimum of what is currently provided be continued if this alternative is selected to support salmonid populations. NMFS requests an in-depth analysis of this alternative to determine potential changes to water quality impacts to determine if the proposed alternative will affect flow conditions for salmonids. Comments on Alternative 4: NMFS recommends all pump systems meet the current NMFS Anadromous Fish Passage Facility Design guidelines for fish screens. NMFS also request a list of all potential parcels NID water would be delivered to, their location on Auburn Ravine, their respective diversion withdrawal rates, and any future construction activities that may be associated with developing those diversions.
Traci Sheehan Van Thull, Foothill Water Network	10/5/2020	The Network is supportive of an approach and alternatives that prevent entrainment of juvenile salmonids into the Hemphill diversion The Network also recommends that the draft EIR consider a screen and other design options as part of the fish passage alternative. The Initial Study states biological potential impacts will be addressed as part of the DEIR. The DEIR should clarify the responsibilities and authorizations that will be managed through the responsible resource agencies versus the Placer County Habitat Conservation Plan and the Placer County Conservation Plan. Comments on Alternative 1: The design presented includes angular rock into the stream bank and stream bed. Both NMFS and CDFW stated that only naturally rounded river rock would be allowed to be placed in those locations due to the risk that angular rock poses for the spawning success of salmon and steelhead. The design presented in the Initial Study still has this defect. The DEIR should ground its analysis in the various sediment transport models described in the June 2020 Sediment Transport Study prepared by Balance Hydrologics for NID. The analysis must disclose the impact that sediment transport will have on the potential for failure or success of an infiltration gallery and in particular, this alternative. Additionally, the alternative's plan to leave the existing Hemphill Dam in place for one year after completion is not adequate mitigation for the potential for the clogging of the infiltration gallery with sediment. Comments on Alternative 2: The Network is concerned that the current fish ladder alternative does not address entrainment into the canal because it does not include a screen at the intake to the Hemphill Canal. The Network is also concerned that the ladder may result in high maintenance costs and intermittent failures. For both of these reasons, the Network recommends the addition of a second fish passage alternative, similar in design to the in-stream "riffle and pool" design of the fish passage facility at NID's Lincoln Gauging Station. Comments on Alternative 3: The DEIR needs to define where the water will be diverted from Auburn Ravine and specify whether that the associated water right permit will require a change in point of diversion. 4 *See* Pub. Res. Code § 21100(b)(4); CEQA Guidelines § 15126(d). The DEIR should analyze whether there is capacity in Gold Hill Canal to add the needed 12 cfs to serve existing Hemphill Canal customers. It must also evaluate the potential to add Gold Hill Canal or Hemphill Canal customers, or customers along the proposed new pipeline, and the impacts of such additions. The DEIR must evaluate whether the increased flow will increase maintenance costs for the canal and if it will increase the risk of canal failure. It must

Table 1.0-2. List of NOP Comment Letters and Summary of Comments

Interested Party/Agency	Date	Summary of Comment(s)
		evaluate any impact on the diversion point at Gold Hill Dam. The DEIR must evaluate and disclose the potential for entrainment impacts of increased flow into the unscreened AR1 diversion and propose mitigation for such impacts. An analysis of reduced flow in the reach between Gold Hill Dam and the site of the existing Hemphill Dam needs to be evaluated. The DEIR should quantify the loss of groundwater recharge because of the use of a pipeline and identify impacts to wells. The DEIR must disclose whether the pipeline would be pressurized, and if so, the pressure at which it will be maintained. It must also disclose whether a forebay will be needed. The DEIR should detail the potential range of new customers and cost. The DEIR must disclose whether NID will need to construct a bridge to support the pipeline's crossing of the creek. Comments on Alternative 4: The abandonment of the Hemphill Canal, in conjunction with the removal of the Hemphill Dam and restoration of the Auburn Ravine Creek streambed could be the most cost-effective solution for the District. The potential "pump accounts" to serve existing customers if the Hemphill canal is abandoned should be explored thoroughly. Hemphill Canal drains and eventually flows into Orchard Creek. There are endangered swallows that now feed along Orchard Creek and nest nearby. The DEIR should evaluate the impact of canal abandonment to these birds. Additional Comments: A modern fish counting system that includes telecommunication features for remote access and reporting should be installed at the site. The DEIR should evaluate options for fish counting systems that could be installed. The DEIR should analyze the potential and cumulative impacts that could be caused if there are changes in the future to imported water quantity, timing, use, and/or contributing sources in Auburn Ravine. Slope break could be an impediment to upstream passage. The DEIR should analyze the potential for the development of such a slope break. NID should add the Placer County Flood Control District to the list of agencies.

1.6.2 Draft EIR

As a result of the Initial Study analysis, comments received during the NOP scoping meeting and public review period, NID determined that the Proposed Project could have significant environmental impacts to certain environmental resources, and that an EIR should be prepared. These environmental resources include air quality, biological resources, cultural and paleontological resources, energy, geology, soils and planetological resources, greenhouse gas and climate change, hydrology and water quality, noise, tribal resources, and utilities (water supply). This Draft EIR provides this analysis.

This document constitutes the Draft EIR. The Draft EIR contains a description of the Project including the three potential Project alternatives, description of the environmental setting, identification of Project impacts for each Project alternative, and feasible mitigation measures for impacts found to be significant. Upon completion of the Draft EIR, NID 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, NID will provide public notice of the availability of the Draft EIR for public review and invite comment from the general public, agencies, organizations, and other interested parties. The public review and comment period is 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:

Kris Stepanian, Board Secretary
Nevada Irrigation District
1036 West Main Street
Grass Valley, California 95945

Comments may also be sent to Ms. Stepanian via e-mail at: stepaniank@nidwater.com.

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 Draft EIR, if necessary. The Draft EIR, as revised and combined with responses to comments, will constitute the Final EIR.

1.6.5 Certification of the EIR/Project Consideration

The NID Board of Directors (Board) will review and consider the FEIR. If the Board finds that the FEIR is "adequate and complete," the Board may certify the FEIR. Additionally, upon review and consideration of the FEIR, the Board may take action to approve, revise, or reject the Proposed Project. Any decision to approve the Project would be accompanied by written findings in accordance with CEQA Guidelines Section 15091 and Section 15093. A Mitigation Monitoring and Reporting Program (MMRP), as described below, must also be adopted for mitigation measures that have been incorporated into or imposed on 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.

1.6.6 Mitigation Monitoring and Reporting Program

CEQA Section 21081.6(a) requires lead agencies to adopt an MMRP to describe measures that will be adopted and made a condition of Project approval in order to mitigate or avoid significant effects on the environment. The specific reporting or monitoring program required by CEQA is not required to be included in the EIR; however, it must be presented to the NID Board of Directors for adoption.

Throughout the EIR, mitigation measures for potentially-significant environmental impacts have been clearly identified and presented in language that will facilitate establishment of an MMRP. Any mitigation measures adopted by the Board as conditions for approval of the Project will be included in an MMRP to ensure enforceability and verify compliance.

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Section 2.0
Project Description

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION, SURROUNDING LAND USES, AND SETTING

Located in Placer County, just east of the City of Lincoln, the Hemphill Diversion structure is located within Auburn Ravine (Ravine).

The structure diverts water from Auburn Ravine into the Hemphill Canal located south of the Ravine for delivery to Nevada Irrigation District (NID) raw-water customers. The Hemphill Diversion Structure is located in Section 13, Township 12 North, and Range 6 West (Mount Diablo Base and Meridian) of the "Lincoln" 7.5-minute quadrangle (Figure 2-1. *Regional Location* and Figure 2-2. *Site Location*). The structure is located at latitude 38.896731˚ and longitude -121.251885˚.

Hemphill Diversion has historically presented an impediment to the passage of migrating anadromous fish species that spawn in Auburn Ravine upstream of the diversion. NID is considering three alternatives to eliminate this impediment while still maintaining water deliveries to customers served by Hemphill Canal. These three alternatives, briefly described below, include:

- *Alternative 1 - Riverbank Infiltration Gallery Alternative*: Includes the removal of the diversion structure, site stabilization, and construction of a subterranean riverbank infiltration structure and pipeline connection to Hemphill Canal.
- *Alternative 2 - Fish Passage Alternative:* Includes the removal of the diversion structure, site stabilization, construction of a nature-like roughen rock ramp instream fish passage, installation of a fish screen and improvements to a portion of the Hemphill Canal.
- *Alternative 3 - Pipeline Alternative:* Includes the removal of the diversion structure, site stabilization, and installation of the majority of the pipeline within roadway right-of-way (ROW) from the NID Placer Yard facility to the Hemphill Canal near the existing diversion structure.

A detailed description of each alternative is provided in Section 2.4

The area in which the three alternatives are located is relatively flat, with elevations ranging from 196 to 450 feet above mean sea level (AMSL). Auburn Ravine at this location is a perennial stream with a cobbly/rocky/sandy bottom in an incised channel that averages approximately 100 feet in width. When the Hemphill Diversion flashboards are in place during spring and summer, the stream is impounded to form a slack pond behind the diversion structure. The stream supports a band of riparian vegetation dominated by narrow-leaved willow (*Salix exigua* var. *exigua*) and red alder (*Alnus rubra*) below the ordinary high-water mark (OHWM). Incising of the channel has resulted in the stream being mostly isolated from its historic floodplain.

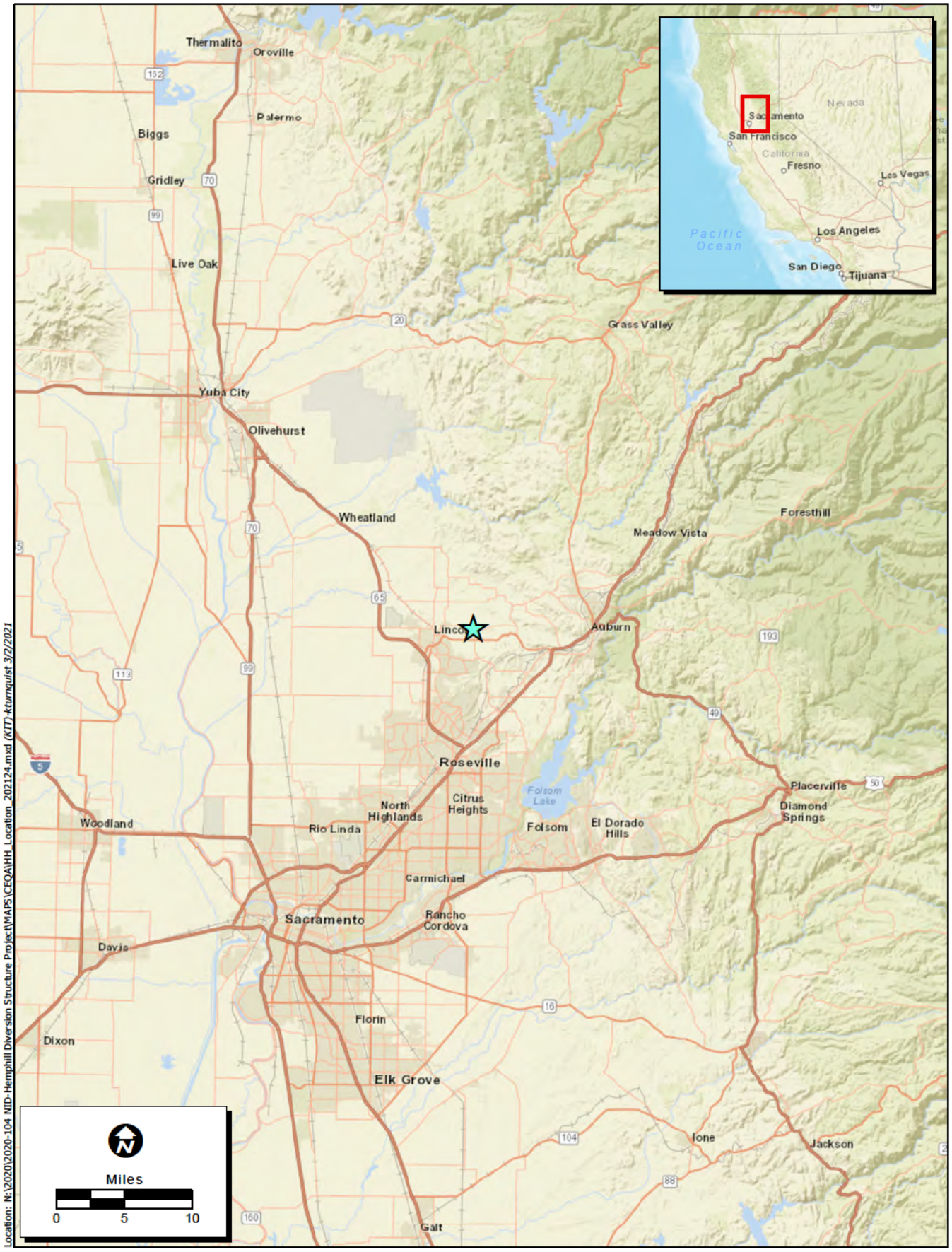

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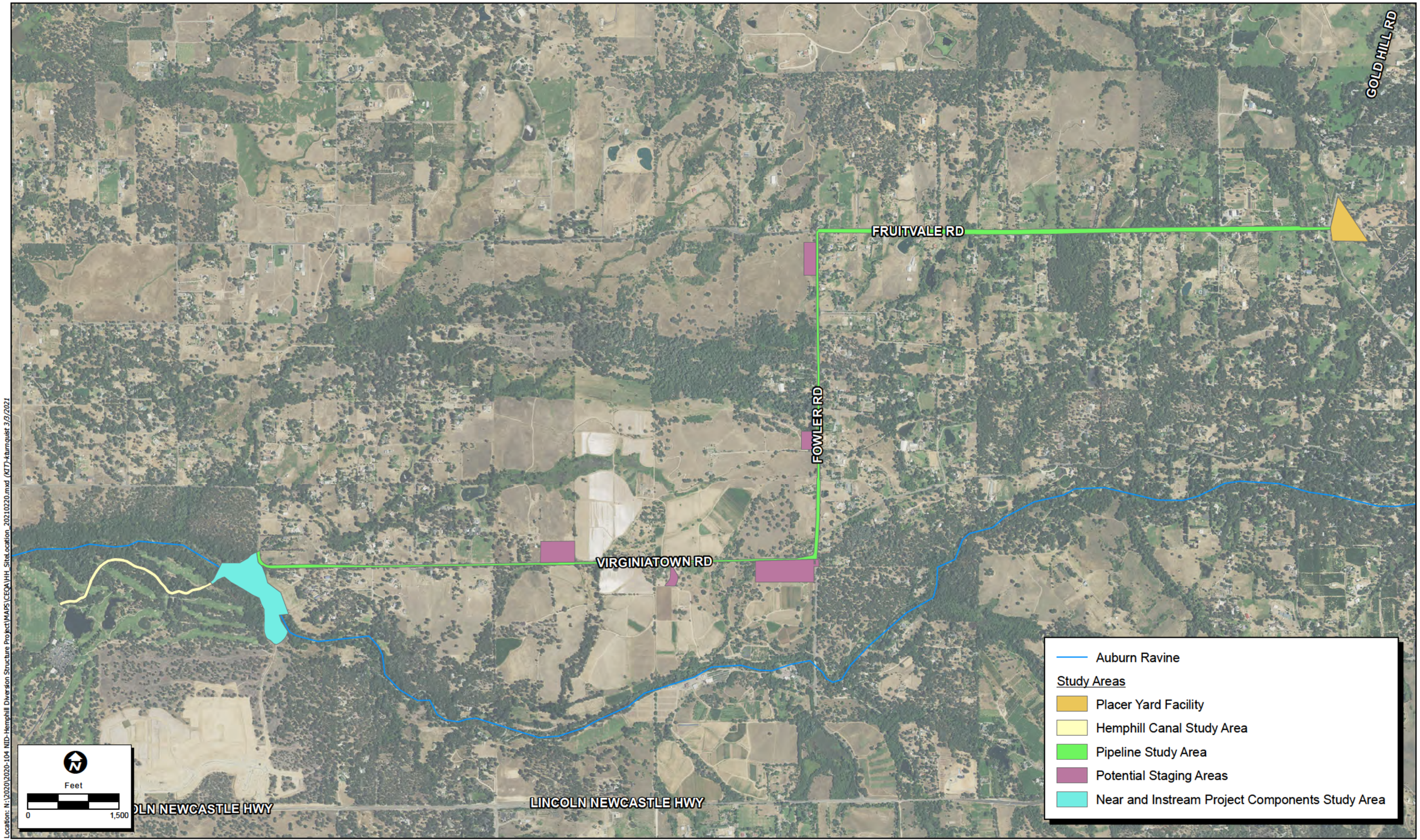
Figure 2-1. Regional Location

2020-104 NID Hemphill Diversion Structure Project



Map Date: 3/3/2021
Photo Source: NAIP 2020

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Figure 2-2. Site Location

2020-104 NID Hemphill Diversion Structure Project

Auburn Ravine

The Hemphill Diversion structure diverts water from Auburn Ravine. The headwaters of Auburn Ravine are located just north of the City of Auburn at an elevation of approximately 1,600 feet AMSL. Auburn Ravine emerges from the Sierra Nevada foothills as it flows west through the City of Lincoln to its confluence with the East Side Canal near Natomas. The East Side Canal flows into the Cross Canal, which joins the Sacramento River immediately downstream of the confluence of the Feather and Sacramento rivers near Verona. Auburn Ravine, which drains approximately 79 square miles, has a change in elevation from 1,600 to 30 feet AMSL. See Figure 2-3. *Auburn Ravine Watershed*.

The stream flows through the middle of the City of Auburn, where it is channelized, contained in a highly restricted natural channel, and passes through a variety of culverts. The land adjacent to this portion of the watershed is highly urbanized. Immediately west of the City of Auburn, the character of the channel changes, adjacent land uses change, and water from various sources is added to the channel. From the western edge of the City of Auburn to west of Lozanos Road, the channel is high gradient, incised in a narrow canyon, and consists of a number of cascades and pool riffle complexes. The geology is a combination of basalt and granite bedrock. Adjacent land use is generally rural residential with minimal encroachment by development on the channel and floodplain. Just east of Gold Hill Road, the channel gradient decreases to approximately two percent and the channel becomes dominated by pools, runs, and riffles. Channel substrate is dominated by various-sized gravels and coarse sediment. These habitats continue downstream into the City of Lincoln. Within Lincoln city limits, the channel transitions from a pool/riffle channel with numerous gravel and cobble bars to a sand-bottomed, low-gradient stream. The stream retains this channel type downstream to its confluence with the East Side Canal. In this reach, the channel varies from unconfined with full access to the floodplain to tightly constrained between immediately adjacent levees (Placer County 2002).

Water management practices in Auburn Ravine are different than most small Sierra Nevada foothill tributary streams. The Auburn Ravine watershed is relatively small and very little of the stream flow during low flow periods is from natural runoff. Water has been imported into Auburn Ravine for over 150 years. Early settlers and miners developed canal systems to bring water into the watershed for a variety of uses. Currently, water is imported into the Auburn Ravine watershed from two primary sources: the Yuba/Bear River watershed and, to a lesser degree, the American River watershed. While winter stream flows are dominated by discharges from wastewater treatment facilities and runoff from rainfall events, summer flows are dominated by irrigation water deliveries to farms, golf courses, and ranches on the valley floor. This is a unique situation for small foothill streams where the normal situation is for stream flows to gradually decline over the spring, summer, and early fall until the first rainstorms occur.

Auburn Ravine has consistent summer flow conditions in the foothills and downstream to a point well west of Lincoln. These augmented flows provide more aquatic habitat than was available historically, although summer and early fall water temperatures reach into the 75+ degrees Fahrenheit (°F) range in

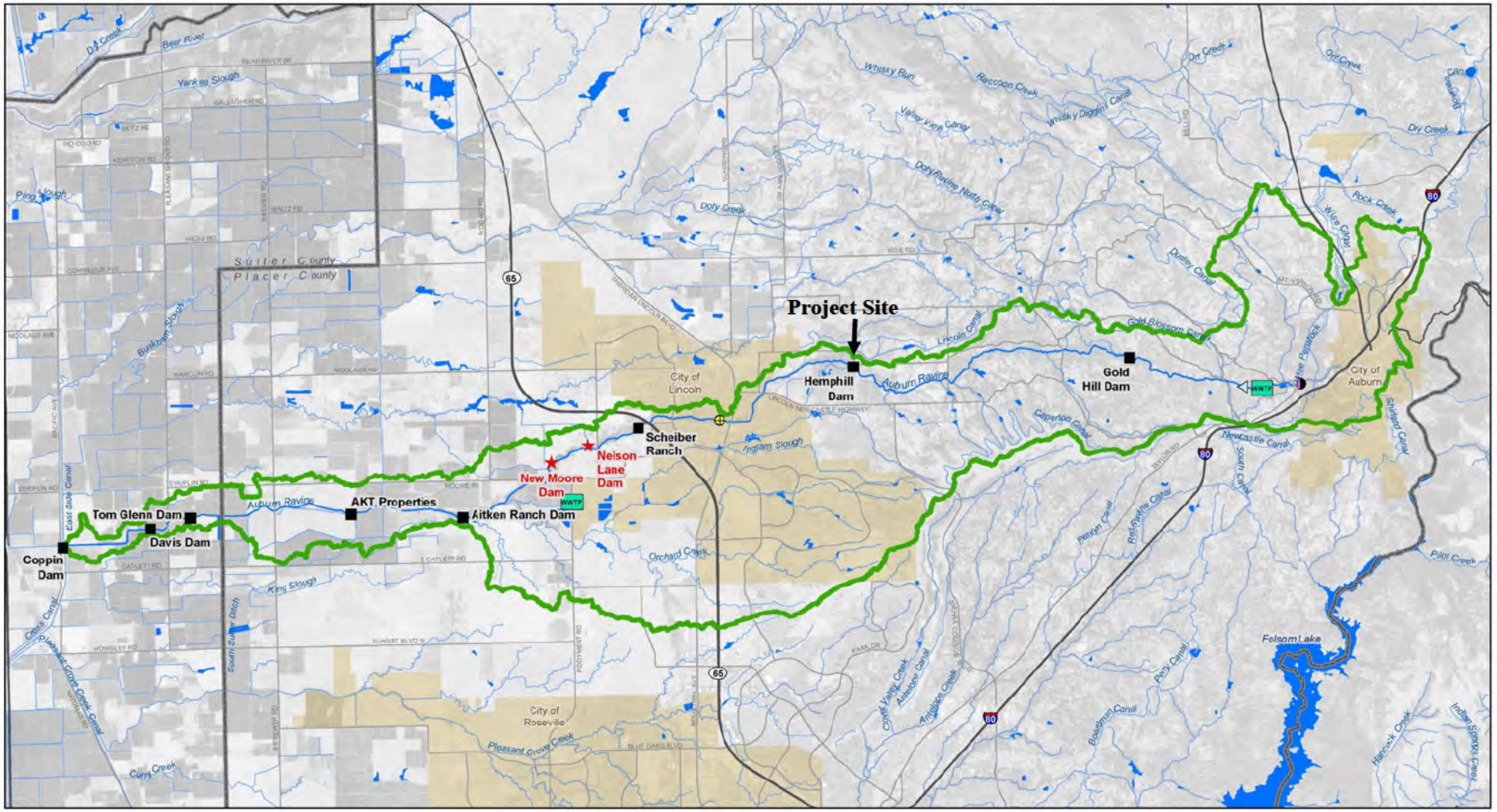

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Figure 2-3. Auburn Ravine Watershed

2020-104 Hemphill Diversion Structure Project

downstream areas. Auburn Ravine's winter flow peaks can range from a few hundred cubic feet per second (cfs[1]) to an estimated 100-year flow event exceeding 17,000 cfs (Placer County 2020).

The critical low-flow period generally occurs in October, when irrigation season ends and flows from imported sources greatly diminish or cease. Flows during this period (generally early October, until winter rains are sufficient to generate additional natural stream flow) are often only a few cfs, which causes a substantial decrease in aquatic habitat in the low-gradient portions of the Auburn Ravine watershed. In Auburn Ravine, this situation occurs from near Joiner Parkway in Lincoln, downstream to its confluence with the East Side Canal. With a flow of only 1 to 2 cfs, the wetted channel is much narrower than normal and often covered with only a few inches of water (Placer County 2002).

Given the natural hydrology of the Auburn Ravine watershed (i.e., natural water flows generated by fall/winter/spring rainfall events with summer/early fall flows historically very limited or zero) water management practices are the single most important factor influencing the water dependent resources that use the Ravine. The use of Auburn Ravine to convey irrigation water to the western and southeastern side of Placer and Sutter counties, respectively, creates unique summertime habitats not found in other foothill locations. (Placer County 2002).

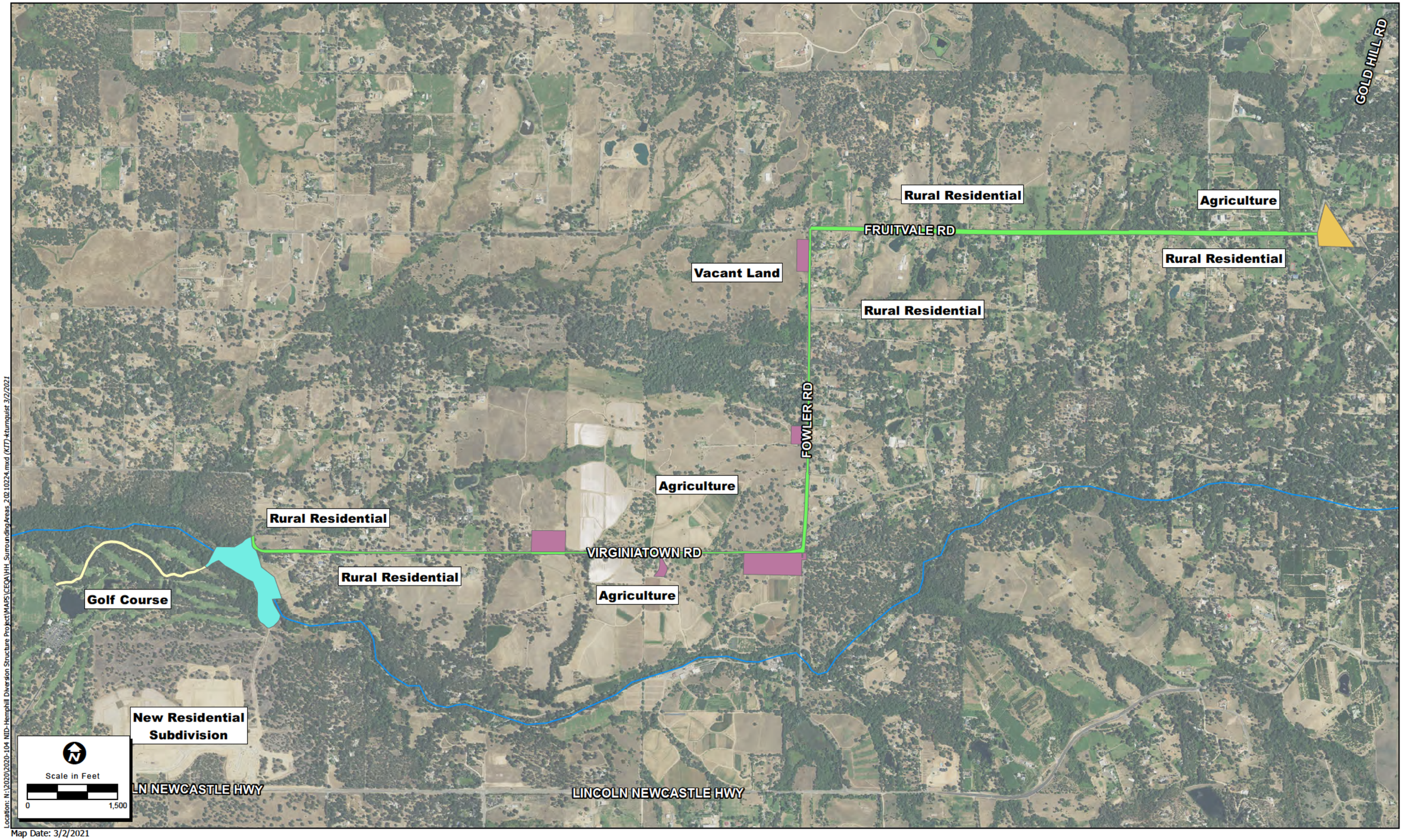
Surrounding Land Uses

As noted, NID is considering three alternatives for construction. Alternatives 1 (Riverbank Infiltration Gallery) and 2 (Fish Passage) would replace the existing diversion structure with new facilities in roughly the same location as the Hemphill Diversion. This area is bounded by Turkey Creek Golf Course to the southwest, undeveloped land to the northwest, and rural residential and agricultural uses to the east and northeast. The Lincoln Newcastle Highway (State Route [SR] 193) is located approximately 0.7 mile south of the Project site, while Virginiatown Road is located 250 feet north of the Diversion. See Figure 2-4.

Surrounding Uses.

Alternative 3 (Pipeline) would demolish and remove the existing diversion structure and construct a new water line within existing roadways to transport water from the NID Placer Yard Facility on Gold Hill Road to Hemphill Canal. Four to five feet of roadway right-of-way (ROW) would be required for pipeline trenching and potentially one lane width of roadway for repaving. Five potential staging areas have been identified along the pipeline route and are considered in this EIR. The environmental setting along these roadways is low-density rural residential development surrounded by grassland (often grazed) and agricultural fields. Grassland areas also include patches of valley oak woodland as well as other tree species. Elevations range from 196 feet AMSL at the most western portion of the Alternative 3 pipeline alignment to 450 feet AMSL at the NID Gold Hill Road Placer Yard facility. **Appendix 2.0** contains photos of various features within the Study Area.

[1] One cubic foot of water equals 7.48 gallons.



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Map Date: 3/2/2021
Photo Source: NAIP 2020

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Figure 2-4. Surrounding Uses

2020-104 NID Hemphill Diversion Structure Project

2.2 PROJECT OBJECTIVES

Project objectives are required to be provided in an EIR. CEQA Guidelines Section 15124(b) provides the reasoning for the inclusion of Project objectives. Section 15124(b) is as follows:

> (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.

The Project objectives are defined as follows:

1) Provide for passage for anadromous fish at Hemphill Diversion Structure through elimination or modification of the existing structure.
2) Provide for a project that limits operational and maintenance activities within Auburn Ravine.
3) Maintain NID's water rights (pre- and post-1914) within Auburn Ravine.
4) Continue to provide raw water deliveries via the Hemphill Canal.
5) Minimize or eliminate fish passage into Hemphill Canal.
6) Provide for a project that reduces the risk of further upstream erosion.
7) Provide a project that is economically feasible to implement, operate, and maintain.

A preliminary cost estimate of each alternative is included in **Appendix 2.0-B.**

2.3 EXISTING CONDITIONS

The Hemphill Diversion Structure has been operated by NID since its purchase in 1933. The diversion structure is an approximately eight-foot-high concrete structure, with an approximately 40-foot-long concrete apron extending downstream. The existing Diversion has been subject to damage during high flow events and has required ongoing maintenance and is currently in need of additional repairs. See discussion in **Appendix 3.8-B** *Hemphill Diversion Structure and Fish Passage Assessment*, Northwest Hydraulics Consultants Inc. (NHC), 2021. During irrigation season (mid-April through mid-October), three-foot flashboards are installed on top of the diversion structure in order to facilitate flow into the Hemphill Canal, located just upstream of the diversion structure along the south bank of Auburn Ravine. Figure 2-5. *Hemphill Diversion Features* illustrates the location of these features.

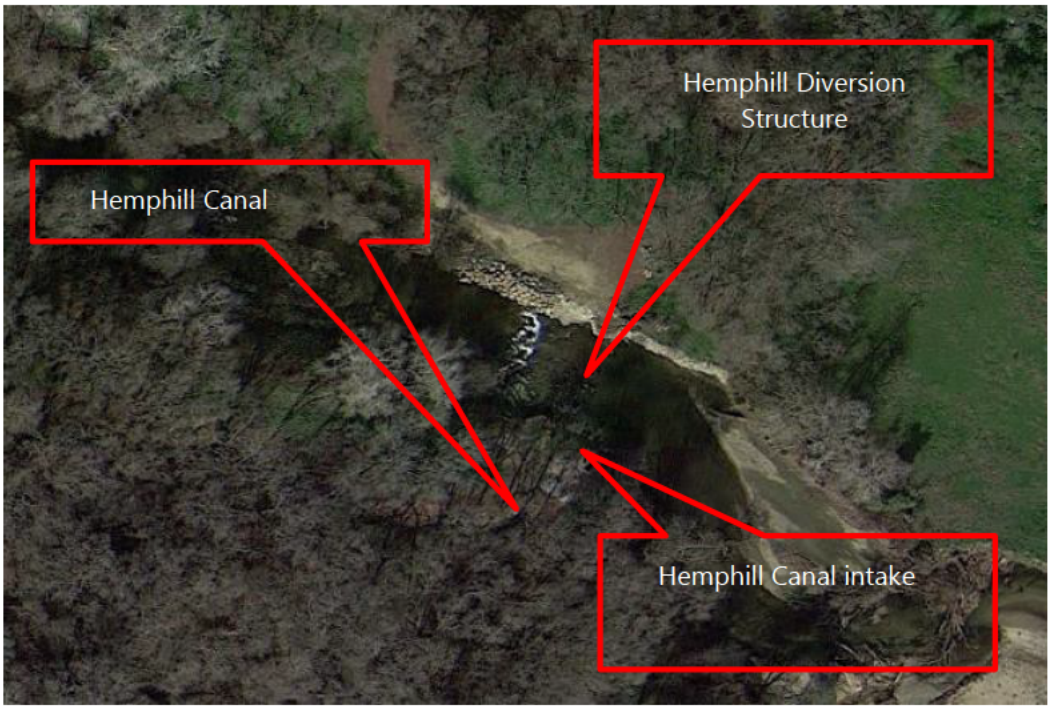


Figure 2-5. Hemphill Diversion Features

2.4 PROPOSED PROJECT

2.4.1 *Proposed Project Alternatives*

The three alternatives selected for review in this DEIR are:

Alternative 1 - Riverbank Infiltration Gallery Alternative:

Alternative 2 - Fish Passage Alternative: and

Alternative 3 - Pipeline Alternative.

Each alternative is designed to allow anadromous fish to migrate past the Hemphill Diversion Structure site. NID has not yet identified a preferred alternative. While varied in their approaches to enhancing fish passage at the Hemphill Diversion site, each Project alternative would require removal of the existing diversion structure. This process is discussed below, followed by detailed descriptions of each of the three project alternatives.

Removal of Existing Hemphill Diversion Structure (Common to all Alternatives)

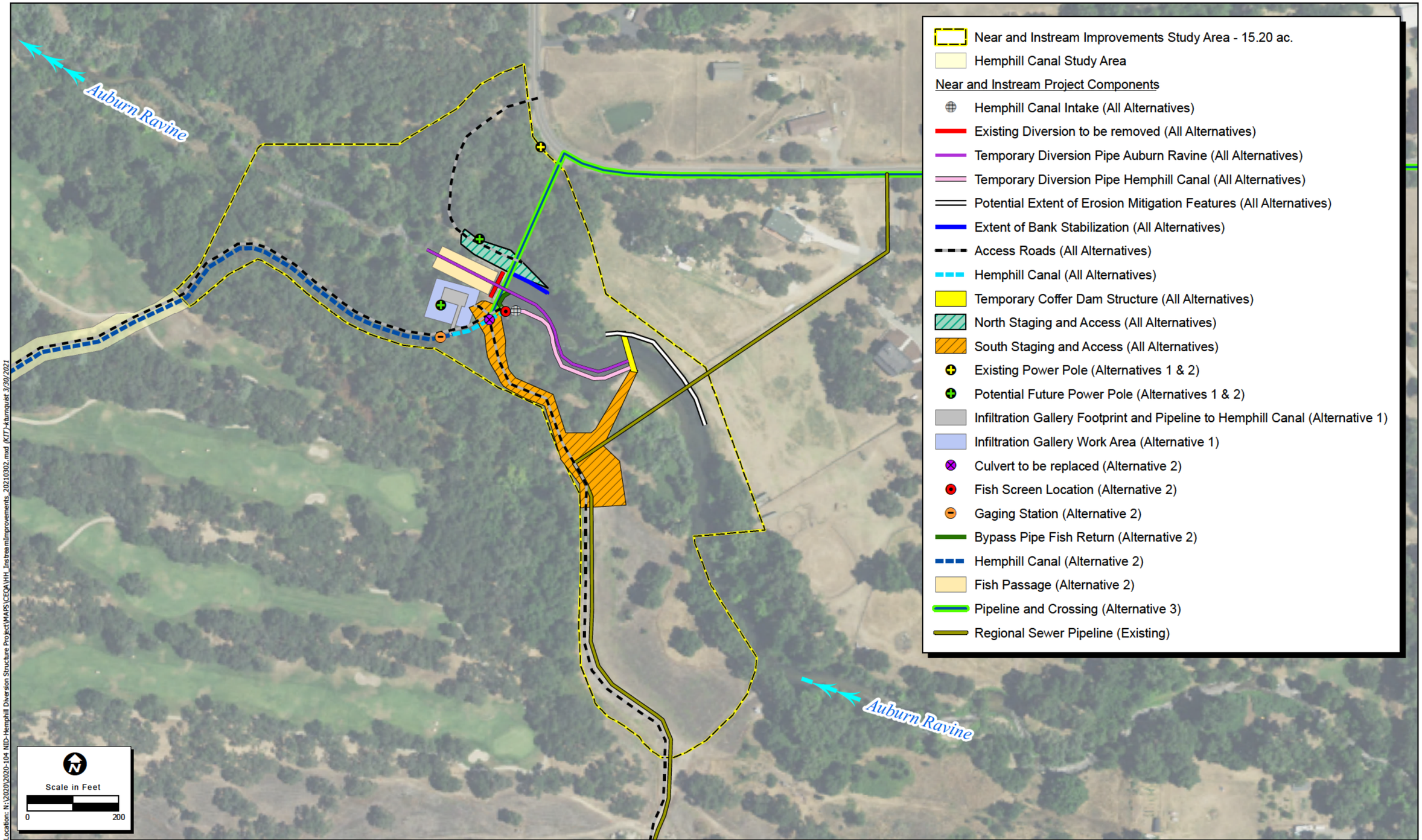
As noted, each of the three Project alternatives would require the permanent removal of the existing Hemphill Diversion as described below.

Activities associated with removal of the diversion structure would likely commence about two to four weeks prior to the in-water work window, to be defined in consultation with CDFW and NMFS to limit potential take of listed salmonids, which is anticipated to be from June 15 to October 15. The contractor would mobilize equipment to the site and prepare the staging areas and access areas by removing any

vegetation and setting up temporary erosion controls. Vegetation that requires trimming or removal to establish access roads/staging areas and identified project areas for instream and adjoining nearstream project construction would be removed during this task. Vegetation removal would focus on removing canopies and vegetation that may interfere with installation of the fish passage while leaving stumps and roots to provide erosion control over the remaining spring and winter. The contractor would haul and stockpile dewatering materials to the south staging area for use at the site. When the in-water work window opens (assumed to be June 15), the contractor would commence work installing the temporary diversion to dewater the site. Once the site was dewatered, the contractor would begin demolition of the existing diversion structure and off-hauling the debris to an approved waste facility via the northern access. At the end of the demolition and construction of any new in-stream facilities (i.e. fish passage, infiltration gallery), the contractor would remove temporary facilities from the site access and staging areas and install erosion control best management practices (BMPs).

To facilitate demolition and construction of instream improvements, a temporary diversion would be installed 100 to 300 feet upstream of the dam. The final location will be determined as part of the detailed design work that will be initiated following selection of a preferred alternative; however for purposes of this analysis, it is assumed that the coffer dam would be located approximately 300 feet upstream in the location of an existing sandbar to facilitate potential erosion control improvements upstream of the diversion. Figure 2-6, *Near and In-Stream Project Components Study Area* identifies a 15.2- acre Study Area surrounding the Hemphill Diversion that was surveyed for biological and cultural resources in support of this EIR (See **Appendix 3.3-A** for the Biological Resources Analysis). The Study Area encompasses all areas within or near Auburn Ravine subject to temporary and permanent impacts associated with implementation of all three Alternatives including construction, staging and access. It is anticipated that staging and access for installation of the coffer dam would be from the south side of the Ravine as depicted on Figure 2-6. The temporary diversion would likely consist of either a water-filled bladder dam or gravel-filled super sacks to create a temporary barrier across the channel upstream of the Project (see Figure 2-7. *Photos of Coffer Dam Alternatives*). Access would be from an existing dirt road as shown on Figure 2-6. Some limited in-channel and bank excavation may be required to help the temporary barrier seal well. The barrier would likely be five to six feet high and impound water less than one foot higher than the existing dam with flashboards. The extra water surface behind the structure would be required to push flow through two pipes: one to the existing diversion at Hemphill Canal and the other to divert remaining streamflow around the Project footprint for discharge below the improvement area as shown on Figure 2-6.

The pipes used for bypassing flow through the project site to the downstream channel during construction would be about 500 feet long and extend downstream of the project site before discharging into the channel. The pipe outlets will be protected with temporary erosion protection to protect from erosion. The pipe outlets will be located to minimize the potential for predation of fish released from the pipe. The pipes would be specified to meet NMFS standards for bypass pipe to limit potential fish injury. These standards include using bypass pipes with smooth surfaces to minimize potential for fish injury, minimum allowable bend radii within the pipe, and no allowable steep drops, transcritical flow transitions, or pressure changes.



Map Date: 3/30/2021
Photo Source: NAIP 2020

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Figure 2-6 Near and Instream Project Components

2020-104 NID-Hemphill Diversion Structure Project

Figure 2-7. Photos of Coffer Dam Alternatives

2020-104-Hemphill Diversion Structure Project

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The pipe routing flow into the Hemphill Canal during construction will require temporary fish screens to be placed upstream of the bypass channel. The screens will be designed for passive screening of the flow (no active cleaning of the screens) and the contractor will be required to maintain and clean the screens throughout construction. The final type, dimensions, and layout of the temporary screen will be detailed at a further level of design in coordination with NMFS and/or CDFW. However, at this time it is assumed the structure will use flat plate screens up to six feet tall and 32 feet long to provide adequate freeboard to flow. Contract specifications will require the temporary screening to meet CDFW and NMFS passive screen criteria for juvenile (fry) salmonids. The site would be gradually dewatered, and fish biologists would perform fish rescue of any stranded fish to prepare the site for construction.

Staging and access for removal of the existing structure would be from the north side of the Ravine as depicted in Figure 2-6. Removal activities would likely require two excavators. One excavator would have a large jackhammer and would break the structure into pieces small enough to be picked up by the second excavator. The second excavator would pull the broken concrete from the pile and place in the back of dump trucks for off-hauling and disposal. Grout around the rock downstream would also be broken apart with the jackhammer and removed. In-stream restoration work, including re-grading the streambed within the footprint of the existing structure as necessary, would be completed prior to the removal of the temporary coffer dam. No additional material would be removed during this activity.

Removal of the diversion structure will result in erosion and sediment transport until such time that the Auburn Ravine re-defines its natural channel. Removal of the Hemphill Diversion will likely result in channel incision upstream of the dam and in-channel deposition downstream of the dam. This is particularly true for Alternatives 1 and 3 where the diversion will be removed and no grade control at this location will remain. Channel incision would be expected to be minimal under Alternative 2 as the Diversion will be replaced by the fish passage improvements with a crest two feet below the current Diversion which would continue to serve as a grade control in this area. Under Alternative 1 and 3, the upstream channel incision may be up to 5 to 8 feet in the 500 to 1,000 feet reach upstream of the dam, and less than three feet further upstream. Incision of less than three feet is unlikely to cause significant bank or channel erosion. In the 1,000 feet upstream of the dam, the channel incision may induce bank instability and erosion over a multi-year period as the channel adjusts. It should be noted that a regional sewer pipeline crosses under the Auburn Ravine approximately 400 feet upstream from the existing diversion. Based on a review of as-builts for the facility, it appears that the pipeline is at least 14 feet below the bottom of Auburn Ravine at the deepest part of the stream profile. Potential erosion concerns are addressed in Section 3.8 Hydrology and Water Quality of this EIR.

This channel instability would be reduced by installation of flow deflection structures along the affected bank lines. These structures, such as engineered long jams, barbs, or groins would be placed along channel margins to slow flow along the edge of banks reducing potential for scour and assisting in the establishment of natural vegetation. The structures would be anchored with large rock allowing the toes of the structures to adjust as the channel incised. Deposition in the downstream channel is unlikely to inhibit channel stability, as the channel conditions appear well-entrenched and deposition may improve channel stability by improving floodplain connection. Figure 2-6 shows vulnerable locations upstream of the existing Diversion that may require placement of erosion control features. It is anticipated that

placement of flow deflection structures will be required on the right bank just upstream of the existing diversion structure, and the toe of the existing rock riprap on the right bank upstream of the existing structure may need to be stabilized to prevent undercutting. It is anticipated that this work will be completed during the in- water work associated with removal of the diversion structure under all three alternatives.

Other specific improvements and locations will be determined based on a more detailed Hydraulic Analysis to be completed during the design phase. As such, analysis of the potential for erosion and sediment transport impacts is discussed by Alternative in Section 3.8 *Hydrology and Water Quality* of this EIR.

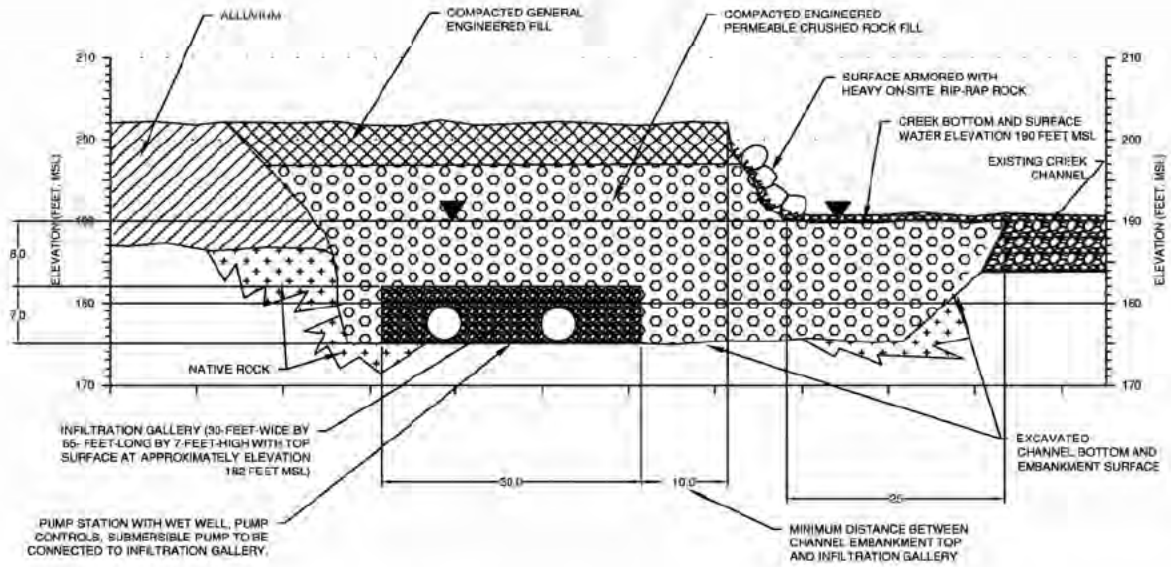
Alternative 1 - Riverbank Infiltration Gallery Alternative

The location of areas subject to construction/improvement, access routes and laydown/staging for Alternative 1 are shown on Figure 2-6. Access to the construction site would be via an existing dirt road on the south side of the Ravine. Varying degrees of vegetation and tree removal within a 25 foot corridor would be required to establish the access road through the south staging area to the infiltration gallery construction site. The twelve-foot wide improved access road to the infiltration gallery construction site would be retained as a permanent maintenance access road and adjacent temporarily disturbed areas would be restored.

Alternative 1 would construct an infiltration gallery downstream of the existing diversion structure along the south bank and would extend approximately 25 feet within the existing creek bed and channel, (See Figure 2-6 for the infiltration gallery location). Access for construction would be from both the south staging area and the north staging area. Preliminary designs of the riverbank infiltration gallery are shown on Figures 2-8a and 2-8b. *Infiltration Gallery Structure*. Work would include excavation to weathered granitic rock, which is approximately 15 feet below the creek surface, installation of the infiltration gallery, placement of compacted engineered rock fill, placement of riprap along the bank, and installation of a wet well pump station. As illustrated on Figures 2-8a and 2-8b and Figure 2-6, earth work limits would be approximately 100 feet long by 90 feet wide by up to 27 feet below the ground surface. Once the infiltration gallery is installed, the excavated area will be backfilled with compacted engineered permeable crushed rock and general fill material. The backfill will be re-enforced with heavy riprap.

Installation of the subterranean 65-foot-long by 30-foot-wide by seven-foot-high infiltration gallery on the south side of the bank would require an extension of electrical service across Auburn Ravine from a newly set electrical pole to the pump station. The new poles would be located outside the creek banks, (see Figure 2-6).

The infiltration gallery pump system would discharge water into the Hemphill Canal downstream of the current intake through an underground pipeline into either an armored canal or concrete distribution box located within the canal bank so as to not erode the existing canal. Any portion of the canal upstream of the new inlet structure would be filled in and the existing canal inlet blocked. Connection of the infiltration gallery to the Hemphill Canal will be located upstream of the existing gauging station and will not require relocating the existing Hemphill Canal gauging station downstream.



Notes: 1. ALL FEATURES AND DIMENSIONS SHOWN ON THIS FIGURE ARE APPROXIMATE AND ARE PROVIDED FOR GENERAL CONCEPT ILLUSTRATION PURPOSES.
2. WIDTH OF RAVINE IS VARIABLE OVER TIME, DESIGN ASSUMES EXISTING ROCK ELEVATION AS CONTROL DUE TO VARIABLE DEPTH OF WATER.

SCALES: HORIZONTAL = VERTICAL

20 Feet 0 20 40

1 Inch 0

NV5
792 Searls Avenue
Nevada City, California
PH: 530-478-1305 FX: 530-478-1019

CROSS-SECTION A-A'
DIVERSION STRUCTURE CONCEPT
Nevada Irrigation District
Hemphill Diversion Structure
Lincoln, Placer County, California

DRAWN BY:	DMO
CHECKED BY:	CRK
PROJ. NO.:	4794.00
DATE:	03-05-2020

SHEET NO.: 1

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Figure 2-8a. Infiltration Gallery Structure

2020-104 Hemphill Diversion Structure Project

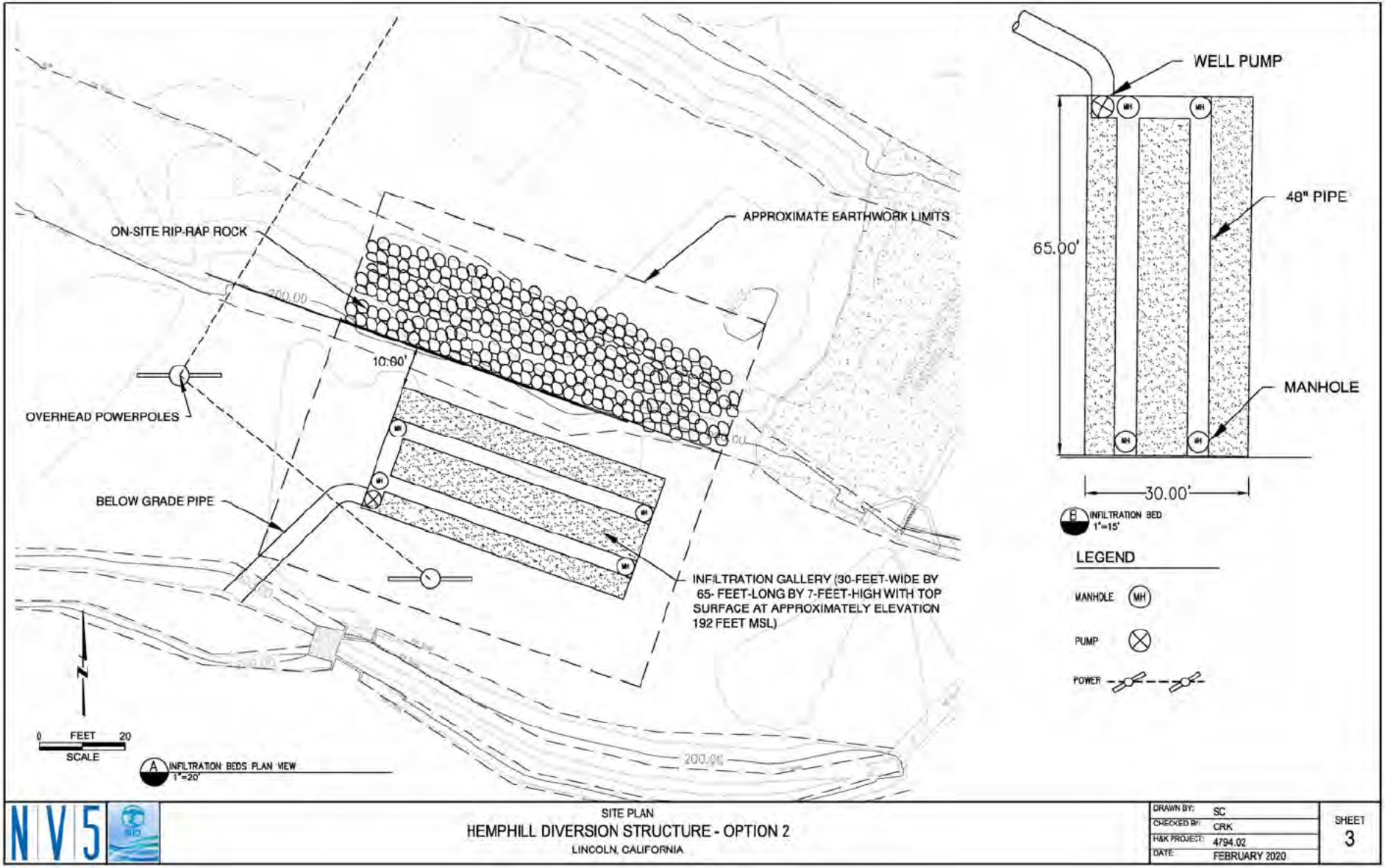

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Figure 2-8b. Infiltration Gallery Structure

2020-104 Hemphill Diversion Structure Project

Staging and access for installation of the infiltration gallery and related improvements would be from both the south and north side of Auburn Ravine. The staging areas, access routes and improvement areas for Alternative 1 are shown on Figure 2-6.

Removal of the diversion structure, as discussed previously, would occur prior to construction of the infiltration gallery and early in the irrigation season. As described above, to facilitate demolition of the diversion, a temporary coffer dam would be placed upstream of the diversion structure. A bypass pipe to both the Hemphill canal and downstream of the construction area would be required. Under Alternative 1, the upstream coffer dam would be in place long enough to remove the diversion structure and construct the Infiltration Gallery. A temporary sheet pile coffer dam would be installed at the very end of the instream work window to facilitate dewatering of the canal and implementation of Canal improvements described below. This may require a short disruption of irrigation water delivery at the end of the irrigation season. Tie into the Hemphill Canal and other improvements to the Canal including , dewatering the canal, filling of the canal back to the current inlet and blocking off the current inlet would occur following the end of the irrigation season.

In keeping with recommendations provided by the National Marine Fisheries Service (NMFS) in their NOP comment letter, if NID selects Alternative 1 as the proposed Project, final gallery design and site selection will follow the experimental process described in Section 16 of the 2011 Anadromous Salmonid Passage Facility Design document (NMFS 2011). NMFS identified several concerns regarding potential limitations concerning the siting, final design and operation of the infiltration gallery alternative. These concerns include but are not limited to the gallery's effect on spawning near the gallery, potential effects of backwashing on juvenile salmon downstream of the gallery, the effect on fish of future repairs in the event of gallery failure, and whether the gallery could operate as planned given its proposed location. Selection of Alternative 1 as the proposed Project shall require that final design of the infiltration gallery incorporate a design report addressing each of the limitations identified by NMFS and include an Operation and Management Plan demonstrating the backwashing capability of the system to avoid clogging under a variety of stream conditions and the full range of anticipated diversion rates. The plan will include a description of the procedures for periodic inspection and maintenance required to achieve fish screening effectiveness over the life of the Project.

Construction Timing

Trimming and removal of vegetation around the construction site and access roads would occur outside the migratory bird season. The remainder of construction season is anticipated to be from June through February of the following year. As stated previously, the coffer dam for the removal of the diversion structure and construction of the Infiltration Gallery is anticipated to be in place during the permitted work window anticipated to be June 15 to October 15. Improvements and connection to the Hemphill Canal required under this alternative and other activities outside the streambed for mobilization/demobilization, erosion control, site cleanup, staging, bypass, etc. would occur outside the instream work window and is expected to be completed by February of the following year.

Construction Workers and Equipment

During diversion structure removal and infiltration gallery construction, the number of construction workers onsite would range from five to eight workers. On average, it is anticipated that five workers would be onsite per day. Hours of operation would be from 7:00 a.m. to 7:00 p.m. Monday through Saturday. No nighttime work is anticipated. Work would be wrapping up for the day once the sun begins to set.

The following equipment is anticipated to be required at various times during construction:

a. one pile driver (used for sheet pile coffer dam at intake construction over a few days, a total of six hours of the day)
b. dewatering pumps (used periodically, initially after the coffer dam is in place)
c. two medium-sized excavators
d. one wheel loader
e. five transfer or super dump trucks for gravel import
f. one water truck
g. one crane

Materials Export/Import

An estimated 3,200 to 3,300 cubic yards (cy) of gravel and riprap would be imported for construction of the infiltration gallery. Excavated material will be used as appropriate. No export of soil is anticipated.

Alternative 2 - Fish Passage Alternative

The location of areas subject to construction/improvement, access routes, and laydown/staging for Alternative 2 are depicted on Figure 2-6. Alternative 2 would remove the existing Hemphill Diversion and construct a nature-like roughened rock ramp within the stream channel at the location of the current diversion. The upstream crest elevation of the ramp would be two feet lower than the existing dam crest. The rock ramp structure would provide fish passage while also improving sediment continuity over the dam and likely improving bank stability upstream of the dam in comparison to Alternatives 1 and 3. Due to its nature-like characteristics, the rock ramp would aesthetically blend in with the natural riverine environment and resemble a typical riffle. In addition to the construction of the fish passage, a fish screen would be installed near the Hemphill Canal inlet designed to prohibit fish and Pacific lamprey (*Entosphenus tridentatus*) from entering the canal. Ideally the fish screen would be installed during the non-irrigation season. As discussed later in this section, a flat plate fish screen installed within the Hemphill Canal has been identified as the preferred alternative.

It is important to identify the species and life stages for which the structure will be designed. Previous reports have identified adult and juvenile fall-run Chinook salmon and steelhead as the two primary species migrating at the Hemphill site. However, other species may also rely on passage past the dam and should be considered in the design process. The dam has been identified as a total upstream passage barrier for adult resident trout, and a downstream passage barrier for kelts (adult steelhead that have spawned in the ravine and are returning to the ocean). NID noted that, at a public meeting on September

21, 2020, members of the public raised concern about Pacific lamprey passage at the dam. Friends of Auburn Ravine have confirmed that Pacific lamprey are present in Auburn Ravine based on their monitoring camera at the Lincoln gaging station (Northwest Hydraulic Consultants, Inc. [NHC] 2021).

An analysis of potential fish passage structures was conducted by NHC in January 2021 in order to identify an appropriate fish passage structure. This analysis is included in **Appendix 3.8-E**. Five fish passage designs were analyzed in this report for their effectiveness to work within the confines of the Auburn Ravine based on conditions at the Hemphill Diversion Structure location. The lower grade control structure with roughened rock ramp design was chosen by NID as it:

1. provides an upstream crest elevation up to two feet lower than the existing dam crest,
2. the rock ramp structure would provide fish passage while also improving sediment continuity over the dam and likely improving bank stability upstream of the dam versus complete removal of the Diversion, and
3. due to its nature-like characteristics, the rock ramp would aesthetically blend in with the natural riverine environment and resemble a typical riffle.

The fish passage alternative would remove the existing diversion structure (see previous discussion) and replace it with a channel spanning nature-like fishway capable of providing volitional fish passage through a range of flows meeting CDFW and NMFS fish passage flow criteria. A positive barrier fish screen would be placed within the Hemphill Canal within 50 feet of the intake and would include a bypass pipe routed back to Auburn Ravine upstream of the crest of the fish passage structure. Up to 3,600 feet of the Hemphill Canal would be regraded and lowered up to five feet and portions may be piped with smooth-walled high-density polyethylene (HDPE) pipe or lined with smooth concrete to reduce the height of the diversion structure and negate the need for seasonal installation of flashboards across the dam crest. Re-grading the diversion ditch would require the modification and reinstallation of the existing gauging station and up to four culverts. The portion of the Hemphill Canal subject to modification under Alternative 2 is shown on Figure 2-9. *Alternative 2 – Hemphill Canal Improvement Area*.

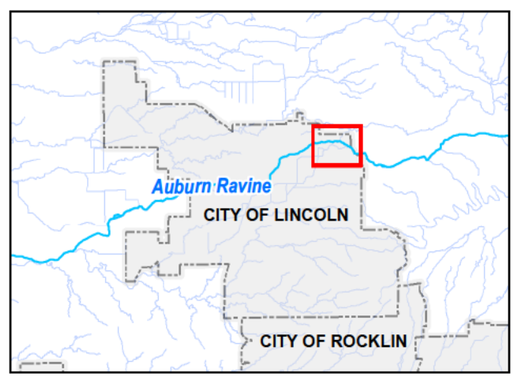
The nature-like fishway would be constructed of large boulders and engineered streambed material (ESM). ESM is composed of a mix of sand, gravels, and cobbles designed to mimic gradations in natural riffles but maintain stability in high-flow events. Large boulders would be buttressed across the channel to maintain grade. The upstream extent of the structure would be located at or just upstream of the existing dam crest. The structure will extend downstream about 180 feet and would be buried into the downstream channel.

The upstream crest elevation will be determined in further levels of design as details of the Hemphill Canal operations can be refined, but the crest will be at the crest elevation of the existing diversion or up to two feet lower. The overall slope of the structure will be between two and four percent.

Map Features

- Hemphill Diversion
- Culverts
- Auburn Ravine
- Hemphill Canal

Sources: NAIP 2020
Data provided by NHC on 3/3/2021



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Map Date: 3/16/2021

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Scale in Feet
0 500

Figure 2-9. Alternative 2 Hemphill Canal Improvement Area
2020-104 NID-Hemphill Diversion Structure Project

The nature-like fishway will extend laterally across the entire channel width filling the existing channel with boulders and ESM. Boulders will likely be keyed into the existing bed toward the downstream extent. The shape of the channel will be determined in a subsequent design phase to ensure hydraulics that facilitate fish passage over the range of design flows. The boulders will likely key into the existing bank line at a distance of up to 10 feet on both banks to prevent channel flanking, and additional boulders will be placed in the cross-section to add roughness to the channel. The structure would require about 2,500 tons of three- to five-foot-diameter boulders, as well as 2,000 tons of coarse sand, 2,000 tons of gravel, and 2,000 tons of cobble to small boulders to be hauled to the site.

The positive barrier fish screen will be a flat plate screen placed at the upstream end of the Hemphill Canal. The flat plate screen will be sized appropriately to meet CDFW or NMFS requirements for fish screening. Electrical power via a power pole line from Virginiatown Road, a self-propelled system, or possibly a small solar structure will be installed at the site to operate a brush system to facilitate automatic cleaning. (See Figure 2-6) Installation of an in-canal screen will require construction of a juvenile bypass pipe placed through the left overbank to deliver bypass flow back to Auburn Ravine just upstream of the nature-like fishway.

To provide year-round fish passage, the crest of the rock ramp will not require flashboards during irrigation season. Because of this, the entrance of the Hemphill diversion canal will need to be lowered by up to five feet. As such, an approximately 3,600-foot section of the diversion canal will need to be regraded, starting at the intake, which will affect certain structures within the canal (i.e., gaging station and culverts). (See Figure 2-9). Lowering the canal intake by up to five feet will still allow for an average Hemphill Canal slope of 0.08 percent between the entrance and point of first use, which is at the low end for a typical gravity diversion, but not unreasonable for an irrigation canal of this size. Additionally, a portion of the canal may be piped with smooth-walled HDPE pipe or lined with smooth concrete to further improve hydraulic efficiency (NHC 2021). To prevent water from entering the canal during non-irrigation season, a gate assembly will be installed near the intake. As shown in Figure 2-9, lowering the canal will require construction in the canal easement area within Turkey Creek Golf Course. NID will coordinate this work with the golf course in order to limit the potential for effects on golf course operations. Figure 2-10. *Alternative 2 - Fish Passage Conceptual Design* depicts the conceptual design for the fish passage. The general location of the fish passage improvement within the Study Area is illustrated on Figure 2-6.

Construction Timing

Construction would likely occur in three phases. The first phase would occur outside the migratory bird season to trim vegetation around the construction site and remove vegetation within the Project footprint. The second phase would occur during the in-water work window defined by NMFS (anticipated to be June 15 through October 15). During Phase 2, the contractor would set up a temporary flow diversion, as described above, remove the existing dam structure, install the nature-like fishway, and remove the temporary diversion. The third phase would occur after the irrigation season was complete and would extend for about two months. During Phase 3, the contractor would regrade the Hemphill Canal, reinstall the gaging station, replace up to four culverts and install the new fish screen(s) and fish bypass valve.

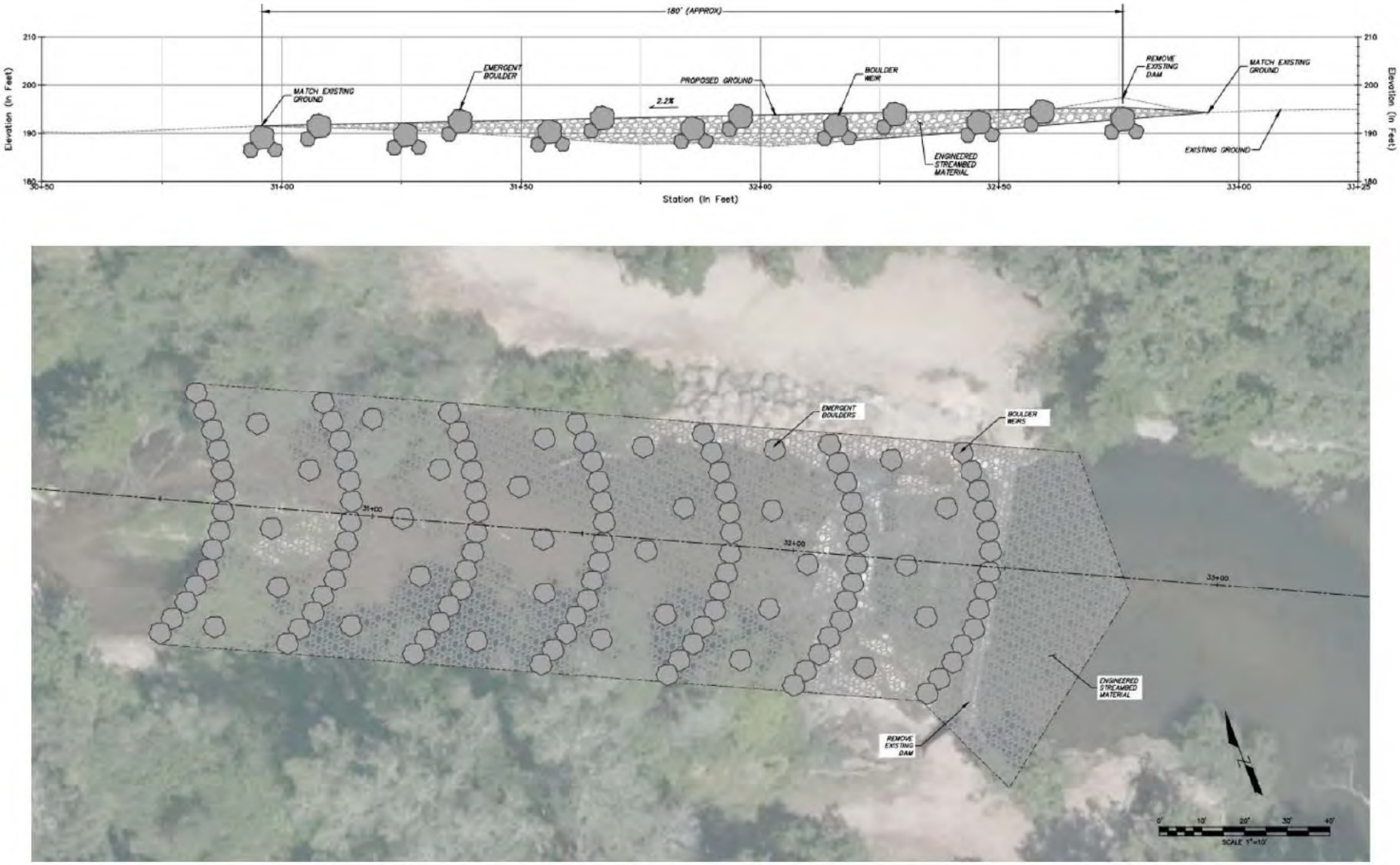

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Figure 2-10. Alternative 2 - Fish Passage Conceptual Design
2020-104 Hemphill Diversion Structure Project

Vegetation trimming or removal required to facilitate installation of the nature-like fish structure would be completed during Phase 1. Vegetation removal would focus on removing canopies and vegetation that interferes with construction activities while leaving stumps and roots to provide erosion control over the remaining spring and winter. Work crews consisting of laborers using chainsaws, boom lifts, and dump trucks would remove the vegetation from existing access points on the north and south sides of the channel. Primary access would be from the existing dirt road and proposed North staging area off of Virginiatown Road.

Existing access off of Virginiatown Road would be used for Phases 1 and 2. Truck traffic during off-hauling for vegetation removal and dam demolition, and during material import for the nature-like fishway would involve several trucks per day entering and leaving the site. Signage would be required on Virginiatown Road to alert local traffic of trucks entering the roadway; however, road closures are not expected.

Some of the staging area adjacent to the Diversion structure is open and has limited vegetation, although some additional areas near the north bank within 150 feet upstream of the diversion structure, would need to be cleared of vegetation to provide enough room for staging and equipment. See Figure 2-6. While the access road would remain, the staging area immediately adjacent to Auburn Ravine would be revegetated after construction.

Preparation for Phase 2 construction would likely commence about two to four weeks prior to the in-water work window. Demolition of the existing diversion structure would be completed as discussed previously. After diversion structure demolition, the contractor would construct the nature-like fishway, and then remove the temporary diversion from the channel. At the end of Phase 2, the contractor would remove temporary facilities from the north and south access and staging area, install erosion control BMPs and demobilize, see Figure 2-6. This will not occur prior to the end of irrigation season as the bypass would be necessary until the canal is regraded.

Placement of the nature-like fishway would start at the downstream extent and progress upstream. Materials for the nature-like fishway would be delivered to the site via access from Virginiatown Road in semi-end dumps from sources to be identified in the foothill area. Loaders would transport the material to the location of placement. A large excavator with a thumb on the bucket would place the boulders in the channel. The excavator would also mix the sand, gravels, and cobbles in the channel to create the ESM gradation. A second small excavator with a vibratory plate would compact the ESM to grade in approximate 1- to 1.5-foot lifts. In the footprint of the existing diversion, the two excavators would work the existing subbase to fill in and compact any existing voids prior to placing ESM and boulders to replace the diversion.

Preparation for Phase 3 (Hemphill Canal Improvements) would start after August 15 and prior to the end of diversion season. The contractor would connect the access route to the canal via the south staging area. Construction access would be via an existing eight to ten foot- wide service road along the northern edge of the canal (See Figure 2-6). Access may also be needed through the Turkey Creek Golf Course to facilitate replacement of two culverts located in fairways on the course. The location of this access would

be coordinated with the golf course operator. As stated previously, NID will coordinate this work with the golf course operator in order to limit the potential for effects on golf course operations.

At the very end of the irrigation season and prior to removal of the instream coffer dam (approximately October 15), the contractor would install a sheet-pile cofferdam around the diversion inlet. This may require a short disruption of irrigation water delivery at the end of the irrigation season. Following installation of the coffer dam and after the diversion season, small gas-powered pumps will be used to dewater the canal. The contractor would excavate the canal using an excavator and either spoil the material on the access road or off-haul material to an approved stockpile location. The contractor would install new headgates at the intake, fish screens, flow gaging station, and up to four culverts (if needed) once the canal was regraded. Some or all of the regraded canal may be lined with concrete or piped if recommended during final design. After the concrete cures for at least three days, the coffer dam would be removed and the contractor would remove all temporary facilities and restore the access route. The cofferdam at the inlet can be removed from outside the ravine. Work would require about two months to complete and would not inhibit water diversion as it would be completed out of the irrigation season.

A new temporary access route connecting to Hemphill Canal would be required to access the south side of the ravine for Phase 3 work. The access would likely require clearing of trees and may require some aggregate base be imported to the site to develop the access. Traffic from this access would be a few trucks per day during the canal regrading, and multiple concrete trucks per day for a few weeks during concrete placement. The access route would be left in place after construction to provide maintenance access to the Hemphill Canal fish screen and for other maintenance activities. See Figure 2-6.

Construction Workers and Equipment

During diversion structure removal and fish passage construction, the number of construction workers onsite would range from 10 to 12 workers depending on the phase. Hours of operation would be from 7:00 a.m. to 7:00 p.m. Monday through Saturday. No nighttime work is anticipated. Work would be wrapped up for the day once the sun begins to set,

The following equipment are anticipated to be required at various times during construction:

Phase 1:

a. one boom lift,
b. multiple dump trucks
c. multiple chainsaws

Phase 2:

a. one crane
b. one pile driver (used for sheet coffer dam for a few days, a total of six hours of the day)
c. dewatering pumps (used periodically – initially after coffer dam is in place)
d. two excavators
e. multiple dump trucks
f. multiple wheel loaders

Phase 3:

a. one crane
b. one excavator
c. multiple dump trucks
d. multiple concrete trucks

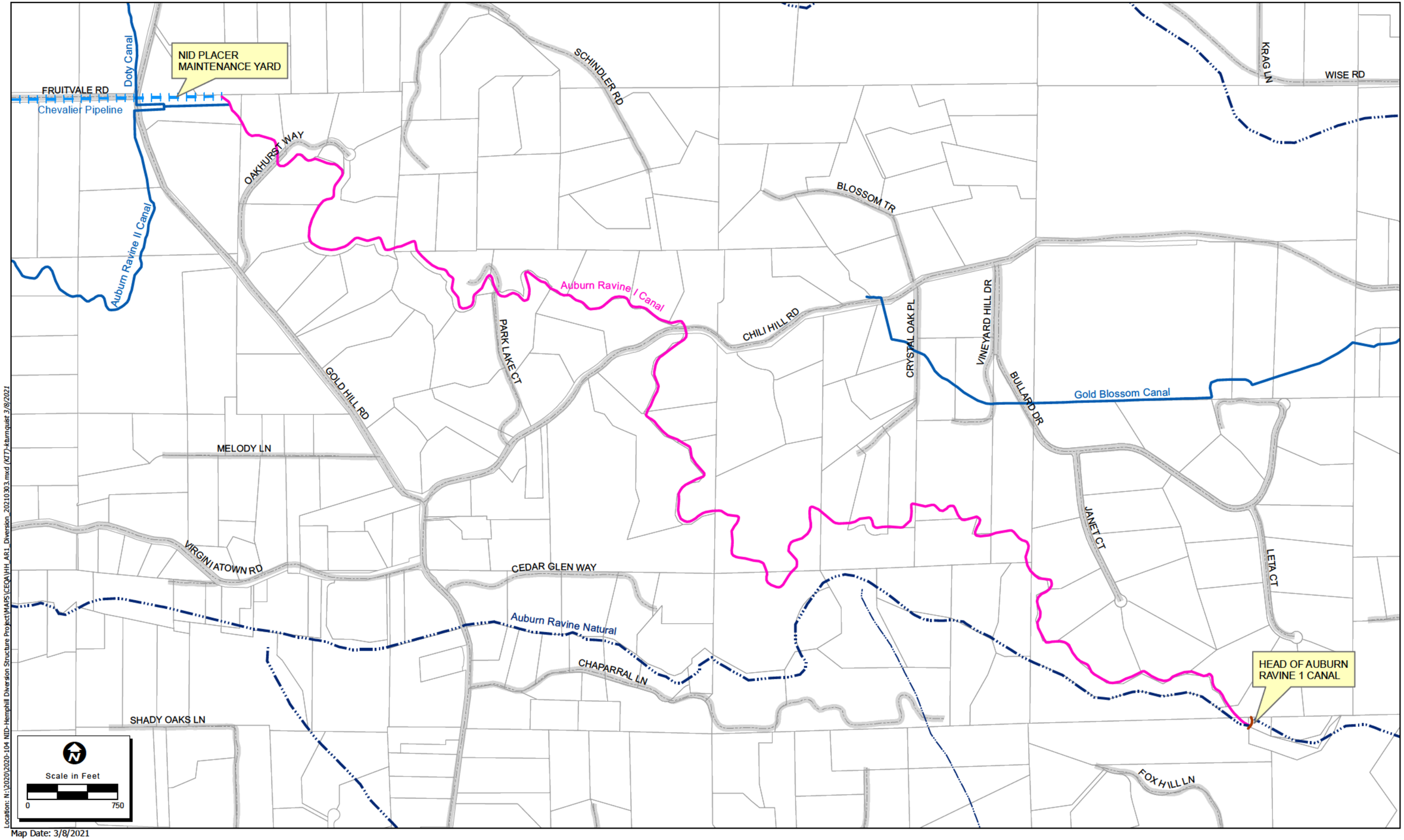
Alternative 3 - Pipeline Alternative

Alternative 3 would divert water from Auburn Ravine 1 Canal (AR1) at the NID Placer Yard facility on Gold Hill Road to a new pipeline. The new pipeline would start at the end of AR1 near the existing Chevalier pipeline. AR1 terminates within the Placer Yard facility. Raw water is diverted from Auburn Ravine into AR1 at the Gold Hill Dam. Other than the connection of the pipeline to AR1 at the Placer Yard, no other construction of or alteration to AR1 will occur with this alternative.

Under this alternative, all Auburn Ravine instream work would be limited to the Hemphill Diversion structure removal, as discussed previously. Water diversion to the Hemphill Canal via the pipeline would range from an average historic rate of eight cfs to a maximum diversion of 18 cfs as described in NID's Raw Water Master Plan (Kleinschmidt and Associates 2011). The Gold Hill Dam and the AR1 Conveyance Route to the Placer Yard is depicted on Figure 2-11. *Auburn 1 Diversion and Conveyance Route to NID Placer Yard Facility*.

In addition, Alternative 3 includes construction of an approximately 4.5-mile 24-inch pipeline from the Placer Yard facility extending along Fruitvale Road, Fowler Road, Virginiatown Road, and the access road to the Hemphill Canal. The pipeline alignment is depicted on Figure 2-12. *Alternative 3 – Pipeline Alignment and Potential Staging Areas*. Alternative 3 includes one Auburn Ravine pipeline crossing location, as shown on Figure 2-6. This alternative includes the Study Area around the Hemphill Diversion Structure, the pipeline routes, and the potential staging areas, as shown on Figure 2-12. Work is anticipated to occur within the Placer County ROW along Fruitvale, Fowler, and Virginiatown roads as well as private property near the existing diversion structure. Trenching will be approximately 3.5 to 4 feet wide. Exported soil and asphalt removal and would be limited to the top layer of the trench, estimated to be approximately 4,630 cy. Imported material would be limited to trench restoration and is estimated to be approximately 1,930 cy of aggregate base.

The pipeline would cross Auburn Ravine via an aerial pipe construction to serve the Hemphill Canal. The pipeline alignment would parallel the existing crest of the existing diversion structure crest and would utilize the existing headwalls on each side of the ravine to minimize in and near stream improvements. (See Figure 2-6). This crossing would require a new concrete inlet structure within Hemphill Canal. Also, approximately a 10-foot wide path of tree and vegetation trimming and/or removal would be required from where the pipeline would leave Virginiatown Road to the connection to Hemphill Canal.



Map Date: 3/8/2021
Sources: NID

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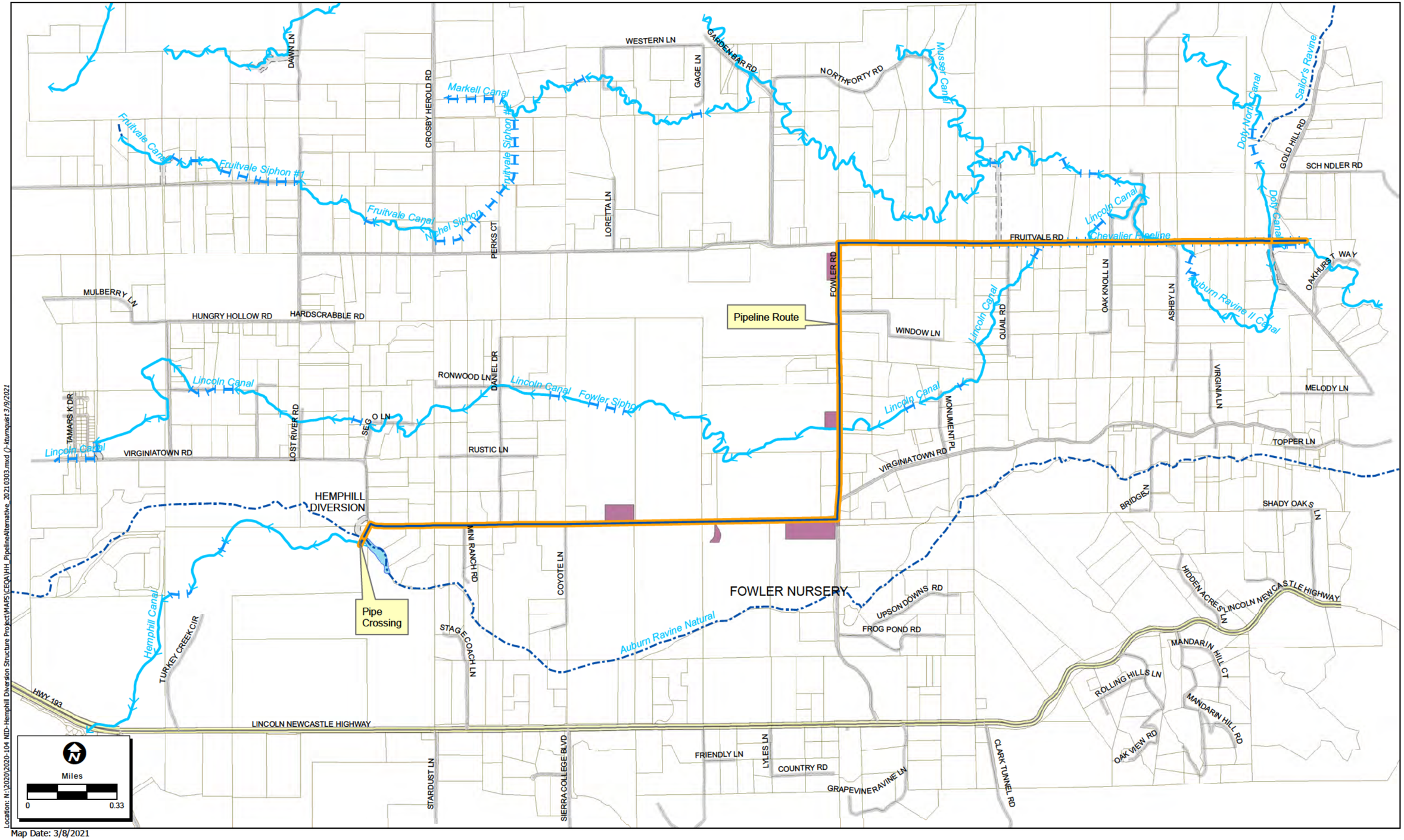
Figure 2-11. Auburn 1 Diversion and Conveyance Route to NID Placer Yard Facility

2020-104 NID-Hemphill Diversion Structure Project



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Map Date: 3/8/2021
Sources: NID

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Figure 2-12. Alternative 3 - Pipeline Alignment and Potential Staging Areas

2020-104 NID-Hemphill Diversion Structure Project

This alternative includes five potential staging areas for environmental review along Fruitvale, Fowler, and Virginiatown roads. Additional staging for elements of this alternative would be at the Placer Yard and the north and south staging areas shown on Figure 2-6. Final determination of the specific staging areas to be used will be based on subsequent biological and cultural surveys and property access considerations. The restoration of the roadway would occur upon completion of construction.

During irrigation season, construction of this pipeline is anticipated to reduce flows in Auburn Ravine between the AR1 diversion (Gold Hill Dam) and the existing Hemphill Canal diversion from historical sales of approximately eight (8) cfs, depending on demand, as this water would be diverted into AR1 at the Gold Hill Dam, diverted into the pipeline, and then delivered into the Hemphill Canal downstream of the existing Hemphill Canal inlet as shown on Figure 2-11 and 2-12.

It should be noted that this alternative would allow for the opportunity for existing properties adjoining the pipeline to connect. This action is not part of the project, but the opportunity would be available after construction is completed. Each connection will be reviewed on a case by case basis to ensure that there is capacity in the pipeline and the upstream conveyance system. Additionally, the District does not foresee improvements necessary at Gold Hill Diversion or the Auburn Ravine 1 canal as a result of the additional flows required to serve the customers on Hemphill Canal, as well as potential future customers along the pipeline. The maximum capacity of Auburn Ravine 1 is approximately 75 cfs. The peak flow in the summer of 2020 on Auburn Ravine 1 was 60.73 cfs. The peak flow for Hemphill Canal during 2020 was 7 cfs. As the District evaluates the availability of capacity and notes it approaching master plan flows for Auburn Ravine 1, an assessment separate from this project would occur to determine if upgrading or modification is required on Auburn Ravine 1 and the Gold Hill Diversion. If the assessment results in necessary upgrades or modifications, it would include a CEQA process as its own project. Since there are not immediately foreseeable improvements or modifications needed as a result of this alternative, no CEQA evaluation is included on Auburn Ravine 1 or Gold Hill Diversion other than the discussions provided relevant to biological and hydrology impacts discussed later.

This alternative would also require the removal of the Hemphill Diversion Structure, removal of the Hemphill Canal existing inlet, and filling in of the canal to the point where the new pipeline inlet would occur.

Construction Timing

Construction of the pipeline is estimated to take six to seven months. Due to the length of pipeline, restoration may take place in phases. Construction is anticipated to start in March and last through August/September. Construction of the AR1 and Hemphill Canal tie-ins proposed under this alternative may require a longer outage and would occur post-irrigation season, likely in October/November . Removal of the existing diversion structure is anticipated to occur June 15, through October 15. Since the diversion structure will be removed during irrigation season, the temporary coffer dam will remain in place until the end of the irrigation season to divert water into the canal to maintain raw water service as described previously. The temporary coffer dam will be removed by October 15.

Construction Workers and Equipment

During diversion structure removal and pipeline construction, the number of construction workers onsite would range from 10 to 14 workers, averaging 10 workers per day over the construction period. Hours of operation would be from 7:00 a.m. to 7:00 p.m. Monday through Saturday. No nighttime work is anticipated. Work would be wrapped up for the day once the sun begins to set.

The pipeline alternative would require asphalt restoration to impacted roadways and concrete work for pipeline crossing footings and canal connections. The following equipment are anticipated to be required at various times during construction:

a. one pile driver (only used during diversion structure removal)
b. dewatering pumps (used periodically – initially after the coffer dam is in place)
c. four medium-sized excavators
d. two wheel loaders
e. four dump trucks for hauling material to the staging site
f. power screening at the staging area (this is worst-case scenario situation if the contractor cannot use the bucket on the excavator alongside the route to screen)
g. one water truck
h. one concrete truck
i. one asphalt truck and roller
j. one crane

2.5 REGULATORY REQUIREMENTS, PERMITS, AND APPROVALS, AND APPROVALS, PERMITS, AND ENTITLEMENTS FROM OTHER PUBLIC AGENCIES

2.5.1 Lead Agency Approval

As the lead agency, NID has the ultimate authority for Project approval or denial. The Proposed Project may require the following discretionary approvals and permits by the NID for actions proposed as part of the Project:

- Certification of the EIR
- Approval of a Mitigation Monitoring and Reporting Program (MMRP)
- Selection and approval of a preferred Alternative

In addition to the above NID actions, the Project may require approvals, permits, and entitlements from other public agencies for which this EIR may be used, including, without limitation, the following:

- CDFW, Region 2
- Regional Water Quality Control Board, Region 5
- Placer County Air Pollution Control District
- U.S. Army Corps of Engineers

- NOAA-NMFS
- Placer County Community Development Department
- Placer County Flood Control and Water Conservation District
- Placer Conservation Authority
- City of Lincoln

2.6 RELATIONSHIP OF PROJECT TO OTHER PLANS AND PROJECTS

2.6.1 City of Lincoln General Plan 2050

Portions of the Proposed Project are located within the jurisdiction of the City of Lincoln and therefore may be subject to the Lincoln General Plan goals and policies. The *City of Lincoln General Plan 2050* (General Plan 2050) is the primary document governing land use development in the City. The General Plan 2050 was adopted in March 2008. The City's General Plan includes numerous goals and policies pertaining to sustainability; land use; circulation; community design; downtown; economic development; housing; parks, public facilities, and services; open space and environment; cultural resources and historic preservation; safety; and noise.

2.6.2 Placer County General Plan

Portions of the Proposed Project are located within the jurisdiction of Placer County and therefore may be subject to the Placer County General Plan goals and policies. The Placer County General Plan consists of two types of documents: the Countywide General Plan (which consists of a policy document and land use diagram) and a set of more detailed community plans (including one "area" plan) covering specific areas of the unincorporated County. The Countywide General Plan provides an overall framework for development of the County and protection of its natural and cultural resources. The goals and policies contained in the Countywide General Plan are applicable throughout the County, except to the extent that County authority is preempted by cities within their corporate limits. Community and area plans (hereafter referred to as community plans), adopted in the same manner as the Countywide General Plan, provide a more detailed focus on specific geographic areas within the unincorporated County. The goals and policies contained in the community plans supplement and elaborate upon, but do not supersede, the goals and policies of the Countywide General Plan.

2.6.3 Auburn Ravine/Coon Creek Ecosystem Restoration Plan

The Proposed Project is located in the area covered by the Auburn Ravine/Coon Creek Ecosystem Restoration Plan (ERP). The ERP is composed of a Watershed Assessment Report and a Restoration Program. The Introduction section provides guiding principles for the preparation of the ERP, ERP goals and objectives, and general descriptions of the watersheds located within the planning area. The Watershed Assessment (Assessment) section identifies growth projections and land uses within the ERP planning area, summarizes the water resources present, and provides a description of current watershed conditions as they pertain to stream sediment and water quality. Plant communities established within the ERP planning area and special-status fish and wildlife species potentially occurring are also included in the

Assessment. The final section of the ERP, the Restoration Program, identifies specific restoration projects within the ERP planning area and presents the goals, opportunities, and requirements established for individual project implementation. In addition, monitoring guidelines are provided for the restoration project.

2.6.4 Placer County Conservation Program

The Project is located in the area identified as being within the Placer County Conservation Program (PCCP). The Placer Conservancy Authority oversees PCCP implementation. The PCCP is a County-proposed solution to coordinate and streamline the permitting process by allowing local entities to issue state and federal permits. The PCCP is a Habitat Conservation Plan under the federal Endangered Species Act and a Natural Community Conservation Plan under the California Natural Community Conservation Planning Act. The PCCP includes the County Aquatic Resources Program to issue permits related to the Federal Clean Water Act and the California Fish and Game Code. The PCCP is designed to ensure that land will be strategically and effectively managed to support the survival and well-being of covered species, as well as hundreds of other species that are dependent on the same habitat. Removal of the Hemphill Diversion is an identified project in the PCCP.

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Section 3.0
Environmental Setting, Impacts and Mitigation

3.0 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION

3.1 Overview of the Environmental Analysis

3.1.1 Introduction

Section 3.0 of this DEIR describes the environmental resources with the potential to be directly and/or indirectly affected by the construction and operation of each of the three Hemphill Diversion Structure Project (Project) alternatives and the extent and significance of those effects. This section 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 Energy
- 3.6 Geology/Soils/Paleontological Resources
- 3.7 Greenhouse Gas Emissions
- 3.8 Hydrology and Water Quality
- 3.9 Noise
- 3.10 Tribal Cultural Resources

Each of these resource subject sections contains the following subsections:

- Environmental Setting section that provides a discussion of the existing conditions of the Project Site and Project area as relevant to the resource subject;
- Regulatory Framework section that discusses federal, state, and local regulations, plans, and standards of potential relevance to the resources subject;
- Methodology and Assumptions section that defines the methods and assumptions used for the impact evaluations and identifies the criteria and thresholds used for assessing the significance of Project impacts;
- Environmental Impacts and Mitigation Measures section that contains discussion of individual impacts associated with the resource subject for each alternative and, when impacts are identified as significant or potentially significant, identifies mitigation measures to avoid or reduce the severity of impacts; and

- Cumulative Impacts section which considers the potential for Project impacts to contribute the impacts of other past, present, and reasonably foreseeable impacts in a manner that could result in cumulatively considerable impacts.

3.1.2 Issues Not Included for Further Review in this DEIR

In addition to the resource subjects listed in Section 3.1.1, above, NID 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 and potentially significant 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. A copy of the Initial Study may be attached to the EIR to provide the basis for limiting the impacts discussed." (CEQA Guidelines, § 15143.) "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 Section1.0, NID prepared and circulated the Notice of Preparation (NOP) and Initial Study for this DEIR in September 2020. The NOP and Initial Study are included with this DEIR as **Appendix 2.0-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 alternatives to have no impact or a less-than-significant impact. Mitigation measures to reduce the level of impact were not recommended nor required to avoid potentially significant impacts in each of these issue areas.

The decision not to pursue further evaluation in this DEIR took into consideration all ten (10) comment letters on the NOP/Initial Study. Also considered were oral comments submitted during the September 2020 virtual scoping meeting for the Project. In response to comments or where otherwise warranted, some further analysis is presented in this DEIR for specific issues even though the Initial Study found no impact or a less-than-significant impact. For example, although the Initial Study found that the direct effects of Project construction on soil erosion were less than significant, additional analysis is presented in this DEIR because public comments on the Initial Study suggested further review of this issue.

Aesthetics

During construction there will be vehicles and equipment at various sites depending on which of the Project alternatives is chosen for construction. However, these will be temporary and will cease once construction is completed. Additionally, no nighttime construction is proposed that would require lighting. All features constructed as a part of the three Alternatives would be at ground level or

underground, with the exception of the potential for the aboveground pipeline crossing of Auburn Ravine in Alternative 3. None of the Alternatives would result in obstruction of scenic views. The Project would not affect the viewshed or scenic vista of the site. Implementation of the Project alternatives would return Auburn Ravine to a more natural state in the vicinity of the existing Hemphill Diversion Structure.

Agriculture and Forestry Resources

All areas potentially affected by construction of the Project alternatives are identified as Grazing Land and Other Land (Department of Conservation [DOC] 2020). As such, the Project would not have the potential to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance into non-agricultural use. No forest land or forestry resources are located in the Project area.

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 would be sufficiently addressed through such compliance and management and would not pose a substantial risk of exposure or significant environmental effects.

Hydrology and Water Quality

The impact of the proposed Project alternatives on hydrology and water quality are addressed in detail in Section 4.8 of this DEIR. Potential Project impacts on flooding (i.e., causing on- or offsite flooding or impeding or redirecting flood flows), however, were found to be less than significant in the Initial Study and are not evaluated further in this DEIR. That determination is based in part on analysis conducted by Kleinschmidt (2017) in their report *Hemphill Diversion Structure Final Report on Field Study Investigations*. That report is included in **Appendix 3.8-D** of this DEIR.

Land Use and Planning

Project consistency with goals and policies contained within applicable land use plans including, but not limited to, the City of Lincoln and Placer County General Plans, are addressed in the specific issue subsections in Section 4.0 of this DEIR and within the regulatory setting and environmental impact discussions for each resource area as appropriate. The Project would not divide an established community.

Mineral Resources

The Project site is not within a designated mineral resource zone and would not have the potential to result in the loss of availability of valuable 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, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for 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

None of the proposed Project alternatives would directly or indirectly introduce a new population in the region. The total number of vehicle trips generated by the Project is not expected to 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 is considered to have only 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. Traffic control would be provided, as necessary, particularly in the case of Alternative 3 which would require the placement of pipe within County roadways. This is also a temporary impact and was determined to be less than significant in the Initial Study.

Utilities and Service Systems

Water

Alternatives 1, and 2 would construct an infiltration gallery and an in-channel fish passage structure, respectively. These alternatives and would not require new water infrastructure or treatment facilities. Alternative 3 would require the installation of a new pipeline to provide water to the Hemphill Canal. No additional water treatment or infrastructure or the expansion of such facilities are required for the installation of the pipeline. The environmental effects of this pipeline and removal of the Hemphill Diversion Structure are discussed in this Initial Study under each impact area.

Wastewater

The September 2020 Initial Study determined that none of the proposed Project alternatives would require wastewater service or facilities or impact any existing facilities in the area. Since preparation of the Initial Study, additional information has been developed in support of that conclusion in relation to a City of Lincoln wastewater conveyance pipeline that crosses beneath Auburn Ravine approximately 400 feet upstream of the Hemphill Diversion structure.

As described in Section 3.8 (Hydrology and Water Quality) Balance Hydrologic (2020) completed a sediment transport analysis of existing channel conditions and multiple dam removal scenarios during 2-year, 10-year, and 25-year events. The model results showed full removal of the Hemphill Dam will likely result in channel incision upstream of the diversion. The existing structure currently acts as a grade-control for surface water elevation at the diversion site and serves to moderate stream flow velocities for some distance upstream of the site. The 2020 analysis suggests that removal of the diversion structure without replacing grade control at the site could result in channel incision in Auburn Ravine of up to 5-8 feet in the 500 to 1,000 feet upstream of the dam, and less than three feet further upstream.

Under Project Alternatives 1 and 3, the Hemphill Diversion would be removed without reestablishing grade control at the diversion site. Resulting stream channel incision in the vicinity of the City of Lincoln wastewater pipeline under Alternatives 1 or 3 could be as great as eight feet. Based on as-built cross-sections of the wastewater line, the minimum distance between the top of pipeline and the streambed is 14 feet. Even in the worst-case as defined in the Balance 2020 analysis, potential stream channel incision resulting from Alternatives 1 and 3 would not affect the wastewater pipeline. As described in Section 3.8, Alternative 2 would reestablish grade control at the Hemphill Diversion site and the potential for stream channel incision upstream of the site would be reduced relative to Alternatives 1 and 3.

Storm Drainage

None of the three Alternatives would require storm drainage facilities. No new facilities would be required to serve the Project and the Project would have no impact in this area.

Electric Power

Alternatives 1 and 2 would require the extension of electrical power to the project site. PG&E provides electrical services to the Project area through state-regulated public utility contracts. PG&E's ability to provide its services concurrently for each project is evaluated during the development review process. Existing electrical power poles are located on Virginiatown Road, approximately 300 feet from the Hemphill Diversion Structure site. New power poles and electrical lines will be required to be extended to Auburn Ravine to serve infiltration/water pumps under Alternative 1 and fish screen cleaning facilities under Alternative 2. However, no new PG&E electric facilities, with the exception of possibly two new electrical poles, will be required to provide electricity to the Project.

Wildfire

No areas affected by facilities construction under any proposed Project alternative 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 in this area.

3.1.3 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, NID recognizes the importance of fully and adequately defining resource conditions that existed at the time of NOP circulation for this EIR. This provides the basis for the determination of impact of the proposed Project alternatives, i.e., the changes to those conditions brought about by Project construction and operation either directly or indirectly. While current environmental conditions entail continuing operation of the Hemphill Diversion structure with diversions into Hemphill Canal, it is also recognized that, as discussed in Section 2.0 of this DEIR, the condition of the structure is substantially deteriorated, the structure continues to obstruct the passage of anadromous fish species, and the diversion to Hemphill Canal is unscreened.

Impacts and Mitigation Measures

This DEIR analyzes the potential direct, indirect, and cumulative environmental impacts of the proposed Project alternatives. The determination of whether an impact is considered significant is based on significance criteria and thresholds. An adverse impact that exceeds the significance threshold is considered significant, and an impact that does not exceed or cross the threshold is considered less than significant. The CEQA significance criteria used in this DEIR are based on CEQA's mandatory findings of significance (as summarized in State CEQA Guidelines Section 15065); the Initial Study 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. For CEQA purposes, impacts in this DEIR are classified as:

- No impact;
- Less than significant;
- Less than significant with mitigation incorporated; or
- Significant and unavoidable,
- Less than considerable contribution to cumulative impacts,
- Cumulatively considerable

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

3.1.4 References

Balance Hydrologics 2020. *Auburn Ravine-Hemphill Diversion Assessment Sediment Transport Study*. June.

CAL FIRE. 2007. Fire Hazard Severity Zones in SRA. Adopted November 6, 2007. https://osfm.fire.ca.gov/media/6742/fhszs_map31.pdf.

DOC. 2020. Division of Land Resource Protection. Important Farmland Finder. Available at: http://maps.conservation.ca.gov/ciff/ciff.html.

Kleinschmidt 2017. *Hemphill Diversion Structure Final Report on Field Study Investigations*. September.

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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 Placer County Air Pollution Control District (PCAPCD, 2019). Regional and local existing conditions are presented, along with pertinent pollutant emissions standards and regulations. The purpose of this assessment is to estimate the emissions of criteria air pollutants attributable to each of the Project alternatives and to determine the level of impact the Project alternatives 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 Sacramento Valley Air Basin (SVAB), which encompasses the Project site, pursuant to the regulatory authority of the PCAPCD.

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.

Sacramento Valley Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The Project Area lies in the SVAB, which is comprised of nine air districts. The SVAB is bounded by the Coastal and Diablo mountain ranges on the west, the Sierra Nevada to the east, and the San Joaquin Valley to the south. These mountain ranges reach heights in excess of 6,000 feet above mean sea level, with individual peaks rising much higher. The mountains form a substantial physical barrier to locally created pollution as well as to pollution transported northward on prevailing winds from the Sacramento metropolitan area (Sacramento Valley Air Quality Engineering and Enforcement Professionals [SVAQEEP] 2018).

The environmental conditions of Placer County are conducive to potentially adverse air quality conditions. The basin area traps pollutants between two mountain ranges to the east and the west. This problem is exacerbated by a temperature inversion layer that traps air at lower levels below an overlying layer of warmer air. Prevailing winds in the area are generally from the south and southwest. Sea breezes flow over the San Francisco Bay Area and into the Sacramento Valley, transporting pollutants from the large urban areas. Growth and urbanization in Placer County have also contributed to an increase in emissions.

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.
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). 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 Lincoln - 2885 Moore Road air quality monitoring station (2885 Moore Road, Lincoln), located approximately 5 miles west of the Project site, monitors concentrations of O_3 and $PM_{2.5}$. The Roseville-N Sunrise Avenue air quality monitoring station (151 North Sunrise Avenue, Roseville), located approximately 10.5 miles south of the Project site, monitors concentrations of PM_{10}. These monitoring stations monitor 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 and $PM_{2.5}$ for the Lincoln - 2885 Moore Road air quality monitoring station and PM_{10} for the Roseville-N Sunrise Avenue air quality monitoring station 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 – Lincoln - 2885 Moore Road Station Monitoring Station			
Max 1-hour concentration (ppm)	*	0.070	0.086
Max 8-hour concentration (ppm) (state/federal)	* / *	0.059 / 0.058	0.076 / 0.075
Number of days above 1-hour standard (state/federal)	* / *	0 / 0	0 / 0
Number of days above 8-hour standard (state/federal)	* / 0	0 / 0	4 / 3
PM_{10} – Roseville - N Sunrise Avenue Monitoring Station			
Max 24-hour concentration (µg/m3) (state/federal)	65.8 / 66.0	211.3 / 202.2	63.1 / 63.1
Number of days above 24-hour standard (state/federal)	* / 0	* / 2.0	2.0 / 0
$PM_{2.5}$ – Lincoln - 2885 Moore Road Monitoring Station			
Max 24-hour concentration (µg/m3) (state/federal)	* / *	227.5 / *	35.7 / *
Number of days above federal 24-hour standard	*	*	*

Source: CARB 2020a
$\mu g/m^3$ = 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 (USEPA 2018b). 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 Placer County portion of the SVAB 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 standards and is also a nonattainment area for the state standards for O_3 and PM_{10} (CARB 2019).

Table 3.2-3. Attainment Status of Criteria Pollutants in the Placer County Portion of the SVAB

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

As noted, Nevada Irrigation District (NID) is considering three alternatives for construction: Alternatives 1 (Riverbank Infiltration Gallery) and 2 (Fish Passage) would demolish and replace the existing diversion structure with new facilities in roughly the same location as the Hemphill Diversion. This area is bounded by Turkey Creek Golf Course to the southwest, undeveloped land to the northwest, and rural residential and agricultural uses to the east and northeast. The Lincoln Newcastle Highway (State Route [SR] 193) is located approximately 0.7 mile south of the Project site, while Virginiatown Road is located 250 feet north of the Diversion. The closest sensitive receptor is a single-family residence located on the south side of Virginiatown Road, with a property line approximately 100 feet from the eastern extent of the Project site.

Alternative 3 (Pipeline) would demolish and remove the existing diversion structure as described above with the closest receptor being approximately 100 feet. Additionally, it would construct a new water line within existing roadways to transport water from the NID Placer Yard Facility on Gold Hill Road to Hemphill Canal. Existing land uses along these roadways include low-density rural residential development surrounded by grassland (often grazed) and agricultural fields. Construction involved in the installation of the proposed pipeline would occur within 25 to 50 feet of several rural single-family residences fronting Virginiatown Road, Fowler Road, and Fruitvale Road. It is acknowledged that construction activities would occur throughout the linear Project site and would not be concentrated at any one point along the 4.5-mile long pipeline corridor.

3.2.2 Regulatory Framework

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 Placer County portion of the SVAB 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 *2017 Sacramento Regional 2008 8-Hour Ozone Attainment and Reasonable Further Progress Plan (including 2018 updates), the PM_{10} Implementation/Maintenance Plan and Re-Designation Request (2010), and $PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area (2013)* constitute the current SIP for the Placer County portion of the SVAB. These air quality planning documents present comprehensive strategies to reduce the O_3 precursor pollutants (ROGs and NO_x) as well as PM emissions from stationary, area, mobile, and indirect sources.

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 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

Placer County Air Pollution Control District

The PCAPCD is designated by law to adopt and enforce regulations to achieve and maintain ambient air quality standards. The PCAPCD 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 PCAPCD 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 applicable to the proposed Project are summarized as follows:

- **Rule 202 Visible Emissions**: A person shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three in any one hour which is: a.) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or b.) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in section (A) above.
- **Rule 205 Nuisance**: A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause to have a natural tendency to cause injury or damage to businesses or property.
- **Rule 213 Transfer of Gasoline Transfer into Stationary Storage Containers:** The provisions of this rule shall apply to the transfer of gasoline into any stationary storage container.
- **Rule 214 Transfer of Gasoline into Vehicle Fuel Tanks:** The provisions of this rule shall apply to the transfer of gasoline from any stationary storage tank into any motor vehicle fuel tank.
- **Rule 218 Architectural Coating**: To limit the quantity of volatile organic compounds in architectural coating supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the PCAPCD.
- **Rule 228 Fugitive Dust**: To reduce the amount of particulate matter entrained in the ambient air, or discharge into the ambient air, as a result of anthropogenic (manmade) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions.
- **Rule 502 New Source Review:** The purpose of this rule is to provide for the review of new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct for such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.

Placer County General Plan

The Section 8: Health and Safety of the Placer County General Plan addresses air quality-related issues within the county. The following policies are applicable to the Proposed Project:

Goal 6.F: To protect and improve air quality in Placer County.

Policies:

6.F.3. The County shall support the Placer County Air Pollution Control District (PCAPCD) in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality impacts of new development.

6.F.6. The County shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.

6.F.8. The County shall submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.

City of Lincoln General Plan

The Lincoln General Plan Health and Safety Element contains goal, policies, and implementation measures designed to protect the public health, safety, and welfare of the community from any unreasonable risks while minimizing damage to structures, property, and infrastructure resulting from natural and man-made hazards.

Goal HS-3: To reduce the generation of air pollutants and promote non-polluting activities to minimize impacts to human health and the economy of the City.

Policies:

HS- 3.5 *Development Requirements,* The City shall require developments, where feasible, to be located, designed, and constructed in a manner that would minimize the production of air pollutants and avoid land use conflicts.

HS- 3.6 *City Review of Development Proposals,* The City shall require consideration of alternatives or amendments that reduce emissions of air pollutant when reviewing project applications.

HS- 3.8 *Air Quality Analysis,* The City may require an analysis of potential air quality impacts associated with significant new developments through the environmental review process, and identification of appropriate mitigation measures prior to approval of the project development.

HS- 3.9 *Dust Suppression Measures,* The City shall require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include, but are not limited to, the following:

- Site watering or application of dust suppressants,
- Phasing or extension of grading operations,
- Covering of stockpiles,

- Suspension of grading activities during high wind periods (typically winds greater than 25 miles per hour), and
- Revegetation of graded areas.

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 PCAPCD 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. PCAPCD'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 PCAPCD's established thresholds of significance for air quality for construction and operational activities of land use development projects are shown in Table 3.2-4.

Table 3.2-4. PCAPCD Significance Thresholds – Pounds per Day

Air Pollutant	Construction Activities	Operations
Reactive Organic Gases	82	55
Nitrogen Oxide	82	55
Carbon Monoxide	--	--
Sulfur Oxide	--	--
Coarse Particulate Matter	82	82
Fine Particulate Matter	--	--

Source: PCAPCD 2017

Methods of Analysis

Air quality impacts were assessed for each Alternative in accordance with methodologies recommended by the PCAPCD. 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 Placer County coupled with Project specific information contained in Section 2.0, Project Description. Potential operational air pollutant emissions associated with the Project are addressed qualitatively.

Project Impact Analysis

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 Placer County Air Pollution Control District Air Quality Plans.*

Alternatives 1, 2, and 3

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 PCAPCD is the agency responsible for enforcing many federal and state air quality requirements and for establishing air quality rules and regulations. The PCAPCD attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. As part of this effort, the PCAPCD has developed input to the SIP. The 2017 Sacramento Regional 2008 8-Hour Ozone Attainment and Reasonable Further Progress Plan (including 2018 updates), the PM_{10} Implementation/Maintenance Plan and Re-Designation Request (2010), and $PM_{2.5}$ Implementation/Maintenance Plan and Re-designation Request for Sacramento $PM_{2.5}$ Nonattainment Area (2013) constitute the current SIP for the Placer County portion of the SVAB and include the PCAPCD's plans and control measures for attaining air quality standards. These air quality attainment plans are a compilation of new and previously submitted plans, programs (e.g., monitoring, modeling, permitting), district rules, state regulations, and federal controls describing how the state will attain ambient air quality standards.

The SIP plans and control measures are based on information derived from projected growth in Placer County in order to project future emissions and then determine strategies and regulatory controls for the

reduction of emissions. Growth projections are based on the general plans developed by Placer County and the incorporated cities in the county. As such, projects that propose development consistent with the growth anticipated by the respective general plan of the jurisdiction in which the proposed development is located would be consistent with the SIP. In the event that a project would propose a development that is less dense than that associated with the general plan, the project would likewise be consistent with the SIP. If a project, however, proposes a development that is denser than that assumed in the general plan, the project may be in conflict with the SIP and could therefore result in a significant impact on air quality.

Growth projections for Placer County in the Project area are based on the City of Lincoln and County of Placer general plans. As such, projects in the city or unincorporated County that propose development consistent with the growth anticipated by the general plans would be consistent with PCAPCD's air quality planning efforts. None of the Project Alternatives include development of new housing or employment centers and would not induce population or employment growth. Rather, the Project seeks to provide for passage for anadromous fish at the Hemphill Diversion Structure through elimination or modification of the existing structure. Therefore, the Project would not affect local plans for population growth and the Proposed Project would be considered consistent with the population, housing, and employment growth projections utilized in the preparation of PCAPCD air quality planning efforts. Furthermore, as described in detail under Impact 3.2-2, none of the Project Alternatives would exceed the PCAPCD's short-term construction or long-term operational thresholds and in turn would not violate any air quality standards, and thus would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment. There is ***no impact***.

Mitigation Measures

None required.

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 Placer County Air Pollution Control District Significance Thresholds.*

Alternatives 1, 2, and 3

Implementation of any of the Project Alternatives 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 specific to Alternative 3, the use of asphalt or other oil-based substances during paving activities.

Construction-generated emissions associated with each Project Alternative 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** for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for each of the Project Alternatives are summarized in Table 3.2-5. 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 PCAPCD's thresholds of significance.

Table 3.2-5 Construction-Related Emissions

Construction Year	Pollutant (maximum pounds per day)		
	ROG	NO_x	PM_{10}
Alternative 1 (Riverbank Infiltration Gallery)[1]			
Construction in the Year 2022 (Temporary Coffer Dam Installation, Diversion Structure Removal & Infiltration Gallery Installation, Temporary Coffer Dam Removal)	7.68	73.26	5.48
Alternative 2 (Fish Passage)[2]			
Construction in the Year 2022 (Phase 1 – Vegetation Clearing Phase 2 –Temporary Coffer Dam Installation, Diversion Structure Removal, and Fish Passage Installation Phase 3 – Diversion Ditch Installation)	2.02	23.86	4.44
Alternative 3 (Pipeline)			
Construction in the Year 2022 (Temporary Coffer Dam Installation, Diversion Structure Removal and construction of Pipeline)	5.52	57.61	21.75
PCAPCD Potentially Significant Impact Threshold	*82*	*82*	*82*
Exceed PCAPCD Threshold?	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to **Appendix 3.2** for Model Data Outputs.
Notes:
[1] Alternative 1 emissions calculations account for the import of 3,300 cubic yards of gravel, export of 1,000 tons of demolished material, export of 9,000 cubic yards of excavated soil material, and import of 9,000 cubic yards of material with heavy duty haul trucks.
[2] Alternative 2 emissions calculations account for the export of 3,200 cubic yards of vegetative material; import of 8,500 tons of boulders, sand, gravel, and cobble; export of 1,000 tons of demolished material, and export of 9,000 cubic yards of excavated soil material with heavy duty haul trucks.
[3] Alternative 3 emissions calculations account for the import of 3,300 cubic yards of gravel, export of 1,000 tons of demolished material, export of 4,630 cubic yards of excavated asphalt and soil material and import of 1,930 cubic yards of aggregate with heavy duty haul trucks.

As shown in Table 3.2-5, emissions generated during the construction of any Alternative would not exceed the PCAPCD'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.

None of the Alternatives under the Proposed Project would 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. In addition, once the proposed Project is implemented, there would be no increase in automobile trips to the area. While Alternative 1 and Alternative 2 would increase electricity consumption for the purpose of pumping and operating a brush system to facilitate automatic cleaning, the indirect criteria air pollutant emissions associated with energy are not regulated under the CAA. 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).*

Alternatives 1, 2, and 3

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: persons 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 activities proposed for Alternatives 1 and 2 is a single-family residence located on the south side of Virginiatown Road, with a property line approximately 100 feet from the eastern extent of the Project site. The nearest sensitive receptor to activities proposed for Alternatives 3 include several rural single-family residences fronting Virginiatown Road, Fowler Road, and Fruitvale Road that are within 25 to 50 feet of the proposed pipeline installation component.

Construction-related activities under any of the Project Alternatives would result in temporary, short-term emissions of DPM, ROG, NO_x, 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 SVAB which encompasses the Project area is designated as a nonattainment area for federal O_3 and standards and is also a nonattainment area for the state standards for O_3 and PM_{10} standards (CARB 2019). Thus, existing O_3 and PM_{10} levels in the SVAB are at unhealthy levels during certain periods. However, as shown in Table 3.2-5, none of the Project Alternatives would exceed the PCAPCD significance thresholds for emissions.

The health effects associated with O_3 are generally associated with reduced lung function. Because the Project Alternatives would not involve construction activities that would result in O_3 precursor emissions (ROG or NO_x) in excess of the PCAPCD thresholds, the Alternatives are 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 Project Alternatives would not involve construction activities that would result in CO emissions in excess of the PCAPCD thresholds. 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 NO_x, the Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the PCAPCD'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 any of the Project Alternatives 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 Alternatives would not result in the development of any substantial sources of air toxics. The Project seeks to provide for passage for anadromous fish at the Hemphill Diversion Structure through elimination or modification of the existing structure. There would be no stationary sources associated with the implementation of any of the Project Alternatives. 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 Alternatives would not represent a substantial source of odor. The effect of the Project would be to provide passage for anadromous fish at the Hemphill Diversion Structure through elimination or modification of the existing structure. Immediately following completion of the Project under any Alternative, all Project activity beyond routine maintenance would cease. Therefore, ***no impact*** would occur.

Mitigation Measures

None required.

3.2.4 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 the City of Lincoln and Greater Placer County.

Developments and planned land uses, including the Proposed Project, would cumulatively contribute to air quality impacts.

Cumulative Impacts and Mitigation Measures

Impact 3.2.5: Cumulative Air Quality Impacts

Threshold:	*Would Implementation of the proposed project, along with any foreseeable development in the project vicinity, result in cumulative impacts to air quality?*

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 cumulatively considerable. None of the Project Alternatives would exceed the PCAPCD significance thresholds. For this reason, the Proposed Project would have a ***less than considerable contribution to cumulative impacts*** regarding air quality.

Cumulative Mitigation Measures

None required.

3.2.5 References

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

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

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3.3 BIOLOGICAL RESOURCES

3.3.1 Introduction

This section presents an evaluation of potential biological resources impacts associated with the three Project Alternatives considered in this DEIR. The section assesses whether construction and operation of the Project would result in significant impacts on terrestrial and aquatic biological resources. In preparing the evaluation, all substantive comments received in response to the Notice of Preparation for this DEIR pertinent to biological resources were considered. This section includes a description of the existing environmental conditions, regulatory setting, an overview of the methods used for assessing impact, impact significance thresholds, and the impacts associated with constructing and operating each of the three Project Alternatives. Where significant impacts are identified, feasible and effective mitigation measures are presented to reduce those impacts to levels considered ***less than significant***.

Resource information presented herein is based on the following technical studies:

- The Biological Resources Assessment Hemphill Diversion Project (BRA) (ECORP 2021a) (DEIR **Appendix 3.3-A);**
- The Hemphill Diversion Project Arborist Report (ECORP 2020) (DEIR **Appendix 3.3-B**);
- The Special Status Plant Survey Hemphill Diversion Project (ECORP 2021b) (DEIR **Appendix 3.3-C**).

Biological Resources Assessment

The BRA prepared for the project includes an analysis of sensitive species, an Aquatic Resources Delineation and results of a valley elderberry long horn beetle (VELB) survey.

The BRA also includes a habitat assessment for PCCP Covered Species. This assessment was conducted by ECORP biologists Keith Kwan and Hannah Stone on August 7 and 26, 2020. Information and observations from this habitat assessment were used to determine whether specific potential habitat features for PCCP Covered Species were present or likely to be present within the Project Study Area. Inaccessible portions of the Project Study Area were visually assessed in the field from accessible vantage points (e.g., public roads) and/or photo-assessed using Google Earth aerial views.

The following resources were queried to determine whether any special-status species/habitat other than PCCP Covered Species have potential to occur within the Project Study Area (Included as BRA Attachment A – see DEIR **Appendix 3.3-A**):

- CDFW CNDDB record search for the "Gold Hill, California" and "Lincoln, California" 7.5-minute quadrangles and the 10 surrounding USGS quadrangles (CDFW 2020a);
- USFWS Information, Planning, and Consultation System Resource Report List for the Project Study Area (USFWS 2020); and

- CNPS' Electronic Inventory of Rare and Endangered Plants of California for the "Gold Hill, California" and "Lincoln, California" 7.5-minute quadrangles and the ten surrounding USGS quadrangles (CNPS 2020).
- National Oceanic and Atmospheric Administration Fisheries West Coast Region Species (NOAA 2020)

The overall Project Study Area is approximately 98.05 acres and includes all areas where potential project impacts could occur, including the Alternative 3 Pipeline alignment and potential staging areas, Hemphill Canal, and the area near the existing diversion where the majority of project features would be located. It should be noted that the Project Study Area includes buffer areas to allow flexibility in siting project features and the entire area would not be impacted by the various project alternatives. In addition, a sub-Project Study Area has been identified that covers all near and instream components of the project. This encompasses approximately 15.2 acres as shown on Figure 2-6 (see DEIR Section 2.0 Project Description). This area also includes buffer areas for purposes of design flexibility. Vegetation communities occurring within the Project Study Area were characterized, and biological resource information was collected including direct observations of special-status species; habitat and vegetation communities; and representative photographs of the Project Study Area (Attachment B to the BRA – see DEIR **Appendix 3.3-A**).

Based on species occurrence information from the literature review and observations in the field, a list of special status plant and animal species that have the potential to occur within the Project Study Area was generated (see BRA Table 4 in Appendix 3.3-A). Each of these species' potential to occur within the Study Areas was determined based on the following criteria:

- *Present*. Species was observed during field surveys or is known to occur within the 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 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 Project Study Area, or the vicinity of the Study Area based on CNDDB records and other documentation or determinate field surveys.

Aquatic Resources Delineation

An aquatic resources delineation was conducted by ECORP biologists Keith Kwan and Hannah Stone on August 7 and 26, 2020. The aquatic resources delineation is contained in the BRA and was conducted 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 2008a). Non-wetland waters were identified in the field according

to *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United* States (USACE 2008b), where applicable. The boundaries of aquatic resources were delineated through standard field methods (e.g., paired sample set analyses). *Munsell Soil Color Charts* (Munsell Color 2009) and the Web Soil Survey (NRCS 2020a) were used to aid in identifying hydric soils in the field. The *Jepson Manual, 2nd Edition* (Baldwin et al. 2012) was used for plant nomenclature and identification. Aquatic resources within the Project Study Area were recorded in the field using a post-processing capable GPS unit with sub-meter accuracy (Juniper Systems, Inc. Geode GNS2 Multi-GNSS 10Hz Receiver with Apple iPad/iOS interface). Portions of the Project Study Area were located on private property with no access. These areas were visually assessed in the field from adjacent accessible lands and analyzed using aerial photography from online sources, such as Google Earth. As a consequence, site-specific field data for these areas is limited.

Arborist Report

ECORP arborist Krissy Walker-Berry (ISA Certification #WE-11308A) oversaw preparation of the Arborist Survey Report - Hemphill Diversion Structure Removal Project (ECORP. 2020.) (see DEIR Appendix 3.3-B). The arborist report field survey was conducted on August 10, 14, 17, 18, and September 3, 8, 10, 15, 16, 21, 22, and 25, 2020, by ECORP biologists Gabrielle Attisani, Caroline Hinkelman, Hannah Kang, Dean Podolsky, Eric Stitt, and Hannah Stone. During the field survey, ECORP staff walked the accessible portions of the Project Study Area and recorded data using a sub-meter accuracy Global Positioning System unit. Where access was not available, trees from the ground were mapped via aerial photograph review; therefore some trees may not have been mapped as it was not always possible to obtain the necessary data (see DEIR **Appendix 3.3-B, Attachment A**). Additionally, some trees were surveyed that appeared to be located outside of the Project Study Area (see DEIR **Appendix 3.3-B Attachment A**); these were included in the survey due to proximity of the Project.

Data collected included species, tree tag number, diameter at breast-height (dbh), dripline radius, structure, and condition. In accordance with the Tree Preservation Code, all native trees with a dbh of six inches for single-stemmed trees, or with an aggregate dbh of 10 inches for multiple-stemmed trees, were surveyed. In addition, any large nonnative tree that could potentially be considered a landmark tree was also documented.

The survey results are intended for general project planning purposes only and should not be considered a detailed tree analysis (i.e., results do not include hazard assessment, tree health diagnosis, preservation/removal recommendations, or pruning advisement). In addition, where appropriate, notes were taken regarding any unusual features (e.g., large trunk cavities, obvious damage or disease, girdling by barbed wire).

Special Status Plant Survey

ECORP Consulting, Inc. conducted a special-status plant survey for a portion of the Study Area. Results are included in the report: 2020 Special Status Plant Survey – Hemphill Diversion Structure Project (ECORP. 2021b.) (see DEIR **Appendix 3.3-C**).

The special status plant survey Study Area is a linear corridor located along the extent of the Hemphill Canal from State Highway 193 just west of Oak Tree Lane near the city of Lincoln to Auburn Ravine and the Hemphill Diversion Structure. From the Diversion Structure, the Study Area continues along the Virginiatown Road east to Fowler Road, north on Fowler Road to Fruitvale Road, and east on Fruitvale Road to the Nevada Irrigation District (NID) maintenance yard at 1900 Gold Hill Road. The previously described portions of the Study Area are collectively referred to as the Survey Area (depicted as Survey Area on BRA Figure 2. *Survey Area;* see DEIR Appendix 3.3-C). The Study Area also includes portions of privately owned residential and agricultural parcels adjacent to the Virginiatown Road and Fowler Road rights-of-way, which are collectively referred to as the Assessment Area. Private properties were not accessible during the survey.

Prior to conducting field surveys, background information was collected on the potential presence of special-status plants within or near the Study Area from a variety of sources. This included a review of resource agency species lists, literature review, online database query, voucher specimen review, and reference population review. The following resources were used as part of the literature review:

- CDFW CNDDB record search for the "Gold Hill, California" and "Lincoln, California" 7.5-minute quadrangles and the 10 surrounding USGS quadrangles (CDFW 2020);
- USFWS Information, Planning, and Consultation System Resource Report List for the Study Area (USFWS 2020); and
- CNPS' electronic Inventory of Rare and Endangered Plants of California for the "Gold Hill, California" and "Lincoln, California" 7.5-minute quadrangles and the 10 surrounding USGS quadrangles (CNPS 2020).

The survey was conducted on June 28 and June 29, 2020 by ECORP botanists Hannah Kang and Hannah Stone. A list of field personnel qualifications is included as Attachment C to the 2020 Special Status Plant Survey report (see DEIR **Appendix 3.3-C**). The biologists walked meandering transects throughout the Survey Area to ensure complete coverage of all suitable habitat for all target species. The Assessment Area was not included in the field survey.

A complete list of all plants observed within the Survey Area was generated (see DEIR **Appendix 3.3-C**, Attachment D). All species were identified to the lowest possible taxonomic level required to assess rarity. Plant species identification, nomenclature, and taxonomy followed *The Jepson Manual: Vascular Plants of California, Second Edition* (Baldwin et al. 2012). Vegetation community classification was based on the classification systems presented in the MCV (Sawyer et al. 2009).

3.3.2 Mitigation Approach

The Project is located in Placer County which has approved the Placer County Conservation Program (PCCP) (County of Placer et al. 2020), a regional effort that will provide development and infrastructure projects with streamlined federal and State permitting processes while creating a preserve system to protect habitat, open space, and agricultural lands. While the PCCP has been approved at the local level, related resource agency permits required for implementation are currently in process. The PCCP includes three separate but complementary components that support two sets of State and federal permits:

- Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) – protects fish and wildlife, and their habitats, and fulfills the requirements of the federal ESA and the California Natural Community and Conservation Planning Act.
- Western Placer County Aquatic Resources Plan (CARP) – protects streams, wetlands, and other water resources and fulfills the requirements of the federal CWA and analogous State laws and regulations.
- In-Lieu Fee Program – allows requirements under Section 404 of the CWA to be fulfilled by payment of a fee for compensatory mitigation of impacts on aquatic resources from activities covered under the HCP/NCCP and the CARP.

The PCCP/CARP identifies the need to provide passage for anadromous fish at the Hemphill Diversion Structure through elimination or modification of the existing structure. The Proposed Project would implement this improvement and therefore could be considered consistent with the PCCP. The PCCP was prepared by local participating agencies (who will become the Permittees) including Placer County, the City of Lincoln, South Placer Regional Transportation Authority, Placer County Water Agency, and the Placer Conservation Authority (PCA), an entity created to implement the PCCP on behalf of the other Permittees.

While the Project is identified in the PCCP/CARP, because NID is not a PCCP Participating Agency, it is not required to obtain Project regulatory approval via the PCCP. Nevertheless, because the Project is addressed in the PCCP/CARP, NID is exploring the possibility of conducting project permitting and mitigation via the PCCP as a Special Entity. Doing so would require PCA approval. Therefore, the mitigation approach contained in this DEIR allows for either a standard permitting and mitigation approach, or alternative permitting and mitigation via the PCCP.

3.3.3 Environmental Setting

Site Characteristics and Land Use

The Project Study Area is located within flat to gently rolling terrain situated in the Sierra Nevada Foothills Subregion of the California Floristic Province (Baldwin et al. 2012). Elevations within the Project range from approximately 196 to 450 feet above mean sea level (MSL). Based on information gathered from the closest weather station, the average annual precipitation for the vicinity of the Study Area is approximately 20.3 inches (with the wettest period November-March), and average daily temperatures range from 41.5 degrees Fahrenheit (˚F) in winter to 91.2˚F in summer (National Oceanic and Atmospheric Administration [NOAA] 2020).

The Project Study Area encompassing the three Project Alternatives comprises developed areas including the Hemphill Canal, the Hemphill Diversion Structure, and associated dirt and gravel access roads; paved two-lane roads, portions of the Turkey Creek Golf Course, rural residences, agricultural fields, and the NID maintenance yard.

Vegetation Communities and Land Cover Types

PCCP Land Cover data within the Project Study Area were reviewed (see **Appendix 3.3-A**, BRA Figure 2. *Placer County Conservation Program Land Cover)*. After the site assessment, revision to the type and extent of the PCCP Land Cover types were made to better reflect current field conditions and vegetation communities (See **Appendix 3.3-A**, BRA Figure 3. *Revised Placer County Conservation Program Land Cover*). It is important to note that land cover and vegetation community mapping is approximate due to limited access and the difficulty in mapping roadside habitat in much of the Project Study Area. The revised Land Cover types and acreages found within the Project Study Area from BRA Figure 3 are summarized in Table 3.3-1. The following descriptions are based on the revised land cover map.

Table 3.3-1. Land Cover Types within Project Study Area

PCCP Land Cover Type	Acreage
Annual Grassland	14.67
Barren	4.47
Canal	1.38
Cropland	18.99
Mixed Oak Woodland	14.91
Oak Savanna	7.70
Oak-Foothill Pine Woodland	0.05
Orchard	0.63
Pasture	2.90
Riverine/Riparian	13.04
Road	12.91
Rural Residential	4.52
Urban Golf Course	1.63
Urban/Suburban	0.16
Valley Oak Woodland	0.10
Total[1]:	**98.05**

[1] Land Cover Type acreage total may not equal the Total Project Acreage due to rounding.

Based on the site assessment, the PCCP Communities/Land Cover types present within the Project Study Area include Natural Communities (i.e., annual grassland, mixed oak woodland, oak savanna, oak-foothill pine woodland, riverine/riparian, and valley oak woodland), Semi-natural Communities (i.e., cropland, pasture) Other Agricultural Communities (i.e., orchard), and Urban (Non-natural) Communities (i.e., barren, canal, road, rural residential, urban golf course, and urban/suburban). A list of plant species identified during the special-status plants surveys within the Project Study Area is included in Attachment C to the BRA (see DEIR **Appendix 3.3-A**).

Aquatic Resources

A total of 5.459 acres of aquatic resources was mapped within the Project Study Area. As listed in Table 3.3-2, these include seasonal wetland, seasonal wetland swales, riparian wetland, ditches, ponds, ephemeral drainages, and creek (Auburn Ravine).

Table 3.3-2. Aquatic Resources Delineation

Type	Acreage
Wetlands:	
Seasonal Wetland	0.074
Seasonal Wetland Swale	0.826
Riparian Wetland	0.310
Non-Wetland Waters:	
Ditch	1.383
Pond	0.001
Ephemeral Drainage	0.016
Creek (Auburn Ravine)	2.849
Total	**5.459**

Stream Characteristics

Auburn Ravine provides a wide diversity of aquatic habitat, which includes shallow runs, pools, glides, and fast-water riffles. At its headwaters in the City of Auburn, Auburn Ravine is confined to its natural channel and passes through culverts. In this reach, stream habitat units are primarily cascades and pool-riffle complexes, while the substrate consists of bedrock, sands, and cobbles (County of Placer 2002). Just east of Gold Hill Road, the channel gradient in Auburn Ravine decreases to less than two (2) percent and the stream habitat is dominated by pools, riffles, and runs, while the substrate is dominated by sands and gravels (County of Placer 2002). Near the City of Lincoln, the stream gradient decreases to less than one percent and the stream habitat shifts from pool-riffle complexes with mixes of gravels and sands to dune-ripple complexes dominated by coarse sand (County of Placer 2002).

Soils

According to the Web Soil Survey (NRCS 2020a), 10 soil units, or types, have been mapped within the Project Study Area. These are:

- (106) – Andregg coarse sandy loam, 2 to 9 percent slopes
- (109) – Andregg coarse sandy loam, rocky, 2 to 15 percent slopes
- (113) – Andregg-Shenandoah complex,, 2 to 15 percent slopes
- (129) – Caperton gravelly coarse sandy loam, 2 to 30 percent slopes

- (130) – Caperton-Andregg coarse sandy loam, 2 to 15 percent slopes
- (173) – Pits and dumps
- (180) – Rubble land
- (184) – Sierra sandy loam, 9 to 15 percent slopes
- (194) – Xerofluvents, frequently flooded
- (197) – Xerorthents, placer areas

The Andregg series consist of moderately deep, well-drained soils underlain by weathered granitic bedrock. These soils formed in upland areas in the Loomis Basin. The Caperton series consists of shallow, somewhat excessively drained soils underlain by weathered granitic rock, dominantly quartz diorite. These soils formed in upland areas in the Loomis Basin. The Shenandoah series consists of moderately deep, somewhat poorly drained claypan soils underlain by weathered granite. These soils formed in upland areas of foothills. The Sierra series consist of deep, well-drained soils underlain by weathered granitic bedrock.

Pits and Dumps are sand and gravel pits, refuse dumps, and rock quarries. Rubble Land is cobbly and stony mine debris and tailings from dredge or hydraulic mining. Xerofluvents, frequently flooded, consist of narrow stringers of somewhat poorly drained recent alluvium adjacent to stream channel. Xerorthents, placer areas, consist of stony, cobbly, and gravelly material commonly adjacent to streams that have been placer mined.

Eight of these soil units contain hydric soil components (NRCS 2020b) (see Table 3.3-3).

Table 3.3-3. Soil Units Occurring within the Project Study Area[1]

Soil Unit	Hydric Components[2]	Hydric Component Landform
106 – Andregg coarse sandy loam, 2 to 9 percent slopes	Unnamed	Drainageways
109 – Andregg coarse sandy loam, rocky, 2 to 15 percent slopes	Xerofluvents	Drainageways
109 – Andregg coarse sandy loam, rocky, 2 to 15 percent slopes	Unnamed	Drainageways
113 – Andregg-Shenandoah complex, 2 to 15 percent slopes	Shenandoah	Hills
113 – Andregg-Shenandoah complex, 2 to 15 percent slopes	Xerofluvents	Drainageways
113 – Andregg-Shenandoah complex, 2 to 15 percent slopes	Unnamed	Drainageways
129 – Caperton gravelly coarse sandy loam, 2 to 30 percent slopes	Unnamed	Drainageways
130 – Caperton-Andregg coarse sandy loam, 2 to 15 percent slopes	Unnamed	Drainageways
173 – Pits and dumps	Unnamed	Drainageways
180 – Rubble land	None	None
184 – Sierra sandy loam, 9 to 15 percent slopes	None	None
194 – Xerofluvents, frequently flooded	Xerofluvents, frequently flooded	Drainageways
194 – Xerofluvents, frequently flooded	Unnamed	Drainageways
197 – Xerorthents, placer areas	Unnamed	Drainageways

[1]Source: NRCS 2020a
[2]Source: NRCS 2020b

Wildlife

Wildlife species observed within the Project Study Area during the August 7 and 26, 2020 site visits are included in the BRA as Attachment D (DEIR **Appendix 3.3-A**). The Project Study Area does not fall within an Essential Habitat Connectivity area mapped by the CDFW (CDFW 2020c).

Special-Status Species Identified in the Literature Search

A list of all special-status plant and wildlife species identified in the literature search of the BRA as potentially occurring within the Project Study Area is provided in Table 4 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 Table 4 of the BRA because the species have been formally delisted or are only tracked by the California Natural Diversity Database (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.

Potentially Occurring Special-Status Plant Species

Thirty-one (31) special-status plant species were identified as having the potential to occur within the Project Study Area based on the literature review. Upon further analysis and site reconnaissance, 12 of these species were determined to be absent from the Project Study Area due to the lack of suitable habitat. No further discussion of those species is provided in this assessment. Brief descriptions of the 19 special-status plants with the potential to occur within the Project Study Area is presented in the following sections.

A determinate-level survey for "late-season" special-status plants was conducted on June 28 and 29, 2020. The target species for this survey included Mexican mosquito fern (*Azolla microphylla*), big-scale balsamroot (*Balsamorhiza macrolepis*), hispid bird's-beak (*Chloropyron molle* ssp. *hispidum*), Brandegee's

clarkia (*Clarkia biloba* ssp. *brandegeeae*), stinkbells (*Fritillaria agrestis*), Butte County fritillary (*Fritillaria eastwoodiae*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Red bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*), legenere (*Legenere limosa*), Humboldt lily (*Lilium humboldtii* ssp. *humboldtii*), adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*), Sacramento Orcutt grass (*Orcuttia viscida*), Sanford's arrowhead (*Sagittaria sanfordii*), and Brazilian watermeal (*Wolffia brasiliensis*). None of these target species or any other special-status plants were found during these surveys. An "early-season" survey is scheduled to occur during the spring 2021 to target the remaining potentially-occurring special-status plants (e.g. Valley brodiaea [*Brodiaea rosea* ssp. *vallicola*], dwarf downingia [*Downingia pusilla*], Butte County fritillary (*Fritillaria eastwoodiae*), Ahart's dwarf rush [*Juncus leiospermus* var. *ahartii*], dubious pea [*Lathyrus sulphureus* var. *argillaceus*], and pincushion navarretia [*Navarretia myersii* ssp. *myersii*].

Mexican Mosquito Fern

Mexican mosquito fern is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 4.2 species (a watch list of plants of limited distribution, moderate degree and immediacy of threat). This species is an herbaceous annual/perennial that occurs in marshes and swamps (e.g., ponds and slow-moving water) (CNPS 2020). Mexican mosquito fern blooms in August and is known to occur at elevations ranging from 98 to 328 feet above MSL (CNPS 2020). The current range for Mexican mosquito fern in California includes Butte, Colusa, Glenn, Inyo, Kern, Lake, Modoc, Nevada, Plumas, San Bernardino, Santa Clara, San Diego, and Tulare counties (CNPS 2020).

There are no documented CNDDB occurrence of Mexican mosquito fern within five miles of the Project Study Area (CDFW 2020a). Some of the seasonal wetland swales and ephemeral drainages onsite provide suitable habitat for this species. Therefore, Mexican mosquito fern has potential to occur within the Project Study Area.

Big-scale Balsamroot

Big-scale balsamroot is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 1B.2 species (plants rare, threatened or endangered in California and elsewhere, moderately threatened in California). This species is an herbaceous perennial that occurs in chaparral, cismontane woodlands, valley and foothill grassland, and occasionally on serpentinite soils (CNPS 2020). Big-scale balsamroot blooms from March through June and is known to occur at elevations ranging from 148 to 5,102 feet above MSL (CNPS 2020). Big-scale balsamroot is endemic to California; the current range of this species includes Alameda, Amador, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Shasta, Solano, Sonoma, Tehama, and Tuolumne counties (CNPS 2020).

There is one documented CNDDB occurrence of big-scale balsam root within five miles of the Project Study Area (CDFW 2020a). The grassland and woodlands onsite provide suitable habitat for this species. Therefore, big-scale balsamroot has potential to occur within the Project Study Area.

Valley Brodiaea

Valley brodiaea is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 4.2 species. This species is a bulbiferous perennial herb that occurs in old alluvial terraces and silty, sandy,

or gravelly soils in vernal pools, swales, and valley and foothill grassland (CNPS 2020). Valley brodiaea blooms from April through May and is known to occur at elevations ranging from 33 to 1,100 feet above MSL (CNPS 2020). Valley brodiaea is endemic to California; the current range of this species includes Butte, Calaveras, Nevada, Placer, Sacramento, San Joaquin, Sutter, and Yuba counties (CNPS 2020).

There are no documented CNDDB occurrences of Valley brodiaea within five miles of the Project Study Area (CDFW 2020a). The seasonal wetland and seasonal wetland swales onsite provide suitable habitat for this species. Therefore, Valley brodiaea has potential to occur within the Project Study Area.

Hispid Bird's-beak

Hispid bird's-beak is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 1B.1 species (rare, threatened or endangered in California and elsewhere, seriously threatened in California). This species is an herbaceous, hemiparasite annual that occurs on alkaline soils in meadows and seeps, playas, and valley and foothill grasslands. Hispid bird's-beak blooms from June through September and is known to occur at elevations ranging from three feet to 509 feet above MSL (CNPS 2020). Hispid bird's-beak is endemic to California; the current range of this species includes Alameda, Fresno, Kern, Merced, Placer, and Solano counties (CNPS 2020).

There is one documented CNDDB occurrence of hispid bird's-beak within five miles of the Project Study Area (CDFW 2020a). There is no suitable habitat onsite. However, marginal habitat may be present within areas that were inaccessible (i.e. private property). Therefore, hispid bird's-beak has low potential to occur within the Project Study Area.

Brandegee's Clarkia

Brandegee's clarkia is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 4.2 plant. This species is an herbaceous annual that occurs in chaparral, cismontane woodlands, and lower montane coniferous forest often along roadcuts (CNPS 2020). Brandegee's clarkia blooms from May through July and is known to occur at elevations ranging from 246 to 3,002 feet above MSL (CNPS 2020). Brandegee's clarkia is endemic to California, and the current range of this species includes Butte, El Dorado, Nevada, Placer, Sacramento, Sierra, and Yuba counties (CNPS 2020).

There are no documented CNDDB occurrences of Brandegee's clarkia within five miles of the Project Study Area (CDFW 2020a). The woodlands onsite provide marginally suitable habitat for this species. Therefore, Brandegee's clarkia has low potential to occur within the Project Study Area.

Dwarf Downingia

Dwarf downingia is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 2B.2 species (rare, threatened, or endangered in California but more common elsewhere, moderately threatened in California). This species is an herbaceous annual that occurs in vernal pools and mesic areas in valley and foothill grasslands (CNPS 2020). Dwarf downingia also appears to have an affinity for slight disturbance since it has been found in manmade features such as tire ruts, scraped depressions, stock ponds, and roadside ditches (Baldwin et al. 2012, CDFW 2020a). This species blooms from March through May and is known to occur at elevations ranging from 3 to 1,460 feet above MSL (CNPS 2020). The

current range of this species in California includes Amador, Fresno, Merced, Napa, Placer, Sacramento, San Joaquin, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties (CNPS 2020).

There are six documented CNDDB occurrence of dwarf downingia within five miles of the Project Study Area (CDFW 2020a). The seasonal wetland, seasonal wetlands swales, and ephemeral drainages onsite provide suitable habitat for this species. Therefore, dwarf downingia has potential to occur within the Project Study Area.

Stinkbells

Stinkbells is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is a perennial bulbiferous herb that occurs in clay, sometimes serpentinite areas in chaparral, cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland (CNPS 2020). Stinkbells bloom from March to June and is known to occur at elevations ranging from 33 to 5,102 feet above MSL (CNPS 2020). This species is endemic to California; its current range includes Alameda, Contra Costa, Fresno, Kern, Mendocino, Merced, Monterey, Mariposa, Placer, Sacramento, Santa Barbara, San Benito, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, Stanislaus, Tuolumne, Ventura, and Yuba counties, and is considered to be extirpated from Santa Cruz and San Mateo counties (CNPS 2020).

There are no documented CNDDB occurrences of stinkbells within five miles of the Project Study Area (CDFW 2020a). The grasslands and woodlands onsite provide marginally suitable habitat for this species. Therefore, stinkbells has low potential to occur within the Project Study Area.

Butte County Fritillary

Butte County fritillary is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 3.2 species (a review list of plants about which more information is needed, moderately threatened in California). This species is an herbaceous bulbiferous perennial that occurs in chaparral, cismontane woodland, and lower montane coniferous forest, and is occasionally found on serpentinite soils (CNPS 2020). Butte County fritillary blooms from March to June and is known to occur at elevations ranging from 164 to 4,921 feet above MSL (CNPS 2020). The current range of this species in California includes Butte, El Dorado, Nevada, Placer, Plumas, Shasta, Tehama, and Yuba counties (CNPS 2020).

There are no documented CNDDB occurrences of Butte County fritillary within five miles of the Project Study Area (CDFW 2020a). The woodlands onsite provide marginally suitable habitat for this species. Therefore, Butte County fritillary has low potential to occur within the Project Study Area.

Boggs Lake Hedge-hyssop

Boggs Lake hedge-hyssop is not listed pursuant to the federal ESA, is listed as endangered pursuant to the California ESA, and is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in clay in marshes and swamps (lake margins), and vernal pools (CNPS 2020). Boggs Lake hedge-hyssop blooms from April through August and is known to occur at elevations ranging from 33 to 7,792 feet above MSL (CNPS 2020). The current range of this species in California includes Fresno, Lake, Lassen, Madera, Mendocino, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, Sonoma, and Tehama counties (CNPS 2020).

There is one documented CNDDB occurrence of Boggs Lake hedge-hyssop within five miles of the Project Study Area (CDFW 2020a). The seasonal wetland and seasonal wetland swales onsite provide suitable habitat for this species. Therefore, Boggs Lake hedge-hyssop has potential to occur within the Project Study Area.

Ahart's Dwarf Rush

Ahart's dwarf rush is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in mesic areas in valley and foothill grasslands (CNPS 2020). This species also appears to have an affinity for slight disturbance since it has been found on farmed fields and gopher turnings (USFWS 2005). Ahart's dwarf rush blooms from March through May and is known to occur at elevations ranging from 98 to 751 feet above MSL (CNPS 2020; USFWS 2005). Ahart's dwarf rush is endemic to California; the current range of this species includes Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba counties (CNPS 2020).

There is one documented CNDDB occurrence of Ahart's dwarf rush within five miles of the Project Study Area (CDFW 2020a). The seasonal wetland and seasonal wetland swales onsite provide suitable habitat for this species. Therefore, Ahart's dwarf rush has potential to occur within the Project Study Area.

Dubious Pea

Dubious pea is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 3 species. This species is an herbaceous perennial that occurs in cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest (CNPS 2020). Dubious pea blooms from April through May and is known to occur at elevations ranging from 492 to 3,051 feet above MSL (CNPS 2020). Dubious pea is endemic to California; the current range of this species includes Calaveras, El Dorado, Nevada (distribution or identity is uncertain), Placer, Shasta, and Tehama counties (CNPS 2020).

There are no documented CNDDB occurrences of dubious pea within five miles of the Project Study Area (CDFW 2020a). The woodlands onsite provide marginally suitable habitat for this species. Therefore, dubious pea has low potential to occur within the Project Study Area.

Legenere

Legenere is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 1B.1 species (CNPS 2020). This species is an herbaceous annual that occurs in a variety of seasonally inundated environments including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005). Legenere blooms from April through June and is known to occur at elevations ranging from 3 feet to 2,887 feet above MSL (CNPS 2020). Legenere is endemic to California; the current range of this species includes Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, San Joaquin, Shasta, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties; is believed to be extirpated from Stanislaus County (CNPS 2020).

There are three documented CNDDB occurrence of legenere within five miles of the Project Study Area (CDFW 2020a). The seasonal wetland seasonal wetlands swales onsite provide suitable habitat for this species. Therefore, legenere has potential to occur within the Project Study Area.

Humboldt Lily

Humboldt lily is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 4.2 species. This species is a perennial bulbiferous herb that occurs in openings within chaparral, cismontane woodland, and lower montane coniferous forest (CNPS 2020). Humboldt lily blooms from May through August and is known to occur at elevations ranging from 295 to 4,199 feet above MSL (CNPS 2020). Humboldt lily is endemic to California; the current range of this species includes Amador, Butte, Calaveras, El Dorado, Fresno, Mariposa, Nevada, Placer, Tehama, Tuolumne, and Yuba counties (CNPS 2020).

There are no documented CNDDB occurrences of Humboldt lily within five miles of the Project Study Area (CDFW 2020a). The woodlands onsite provide marginally suitable habitat for this species. Therefore, Humboldt lily has low potential to occur within the Project Study Area.

Pincushion Navarretia

Pincushion navarretia is not listed pursuant to either the federal or California ESAs but is designated as a CNPS 1B.1 species. This species is an herbaceous annual that occurs in vernal pools that are often acidic (CNPS 2020). Pincushion navarretia blooms in April to May and is known to occur at elevations ranging from 66 to 1,083 feet above MSL (CNPS 2020). Pincushion navarretia is endemic to California; the current range of this species includes Amador, Calaveras, Merced, Placer, and Sacramento counties (CNPS 2020).

There is one documented CNDDB occurrence of pincushion navarretia within five miles of the Project Study Area (CDFW 2020a). The ditches onsite provide suitable habitat for this species. Therefore, pincushion navarretia has potential to occur within the Project Study Area.

Adobe Navarretia

Adobe navarretia is not listed pursuant to either the federal or California ESAs but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in clay and sometimes serpentinite substrates in mesic areas in valley and foothill grassland and sometimes in vernal pools (CNPS 2020). Adobe navarretia blooms between April and June and is known to occur at elevations ranging from 328 to 3,281 feet above MSL (CNPS 2020). Adobe navarretia is endemic to California; its current range includes Alameda, Butte, Contra Costa, Colusa, Fresno, Kern, Merced, Monterey, Placer, Sutter, and Tulare counties (CNPS 2020).

There are no documented CNDDB occurrences of adobe navarretia within five miles of the Project Study Area (CDFW 2020a). The seasonal wetland and seasonal wetland swales onsite provide suitable habitat for this species. Therefore, adobe navarretia has potential to occur within the Project Study Area.

Sacramento Orcutt Grass

Sacramento Orcutt grass is listed as endangered pursuant to both the federal and California ESAs and is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools (CNPS 2020). The median area of occupied pools discovered prior to 1988 was 0.69 acre and ranged from 0.25 to 2.03 acres (USFWS 2005). Sacramento Orcutt grass blooms from April through July and is known to occur at elevations ranging from 98 to 328 feet above MSL (CNPS 2020). Sacramento Orcutt grass is endemic to

California and to the southeastern Sacramento Valley (Keeler-Wolf et al. 1998, as cited in USFWS 2005), with all known occurrences restricted to Sacramento County. Known occurrences of this species within the general region are limited to a small area east of Mather Field, Phoenix Field Ecological Reserve, Phoenix Park (introduced population), and an area near Rancho Seco Lake (USFWS 2005).

There are no documented CNDDB occurrences of Sacramento Orcutt grass within five miles of the Project Study Area (CDFW 2020a). There was no suitable habitat observed onsite, and the larger, deeper vernal pools that this species is typically found in are not expected to be found in this portion of Placer County. However, marginally suitable habitat may be present in private properties that were inaccessible. Therefore, Sacramento Orcutt grass has low potential to occur within the Project Study Area.

Sanford's Arrowhead

Sanford's arrowhead is not listed pursuant to the federal or California ESAs but is designated as a CRPR 1B.2 species. This species is a perennial rhizomatous herb that occurs in shallow, freshwater marshes and swamps (CNPS 2020). Sanford's arrowhead blooms from May through October and is known to occur at elevations ranging from sea level to 2,133 feet above MSL (CNPS 2020). Sanford's arrowhead is endemic to California; the current range of this species includes Butte, Del Norte, El Dorado, Fresno, Merced, Mariposa, Marin, Napa, Orange, Placer, Sacramento, San Bernardino, San Joaquin, Shasta, Solano, Tehama, Tulare, Ventura, and Yuba counties; it is believed to be extirpated from both Orange and Ventura counties (CNPS 2020).

There are no documented CNDDB occurrences of Sanford's arrowhead within five miles of the Project Study Area (CDFW 2020a). Some portions of Auburn Ravine, the canal, and ephemeral drainages onsite provide suitable habitat for this species. Therefore, Sanford's arrowhead has potential to occur within the Project Study Area.

Brazilian Watermeal

Brazilian watermeal is not listed pursuant to either the federal or California ESA but is designated as a CRPR 2B.3 species (rare, threatened, or endangered in California but more common elsewhere, not very threatened in California). This species is an herbaceous perennial that occurs in assorted shallow freshwater marshes and swamps (CNPS 2020). Brazilian watermeal blooms from April through December and is known to occur at elevations ranging from 66 to 328 feet above MSL (CNPS 2020). The current range for Brazilian watermeal in California includes Butte, Glenn, Sutter and Yuba counties (CNPS 2020).

There are no documented CNDDB occurrences of Brazilian watermeal within five miles of the Project Study Area (CDFW 2020a). Some portions of Auburn Ravine, the canal, and ephemeral drainages onsite provide suitable habitat for this species. Therefore, Brazilian watermeal has potential to occur within the Project Study Area.

Special-Status Invertebrate Species

Four special-status invertebrate species were identified as having potential to occur within the Project Study Area based on the literature review. Upon further analysis and site reconnaissance, three of the species (vernal pool fairy, Conservancy fairy shrimp, and vernal pool tadpole shrimp) were determined to

be absent due to an absence of PCCP modeled species habitat. The one remaining species, Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB) does potentially occur within the Project Study Area.

Valley Elderberry Longhorn Beetle

The VELB is listed as threatened pursuant to the federal ESA (USFWS 1980) and a PCCP Covered Species. The VELB is completely dependent on its larval host plant, elderberry (*Sambucus* species), which occurs in riparian and other woodland and scrub communities (USFWS 1999, 2017). Elderberry plants, located within the range of the beetle, with one or more stems measuring 1.0 inch or greater in diameter at ground level are considered to be habitat for the species (USFWS 1999). The adult flight season extends from late March through July (USFWS 2017). During that time the adults feed on foliage and perhaps flowers, mate, and females lay eggs on living elderberry plants (Barr 1991). The first instar larvae bore into live elderberry stems, where they develop for one to two years feeding on the pith. The fifth instar larvae create exit holes in the stems and then plug the holes and remain in the stems through pupation (Talley et al. 2007). The VELB occurs in metapopulations throughout the Central Valley (Collinge et al. 2001 as cited in USFWS 2017). These metapopulations (subpopulations) occur throughout contiguous riparian habitat which shift temporarily and spatially based on changing environmental conditions. This temporal and spatial shifting of the metapopulations results in a patchy and ever-changing distribution of the species. Research indicates that dense elderberry shrub clumps in healthy riparian habitat is the primary habitat for the VELB (USFWS 2017). The beetle's current distribution extends from Shasta County in the north to Fresno County in the south and includes everything from the valley floor up into the lower foothills (USFWS 2017). The vast majority of VELB occurrences have been recorded below 500 feet (152 meters), however, rare occurrences have been recorded up to approximately 3,000 feet (USFWS 1999, 2017).

There is one documented CNDDB occurrences of VELB within five miles of the Project Study Area (CDFW 2020a). An elderberry survey was conducted for accessible areas within the Project Study Area during August and September 2020. There are 55 elderberry shrubs located within the Project Study Area and accessible portions of the surrounding 165-foot buffer (See BRA Figure 5. *Elderberry Shrub Locations* contained in DEIR Appendix 3.3-A). No exit holes (indicative of VELB occurrence) were observed on the stems of the shrubs. Nevertheless, VELB has potential to occur within the Project Study Area.

There are no documented CNDDB occurrences of vernal pool fairy, conservancy fairy shrimp, and vernal pool tadpole shrimp within five miles of the Project Study Area (CDFW 2020a) and there is no suitable habitat within the Study Area.

Special Status Fish Species

Five special-status fish species were identified as having potential to occur within the Project Study Area based on the literature review. Upon further analysis and site reconnaissance, two of these species, delta smelt and Central Valley spring-run salmon Evolutionarily Significant Unit (ESU) were determined to be absent from the Project Study Area due to the lack of suitable habitat and because the Project Study Area is outside the known range of the species. No further discussion of these species is provided in this assessment. Brief descriptions of the remaining species with the potential to occur within the Project Study Area are presented in the following sections.

Chinook Salmon (Central Valley Fall-/Late Fall-run ESU)

Four different ESUs of Chinook salmon have been identified in the Central Valley: (1) fall-run, (2) late fall-run, (3) spring-run, and (4) winter-run. While CDFW recognizes four ESUs, NMFS considers fall-run and late fall-run a combined ESU. The Central Valley (CV) fall-/late fall-run ESU, which is the only ESU occurring in Auburn Ravine, is not listed or protected under either the federal ESA or California ESA but is considered a species of special concern by CDFW and a PCCP covered species. Typical habitat in the Central Valley include freshwater rivers and streams that are tributaries to the Sacramento and San Joaquin River systems as well as the rivers themselves.

Adult fall-run Chinook salmon migrate into the 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 in shallow riffles, and fry typically begin to emerge in late December and January. Fall-run Chinook salmon varies annually in Auburn Ravine, depending on rainfall and hydrology, and often occurs between mid-October and late December (CDFW 2015; Helix Environmental Planning 2019). 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.

Surveys conducted by Friends of Auburn Ravine and CDFW (2015) have documented spawning by fall-run Chinook salmon downstream and upstream of Hemphill Dam, indicating that the dam is passable under some hydrologic conditions. Suitable spawning habitat for fall-run Chinook salmon is present downstream and upstream of Hemphill Dam. Auburn Ravine provides freshwater essential fish habitat (EFH) for fall-run Chinook salmon upstream and downstream of Hemphill Dam in four primary categories:

- Spawning and incubation;
- Juvenile rearing;
- Juvenile migration corridors; and
- Adult migration corridors.

The specific elements of freshwater EFH (NMFS 2018) present upstream and downstream of the dam include:

- Substrate composition;
- Water quality (e.g., temperature, dissolved oxygen, nutrients);
- Water quantity, depth, and velocity;
- Channel gradient;
- Food availability;
- Cover and habitat complexity (e.g., large woody debris, pools, channel complexity, aquatic vegetation);
- Space;

- Access and passage; and
- Floodplain connectivity.

Surveys conducted by CDFW (2015) during the 2012-2014 survey period documented a total of 70 spawning redds for fall-run Chinook salmon, including a combined total of five redds upstream of Hemphill Dam in 2012 and 2014. Similarly, Helix (2019) conducted follow-up salmonid spawner surveys in Auburn Ravine in 2017 and 2018 utilizing the same methods used by CDFW (2015). During this two-year study, a combined total of 65 fall-run Chinook salmon redds were documented in the reach downstream of Hemphill Dam and a combined total of five redds were documented upstream of Hemphill Dam. Based on these surveys, fall-run Chinook salmon are considered present in the Project Study Area and, under suitable flow conditions, are present upstream of Hemphill Dam.

Steelhead (California Central Valley DPS)

The California Central Valley (CCV) distinct population segment (DPS) steelhead, the anadromous form of rainbow trout, was listed as threatened under the ESA on March 19, 1998 (63 FR 13347) and is a PCCP covered species. The California Central Valley DPS steelhead's typical habitats are freshwater rivers and streams that are tributaries to the Sacramento and San Joaquin River systems.

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). Unlike Chinook salmon, 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 in the Project Study Area shortly after spawning (i.e., January through mid-April).

According to the CNDDB, this DPS is known to occur in the Project Study Area in Auburn Ravine (CDFW 2020a) and, therefore, is considered present.

Pacific Lamprey

Pacific lamprey (*Lampetra tridentata*) 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 20,000 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.

Pacific lamprey are known to occur in Auburn Ravine upstream of the city of Lincoln (Goodman and Reid 2018) and Auburn Ravine provides suitable spawning and rearing habitat upstream and downstream of Hemphill Dam. For these reasons, Pacific lamprey are considered present in Auburn Ravine and the species is potentially present during the adult and juvenile migration periods and juvenile rearing period.

Other Species

Three non-listed native fish species were identified as having the potential to occur within the Project Study Area. These include:

- Rainbow Trout (*O. mykiss*);
- Sacramento sucker (*Catostomus occidentalis*); and
- Sacramento pikeminnow (*Ptychocheilus grandis*).

Special-Status Amphibian Species

Three special-status amphibian species were identified as having the potential to occur within the Project Study Area based on the literature review. Upon further analysis and site reconnaissance, two of the species, California red-legged frog and foothill yellow-legged frog were determined to be absent from the Project Study Area due to the lack of suitable habitat or because the Project Study Area is outside of the current known range of the species. No further discussion of those species is provided in this assessment. A brief description of the remaining species, western spadefoot, is provided below.

Western Spadefoot

The western spadefoot is not listed pursuant to either the California or federal ESAs; however, it is designated as a CDFW SSC. Necessary habitat components of the western spadefoot include loose, friable soils in which to burrow in upland habitats and breeding ponds. Breeding sites include temporary rain pools, such as vernal pools and seasonal wetlands, or pools within portions of intermittent drainages (Jennings and Hayes 1994). Spadefoots spend most of their adult life within underground burrows or other suitable refugia, such as rodent burrows. In California, western spadefoot toads are known to occur

from the Redding area, Shasta County southward to northwestern Baja California, at elevations below 4,475 feet (Jennings and Hayes 1994).

There are no documented CNDDB occurrences of western spadefoot within five miles of the Project Study Area (CDFW 2020a). Seasonal wetland swales mapped within the Project Study Area represent potentially suitable habitat for western spadefoot.

Special-Status Reptile Species

Three special-status reptile species were identified as having potential to occur within the Project Study Area based on the literature review. Upon further analysis and site reconnaissance, one of the species, giant garter snake was determined to be absent from the Project Study Area because the Project Study Area is outside the known range of the species. No further discussion of this species is provided in this assessment. A brief description of the remaining species, Blainville's horned lizard and northwestern pond turtle is presented below.

Blainville's Horned Lizard

Blainville's horned lizard is not listed or protected under either the federal ESA or California ESA but is considered a CDFW SSC. This diurnal species can occur within a variety of habitats including scrubland, annual grassland, valley-foothill woodlands and coniferous forests, though it is most common along lowland desert sandy washes and chaparral (Stebbins 2003). In the Central Valley, the species ranges from southern Tehama County southward. In the Sierra Nevada it occurs from Butte County south to Tulare County, and in the Coast Ranges it occurs from Sonoma County south into Baja California (CDFG 1988). It occurs from sea level to 8,000 feet MSL and an isolated population occurs in Siskiyou County (Stebbins 2003). Habitats converted to vineyards, other agriculture, and housing are considered incompatible with horned lizard predator avoidance strategies (Stebbins and McGinnis 2012).

There are no documented CNDDB occurrences of Blainville's horned lizard within five miles of the Project Study Area (CDFW 2020a). Annual grassland other open vegetation communities onsite may support potentially suitable habitat for this species. However, much of the Project Study Area is located along existing roads, near rural residences, and agricultural lands. The potential for horned lizard occurrence is considered low.

Northwestern Pond Turtle

The northwestern pond turtle is not listed pursuant to either the federal or California ESAs; however, it is designated as a CDFW SSC and a PCCP covered species. Northwestern pond turtles occur in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams (Jennings and Hayes 1994). This species is primarily aquatic; however, they typically leave aquatic habitats in the fall to reproduce and to overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Although adults are habitat generalists, hatchlings and juveniles require shallow edge water with relatively dense submergent or short emergent vegetation in which to forage.

Northwestern pond turtles are typically active between March and November. Mating generally occurs during late April and early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, with substrates that typically have high clay or silt fractions (Jennings and Hayes 1994). The majority of nesting sites are located within 200 meters (650 feet) of the aquatic sites; however, nests have been documented as far as 400 meters (1,310 feet) from the aquatic habitat.

There are two documented CNDDB occurrences of northwestern pond turtle within five miles of the Project Study Area (CDFW 2020a). Auburn Ravine, Hemphill Canal, and ponds onsite represent suitable habitat for northwestern pond turtle. Therefore, northwestern pond turtle has potential to occur within the Project Study Area.

Special-Status Bird Species

Twenty-six special-status bird species were identified as having potential to occur within the Project Study Area based on the literature review. Upon further analysis and after the reconnaissance visit, 15 of these species were considered to be absent from the Project Study Area due to the lack of suitable wintering, foraging, and/or breeding habitat or because the Project Study Area is outside of the current known range of the species. Brief descriptions of the remaining 11 species with the potential to occur within the Project Study Area are presented in the following sections.

White-tailed Kite

White-tailed kite is not listed pursuant to either the California or federal ESAs; however, the species is fully protected pursuant to Section 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 is one documented CNDDB occurrence of white-tailed kite within five miles of the Project Study Area (CDFW 2020a). The trees within and in the vicinity of the Project Study Area provide suitable nesting habitat for this species. Therefore, white-tailed kite has potential to occur within the Project Study Area.

Cooper's Hawk

The Cooper's hawk is not listed pursuant to either the California or federal ESA.s However, it is a CDFW "watch list" species and is currently tracked in the CNDDB. Typical nesting and foraging habitats include riparian woodland, dense oak woodland, and other woodlands near water. Cooper's hawk nest throughout California from Siskiyou County to San Diego County and includes the Central Valley (Rosenfield et al. 2020). Breeding occurs during March through July, with a peak from May through July.

There are no documented CNDDB occurrences of Cooper's hawk within five miles of the Project Study Area (CDFW 2020a). The trees within and in the vicinity of the Project Study Area provide suitable nesting habitat for the species. Cooper's hawk has potential to occur within the Project Study Area.

Oak Titmouse

Oak titmouse are not listed and protected under either federal or California ESAs but are considered a USFWS BCC. Oak titmouse breeding range includes southwestern Oregon south through California's Coast, Transverse, and Peninsular ranges, western foothills of the Sierra Nevada, into Baja California; they are absent from the humid northwestern coastal region and the San Joaquin Valley (Cicero et al. 2020). They are found in dry oak or oak-pine woodlands but may also use scrub oaks or other brush near woodlands (Cicero et al. 2020). Nesting occurs during March through July.

There are no documented CNDDB occurrences of oak titmouse within five miles of the Project Study Area (CDFW 2020a). However, the trees onsite provide suitable nesting habitat for this species. Oak titmouse has potential to occur within the Project Study Area.

Swainson's Hawk

The Swainson's hawk is listed as a threatened species and is protected pursuant to the California ESA and a PCCP covered species. This species nests in North America (Canada, western U.S., and Mexico) and typically winters from South America north to Mexico. However, a small population has been observed wintering in the Sacramento-San Joaquin River Delta (Bechard et al. 2020). In California, the nesting season for Swainson's hawk ranges from mid-March to late August. Swainson's hawks nest within tall trees in a variety of wooded communities including riparian, oak woodland, roadside landscape corridors, urban areas, and agricultural areas, among others. Foraging habitat includes open grassland, savannah, low-cover row crop fields, and livestock pastures. In the Central Valley, Swainson's hawks typically feed on a combination of California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), ring-necked pheasant (*Phasianus colchicus*), many passerine birds, and grasshoppers (*Melanopulus* species). Swainson's hawks are opportunistic foragers and will readily forage in association with agricultural mowing, harvesting, disking, and irrigating (Estep 1989). The removal of vegetative cover by such farming activities results in more readily available prey items for this species.

There is one documented CNDDB occurrence of Swainson's hawk within five miles of the Project Study Area (CDFW 2020a). The trees within and in the vicinity of the Project Study Area provide suitable nesting habitat for this species. Therefore, Swainson's hawk has potential to nest within the Project Study Area. The potential Swainson's hawk nesting habitat onsite is limited to the areas between Highway 193 and the Turkey Creek Golf Club; Swainson's hawks are typically not found in wooded, rural residential settings such as the areas east of the golf course. There is no potential Swainson's hawk foraging habitat within the Project Study Area; they prefer to forage in large tracts of open grasslands and agricultural fields, such as those found to the west and north of Lincoln.

Burrowing Owl

The burrowing owl is not listed pursuant to either the California or federal ESAs; however, it is designated as a BCC by the USFWS, a SSC by the CDFW, and a PCCP covered species. Burrowing owls inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. They can also inhabit developed areas such as golf courses, cemeteries, roadsides within cities, airports, vacant lots in residential areas, school campuses, and fairgrounds (Poulin et al. 2011). This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel but may also use man-made structures such as concrete culverts or pipes; concrete, asphalt, or wood debris piles; or openings beneath concrete or asphalt pavement (CDFG 2012). The breeding season typically occurs between February 1 and August 31 (CDFG 2012).

There is one documented CNDDB occurrence of burrowing owl within five miles of the Project Study Area (CDFW 2020a). Annual grassland and other open vegetation communities could support potentially suitable habitat for burrowing owl. Therefore, burrowing owl has potential to occur within the Project Study Area.

Nuttall's Woodpecker

The Nuttall's woodpecker is not listed and protected under either the California 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 Nuttall's woodpecker within five miles of the Project Study Area (CDFW 2020a). However, there is suitable habitat for this species within the Project Study Area. Therefore, Nuttall's woodpecker has potential to occur within the Project Study Area.

Loggerhead Shrike

The loggerhead shrike is not listed pursuant to either the California or federal ESAs; but is considered a BCC by the USFWS and a SSC by the CDFW. Loggerhead shrikes nest throughout California except the northwestern corner, montane forests, and high deserts (Small 1994). Loggerhead shrikes nest in small trees and shrubs in open country with short vegetation such as pastures, old orchards, mowed roadsides, cemeteries, golf courses, agricultural fields, riparian areas, and open woodlands (Yosef 2020). The nesting season extends from March through July.

There are no documented CNDDB occurrences of loggerhead shrike within five miles of the Project Study Area (CDFW 2020a). However, there is suitable habitat for this species within the Project Study Area. Therefore, loggerhead shrike has potential to occur within the Project Study Area.

Yellow-Billed Magpie

The yellow-billed magpie is not listed pursuant to either the California or federal ESAs but is considered a USFWS BCC. This endemic species is a yearlong resident of the Central Valley and Coast Ranges from San Francisco Bay to Santa Barbara County. Yellow-billed magpies build large, bulky nests in trees in a variety

of open woodland habitats, typically near grassland, pastures or cropland. Nest building begins in late-January to mid-February, which may take up to six to eight weeks to complete, with eggs laid during April-May, and fledging during May-June (Koenig and Reynolds 2020). The young leave the nest at about 30 days after hatching (Koenig and Reynolds 2020). Yellow-billed magpies are highly susceptible to West Nile Virus, which may have been the cause of death to thousands of magpies during 2004-2006 (Koenig and Reynolds 2020).

There are no documented CNDDB occurrences of yellow-billed magpie within five miles of the Project Study Area (CDFW 2020a). However, there is suitable habitat for this species within the Project Study Area. Therefore, yellow-billed magpie has potential to occur within the Project Study Area.

Wrentit

The wrentit is not listed in accordance with either the California or federal ESAs but is designated as a BCC by the USFWS. Wrentit are a sedentary resident along the west coast of North America from the Columbia River south to Baja California (Geupel and Ballard 2020). Wrentit are found in coastal sage scrub, northern coastal scrub, and coastal hard and montane chaparral and breed in the dense understory of Valley oak riparian, Douglas-fir and redwood forests, early-successional forests, riparian scrub, coyote bush and blackberry thickets, suburban parks and larger gardens (Geupel and Ballard 2020). Nesting occurs during March through August.

There are no documented CNDDB occurrences of wrentit within five miles of the Project Study Area (CDFW 2020a). However, there is marginally suitable nesting habitat for this species within the isolated dense thickets onsite. Therefore, wrentit has low potential to occur within the Project Study Area.

Song Sparrow

The song sparrow is considered one of the most polytypic songbirds in North America (Miller 1956 as cited in Arcese et al. 2020). The subspecies *Melospiza melodia heermanni* includes as synonyms *M. m. mailliardi* (the "Modesto song sparrow") and *M. m. cooperi* (Arcese et al. 2020). The "Modesto song sparrow" is not listed and protected pursuant to either the California or federal ESAs but is considered a CDFW SSC. The subspecies *M. m. heermanni* can be found in central and southwestern California to northwestern Baja California (Arcese et al. 2020). Song sparrows in this group may have slight morphological differences but they are genetically indistinguishable from each other. The "Modesto song sparrow" occurs in the Central Valley from Colusa County south to Stanislaus County, and east of the Suisun Marshes (Grinnell and Miller 1944). Nesting habitat includes riparian thickets and freshwater marsh communities, with nesting occurring from April through June.

There are no documented CNDDB occurrences of song sparrow within five miles of the Project Study Area (CDFW 2020a). However, there is marginally suitable nesting habitat for this species within the isolated dense thickets onsite. Therefore, song sparrow has low potential to occur within the Project Study Area.

Tricolored Blackbird

The tricolored blackbird (TRBL) was granted emergency listing for protection under the California ESA in December 2014 but the listing status was not renewed in June 2015. After an extensive status review, the

California Fish and Game Commission listed tricolored blackbirds as a threatened species in 2018. In addition, it is currently considered a USFWS BCC, a CDFW SSC, and a PCCP covered species. This colonial nesting species is distributed widely throughout the Central Valley, Coast Range, and into Oregon, Washington, Nevada, and Baja California (Beedy et al. 2020). TRBL nest in colonies that can range from several pairs to several thousand pairs, depending on prey availability, the presence of predators, or level of human disturbance. TRBL nesting habitat includes emergent marsh, riparian woodland/scrub, blackberry thickets, densely vegetated agricultural and idle fields (e.g. wheat, triticale, safflower, fava bean fields, thistle, mustard, cane, and fiddleneck), usually with some nearby standing water or ground saturation (Beedy et al. 2020). They feed mainly on grasshoppers during the breeding season, but may also forage upon a variety of other insects, grains, and seeds in open grasslands, wetlands, feedlots, dairies, and agricultural fields (Beedy et al. 2020). The nesting season is generally from March through August.

There are 13 documented CNDDB occurrences of TRBL within five miles of the Project Study Area (CDFW 2020a), and blackberry thickets found onsite represent potentially suitable nesting habitat. Therefore, TRBL has potential to occur within the Project Study Area.

Special Status Mammal Species

Two special-status mammal species, Townsend's big-eared bat and western red bat, were identified as having potential to occur within the Project Study Area based on the literature review (Table 4). A brief description of these special-status mammal species with potential to occur within the Project Study Area is presented in the following section.

Townsend's Big-Eared Bat

The Townsend's big-eared bat is not listed pursuant to either the California or federal ESAs; however, this species is considered a SSC by CDFW. Townsend's big-eared bat is a fairly large bat with prominent bilateral noes lumps and large "rabbit-like" ears. This species occurs throughout the west and ranges from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains. This species has been reported from a wide variety of habitat types and elevations from sea level to 10,827 feet. Habitats used include coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is strongly associated with the availability of caves and cave-like roosting habitat including abandoned mines, buildings, bridges, rock crevices, and hollow trees. This species is readily detectable when roosting due to their habit of roosting pendant-like on open surfaces. Townsend's big-eared bat is a moth specialist with over 90 percent of its diet composed of Lepidopterans. Foraging habitat is generally edge habitats along streams adjacent to and within a variety of wooded habitats. This species often travels long distances when foraging and large home ranges have been documented in California (WBWG 2020).

There is one documented CNDDB occurrence of Townsend's big-eared bat within five miles of the Project Study Area (CDFW 2020a). There are no mines or caves in the Project Study Area, but larger trees onsite may provide marginal habitat for this species. Therefore, Townsend's big-eared bat has low potential to occur within the Project Study Area.

Western Red Bat

The western red bat is not listed pursuant to either the California or federal ESAs; however, this species is considered a 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 Argentina and Chile in South America, and including much of the western United States. 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 documented CNDDB occurrence of western red bat within five miles of the Project Study Area (CDFW 2020a). However, the trees and shrubs found throughout the Project Study Area represents potential roosting habitat for this species. Therefore, western red bat has potential to occur within the Project Study Area.

3.3.4 Regulatory Setting

Federal

Endangered Species Act of 1973 (FESA)

The federal ESA (FESA) protects plants and animals that are listed as endangered or threatened by the USFWS and the NMFS. Section 9 of FESA 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" (50CFR 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 FESA, 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 FESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

FESA Section 7

Section 7 of FESA 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 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 federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying critical habitat. If a jeopardy or adverse modification of critical habitat determination results from the consultation, the federal agency may choose one of several options:

- Adopt one of the reasonable and prudent alternatives that eliminates the jeopardy or adverse modification of critical habitat determinations in the BO;
- Decide not to grant the permit, fund the project, or undertake the action;
- Request an exemption from the Endangered Species Committee;
- Propose modification of the action, or off additional reasonable and prudent alternatives not already considered, and reinitiate consultation; or
- Choose to take other actions that satisfy Section 7(a)(2) of the FESA.

FESA Section 10

When no discretionary action is being taken by a federal agency, but a project may result in the take of listed species, an incidental take permit under Section 10 of the FESA is necessary. The purpose of the incidental take permit is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an incidental take permit under Section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

The FESA and implementing regulations (Title 16 United States Code (USC) §§1531 et seq. (16 USC 1531 et seq.) and Title 50 Code of Federal Regulations (CFR) §§17.1 et seq. (50 CFR §§17.1 et seq.)) include provisions for the protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats. Section 7 of the FESA requires a permit to take threatened or endangered species during lawful project activities. The administering agency for the above authority is the USFWS for terrestrial, avian, and most inland aquatic species and NMFS for marine species, including anadromous fishes.

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. For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to 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 life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

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

Magnuson-Stevens Fishery Conservation and Management Act

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), federal agencies are required to consult with the NMFS for activities that may affect EFH. EFH consists of the waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity, and includes several important components: adequate substrate; water quality; water quantity, depth, and velocity; channel gradient and stability; food; cover and habitat complexity; space; access and passage; and habitat connectivity (Pacific Fishery Management Council 2000).

Migratory Bird Treaty Act

The *Migratory Bird Treaty Act* (MBTA) (16 USC §§703–711) includes provisions for the protection of migratory birds, including the nonpermitted take of migratory birds, under the authority of the USFWS and CDFW. The MBTA protects over 800 species, including geese, ducks, shorebirds, raptors, songbirds, and many common species.

Bald and Golden Eagle Protection Act

The *Bald and Golden Eagle Protection Act of 1940* (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 USC 668(a); 50 CFR 22). USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

Clean Water Act of 1977

The purpose of the federal 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 U.S." without a permit from the U.S. Army Corps of Engineers (USACE). "Discharges of fill material" is defined as the addition of fill material into Waters of the U.S., including, but not limited to, the following: placement of fill necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines" (33 CFR § 328.2(f)). In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to wetlands (over 0.5 acre of impact) may require an individual permit. Projects that only minimally affect wetlands (less than 0.5 acre of impact) 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; this certification or waiver is issued by the RWQCB

Section 10 of the Rivers and Harbors Act of 1899 (Act) requires authorization from the Secretary of the Army, acting through the USACE, for the construction of any structure in or over any navigable Waters of the U.S. Structures or work outside the limits defined for navigable Waters of the U.S. require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable water of the U.S., and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. The alteration of a USACE federally authorized civil works project requires a permit pursuant to Section 14 of the Act, as amended and codified in 33 USC 408. Projects with minimal impacts require approval by the USACE Sacramento District Construction Operations Group; however, projects with more substantial impacts may require USACE Headquarters review. Coordination with the Central Valley Flood Protection Board, who serve as the Non-Federal Sponsor, is required as a part of the process of obtaining a Section 408 permit.

State

California Environmental Quality Act

In accordance with CEQA Guidelines § 15380, a species not protected on a federal or State list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in the federal ESA, California ESA, and §§ 1900-1913 of the California Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the CEQA Guidelines

primarily to deal with situations where a project under review may have a significant effect on a species that has not yet been listed by either USFWS or CDFW.

California Endangered Species Act (CESA)

The California ESA (California Fish and Game Code §§ 2050-2116) generally parallels the main provisions of the ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called "candidates" by the State). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. 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." The California ESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and 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. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, the CDFW prohibits any State agency from issuing incidental take permits for fully protected species. The CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code §§ 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code § 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

Birds of Prey

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. 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 commission or a mitigation plan approved by CDFW for mining

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

Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, Subsection 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting native birds.

Species of Special Concern

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 ESA, the California ESA or the California Fish and Game Code, but currently satisfy 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 role;
- 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. Project-related impacts to SSC, state-threatened, or endangered species are considered "significant" under CEQA.

California Rare Plant Ranks

The California Native Plant Society (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 California Rare Plant Ranks (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. The CRPRs are currently recognized in the CNDDB. The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere

- Rare Plant Rank 3 – a review list of plants about which more information is needed
- Rare Plant Rank 4 – a watch list of plants of limited distribution

Additionally, the CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat)
- Threat Rank 0.2 – Moderately threatened in California (20-80 percent occurrences threatened/moderate degree and immediacy of threat)
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2020). Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, or 2 are typically considered significant under CEQA Guidelines §15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

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 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 Lake or Streambed Alteration Agreement.

Porter-Cologne Water Quality Act

The Regional Water Quality Control Board (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, 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 are 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 for these activities.

California Fish and Game Code

The California Fish and Game Code provides specific protection and listing for several types of biological resources.

Section 1580 of the California Fish and Game Code presents the process and definition for Designated Ecological Reserves. Designated Ecological Reserves are significant wildlife habitats to be preserved in natural condition for the general public to observe and study.

Section 2081(b) and (c) of the CESA allows CDFW to issue an incidental take permit for a state listed threatened and endangered species only if specific criteria are met. These criteria can be found in California Code of Regulations Title 14 CCR, Sections 783.4(a) and (b). No Section 2081(b) permit may authorize the take of "fully protected" species and "specified birds." If a project is planned in an area where a fully protected species or specified bird occurs, an applicant must design the project to avoid all take. The CDFW cannot provide take authorization under CESA for fully protected species.

The CDFW has direct jurisdiction under California Fish and Game Code Sections 1600 et seq. in regard to any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or stream. For activities that could affect a lake or stream bed, it is necessary to enter into a Streambed Alteration Agreement (SAA) with CDFW.

Section 3503 of the California Fish and Game Code makes it illegal to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Section 3503.5 further protects all birds in the orders Falconiformes and Strigiformes (birds of prey, such as hawks and owls) and their eggs and nests from any form of take. Section 3505 makes it illegal to take, sell, or purchase any "specified birds" under the Section, including any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such bird.

Sections 3800, 3513, and 3503 of the California Fish and Game Code specifically protect birds of prey. 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 commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Native Plant Protection Act of 1977

The Native Plant Protection Act of 1977 and its implementing regulations set forth in Sections 1900 et seq. of the California Fish and Game Code designates rare and endangered plants and provides specific protection measures for identified populations. It is administered by the CDFW.

Local

Placer County

General Plan. The Placer County General Plan Natural Resources element establishes goals, objectives, and policies regarding water resources (including wetlands and riparian areas), fish and wildlife habitat, and vegetation (Placer County 2013). The goals listed below are applicable to the biological resources found at the Project site. Placer County General Plan policies require Placer County to identify and protect significant ecological resources and habitat, including wetland areas, stream environment zones, habitat for special-status plants and animals, and large areas of natural habitat.

- Goal 6.A To protect and enhance the natural qualities of Placer County's streams, creeks, and groundwater.
- Goal 6.B To protect wetland communities and related riparian areas throughout Placer County as valuable resources.
- Goal 6.C To protect, restore, and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.
- Goal 6.D To preserve and protect the valuable vegetation resources of Placer County.
- Goal 6.E To preserve and enhance open space lands to maintain the natural resources of the County.

Placer County Tree Ordinance. The Placer County Tree Preservation Article (Article 12.16, Tree Preservation Article) requires documentation of native trees with a dbh (diameter at breast height) of 6 inches or greater for single stemmed trees or 10 inches or greater for multiple stemmed trees, excluding grey pine (*Pinus sabiniana*) trees. They also require documentation of landmark trees and riparian zone (Article 12.16.020). The following are the definitions of the terms above:

Landmark Tree: A tree or grove of trees designated by resolution of the board of supervisors to be of historical or cultural value, an outstanding specimen, and unusual species and/or of significant community benefit.

Riparian zone: Any area within fifty feet from the centerline of a seasonal creek or stream, any area one hundred feet from the center of a year round creek, stream, or river, and any area within one hundred feet from the shoreline of a pond, lake, or reservoir. (Note: All trees regardless of size within riparian areas as a part of any discretionary project county-wide are subject to this article.)

A tree permit is not required for the removal of a protected tree under the following circumstances: (Except for subsection C, a landmark tree is not subject to the exemptions set forth below) (Article 2.16.050).

D. When compliance would interfere with activities of a public utility necessary to comply with applicable safety regulations and/or necessary to repair or avoid the interruption of services provided by such a utility. Routine repair and maintenance of utilities would be

exempt; new construction projects (i.e., the installation of high power, transmission line corridor) are subject to review.

A total of 1,611 trees have been inventoried within the Project Study Area (see Arborist Report, DEIR Appendix 3.3-b).

Placer County Conservation Plan. The County also recently approved the Placer County Conservation Program (PCCP) (County of Placer et al. 2020), a regional effort that will provide development and infrastructure projects with streamlined federal and State permitting processes while creating a preserve system to protect habitat, open space, and agricultural lands. While the PCCP has been approved at the local level, related resource agency permits required for implementation are currently in process. The PCCP includes three separate but complementary components that support two sets of State and federal permits:

- Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) – protects fish and wildlife, and their habitats, and fulfills the requirements of the federal ESA and the California Natural Community and Conservation Planning Act.
- Western Placer County Aquatic Resources Plan (CARP) – protects streams, wetlands, and other water resources and fulfills the requirements of the federal CWA and analogous State laws and regulations.
- In-Lieu Fee Program – allows requirements under Section 404 of the CWA to be fulfilled by payment of a fee for compensatory mitigation of impacts on aquatic resources from activities covered under the HCP/NCCP and the CARP.

The PCCP/CARP identifies the need to provide passage for anadromous fish at the Hemphill Diversion Structure through elimination or modification of the existing structure. The PCCP was prepared by local participating agencies (who will become the Permittees) including Placer County, the City of Lincoln, South Placer Regional Transportation Authority, Placer County Water Agency, and the Placer Conservation Authority (PCA), an entity created to implement the PCCP on behalf of the other Permittees.

While the Proposed Project is identified in the PCCP/CARP, because NID is not a PCCP Participating Agency, it is not required to obtain Proposed Project regulatory approval via the PCCP. Nevertheless, because the Proposed Project is addressed in the PCCP, NID is exploring the possibility of conducting project permitting and mitigation via the PCCP as a Special Entity. Doing so would require PCA approval. Therefore, the mitigation approach contained in this DEIR allows for either a standard permitting and mitigation approach, or alternative permitting and mitigation via the PCCP.

City of Lincoln

The following goals and policies of the 2008 City of Lincoln General Plan (City of Lincoln 2008) are applicable to the Project:

OSC-1: To designate, protect, and encourage natural resources, open space, and recreation lands in the city, protect and enhance a significant system of interconnected natural habitat areas, and provide opportunities for recreation activities to meet citizen needs.

Policy OSC-1.1: The City shall strive to protect natural resource areas, fish and wildlife habitat areas, scenic areas, open space areas and parks from encroachment or destruction by incompatible development.

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

The potential construction-related and long-term impacts of the three Project alternatives construction activities on Auburn Ravine fisheries resources considers the potential impacts on three special-status fish species occurring in Auburn Ravine: (1) CV fall-run ESU Chinook salmon (federal species of concern; California species of special concern), (2) CCV DPS steelhead (federal threatened), and (3) Pacific lamprey (California species of special concern). Collectively, these species represent the most sensitive fish species occurring in Auburn Ravine, particularly CCV steelhead, which occur in the ravine year-round. Therefore, it is assumed for the purposes of this assessment that the potential impacts of the Proposed Project on

these three anadromous fish species are also applicable to all less sensitive resident native and non-native fish species.

As detailed in Chapter 2, the three proposed alternatives are:

- *Alternative 1 - Riverbank Infiltration Gallery Alternative*: Includes the removal of the diversion structure, site stabilization, and construction of a subterranean riverbank infiltration structure and pipeline connection to Hemphill Canal.
- *Alternative 2 - Fish Passage Alternative:* Includes the removal of the diversion structure, site stabilization, construction of a nature-like roughened rock ramp instream fish passage, installation of a fish screen and improvements to a portion of the Hemphill Canal.
- *Alternative 3 - Pipeline Alternative:* Includes the removal of the diversion structure, site stabilization, and installation of a pipeline within roadway right-of-way (ROW) from the NID Placer Yard facility to the Hemphill Canal just downstream of the existing diversion structure.

Each alternative is designed to allow for anadromous fish migration beyond the Hemphill Diversion Structure site. While varied in their approaches to enhancing fish passage at the Hemphill Diversion site, each Project alternative would require removal of the existing diversion structure. As such, the assessments provided below address the potential impacts associated with demolition and removal of the existing structure, and the construction and long-term operation of each alternative.

Construction-related impacts considers the timing, duration, nature, and magnitude of potential impacts on fish and instream habitat of Auburn Ravine 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 Study 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 operation of each of the Project alternatives may also affect instream flows both upstream and downstream of the Hemphill 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.

The Hemphill Canal is used seasonally (i.e., mid-April through mid-October) for irrigation and is dry during non-diversion periods and, as such, is assumed to not support a fish community or provide habitat for any special-status fish species. Therefore, no fisheries assessment is provided for the Hemphill Canal.

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. Similarly, Project improvements were overlaid over the BRA Aquatic Resources Delineation and elderberry shrub location information to estimate Project impacts to VELB and aquatic resources. This included identifying both temporary and permanent impacts by alternative. The findings of these analyses are contained in Tables 3.3-4 and 3.3-5. These tables allow for comparison of impacts between alternatives. The overall mitigation approach allows for either a standard resource agency permit process, or participation in the PCCP.

3.3.6 Project Impacts and Mitigation Measures

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 (Alternatives 1 and 2); significant and unavoidable (Alternative 3).*

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 4 (See DEIR Appendix 3.3-A), there is potentially suitable habitat within the Project Study Area for one special-status amphibian, one special status invertebrate, two special-status reptiles, eleven special-status birds, two special-status mammals, and three special status fish and eighteen special status plants. An analysis of potential impacts and recommended mitigation measures for these species is presented below.

Hemphill Diversion Structure Demolition and Removal: Alternatives 1, 2, and 3

Hemphill Diversion Structure demolition and removal, which includes cofferdam installation, would occur as part of Phase 1 construction activity and is common to all Project alternatives. The potential sensitive species impacts due to Hemphill Diversion Structure demolition and removal, cofferdam installation, and establishment of access and staging areas to serve these Project components, is presented below.

Amphibians - Western Spadefoot.

Three special-status amphibian species were identified as having the potential to occur within the Project Study Area based on the literature review. Upon further analysis and site reconnaissance, two of the species, California red-legged frog and foothill yellow-legged frog were determined to be absent from the Project Study Area due to the lack of suitable habitat or because the Project Study Area is outside of the current known range of the species. No further discussion of those species is provided. Therefore, the only amphibian species with potential to occur within the Project Study Area is western spadefoot.

The western spadefoot is not listed pursuant to either the California or federal ESAs; however, it is designated as a CDFW SSC. There are no documented CNDDB occurrences of western spadefoot within five miles of the Project Study Area (CDFW 2020a). However seasonal wetland swales mapped within the Project Study Area represent potentially suitable habitat for western spadefoot and the banks of Auburn Ravine provide potential dispersal and foraging habitat. This habitat would be removed or disturbed during construction of all Alternatives. Therefore, Hemphill Diversion Structure Demolition and Removal could result in a potentially significant impact to western spadefoot and its habitat. Implementation of Mitigation Measures **BIO-1, BIO-2, BIO-3** and, **BIO-4** would reduce this impact to ***less-than-significant with mitigation incorporated***.

Invertebrates - Valley elderberry longhorn beetle.

BRA Figure 5: *Elderberry Shrub Locations (Sheets 1 through 5) (*see draft DEIR Appendix 3.3-A*)*, shows the location of elderberry shrubs within the Project Study Area and within a 100-foot buffer. As shown, within the Project Study Area elderberry occurrences are limited to areas along Auburn Ravine and the Hemp Hill Canal. As discussed in the Setting above, elderberry shrubs are considered habitat for the valley elderberry longhorn beetle.

Figure 3.3-1. *Elderberry Shrub Impacts* shows elderberry shrubs identified within the Project Study Area and a 100-foot buffer overlaid on Proposed Project improvements. As shown, Elderberry shrubs are located within 100 feet of both the northern and southern access roads and staging areas, and three shrubs are located within the southern access road alignment. Per the 2017 USFWS guidance entitled *USFWS 2017 Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (VELB)* (USFWS 2017), ground disturbance/construction occurring within 100 feet of elderberry shrubs is considered a potentially significant indirect impact to VELB and its habitat. To address indirect impacts to VELB and its habitat, the project would implement Mitigation Measures **BIO-2** and **BIO-3**: *Conduct Environmental Awareness Training for Construction Personnel*. In accordance with these measures, construction workers would be trained to recognize VELB habitat and applicable protections under the law. The project contractor would also work with a resource specialist to identify elderberry shrubs located within 165 feet of planned construction so that the shrubs can be identified as environmentally sensitive areas and protected with temporary orange construction fencing. Because VELB is listed as threatened under the federal Endangered Species Act, prior to construction Mitigation Measure **BIO-5**: *Conduct Section 7 Consultation with USFWS for Elderberry Long Horn Beetle and Implement Required Mitigation* would also be required. This measure includes realignment of the southern access road as feasible to avoid direct impacts to elderberry shrubs. With implementation of mitigation measures **BIO-2**, **BIO-3** and **BIO-5**, potential impacts to VELB would be reduced to ***less than significant with mitigation incorporated***.

Map Date: 3/17/2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 350

Figure 3.3-1. Elderberry Shrub Impacts

2020-104 NID-Hemphill Diversion Structure Project

Reptiles - Blainville's horned lizard and northwestern pond turtle.

Three special-status reptile species were identified as having potential to occur within the Project Study Area based on the literature review. Upon further analysis and site reconnaissance, one of the species, giant garter snake was determined to be absent from the Project Study Area because the area is outside the known range of the species. No further discussion of this species is provided. Potential impacts to the remaining two reptile species, Blainville's horned lizard and northwestern pond turtle is provided below.

There are no documented CNDDB occurrences of Blainville's horned lizard within five miles of the Project Study Area (CDFW 2020a). While much of the Project Study Area is located along existing roads, near rural residences, and agricultural lands which reduces the potential for Blainville's horned lizard occurrences, annual grasslands and other open vegetation communities, including the northern and southern staging areas which would be used during Hemphill Diversion Structure demolition and removal, may support potentially suitable habitat for this species. Therefore, impacts to Blainville's horned lizard and its habitat are considered potentially significant.

Implementation of mitigation measures **BIO-2**, **BIO-3**, and **BIO-6** would reduce potential impacts to Blainville's horned lizard to ***less than significant with mitigation incorporated***.

There are two documented CNDDB occurrences of northwestern pond turtle within five miles of the Project Study Area (CDFW 2020a). Auburn Ravine, Hemphill Canal, and ponds within the Project Study Area represent suitable habitat for northwestern pond turtle. Therefore, Hemphill Diversion Structure demolition and removal which would occur within and adjacent to Auburn Ravine could result in potentially significant impacts to northwestern pond turtle.

Implementation of mitigation measures **BIO-1, BIO-2, BIO-3,** and **BIO-7** would reduce this impact to ***less than significant with mitigation incorporated*.**

Birds – Swainson's Hawk, Western Burrowing Owl, Tricolored Blackbird, White-tailed Kite, Cooper's Hawk, Nuttall's Woodpecker, Loggerhead Shrike, Yellow-Billed Magpie, Oak Titmouse, Wrentit, and Song Sparrow.

Twenty-six special-status bird species were identified as having potential to occur within the Project Study Area based on the literature review. Upon further analysis and after the reconnaissance visit, 15 of these species were considered to be absent from the Project Study Area due to the lack of suitable wintering, foraging, and/or breeding habitat or because the Project Study Area is outside of the current known range of the species. Potential impacts and mitigation for the remaining 11 species with the potential to occur within the Project Study Area is presented below.

Swainson's Hawk. Mature trees within the Project Study Area and within the Diversion Dam removal staging and work areas provide potential nesting habitat for Swainson's hawk. Swainson's hawk is protected by the Migratory Bird Treaty Act and California Fish and Game Code. The initial site preparation phase, including clearing and grading for staging areas and establishment of temporary and permanent access roads, has the potential to disrupt nesting activity and may result in the removal of nesting trees. This is a potentially significant impact to Swainson's hawk. Implementation of mitigation measures **BIO-2**, **BIO-3**, and **BIO-8** would reduce this impact to ***less than significant with mitigation incorporated***.

Western Burrowing Owl. The western burrowing owl is not listed pursuant to either the California or federal ESAs; however, it is designated as a BCC by the USFWS and SSC by the CDFW and is a PCCP covered species. There is one documented CNDDB occurrence of burrowing owl within five miles of the Project Study Area (CDFW 2020a). Annual grassland and other open vegetation communities, such as those found within proposed access roads and staging areas, could support potentially suitable habitat for burrowing owl. Therefore, construction within these areas could result in a potentially significant impact on Western burrowing owl. Implementation of mitigation measures **BIO-2**, **BIO-3**, and Mitigation Measure **BIO-9** would reduce this impact to ***less than significant with mitigation incorporated***.

Tricolored Blackbird. After an extensive status review, the California Fish and Game Commission listed tricolored blackbirds as a threatened species in 2018. In addition, it is currently considered a USFWS BCC, a CDFW SSC, and is a PCCP covered species. TRBL nesting habitat includes emergent marsh, riparian woodland/scrub, blackberry thickets, densely vegetated agricultural and idle fields (e.g. wheat, triticale, safflower, fava bean fields, thistle, mustard, cane, and fiddleneck), usually with some nearby standing water or ground saturation (Beedy et al. 2020). The nesting season is generally from March through August.

There are 13 documented CNDDB occurrences of TRBL within five miles of the Project Study Area (CDFW 2020a). Blackberry thickets and oak woodland and riparian understories found within and adjacent to the Hemphill Diversion Structure demolition site, related access roads and staging areas, and at the cofferdam site represent potentially suitable nesting habitat. Therefore, Project construction within these areas is considered a potentially significant impact on TRBL. With implementation of mitigation measures **BIO-2**, **BIO-3**, and **BIO-10** this impact to ***less than significant with mitigation incorporated***.

White-tailed Kite, Cooper's Hawk and Other Nesting Raptors. White-tailed kite is not listed pursuant to either the California or federal ESAs; however, the species is fully protected pursuant to Section 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).

Cooper's hawk is not listed pursuant to either the California or federal ESA.s However, it is a CDFW "watch list" species and is currently tracked in the CNDDB. Typical nesting and foraging habitats include riparian woodland, dense oak woodland, and other woodlands near water. Cooper's hawk nest throughout California from Siskiyou County to San Diego County and includes the Central Valley (Rosenfield et al. 2020). Breeding occurs during March through July, with a peak from May through July.

There is one documented CNDDB occurrence of white-tailed kite and no documented CNDDB occurrences of Cooper's hawk within five miles of the Project Study Area (CDFW 2020a). Trees within and adjacent to access roads and staging areas that would be used during Diversion Dam Demolition and cofferdam installation and removal construction phase provide suitable nesting habitat for these species. Therefore, Project construction within these areas is considered a potential significant impact on White-

tailed kite, Coopers hawk and other nesting raptors. Implementation of mitigation measures **BIO-2**, **BIO-3**, and **BIO-11** would reduce this impact to ***less than significant with mitigation incorporated***.

Other Special-Status Birds (Nuttall's Woodpecker, Loggerhead Shrike, Yellow-Billed Magpie, Oak Titmouse, Wrentit, and Song Sparrow) and MBTA-Protected Birds.

See the setting section above for a detailed discussion of habitat requirements, listing status, breeding season and range for these bird species.

As discussed in the setting section above, there are no documented CNDDB occurrences of these species within five miles of the Project Study Area (CDFW 2020a). However, suitable habitat for these species occurs onsite within proposed access roads and staging areas that would be cleared for use during Diversion Dam Demolition and cofferdam installation and removal. Therefore, impacts to Nuttall's Woodpecker, Loggerhead Shrike, Yellow-Billed Magpie, Oak Titmouse, Wrentit, Song Sparrow and other MBTA-Protected Birds are considered potentially significant. Implementation of Mitigation Measures **BIO-2**, **BIO-3**, and **BIO-12** would reduce this impact to ***less than significant with mitigation incorporated***.

Mammals – Townsend's Big-eared Bat, and Western Red Bat.

Neither the Townsend's big-eared bat or western red bat are listed pursuant to either the California or federal ESAs; however, these species are considered an SSC by CDFW.

Habitats used by the Townsend's big-eared bat include coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types.

The western red bat is known as a solitary species that 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.

There is one documented CNDDB occurrence of Townsend's big-eared bat within five miles of the Project Study Area (CDFW 2020a). There are no documented CNDDB occurrence of western red bat within five miles of the Project Study Area (CDFW 2020a). While there are no mines or caves found in the Project Study Area, the larger trees and shrubs found throughout the Project Study Area, including within proposed access roads and staging areas to be used during Diversion Dam Demolition and cofferdam installation and removal, may provide potential roosting habitat for these species. Therefore, impacts to Townsend's big-eared bat and western red bat are potentially significant. Implementation of Mitigation Measures **BIO-2**, **BIO-3**, and **BIO-13** would reduce this impact to ***less than significant with mitigation incorporated***.

Fish

Auburn Ravine supports three special-status fish species: (1) CV fall-run ESU Chinook salmon (federal species of concern; California species of special concern), (2) CCV DPS steelhead (federal threatened), and (3) Pacific lamprey (California species of special concern). In addition, Auburn Ravine in the Project Study

Area is designated critical habitat for CCV steelhead and is EFH for Chinook salmon upstream and downstream of the Hemphill Dam. Construction-related activities with the potential to directly or indirectly affect these species and their habitat, critical habitat and EFH, include installation of the cofferdam and diversion pipelines, dewatering of the construction area, use of large machinery to demolish and remove the diversion structure, and disturbance of the streambed and riparian areas.

As further detailed below, all in-water work associated with removal and demolition of the structure would occur within a 500-foot dewatered area downstream of the temporary cofferdam and would occur during the June 15-October 15 in-water period in a single year (likely 2022 with permitted project alternative). The footprint of these activities is located within designated critical habitat for CCV DPS steelhead and EFH for Chinook salmon.

CV Fall-run Chinook Salmon

As stated in the Project Description (Section 2), in-water work associated with demolition and removal of the existing Hemphill Diversion Structure would occur during the period June 15 through October 15 to minimize the potential for adverse effects on anadromous salmonid migrations, spawning, and rearing. Fall-run Chinook salmon may occur in Auburn Ravine up to Hemphill Dam and, under suitable flow conditions, may pass over Hemphill Dam and spawn in the upstream reaches (CDFW 2015; Helix 2019). Immigration of adult fall-run Chinook salmon into Auburn Ravine is typically precluded until winter storms increase stream flows to provide an adequate connection between Auburn Ravine and the Sacramento River, which typically occurs between mid-October and December. Emigration of juvenile fish occurs throughout the winter and early spring period and is complete by May or June. As such, fall-run Chinook salmon are not anticipated to be directly affected by construction-related activities, which would occur during the June 15 to October 15 in-water work window.

CCV Steelhead

Like fall-run Chinook salmon, immigration of adult CCV steelhead into Auburn Ravine in the fall and early winter months after the onset of winter storms have adequately increased stream flows to provide passage between Auburn Ravine and the Sacramento River. As such, adult steelhead and kelts (post-spawning adults returning to the ocean) may occur in Auburn Ravine from mid-October through mid-April. The current distribution of steelhead in Auburn Ravine is not well understood, but it is assumed that it is similar to fall-run Chinook salmon and includes the reach downstream of Hemphill Dam in all flow conditions and the reach between Hemphill Dam and Gold Hill Dam in years when flows are adequate to allow passage of steelhead over Hemphill Dam. Based on the in-water work window of June 15 to October 15, construction-related activities are not anticipated to have any adverse effects on immigration of adult steelhead or emigration of steelhead kelts.

Juvenile steelhead, the anadromous form of rainbow trout (collectively referred to as *O. mykiss*), reside in their natal freshwater stream for a period of 1 to 3 years prior to emigration and subsequent ocean entry and, therefore, have the potential to occur in the construction area year-round. Furthermore, Auburn Ravine supports a population of resident rainbow trout. As a species, *O. mykiss* has a very elastic life history, where the anadromous form (i.e., steelhead) may produce offspring that remain in their natal

freshwater stream for their entire life, while resident rainbow trout may produce offspring that migrate to the ocean after a short stream residence and become steelhead (Quinn 2005; Moyle 2002). As such, all *O. mykiss* (age 0-3) occurring in Auburn Ravine are considered steelhead for the purposes of this assessment.

Regardless of the life history, all *O. mykiss* potentially occurring in the Project Study Area would undergo spawning, egg incubation, emergence, and development into free-swimming juvenile fish during the winter and spring months. As such, the June 15 to October 15 in-water work window would avoid the sensitive *O. mykiss* spawning period and the immobile/limited mobility egg, alevin, and fry life stages. However, construction-related activities associated with removal and demolition of the Hemphill Diversion Structure may affect juvenile steelhead occurring in the Project Study Area.

To facilitate removal and demolition of the Hemphill Diversion Structure and implement any of the three alternatives, the approximately 500-foot-long construction footprint will be dewatered from June 15 to October 15 in one year (likely 2022). Dewatering of the Project Study Area (for this discussion the 500-foot-long construction footprint) will occur by constructing a temporary cofferdam approximately 300 feet upstream of the existing Hemphill Dam location and routing water from the cofferdam impoundment to a location approximately 200 feet downstream of the dam via a 500-foot diversion pipeline. Dewatering pumps may be used periodically within the Project footprint following installation of the cofferdam. As water is gradually drawn down within the area to be dewatered, fish, including juvenile steelhead, occurring downstream of the diversion dam will likely move downstream to the reach below the diversion pipe outlet where stream flow would be continuous. However, there is a potential for some fish to become stranded in isolated pools downstream of the dam and in the impoundment and, as such, there is a potential for a small, but unknown, number of fish to be injured or killed as a result of dewatering or during capture and relocation and, therefore, could result in a potentially significant impact on CCV steelhead and other resident fish species. Implementation of Mitigation Measures **BIO-14**, **BIO-15** and **BIO-16** would reduce this impact to ***less-than-significant with mitigation incorporated***.

Pacific Lamprey

Immigration of adult Pacific lamprey into Auburn Ravine typically occurs from March to late June, and the fish spawn upon arrival. Although most adults die shortly after spawning, a small portion survive and return to the ocean. Suitable habitat occurs in Auburn Ravine downstream and upstream of Hemphill Dam. As such, adult Pacific lamprey may occur in the Project Study Area into early or mid-summer, including the early portion of the June 15 to October 15 in-water construction period. In addition, there is a small potential for Pacific lamprey to spawn within the Project Study Area and, thus, adult spawning fish, eggs, and larvae may occur within the area to be dewatered and directly impacted during in-water construction activities.

Finally, ammocoetes (sub-adult/pre-metamorphosis lamprey), which occur in their natal freshwater streams for a period of 5 to 7 years, may be burrowed into sediments within the Project Study Area during construction and, thus, directly affected by construction-related activities. As discussed above for CV steelhead, a fish rescue and relocation effort will be conducted during the dewatering process to minimize the potential for injury or death to fish occurring in the area to be dewatered. Because ammocoetes burrow into sediments, often in nearshore areas of streams, they are particularly susceptible to

dewatering. While ammocoetes often exit their burrows when flows recede to levels near or below inundation of the sediments, some ammocoetes may become stranded in their burrows without being observed by biologists conducting the fish rescue and relocation effort. As such, a small, but unknown number of Pacific lamprey ammocoetes may be injured or killed as a result of dewatering or during capture and relocation. Based on these considerations, demolition and removal of the Hemphill Diversion Structure could result in a potentially significant impact to Pacific lamprey. Implementation of Mitigation Measures **BIO-14 BIO-15** and **BIO-16** would reduce this impact to ***less-than-significant with mitigation incorporated***.

Instream Habitat

To facilitate removal and demolition of the existing structure, a temporary cofferdam will be installed approximately 300 feet upstream of Hemphill Dam and the construction area will be temporarily dewatered by installing two pipelines immediately upstream of the cofferdam, one 300-foot pipeline to maintain the water supply for the Hemphill Canal and NID's customers and a 500-foot pipeline to divert streamflow to a return point located approximately 200 feet downstream of Hemphill Dam. All in-water work associated with removal and demolition of the structure would occur within the 500-foot dewatered area downstream of the temporary cofferdam and would occur during the June 15 to October 15 in-water period in a single year (likely 2022 with permitted alternative). The footprint of these activities is located within designated critical habitat for CCV DPS steelhead and EFH for Chinook salmon.

Dewatering of the construction area will result in a temporary loss of aquatic habitat over an approximately 500-foot reach of Auburn Ravine extending from the cofferdam (i.e., approximately 300 feet upstream of the Hemphill Dam) to the outlet of the diversion pipe (i.e., approximately 200 feet downstream of Hemphill Dam).

Aquatic habitat in the 200-foot-long reach extending from the Hemphill Diversion Structure and the outlet of the diversion pipeline will be temporarily lost during the July 15 to October 15 in-water construction window as a result of dewatering. This reach is characterized under existing conditions as having an incised channel consisting of a scour hole below the dam and bed and bank materials consisting primarily of highly erodible materials (i.e., silt and sand) from historic placer gold dredger mining (NHC 2021). As such, this 200-foot reach downstream of Hemphill Dam does not provide high quality spawning habitat for anadromous fish under existing conditions.

Installation of the temporary cofferdam will cause a temporary shift in the habitat upstream of the cofferdam while it is in place. This will convert the natural pool-riffle-run habitat currently occurring upstream of the cofferdam location into a ponded habitat similar to that created by the seasonal installation of the flashboards at the current Hemphill Dam location. Essentially, this would equate to moving the impoundment upstream by approximately 300 feet during the July 15 to October 15 in-water construction period and a concurrent temporary conversion of pool-riffle-run habitat in the area occupied by the impoundment to a single large pool habitat. This habitat conversion would be localized and limited to the approximately 300 feet length of the impoundment and, therefore, would not affect the numerous pool-riffle-run habitats occurring in the approximately 4.5-mile reach between the temporary impoundment and Gold Hill Dam.

Fish species occurring in this reach of Auburn Ravine will have completed their spawning and early growth life stages prior to the in-water work period, with the possible exception of Pacific lamprey, which are addressed above. As such, the riffle habitats occurring in the affected reach are not used for spawning or egg incubation during this period. Therefore, the temporary conversion of the riffle and run habitats to a pool habitat in the affected reach are not anticipated to affect the reproduction, egg incubation, or other life stages associated with riffle habitats for special-status fishes.

The existing riffles and runs in the reach upstream of the temporary cofferdam likely support a diverse benthic macroinvertebrate (BMI) population that provides a primary food source for fish, including rearing juvenile steelhead. As such, the temporary conversion of these habitats to pool habitats, may cause a temporary and localized reduction in abundance and/or a change in the BMI assemblage over this reach to BMI species that prefer pool habitats over riffle or run habitats. This effect is anticipated to be short-term, limited to the in-water work period, and returned to natural BMI community in the following year due to the rapid recolonization rates of BMIs (Merritt and Cummins 1996). Furthermore, as discussed above, numerous riffles and runs occur upstream of the affected reach and provide a stable source of BMIs. As such, conversion of the existing habitat to a pool habitat from the temporary impoundment is not anticipated to eliminate or reduce the BMI community by a sufficient amount as to measurably affect the food supply for special-status fishes occurring in the affected reach of Auburn Ravine.

The stream in this reach supports a band of riparian vegetation dominated by narrow-leaved willow (*Salix exigua* var. *exigua*) and red alder (*Alnus rubra*) below the OHWM. These trees and the understory vegetation provide shaded riverine aquatic (SRA) in the form of riparian and overhead canopy cover, which provide shade to cool the stream and a source of large woody debris for fish and BMI habitat. It is not anticipated that any large trees currently shading the ravine will be removed; however, some trimming of trees may be necessary and some riparian understory vegetation may be removed or disturbed during construction, which may result in a temporary and localized reduction in SRA. Any reductions in SRA are anticipated to be temporary and localized and, therefore, would not be anticipated to cause a measurable effect on Auburn Ravine temperatures or survival and reproduction of any fish species, including special-status fish. Furthermore, any impacts to SRA would be mitigated under the conditions of the NMFS ESA Section 7 Consultation (i.e., Mitigation Measure BIO-15), CDFW 1602 LSA, Section 404/401 permit, and the Placer County tree permit.

However, construction-related activities are anticipated to have localized and short-term effects on aquatic habitats used by special-status fish species and the resident fish and aquatic community. The cofferdam is anticipated to consist of either a water-filled bladder dam or gravel-filled sacks and may require some limited in-channel and bank excavation to secure and seal the dam, which would cause a minor and localized disturbance of these areas. The downstream (i.e., outlet) end of the diversion pipe will discharge to a low-gradient section of Auburn Ravine 200 feet downstream of the existing dam. Work conducted in these areas are anticipated to cause localized disturbance to the stream bed and bank, including the potential for erosion and suspension of sediments at the downstream end of the Project Study Area.

Finally, removal of the Hemphill Diversion Structure will result in post-removal erosion and sediment transport until such time that the Auburn Ravine re-defines its natural channel, including channel incision

upstream of the dam and in-channel deposition downstream of the dam, particularly under Alternatives 1 and 3 where the diversion will be removed and no grade control at this location will remain. Channel incision is expected to be minimal under Alternative 2 because, under this alternative, grade control would be reestablished at the diversion site, albeit two to five feet lower than with the existing diversion structure. Under Alternative 1 and 3, the upstream channel incision may be up to 5 to 8 feet in the 500 to 1,000 feet reach upstream of the dam, and less than three feet further upstream. Incision of less than three feet is unlikely to cause significant bank or channel erosion. In the 1,000 feet upstream of the dam, the channel incision may induce bank instability and erosion over a multi-year period as the channel adjusts. Impact 3.8-1 (Hydrology and Water Quality) determined that the water quality impacts following demolition and removal of the Hemphill Diversion Structure would be less than significant, based on the chemical and physical properties of the sediment that would be transported downstream and implementation of the BMPs required for coverage under the Construction General Permit. Mitigation Measure **HYD/WQ-1** includes measures to control erosion and undercutting, including the use of engineered log jams, log groynes, and regrading and planting of the bank and channel, which would improve instream and riparian habitat conditions. As such, the demolition and removal of the Hemphill Diversion Structure is not anticipated to have long-term effects on special-status fish or their habitat, including critical habitat and EFH.

Based on these considerations, demolition and removal of the Hemphill Diversion Structure would likely result in localized and temporary disturbance associated with construction and re-distribution of sediments. Therefore, impacts to aquatic habitats would be potentially significant. Implementation of Mitigation Measures **BIO-1, BIO-3, BIO-15 and HYD/WQ-1** would reduce this impact to ***less-than-significant with mitigation incorporated***.

Plants (Mexican Mosquito Fern, Big-scale Balsamroot, Valley Brodiaea, Hispid Bird's-beak, Brandegee's Clarkia, Dwarf Downingia, Stinkbells, Butte County Fritillary, Boggs Lake Hedge-hyssop, Ahart's Dwarf Rush, Dubious Pea, Legenere, Humboldt Lily, Pincushion Navarretia, Adobe Navarretia, Sacramento Orcutt Grass. Sanford's Arrowhead, Brazilian Watermeal)

As discussed in the setting above, 31 special-status plant species were identified as having the potential to occur within the Project Study Area based on the literature review. Upon further analysis and site reconnaissance, 12 species were determined to be absent from the Project Study Area due to the lack of suitable habitat. No further discussion of those species is provided in this assessment. See the setting section above for brief descriptions of the 19 special-status plants with the potential to occur within the Project Study Area.

As discussed in the setting section above, documented CNDDB occurrences of the above special status plants varies by species. However, suitable habitat for these species was determined to occur onsite within proposed staging areas, woodlands, and wetlands that could potentially be cleared or otherwise impacted during diversion dam demolition and cofferdam installation and removal. In addition, marginally suitable habitat may be present on private properties that were inaccessible during field survey.

To document potential sensitive plant occurrences within the Project Study Area, a determinate-level survey for "late-season" special-status plants was conducted on June 28 and 29, 2020. The target species for this survey included Mexican mosquito fern (*Azolla microphylla*), big-scale balsamroot (*Balsamorhiza*

macrolepis), hispid bird's-beak (*Chloropyron molle* ssp. *hispidum*), Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeeae*), stinkbells (*Fritillaria agrestis*), Butte County fritillary (*Fritillaria eastwoodiae*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Red bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*), legenere (*Legenere limosa*), Humboldt lily (*Lilium humboldtii* ssp. *humboldtii*), adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*), Sacramento Orcutt grass (*Orcuttia viscida*), Sanford's arrowhead (*Sagittaria sanfordii*), and Brazilian watermeal (*Wolffia brasiliensis*). None of these target species or any other special-status plants were found during these surveys.

An "early-season" survey is required during the spring 2021 to target the following remaining potentially-occurring special-status plants (e.g. Valley brodiaea [Brodiaea rosea ssp. vallicola], dwarf downingia [Downingia pusilla], Butte County fritillary (Fritillaria eastwoodiae), Ahart's dwarf rush [Juncus leiospermus var. ahartii], dubious pea [Lathyrus sulphureus var. argillaceus], and pincushion navarretia [Navarretia myersii ssp. myersii]. Therefore, impacts to special status plats are considered potentially significant. Implementation of Mitigation Measures **BIO-1, BIO-2**, **BIO-3**, and **BIO-17** would reduce this impact to ***less than significant with mitigation incorporated***.

Mitigation Measures

See DEIR Section 3.8 Hydrology and Water Quality, Mitigation Measures, for the full text of Mitigation Measure HYD/WQ-1. In addition, the following measures would be required:

BIO-1 **Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Non-Wetland Waters (applies to all alternatives)**

The Project will comply with all construction site BMPs specified in the Storm Water Pollution Prevention Plan (if required), and any other permit conditions 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 will address soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-stormwater management, and waste management practices. The BMPs will be based on the best conventional and best available technology.

The Project may require a Section 404 Permit from the U.S. Army Corps of Engineers, a Section 401 Water Quality Certification from the Central Valley RWQCB and/or a Lake or Streambed Alteration Agreement from the California Department of Fish and Wildlife, which will contain BMPs and water quality measures to ensure the protection of water quality. These permit conditions and BMPs shall also be implemented as part of the project.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-2 Install Fencing and/or Flagging to Protect Sensitive Biological Resources (applies to all alternatives)

Prior to construction, the Project contractor will install high-visibility orange construction fencing and/or flagging, as appropriate, along the perimeter of the work area where adjacent to Environmentally Sensitive Areas (ESAs) (e.g., adjacent riparian areas and any special-status species habitat and/or active bird nests that may be identified during per-construction surveys). The NID will ensure that the final construction plans show the locations where fencing will be installed. The plans also will define the fencing installation procedure. The NID or contractor (at the discretion of the NID) will 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. The project's special provisions package will provide clear language regarding acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs. All temporary fencing will be removed upon completion of construction.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-3 Conduct Environmental Awareness Training for Construction Personnel (applies to all alternatives)

Before any work occurs within the project limits, including equipment staging, grading, and tree and/or vegetation removal (clear and grub), the Project will 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 will 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 will 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 permit, Biological Opinion or other authorizing document (e.g. letter of concurrence) that may be prepared for the project. The environmental training will 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.

Timing/Implementation: Prior to construction

Monitoring/Enforcement: NID/Consultant

BIO-4 Conduct Preconstruction Surveys for Western Spadefoot (applies to all alternatives)

A qualified biologist shall conduct surveys for western spadefoot in areas of potential habitat that would be impacted by the Project. The surveys shall be conducted at the appropriate time of year to detect western spadefoot, generally the breeding season, according to methods approved by CDFW. If western spadefoot is found in habitat that will be eliminated or made unsuitable for western spadefoot, then a plan will be prepared, in consultation with CDFW, to collect and relocate adult and larval western spadefoot and egg masses to suitable habitat that will be preserved in perpetuity.

Timing/Implementation: Prior to construction

Monitoring/Enforcement: NID/Consultant

BIO-5 Conduct Section 7 Consultation with USFWS for Elderberry Long Horn Beetle (VELB) and Implement Required Mitigation (applies to all alternatives)

The following shall be implemented, either through the standard Corps Section 404 permitting process or through the PCCP, to minimize potential impacts to VELB:

- If elderberry shrubs would be removed or if construction ground disturbance would occur within 100 feet of an elderberry shrub, an evaluation using the 2017 USFWS guidance entitled USFWS 2017 Framework for Assessing Impacts to the VELB shall be conducted to determine the appropriate mitigation needs to minimize impacts to VELB and its host shrub.
- Section 7 consultation would take place with USFWS to establish mitigation, avoidance, and/or minimization measures as part of the Section 404 permitting process.
- A preconstruction survey shall be conducted by a qualified biologist in all riverine/riparian habitat within 165 feet of Project disturbance areas before any construction activity. The surveys shall be conducted according to the protocol outlined in USFWS Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017c) (Framework).

If elderberry shrubs are not present, no further mitigation is necessary.

If elderberry shrubs are located 165 feet or more from project activities, direct or indirect impacts are not expected. Shrubs shall be protected during construction by establishing and maintaining a high visibility fence at least 165 feet from the drip line of each elderberry shrub.

If elderberry shrubs can be retained within the project footprint, project activities may occur up to 20 feet from the dripline of elderberry shrubs if precautions are implemented to minimize the potential for indirect impacts. An avoidance area shall be established at

least 20 feet from the drip line of an elderberry shrub for any activities that may damage the elderberry shrub (e.g., construction staging, trenching, access road construction, canal modifications and instream and near stream improvements). The project proponent will implement avoidance and minimization measures specified in the USFWS Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017c).

As much as feasible, all activities that could occur within 165 feet of an elderberry shrub shall be conducted outside of the flight season of the valley elderberry longhorn beetle (March - July).

Herbicides shall not be used within the drip line of the shrub. Insecticides shall not be used within 100 feet of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method.

Mechanical weed removal within the drip-line of the shrub shall be limited to the season when adults are not active (August - February) and shall avoid damaging the elderberry.

Final design shall include realignment of the southern access road to avoid direct impact to elderberry shrubs. If any elderberry shrubs cannot be avoided according to the USFWS 2017 Framework, the Project proponent shall compensate for the loss of valley elderberry longhorn beetle habitat by purchasing appropriate credits at an agency approved mitigation bank, or through participation in the PCCP, if it has been adopted and is available for Project participation.

If trimming elderberry shrubs is proposed, trimming shall be conducted between November and February and shall not result in the removal of elderberry branches that are ≥ one inch in diameter. If trimming results in removing branches that are ≥ one inch in diameter, the project proponent shall mitigate for the loss of the valley elderberry beetle habitat via the standard permit process consistent with the USFWS 2017 Framework, or via the PCCP (should NID opt for and the PCA grant PCCP coverage to the Project).

The project proponent shall comply with ESA and consult with USFWS and will compensate for the unavoidable loss of elderberry shrubs according to USFWS 2017 Framework. The Framework uses presence or absence of exit holes, and whether the affected elderberry shrubs are in riparian habitat to determine the number of elderberry seedlings or cuttings and associated riparian vegetation that would need to be planted as compensatory mitigation for affected valley elderberry longhorn beetle habitat. Compensatory mitigation may include purchasing credits at a USFWS-approved conservation bank, providing onsite mitigation, or establishing and protecting habitat for valley elderberry longhorn beetle as follows:

1. For elderberry shrubs in riparian habitat:

- For each shrub that is trimmed, the Project proponent shall purchase two credits at a USFWS-approved bank.
- For each shrub that is removed, the entire shrub may be transplanted to a USFWS- approved location in addition to the purchase of two credits.

2. For elderberry shrubs in non-riparian habitat:

- The project proponent shall purchase one credit at a USFWS-approved bank for each shrub that will be trimmed if exit holes have been found in any shrub on or within 165 feet of the project area.
- If no exit holes are present and the shrub is not in riparian habitat, no further action is required.

If the shrub will be completely removed by the activity, the entire shrub shall be transplanted to a USFWS-approved location in addition to a purchase of one credit.

Because VELB is a PCCP covered species, mitigation for this species could also be accomplished via the PCCP.

Timing/Implementation: Prior to construction

Monitoring/Enforcement: NID/Consultant

BIO-6 Conduct Preconstruction Survey for Sensitive Reptiles – Blainville's horned lizard (applies to all alternatives)

A qualified biologist shall conduct surveys for Blainville's horned lizard in areas of potential habitat that would be eliminated by the Project or subject to ground disturbance due to construction access and staging. The surveys shall be conducted at the appropriate time of day to detect Blainville's horned lizard. If Blainville's horned lizard is found in habitat that will be eliminated or made unsuitable for Blainville's horned lizard, then a plan will be prepared, in consultation with CDFW, to potentially collect and relocate individual(s) to suitable habitat that will be preserved in perpetuity.

Timing/Implementation: Prior to construction

Monitoring/Enforcement: NID/Consultant

BIO-7 Conduct Pre-Construction Northwestern Pond Turtle Surveys (applies to all alternatives)

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 required, as well as the development of a relocation plan for northwestern pond turtle encountered during construction.

If no special status reptiles are detected during surveys, no further measures are needed.

Because the western pond turtle is a PCCP covered species, mitigation for this species could be accomplished via the standard permit process, or via the PCCP as further discussed below.

Timing/Implementation: Prior to construction

Monitoring/Enforcement: NID/Consultant

BIO-8 Survey for Swainson's Hawk and Other Protected Raptor nests and Protect Nesting Activity *(applies to all alternatives)*

For ground-disturbing activities with potential to affect Swainson's hawk and other raptor nests, or remove Swainson's hawk foraging habitat, the Project proponent shall consult with CDFW with respect to the following measures proposed to mitigate for habitat removal and potential nest disturbance. As part of the consultation, the Project proponent may seek take authorization under Section 2081 of the Fish and Game Code. The following measures will be implemented and are intended to avoid, minimize, and fully mitigate impacts to Swainson's hawk, as well as other raptors:

- For construction activities that would occur within 0.25 mile of a known or likely Swainson's hawk nest site, the Applicant shall attempt to initiate construction activities before nest initiation phase (i.e., before March 1). Depending on the timing, regularity, and intensity of construction activity, construction in the area before nest initiation may discourage a Swainson's hawk pair from using that site and eliminate the need to implement further nest-protection measures, such as buffers and limited construction operating periods around active nests. Other measures that could be used to deter establishment of nests (e.g., reflective striping or decoys) may be used before the breeding season in areas planned for active construction. However, deployment of nest deterrents does not guarantee success. If breeding raptors establish an active nest site, as evidenced by nest building, egg laying, incubation, or other nesting behavior, near the construction area, they shall not be harassed or deterred from continuing with their normal breeding activities.

- For Project activities, including tree removal, that begin between March 1 and September 15, qualified biologists shall conduct preconstruction surveys for Swainson's hawk and other nesting raptors and to identify active nests on and within 0.5 mile of the Project site. The surveys shall be conducted before the beginning of any construction activities between March 1 and September 15, following the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000).

- Impacts to nesting Swainson's hawks and other raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. 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 likely result in nest abandonment. CDFW guidelines recommend implementation of 0.25-mile-wide buffer for Swainson's hawk and 500 feet for other raptors, but the size of the buffer may be adjusted if a qualified biologist and the Applicant, 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 and after construction activities shall be required if the activity has potential to adversely affect the nest.

- Trees shall not be removed during the breeding season for nesting raptors unless a survey by a qualified biologist verifies that there is not an active nest in the tree.

Because Swainson's hawk is a PCCP covered species, mitigation for this species could also be accomplished via the PCCP as further discussed below.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-9 Survey for Western Burrowing Owl and Protect Nesting Activity (applies to all alternatives)

Before ground-disturbing activities, the following measures shall be implemented.

- The Applicant shall retain a qualified biologist to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 1,500 feet of areas subject to disturbance (only with landowner permission where this would include private property). Surveys shall be conducted before the start of construction activities and in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012) or the most recent CDFW protocols.

- If no occupied burrows are found, a letter report documenting the survey methods and results shall be submitted to CDFW and no further mitigation will be required.

- If an active burrow is found during the nonbreeding season (September 1 through January 31), the Applicant shall consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion plan shall be developed, as described in Appendix E of CDFW's 2012 Staff Report. Burrowing owls shall not be

excluded from occupied burrows until the Project's burrowing owl exclusion plan is approved by CDFW. The exclusion plan shall include a plan for creation, maintenance, and monitoring of artificial burrows in suitable habitat proximate to the burrows to be destroyed, that provide substitute burrows for displaced owls.

- If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows shall not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer shall depend on the time of year and level disturbance as outlined in the CDFW Staff Report (CDFG 2012) or the most recent CDFW protocols. The size of the buffer may be reduced if a broad-scale, long-term, monitoring program acceptable to CDFW is implemented to ensure burrowing owls are not detrimentally affected. Once the fledglings are capable of independent survival, the owls can be evicted, and the burrow can be destroyed per the terms of a CDFW-approved burrowing owl exclusion plan developed in accordance with Appendix E of CDFW's 2012 Staff Report or the most recent CDFW protocols.

Because Western burrowing owl is a PCCP covered species, mitigation for this species could also be accomplished via the PCCP as further discussed below.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-10 Survey for Tricolored Blackbird and Protect Nesting Activity (applies to all alternatives)

The following measures shall be implemented to avoid or minimize loss of active tricolored blackbird nests:

- To minimize the potential for loss of tricolored blackbird nesting colonies and other nesting birds, vegetation removal activities shall commence during the nonbreeding season (September 1-January 31) to the extent feasible. If all suitable nesting habitat is removed during the nonbreeding season, no further mitigation would be required.

Before removal of any vegetation within potential nesting habitat between February 1 and August 31, a qualified biologist shall conduct preconstruction surveys for nesting tricolored blackbirds (colonies). The surveys shall be conducted no more than 14 days before construction commences. If no active nests or tricolored blackbird colonies are found during focused surveys, no further action under this measure will be required. If active nests are located during the preconstruction surveys, the biologist shall notify CDFW. If necessary, modifications to the Project design to avoid removal of occupied habitat while still achieving Project objectives shall be evaluated and implemented to the

extent feasible. If avoidance is not feasible or conflicts with Project objectives, construction shall be prohibited within a minimum of 100 feet of the nest to avoid disturbance until the nest colony is no longer active. These recommended buffer areas may be reduced or expanded through consultation with CDFW. Monitoring of all occupied nests shall be conducted by a qualified biologist during construction activities to adjust the 100-foot buffer if agitated behavior by the nesting bird is observed.

Because Tricolored blackbird is a PCCP covered species, mitigation for this species could also be accomplished via the PCCP as further discussed below.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-11 Survey for White-tailed Kite, Cooper's Hawk and Other Protected Raptors and Protect Nesting Activity (applies to all alternatives)

For construction and other ground-disturbing activities with potential to affect white-tailed kite, Cooper's hawk, or other raptor nests (e.g., activities proposed to occur in or within 500 feet of suitable habitat), the following measures shall be implemented to prevent potential impacts to active raptor nests.

- For Project activities, including tree and other vegetation removal, that begin between February 1 and September 15, qualified biologists shall conduct preconstruction surveys for white-tailed kite and Cooper's hawk and to identify active nests on and within 500 feet of the Project site. The surveys shall be conducted before the beginning of any construction activities between February 1 and September 15.

- Impacts to nesting raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. 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 likely result in nest abandonment. CDFW guidelines recommend implementation of a 500-foot-wide buffer for these raptor species, but the size of the buffer may be adjusted if a qualified biologist and the Project proponent, 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 and after construction activities shall be required if the activity has potential to adversely affect the nest.

- Trees shall not be removed during the breeding season for nesting raptors unless a survey by a qualified biologist verifies that there is not an active nest in the tree.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-12 Survey for Nuttall's Woodpecker, Loggerhead Shrike, Yellow-Billed Magpie, Oak Titmouse, Wrentit, Song Sparrow and other MBTA-Protected Birds and Protect Nesting Activity (applies to all alternatives)

Before any ground-disturbing Project activities begin, a qualified biologist will identify potential habitat for nesting Nuttall's woodpecker, loggerhead shrike, yellow-billed magpie, oak titmouse, wrentit, and song sparrow, and other bird species protected under the MBTA in areas that could be affected by construction during the breeding season (February 1—August 31). To the extent feasible, construction-related vegetation removal shall occur outside the nesting season. If vegetation removal or other disturbance related to construction is required during the nesting season, focused surveys for active nests of special-status birds will be conducted before and within 14 days of initiating construction. A qualified biologist will conduct preconstruction surveys to identify active nests that could be affected. The appropriate area to be surveyed and timing of the survey may vary depending on the activity and species that could be affected. If no active nests are found during focused surveys, no further action under this measure will be required. If an active loggerhead shrike, song sparrow, grasshopper sparrow, or other special-status bird nest is located during the preconstruction surveys, the biologist will notify CDFW. If necessary, modifications to the Project design to avoid removal of occupied habitat while still achieving Project objectives will be evaluated and implemented to the extent feasible. If avoidance is not feasible, construction will be prohibited within a minimum of 100 feet of the nest to avoid disturbance until the nest is no longer active. These recommended buffer areas may be reduced or expanded through consultation with CDFW. Monitoring of all occupied nests shall be conducted by a qualified biologist during construction activities to adjust the 100-foot buffer if agitated behavior by the nesting bird is observed.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-13 Survey for Townsend's big-eared bat and western red bat and Protect Nesting Activity (applies to all alternatives)

Bat roost surveys shall be conducted by a qualified wildlife biologist within 14 days before any tree removal or clearing during each construction season. Locations of vegetation and tree removal or excavation will be examined for potential bat roosts. Specific survey methodologies will 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 will be avoided to the extent feasible. If it is determined that an active roost site cannot be avoided and will be affected, bats will 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.

Timing/Implementation: Prior to construction

Monitoring/Enforcement: NID/Consultant

BIO-14 Conduct Fish Rescue and Relocation (applies to all alternatives)

Prior to initiation of construction, a fish exclusion, rescue, and relocation plan shall be prepared and approved by NMFS and CDFW and implemented during construction. The plan shall identify the methods, equipment, fish protection measures, and release location(s) for all fish collected during dewatering of the site. The fish rescue and relocation effort shall be conducted by qualified fisheries biologists during the dewatering process to minimize the potential injury or death of juvenile steelhead, lamprey, or other fish and aquatic species potentially stranded in isolated pools during dewatering of the Project site.

Because Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook are PCCP covered species, mitigation for these species could also be accomplished via the PCCP as further discussed below.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-15 Conduct Section 7 and Magnuson-Stevens Act Consultation with NMFS for CCV DPS Steelhead and EFH for Pacific Salmon and Implement Required Mitigation (applies to all alternatives)

Prior to initiation of construction, the Project will be required to undergo ESA and MSA consultation with NMFS, either through the Corps Section 404 permitting process or through the PCCP and shall comply with all terms and conditions of the consultation. Conservation measures to reduce the likelihood of take of CCV DPS steelhead, designated critical habitat for CCV DPS steelhead, and EFH for Chinook salmon may include, but are not limited to:

- Conduct all in-channel work during the June 15 – October 15 in-water work window.
- Conduct worker environmental awareness training.
- Conduct fish exclusion, rescue, and relocation efforts during dewatering activities.

- All dewatering pumps and the intake to the canal diversion pipe will be fitted with fish screens meeting NMFS fish screen criteria.

Because Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook Salmon are PCCP covered species, mitigation for these species could also be accomplished via the PCCP as further discussed below.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-16 Conduct Preconstruction Survey for Spawning Fish (applies to all alternatives)

Prior to construction, a qualified fisheries biologist shall conduct a visual survey of the Project Area to determine the suitability for and presence of special-status fish spawning activity within the Project footprint. If spawning activity by special-status fish is observed during this survey, a plan will be prepared, in consultation with CDFW and NMFS (for anadromous salmonids only) to minimize, avoid, or mitigate for disturbance to spawning fish and/or incubating eggs.

If no spawning activity by special-status fish is observed during the survey, no further measures are needed.

Because Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook Salmon are PCCP covered species, mitigation for these species could also be accomplished via the PCCP as further discussed below.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/Consultant

BIO-17 Conduct Preconstruction Survey for Sensitive Plant Species (applies to all alternatives)

Focused special-status plant surveys shall be performed prior to construction ground disturbance. The survey guidelines, at a minimum, shall require the following:

- All plant species encountered on the Project site shall be identified to the taxonomic level necessary to determine species status.
- The surveys shall be conducted no more than five years prior and no later than the blooming period immediately preceding the approval of a grading or improvement plan or any ground-disturbing activities, including grubbing or clearing. If special-status plants are identified on the Project site, the NID shall implement the following measures to mitigate the potential loss of special-status plant species:

1. Avoid special-status plant occurrences through Project design to the extent technically feasible and appropriate. Avoidance shall be deemed technically feasible and appropriate if the habitat occupied by special-status plants may be preserved onsite while still obtaining the Project purpose and objectives and if the preserved habitat features could reasonably be expected to continue to function as suitable habitat for special-status plants following Project implementation.

2. If, after examining all feasible means to avoid impacts to potential special-status plant species habitat through Project site planning and design, adverse effects cannot be avoided, then impacts shall be mitigated in accordance with guidance from the appropriate State or federal agency charged with the protection of the subject species.

3. Notify CDFW, as required by the California NPPA, if any special-status plants are found on the Project site. Notify the USFWS if any plant species listed under the federal ESA are found.

4. Develop a mitigation and monitoring plan to compensate for the loss of special-status plant species found during preconstruction surveys, if any. The mitigation and monitoring plan shall be submitted to CDFW or USFWS, as appropriate depending on species status, for review and comment. Placer County as the CEQA lead agency shall consult with these entities, as appropriate depending on species status, before approval of the plan to determine the appropriate mitigation measures for impacts on any special-status plant population. Mitigation measures may include preserving and enhancing existing onsite populations, creation of offsite populations on Project mitigation sites through seed collection or transplantation, and/or preserving occupied habitat offsite in sufficient quantities to offset loss of occupied habitat or individuals.

5. If transplantation is part of the mitigation plan, the plan shall include a description and map of mitigation sites, details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements, and sources of funding to purchase, manage, and preserve the sites. The following performance standards shall be applied:

    i. The extent of occupied area and the flower density in compensatory reestablished populations shall be equal to or greater than the affected occupied habitat and shall be self-producing. Re-established populations shall be considered self-producing when:

1. plants re-establish annually for a minimum of five years with no human intervention, such as supplemental seeding; and

2. re-established habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types.

6. If offsite mitigation includes dedication of conservation easements, purchase of mitigation credits, or other offsite conservation measures, the details of these measures shall be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, and other details, as appropriate to target the preservation of long-term viable populations.

Timing/Implementation: Prior to construction

Monitoring/Enforcement: NID/Consultant

Alternative Mitigation for PCCP Covered Species

Should the Project participate in the PCCP and programmatic permits are available for use as a mitigation strategy, the following PCCP Species Conditions could be implemented as an alternative mechanism for avoiding, minimizing, and mitigating potential Project impacts to PCCP covered special-status species and their habitats (for the full text of PCCP minimization measures see DEIR Appendix 3.3-A, Attachment F: PCCP Measures and Conditions):

Species Condition 1. Swainson's Hawk

The Project applicant shall comply with PCCP Avoidance and Minimization Measure (AMM) Species Condition 1 for Swainson's Hawk (PCCP Section 6.3.5.6; Attachment F). Swainson's hawk surveys will be conducted according to PCCP Section 6.3.5.6.1 and if an occupied nest is identified, minimization measures according to PCCP Section 6.3.5.6.2 must be adopted, and PCCP Section 6.3.5.6.3 if construction monitoring is required.

Species Condition 3. Western Burrowing Owl

The Project applicant shall comply with PCCP AMM Species Condition 3 for Western Burrowing Owl (PCCP Section 6.3.5.8). Burrowing owl surveys will be conducted according to PCCP Section 6.3.5.8.1. If a burrowing owl or evidence of presence at or near a burrow entrance is found to occur within 250 feet of the Project, applicable measures in PCCP Section 6.3.5.8.2 shall be implemented, and PCCP Section 6.3.5.8.3 if construction monitoring is required.

Species Condition 4. Tricolored Blackbird

The Project applicant shall comply with PCCP AMM Species Condition 4 for Tricolored Blackbird (PCCP Section 6.3.5.9; Tricolored blackbird surveys will be conducted according to PCCP Section 6.3.5.9.1 and applicable measures in PCCP Section 6.3.5.9.2 will be implemented if a tricolored

blackbird nesting colony is found and PCCP Section 6.3.5.9.3 implemented if construction monitoring is required.

Species Condition 6. California Western Pond Turtle

The Project applicant shall comply with PCCP AMM Species Condition 6 for western pond turtle (PCCP Section 6.3.5.11).

Species Condition 7. Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook Salmon

The Project applicants shall comply with PCCP AMM Species Condition 7 for Central Valley steelhead and Central Valley fall-/late fall-run chinook salmon (PCCP Section 6.3.5.12).

Species Condition 8. Valley Elderberry Longhorn Beetle

The Project applicants shall comply with PCCP AMM Species Condition 8 for VELB (PCCP Section 6.3.5.13).

Infiltration Gallery Installation: Alternative 1

In addition to the Phase 1 construction activities described above, Alternative 1 would also construct the Infiltration Gallery downstream of the existing Hemphill Diversion Structure on the south bank. Riprap associated with this improvement would extend approximately 25 feet into the existing creek bed and channel. Work would include excavation to weathered granitic rock, which is approximately 15 feet below the creek surface, installation of the infiltration gallery, placement of compacted engineered rock fill, placement of riprap along the bank, and installation of a wet well pump station. As described in Chapter 3, earth work limits would be approximately 100 feet long by 90 feet wide by up to 27 feet below the ground surface. Once the infiltration gallery is installed, the excavated area will be backfilled with compacted engineered permeable crushed rock and compacted general fill material. The backfill will be re-enforced with heavy riprap. An underground pipeline would connect and convey flows from the infiltration gallery to the Hemp Hill Canal.

Phase 1 construction site preparation activities would include grading of staging areas and access roads which would facilitate Infiltration Gallery construction. As such, Alternative 1 impacts to sensitive species would also be significant as described above for Phase 1 Diversion Demolition and Removal construction activities. This impact can be reduced to less than significant with implementation of mitigation measures BIO-1 through BIO-17 and/or participation in the PCCP for covered species.

Infiltration galleries are considered by NMFS (2011) to be an experimental technology that may provide suitable fish passage conditions at the diversion site, provided that they are built and operated to provide at least the same level of fish protection as conventional fish screens that meet NMFS criteria. If improperly sited, infiltration galleries may fail, thereby causing loss or adverse effects on habitat. Because they are located beneath the stream bed, infiltration galleries are susceptible to being plugged by fine sediments, which may result in vertical velocity hot spots that may increase the risk to small fish (e.g., juvenile salmonids or lamprey). As such, infiltration galleries should be constructed at sites exhibiting sufficient natural fluvial processes to minimize sediment deposition above the infiltration gallery and in areas where naturally high levels of sedimentation do not occur (NMFS 2011). In addition to siting of

infiltration galleries, NMFS (2011) has published design criteria and guidelines for minimum depths and velocities, screen material openings, induced vertical approach velocity at the stream bed, backwashing of plugged galleries, limitations and cessation of use, and long-term operations and maintenance for minimizing any potential adverse effects on anadromous fish and their habitats, including critical habitat and EFH. NMFS' requirements and limitations placed on infiltration galleries include, but are not limited to, cessation or limitation of diversion via the infiltration gallery if spawning occurs in the substrate above the gallery, avoidance of backwashing when juvenile salmonids are present at or downstream of the gallery, timing restrictions for backwashing, maintenance or critical repairs, and preparation of an operation and maintenance plan. However, because the design and long-term operations and maintenance plans for this alternative is not complete, a more detailed determination and finalization of siting, operations, and maintenance are needed to meet these NMFS requirements, should this alternative be selected as the preferred alternative. As such, the use of an infiltration gallery would have a potentially significant impact on special-status fish, including CCV steelhead, CV fall-run Chinook salmon, and Pacific lamprey, and habitat, including critical habitat for CCV steelhead, and EFH. Because this alternative would require compliance with NMFS' criteria for infiltration galleries and fish screening, implementation of Mitigation Measure BIO-15 and/or participation in the PCCP for covered species would address any outstanding NMFS requirements and, therefore, reduce this impact to less than significant.

Alternative 1 would add the Infiltration Gallery improvement area to the Phase 1 construction footprint. Construction of Infiltration Gallery improvements would occur within the dewatered section of Auburn Ravine and therefore would not involve any new sensitive species impacts compared to those identified for Phase 1 construction.

Based on the above considerations, implementation of the Alternative 1 Infiltration Gallery improvements in combination with diversion dam demolition and removal would result in potentially significant impacts to sensitive species. Therefore, implementation of Mitigation Measures **BIO-1** through **BIO-17** and **HYD/WQ-1** would also apply to Infiltration Gallery construction and would ensure related sensitive species impacts are reduced to ***less than significant with mitigation incorporated*****.** No additional mitigation is required.

Mitigation Measures

See DEIR Section 3.8 Hydrology and Water Quality, Mitigation Measures, for the full text of Mitigation Measure HYD/WQ-1. In addition, see Mitigation Measures **BIO-1** through **BIO-17** presented above.

Fish Passage Construction: Alternative 2

In addition to Phase 1 construction described above, Alternative 2 would construct Fish Passage improvements comprised of a nature-like roughened rock ramp within the stream channel at the location of the current diversion (see Figure 2-6). A flat plate fish screen would also be installed on the Hemphill Canal to prevent fish from entering the canal. A bypass pipe (fish return) would be constructed through the left overbank prior to the fish screen to deliver bypass flow and any downstream migrating juvenile fish back to Auburn Ravine at a location just up-stream of the nature like fishway. The above improvements would not introduce any new sensitive species impacts and installation of the fish screen would improve conditions at the current diversion intake which is currently unscreened.

Alternative 2 would also involve modification to the Hemphill Canal flow line. As discussed in the Chapter 2.0 Project Description, near the end of the diversion season (just prior to October 15), a sheet-pile cofferdam would be installed around the Hemphill Canal diversion inlet and the canal would be allowed to dewater. The contractor would then use an excavator to lower 3,600 lineal feet of the canal by up to five feet. Access to this activity would be via an existing dirt maintenance road that parallels the north side of the canal. Spoils from canal excavation would be spread over the existing maintenance access road and/or off hauled to an approved location. Following canal regrading, the contractor would install new headgates, flow gaging equipment, and culverts (if needed). Some or all of the regraded canal may be lined with concrete or piped if recommended during final design. Upon completion of canal modifications, the sheet pile cofferdam would be removed (from the bank of Auburn Ravine), the contractor would remove all temporary facilities and restore the access routes. This work would require about two months to complete.

Phase 1 Diversion Dam removal construction site preparation activities would include grading of staging areas and access roads that would also facilitate Fish Passage improvements. As such, Alternative 2 impacts to sensitive species would be similar to those described above for Phase 1 Diversion Demolition and Removal construction activities and therefore would also be potentially significant. This impact could be reduced to less than significant with implementation of Mitigation Measures BIO-1 through BIO-17 and Mitigation Measure HYD/WQ-1.

Alternative 2 would add the Fish Passage and Hemphill Canal improvement areas to the Phase 1 construction footprint. Construction of Fish Passage improvements would occur within the dewatered section of Auburn Ravine, would replace the former diversion structure, and would not involve any new sensitive species impacts compared to those identified for Phase 1 construction. Therefore, Mitigation Measures BIO-1 through BIO-17 and HYD/WQ-1 would remain applicable to Fish Passage construction and would ensure related sensitive species impacts are reduced to less than significant.

Alternative 2 would also require lowering of the Hemphill Canal flowline. Construction access for this activity would be via the immediately adjacent maintenance access road. As shown in Figure 3.3-1, at least 17 elderberry shrubs are located within 100 feet of the Hemphill Canal construction access road. Based on the current conceptual design, at least 4 of these shrubs may require trimming for construction access. Per the 2017 USFWS guidance entitled *USFWS 2017 Framework for Assessing Impacts to the VELB* (USFWS 2017), ground disturbance/construction occurring within 100 feet of elderberry shrubs is considered an indirect effect to VELB and its habitat and should any shrub removals be required a direct effect to VELB is assumed. Therefore, indirect effect impacts to elderberry shrubs are expected, and depending on final design, direct effect impacts may also result. Therefore, impacts to VELB and its habitat due to implementation of Alternative 2 are also potentially significant. To address impacts to VELB and its habitat, the project would implement Mitigation Measures **BIO-2** and **BIO-3**. Because VELB is listed as threatened under the federal Endangered Species Act, prior to construction, Mitigation Measure **BIO-5** would also be implemented. With implementation of mitigation measures **BIO-2**, **BIO-3** and **BIO-5**, potential impacts to VELB resulting from Alternative 2 Hemphill Canal improvements would be reduced to less than significant.

Fish

Lowering the upstream crest elevation of the existing Hemphill Diversion Structure by two feet and constructing a nature-like roughened rock ramp within the stream channel extending approximately 180 feet downstream of the existing Hemphill Diversion Structure under this alternative would improve migration conditions for anadromous and resident fish. The channel downstream of the diversion structure, which currently consists of an incised channel with substrates dominated by fine sediments, would be replaced with a riffle-type habitat constructed of large boulders and Engineered Streambed Material (ESM; i.e., a mix of sand, gravels, and cobbles) designed to mimic gradations in natural riffles but maintain stability in high-flow event. Large boulders buttressed across the channel to maintain grade would also provide holding and foraging habitats for fish. As such, instream habitat in this reach would be improved for migration and rearing for special-status anadromous fish, including CV fall-run Chinook salmon, CCV steelhead, and Pacific lamprey.

As discussed above, entrainment in the Hemphill Canal would be precluded by installation of a flat plate fish screen that will be sized to meet CDFW or NMFS requirements for fish screening, including sweeping and approach velocities. The fish screen would be outfitted with a brush system to facilitate automated cleaning. A juvenile bypass pipe will be constructed through the left overbank to deliver bypass flow back to Auburn Ravine just upstream of the nature-like fishway and return fish to the main channel. As such, entrainment in the canal would be avoided.

Based on the above considerations, Alternative 2 impacts on candidate, sensitive, or special-status wildlife species would be **less than significant with mitigation incorporated.**

Mitigation Measures

See DEIR Section 3.8 Hydrology and Water Quality, Mitigation Measures, for the full text of Mitigation Measure HYD/WQ-1. In addition, see Mitigation Measures **BIO-1** through **BIO-17** presented above.

Pipeline Installation: Alternative 3

In addition to Phase 1 construction described above, Alternative 3 would also construct an approximately 4.5-mile 24-inch pipeline from the Gold Hill Road Placer Yard facility to the Hemphill Canal. The pipeline alignment would extend along Fruitvale, Fowler, and Virginiatown Roads, and then head southwest via a "cross-country" alignment to the Hemphill Canal (see Figure 2-12). The pipeline would transition to above ground at, and then cross over, Auburn Ravine at the location of the former Diversion Dam which would be demolished and removed during Phase 1 construction.

Initial site preparation and grading of the staging areas and access roads that would facilitate the construction of the pipeline crossing of Auburn Ravine would occur as part of Phase 1 construction activities. As such, Alternative 3 impacts to sensitive species would be significant, the same as described above for Phase 1 Diversion Demolition and Removal construction activities. Therefore, Mitigation Measures BIO-1 through BIO-17 and HYD/WQ-1 would remain applicable to Alternative 3 Pipeline construction and would ensure related sensitive species impacts are reduced to less than significant.

Except for in-road pipeline construction, Alternative 3 would only add the cross-country pipeline segment located southwest of Virginiatown Road to the Project's overall disturbance footprint. As shown in **Figure: 3.3-1***: Elderberry Shrub Impacts,* this underground pipeline alignment would pass near 3 elderberry shrubs. Two (2) shrubs would be located approximately 90 feet west of the pipeline alignment and 1 would be located approximately 64 feet to the east. As discussed above, ground disturbance/construction occurring within 100 feet of elderberry shrubs is considered an indirect effect to VELB and its habitat which would be a significant impact. To address impacts to VELB and its habitat, the project would implement Mitigation Measures **BIO-2**, and **BIO-3**. Because VELB is listed as threatened under the federal Endangered Species Act, prior to construction, Mitigation Measure **BIO-5** would also be implemented. Implementation of these measures would ensure Alternative 3 Pipeline impacts to VELB and its habitat are reduced to less than significant.

Fish

As discussed above for Alternative 1, removal and modification of Hemphill Dam under Alternative 3 will restore year-round upstream and downstream passage of anadromous and resident fish at this location and, therefore, improve fish migration, relative to existing conditions. However, as discussed in Impact 3.8.3-3 Hydrology and Water Quality (Chapter 3.8), Alternative 3 would result in an additional diversion at the Gold Hill Diversion Dam resulting in a reduction in flows below Gold Hill Diversion Dam during the irrigation season. The reduction in flow below the Dam would be approximately equal to the current Hemphill diversion, totaling about six to eight cfs. There is no stream gage below the Gold Hill Diversion Dam, but an estimate can be made based upon flow measured at the BR200 gage plus diversions at Hemphill Dam plus approximately 2 cfs delivered to NID's 26 pump contractors in this reach. Figure 3.8-3 in Hydrology/Water Quality (Chapter 3.8) illustrates the estimated flow below the Gold Hill Diversion Dam. These estimated flows do not include potential losses or accretions between the Gold Hill Diversion Dam and the BR200 gage 11 miles downstream near Old Highway 65 in Lincoln. This flow data should only be used to provide a general estimate of the magnitude of flows below the Gold Hill Diversion Dam. Significant canal system tailwater enters Auburn Ravine between the Gold Hill Diversion Dam and the BR200 gage. Likewise, there are losses due to evapotranspiration and percolation that are not accounted for in the estimate. The estimated flow below the Gold Hill Diversion Dam during the irrigation season appears to range between roughly 10 and 100 cfs with the lowest flows occurring in the drought of 2015. By increasing diversion at the Gold Hill Diversion Dam to serve Hemphill Canal demands via a pipeline as suggested by Alternative 3, flows below Gold Hill Diversion Dam could be substantially reduced for the irrigation season flow during drought conditions in the 4.5-mile reach between the Goldhill Diversion Dam and the Hemphill Canal intake. Flows downstream of the existing Hemphill Diversion would be unaffected, relative to existing conditions, under Alternative 3.

The range of effects that could occur under such substantial flow reductions include decreased rearing habitat quantity and quality, increased stream temperatures, increased potential for low-flow barriers (e.g., shallow riffles or dry reaches), reduced food availability, dewatering of fish redds and associated egg desiccation, conversion to habitats that favor non-native fish, and increased susceptibility to predation.

CV Fall-run Chinook Salmon

As discussed above for the assessment of the Hemphill Diversion Structure demolition and removal, CV fall-run Chinook salmon adults occur in Auburn Ravine from as early as mid-October into the early winter months and, therefore, would be unaffected by the reduction in flows during the irrigation season. However, removal of Hemphill Dam to provide unimpeded passage to an additional 4.5-mile reach of available spawning and rearing habitat is anticipated to increase spawning and rearing success in this reach. Any juvenile fall-run Chinook salmon occurring in the affected reach after initiation of the irrigation season on April 15 would be subject the effects of a substantial reduction in flow during drought conditions under Alternative 3. The reduction in flows in this reach that would occur annually on April 15 would likely trigger some juvenile fall-run Chinook salmon to begin emigration from Auburn Ravine or move downstream of Hemphill Dam to find better rearing conditions. However, those juvenile fish that remain in the affected reach would likely face degraded rearing habitat conditions, increased temperatures, and increased susceptibility to predation by piscivorous fish, mammal, and bird species that could threaten their survival in particular during drought conditions.

CCV Steelhead

As discussed above for fall-run Chinook salmon, removal of Hemphill Dam is anticipated to increase the potential for steelhead spawning and rearing in the 4.5-mile accessible reach upstream of the existing dam location and the early life stages of steelhead occurring in this reach would be subject to the adverse effects of streamflow reduction (e.g., reduction in habitat quantity and quality, increased stream temperatures, migration barriers). This substantial reduction in flows and associated reduction in habitat quantity and quality, relative to existing conditions, would likely degrade rearing habitat conditions by an amount that could threaten the survival of over-summering juvenile steelhead under Alternative 3, in particular during drought conditions. As discussed in Impact 3.8-3, NID would continue to meet the Auburn Ravine flow goals at the BR200 gauge located near Old Highway 65 in Lincoln under Alternative 3. As such, no change in flows or instream rearing habitat for steelhead or other fish species would occur between the existing Hemphill Diversion and the BR200 gauge under this alternative.

Pacific Lamprey

As discussed above for CV fall-run Chinook salmon and CCV steelhead, flow reductions under Alternative 3 could substantially reduce instream habitat quantity and quality for Pacific lamprey in the 4.5-mile reach between Gold Hill Dam and Hemphill Dam. Furthermore, because Pacific lamprey ammocoetes often burrow into sediments in nearshore areas, the reduction in flows during the April 15 – October 14 irrigation period could result in dewatering of habitats used by these fish, thereby resulting in lethal conditions for ammocoetes that become trapped in their burrows when water levels recede.

Based on the above considerations, even with implementation of Mitigation Measures **BIO-1** through **BIO-17** and **HYD/WQ-1**, the Pipeline installation alternative would cause a substantial reduction in flows during drought conditions. This would cause an associated reduction in rearing juvenile Chinook salmon, steelhead, and Pacific lamprey habitat quantity and quality relative to existing conditions. Because no

feasible mitigation is available, this is a ***significant unavoidable impact*** on rearing juvenile Chinook salmon, steelhead, and Pacific lamprey habitat within this reach.

Mitigation Measures

See DEIR Section 3.8 Hydrology and Water Quality, Mitigation Measures, for the full text of Mitigation Measure HYD/WQ-1. In addition, see Mitigation Measures **BIO-1** through **BIO-17** presented above.

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.*

Table 3.3-4 presents the total acreage of land cover types mapped within the Study Area. For mapping of these cover types, see BRA Figure 3. *Revised Placer County Conservation Program Land Cover* (see Appendix 3.3-A).

In addition to Riverine Riparian, three sensitive natural communities were identified as having the potential to occur within the Project Study Area based on the literature review: Northern Hardpan Vernal Pool, Alkali Meadow, and Alkali Seep (CDFW 2020b). While none of these communities were found to occur during the field assessment, one sensitive natural community was identified within the Study Area: the Q*uercus lobata* Forest & Woodland Alliance. This sensitive community is located within the riverine/riparian cover type shown and is addressed as part of the riverine/riparian analysis. As outlined in Mitigation Measures BIO-18 and BIO-19, impacts to this sensitive natural community would be mitigated under the conditions of the CDFW 1602 LSA, Section 404/401 permit, and the Placer County tree permit. Therefore, Q*uercus lobata* Forest & Woodland Alliance sensitive community is not discussed further and is addressed as part of the riverine/riparian land cover analysis and mitigation provided below.

Hemphill Diversion Structure Demolition and Removal: Alternatives 1, 2, and 3

The Hemphill Diversion Structure Demolition and Removal Phase involves construction of the following project components shown on Figure 2-6:

- Modification of the existing north staging and access route
- Establishment of the south staging and modification of south access route
- Cofferdam
- Hemphill Diversion Structure Demolition and Removal
- Installation of the temporary Diversion Pipe to Auburn Ravine
- Installation of the temporary Diversion Pipe to Hemphill Canal
- Installation of erosion mitigation features

These improvements are required for all Project alternatives and therefore are additive to riparian impacts associated with the individual alternatives (discussed further below).

Figure 3.3-2. *Land Cover Type Construction Impacts* identifies the Hemphill Diversion Structure demolition and removal phase land cover type construction impacts anticipated for the above features. As shown in Table 3.3-4, construction of the above components is expected to result in 0.64-acre of temporary and 0.16-acre permanent impact to riverine/riparian habitat. This is considered a significant impact to riverine/riparian habitat. Implementation of Mitigation Measures **BIO-2**, **BIO-3**, and **BIO-18** would reduce this impact to ***less than significant with mitigation incorporated***.

Mitigation Measures

See Mitigation Measures **BIO2** and **BIO-3** presented above.

BIO-18 Compensate for the Loss of Riparian Habitat and Restore Temporary Disturbed Areas (applies to all alternatives)

To compensate for the total permanent loss of riparian habitat communities, prior to construction NID 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 will purchase riparian credits at a 3:1 ratio. The final mitigation ratio and acreage will be confirmed during review of final engineering drawings and may be modified during the CDFW Section 1602 permitting process (if actual increase or decrease) which will dictate the ultimate compensation.

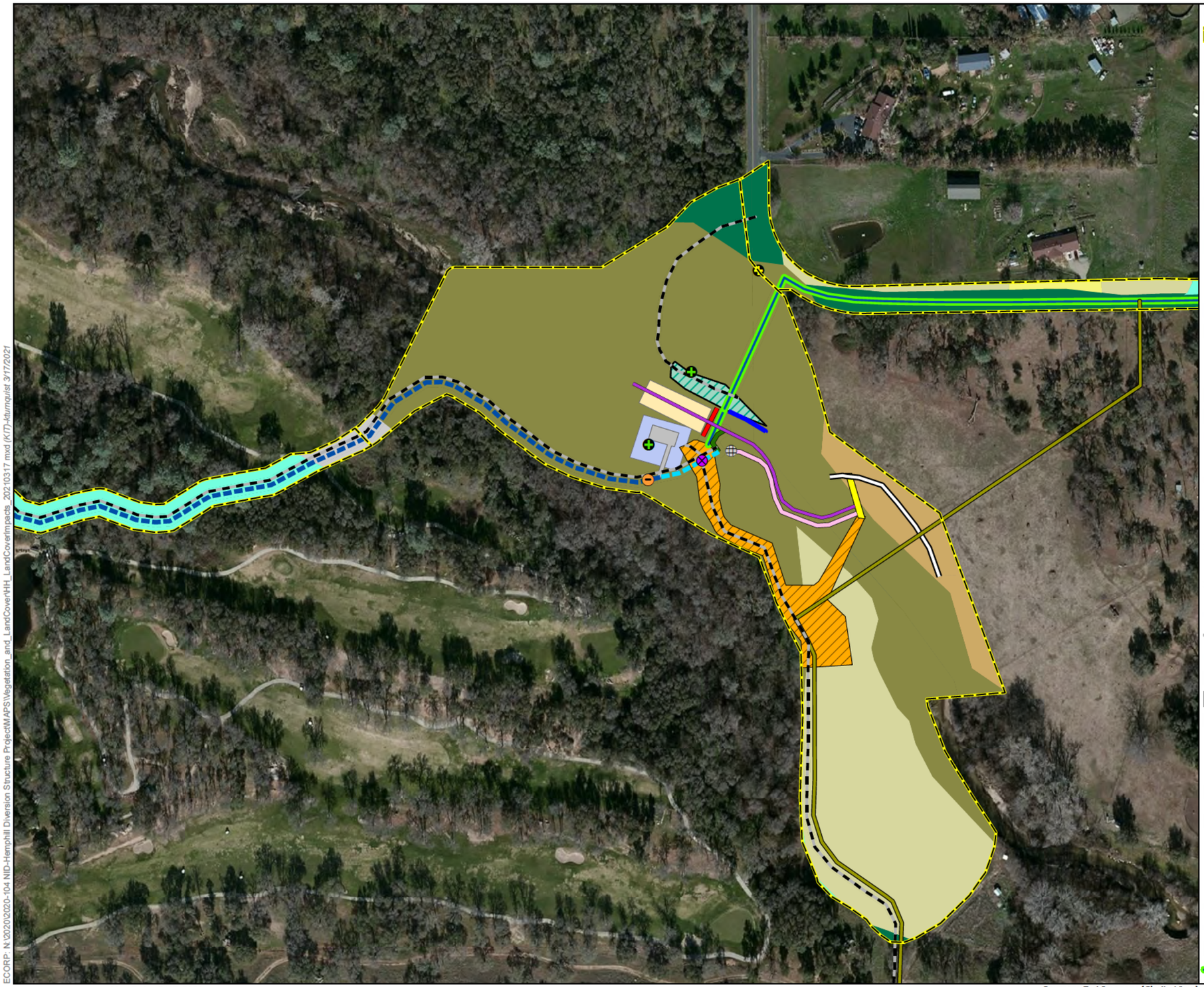
NID shall provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits.

All areas subject to temporary construction disturbance shall be restored 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 and developed as part of the CDFG Streambed Alteration Agreement process and shall be reviewed and approved by CDFG prior to implementation.

Because fish passage improvements for the Project site are identified in the PCCP/CARP, should NID request and the PCA grant Special Entity Status to NID, Project permitting, and the above mitigation, could also be fulfilled via the PCCP In-Lieu Fee program.

Timing/Implementation: Prior to and following construction

Monitoring/Enforcement: NID/Consultant



ECORP: N:\2020\2020-104 NID-Hemphill Diversion Structure Project\MAPS\Vegetation_and_LandCover\HH_LandCoverImpacts_20210317.mxd (KT)-kturnquist 3/17/2021

Map Date: 3/17/2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 200

Sources: Esri Imagery (Clarity View)

Figure 3.3-2. Land Cover Type Impacts

2020-104 NID-Hemphill Diversion Structure Project

Infiltration Gallery Installation: Alternative 1

The Infiltration Gallery Alternative would first involve the Phase 1 Hemphill Diversion Structure demolition and removal construction activities described above. Following those activities, while the cofferdam is still in place, the following project components shown on Figure 2-6 would be constructed/installed:

- Infiltration Gallery and Pipeline to Hemphill Canal
- Two new Power Poles for electric service extension

Figure 3.3-2 identifies the Infiltration Gallery Alternative land cover type construction impacts anticipated for the above features. As shown in Table 3.3-4, construction of the above components is expected to result in 0.16-acre of temporary and 0.05 permanent impact to riverine/riparian habitat. When combined with the Phase 1 Hemphill Diversion Structure demolition and removal construction activities, the total Alternative 1 Project would result in 0.80-acre of temporary and 0.21-acre permanent impact to riverine/riparian habitat. This is considered a significant impact. Implementation of Mitigation Measures **BIO-2**, **BIO-3**, and **BIO-18** would reduce this impact to ***less than significant with mitigation incorporated***.

Table 3.3-4 Land Cover Impacts

	Annual Grassland		Mixed Oak Woodland		Pasture		Riverine/ Riparian		Urban Golf Course		Grand Total	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
Phase 1 - All Alternatives												
Erosion Mitigation Feature Installation					0.07		0.03				**0.1**	**0**
North Access Road			0.02								**0.02**	**0**
South Access Road	0.18						0.13				**0.31**	**0**
Diversion Removal								0.04			**0**	**0.04**
Hemphill Canal Access Road				0.09				0.11			**0**	**0.2**
South Staging Area		0.29						0.31			**0**	**0.6**
Temporary Diversion Pipe Auburn Ravine								0.1			**0**	**0.1**
Temporary Diversion Pipe Hemphill Cana								0.08			**0**	**0.08**
Subtotal - All Alternatives:	***0.18***	***0.29***	***0.02***	***0.09***	***0.07***	***0***	***0.16***	***0.64***	***0***	***0***	***0.43***	***1.02***
Alternative 1 – Infiltration Gallery												
Infiltration Gallery Footprint (Alt 1)							0.05				**0.05**	**0**
Infiltration Gallery Work Area (Alt 1)								0.16			**0**	**0.16**
Subtotal - Alternative 1	*0*	*0*	*0*	*0*	*0*	*0*	*0.05*	*0.16*	*0*	*0*	***0.05***	***0.16***
Total Phase 1 + Alternative 1	***0.18***	***0.29***	***0.02***	***0.09***	***0.07***	***0***	***0.21***	***0.80***	***0***	***0***	***0.48***	***1.18***
Alternative 2 – Fish Passage												
Bypass Pipe Fish Return (Alt 2)								0.03			**0**	**0.03**
Fish Passage (Alternative 2)								0.16			**0**	**0.16**
Hemphill Canal (Alternative 2)				0.17				0.14		0.06	**0**	**0.37**
Subtotal - Alternative 2	*0*	*0*	*0*	*0.17*	*0*	*0*	*0*	*0.33*	*0*	*0.06*	***0***	***0.56***
Total Phase 1 + Alternative 2	0.18	0.29	0.02	0.26	0.07	0	0.16	0.97	0	0.06	**0.43**	**1.58**
Alternative 3 – Pipeline												
Pipeline Terrestrial Impacts (Alt 3)								0.13			**0**	**0.13**
Subtotal - Alternative 3	0	0	0	0	0	0	0	0.13	0	0	**0**	**0.13**
Total Phase 1 + Alternative 3	**0.18**	**0.29**	**0.02**	**0.09**	**0.07**	**0**	**.16**	**0.77**	**0**	**0**	**0.43**	**1.15**

Mitigation Measures

See Mitigation Measures **BIO-2, BIO-3** and **BIO-18** presented above.

Fish Passage Construction: Alternative 2

The Fish Passage Alternative would first involve the Phase 1 Hemphill Diversion Structure demolition and removal construction activities described above. Following those activities, while the cofferdam is still in place, the following project components shown on Figure 2-6 would be constructed/installed:

- Installation of Fish Passage Improvements
- Hemphill Canal Culvert Replacement
- Hemphill Canal Fish Screen
- Hemphill Bypass Pipe Fish Return
- Two new Power Poles for electric service extension

Figure 3.3-2 identifies the Fish Passage Alternative land cover type construction impacts anticipated for the above features. It should be noted that lowering 3,600 lineal feet of the existing Hemphill Canal by up to five feet as required under Alternative 2 would not result in riverine/riparian impacts because ground disturbance would be limited to the existing ditch bottom. However, a temporary riverine/riparian impact of 0.14 acre is identified in Table 3.3-4 because approximately 600 lineal feet of the eastern end of the canal is mapped as riverine/riparian by PCCP land cover data. Therefore, although this acreage is identified as a riverine/riparian impact, this construction task would not actually contribute to a riverine/riparian cover type loss. This detail would be addressed at the permitting stage to ensure mitigation requirements are based on the actual habitat impacted.

As shown in Table 3.3-4, construction of the above components is expected to result in 0.33-acre of temporary and no permanent impact to riverine/riparian habitat. When combined with the Phase 1 Hemphill Diversion Structure demolition and removal construction activities, the total Alternative 2 Fish Passage Project would result in 0.97-acre of temporary and 0.16-acre permanent impact to riverine/riparian habitat. This is considered a significant impact. Implementation of Mitigation Measures **BIO-2**, **BIO-3**, and **BIO-18** would reduce this impact to ***less than significant with mitigation incorporated***.

Mitigation Measures

See Mitigation Measures **BIO-2, BIO-3** and **BIO-18** presented above.

Pipeline Installation: Alternative 3

The Pipeline Alternative would first involve the Phase 1 Hemphill Diversion Structure demolition and removal construction activities described above. Following those activities, the following project components shown on Figure 2-6 would be constructed/installed:

- Pipeline and Crossing

The Pipeline Installation Alternative would be located underground within Fruitvale, Fowler and Virginiatown Roads. At the western end of the alignment, the pipeline would leave Virginiatown Road and head southwest "cross country" through riverine/riparian habitat before crossing over Auburn Ravine and connecting to the existing Hemphill Canal (see Figure 2-6).

Figure 3.3-2 identifies the Pipeline Alternative land cover type construction impacts. As shown in Table 3.3-4, construction of the pipeline and crossing is expected to result in 0.13-acre of temporary and no permanent impact to riverine/riparian habitat. When combined with the Phase 1 Hemphill Diversion Structure demolition and removal construction activities, the total Pipeline Installation Alternative would result in 0.077-acre of temporary and 0.16-acre permanent impact to riverine/riparian habitat. This is considered a significant impact. Implementation of Mitigation Measures **BIO-2**, **BIO-3**, and **BIO-18** would reduce this impact to ***less than significant with mitigation incorporated***.

Mitigation Measures

See Mitigation Measures **BIO-2, BIO-3** and **BIO-18** presented above.

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

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.*

BRA Figure 6: *Aquatic Resources Delineation* (see draft EIR **Appendix 3.3-A**), depicts the wetland and non-wetland waters located within the Project Study Area. Table 3.3-2 presents the type and total acreage of aquatic resources mapped in BRA Figure 6. As shown in Table 3.3-2, the Project Study Area includes wetlands and non-wetland waters totaling 5.459 acres.

Hemphill Diversion Structure Demolition and Removal: Alternatives 1, 2, and 3

The Hemphill Diversion Structure demolition and removal phase involves construction of the following project components shown on Figure 2-6:

- Establishment of the north staging and access routes
- Establishment of the south staging and access routes
- Cofferdam
- Hemphill Diversion Structure Demolition and Removal
- Installation of the temporary Diversion Pipe to Auburn Ravine
- Installation of the temporary Diversion Pipe to Hemphill Canal
- Installation of erosion mitigation features

- Hemphill Canal Improvements

These improvements are required for all Project alternatives and therefore are additive to aquatic impacts associated with the individual alternatives (discussed further below).

As shown in Table 3.3-5, construction of the above components is expected to result in a grand total of 0.225-acre of temporary and 0.047-acre permanent impact to wetland and non-wetlands waters of the U.S. For the acreage of impact to individual wetland types (i.e., creek, ditch, and seasonal wetland swale, refer to Table 3.3-5. This is considered a significant impact. Implementation of Mitigation Measures **BIO-1, BIO-2**, **BIO-3** and **BIO-19** would reduce this impact to ***less than significant with mitigation incorporated***.

Mitigation Measures

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

BIO-19 Compensate for the Permanent Loss of Waters of the United States/Waters of the State and Restore Temporary Disturbed Areas (applies to all alternatives)

Authorization to fill waters of the U.S. under the Section 404 and 401 of the federal CWA (Section 404 Permit and Section 401 Water Quality Certification) shall be obtained from USACE and RWQCB prior to discharging any dredged or fill materials into any waters of the U.S. Since the waters of the U.S. are likely also waters of the State, the 401 Water Quality Certification will authorize fill to waters of the State. Specific impact avoidance, minimization, and/or compensation measures shall be developed and implemented as part of the Section 404 Permit to ensure no-net-loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Permit and an application for a 401 Water Quality Certification for the Project shall be prepared and submitted to USACE and RWQCB and will include direct, avoided, and preserved acreages to Waters of the U.S. Mitigation for impacts to Waters of the U.S. would consist of a minimum of a 1:1 replacement ratio for direct impacts; however final mitigation requirements shall be developed in consultation with USACE. These measures may include:

- Purchase of mitigation credits at an USACE-approved mitigation bank; and/or
- Permittee-responsible mitigation (e.g., preservation and creation) at an off-site mitigation property or
- Participation in the PCCP In Lieu fee program.

Timing/Implementation: *Prior to and following construction*

Monitoring/Enforcement: *NID/Consultant*

Infiltration Gallery Installation: Alternative 1

The Infiltration Gallery Alternative would first involve the Phase 1 Hemphill Diversion Structure demolition and removal construction activities described above. Following those activities, while the cofferdam is still in place, the following project components shown on Figure 2-6 would be constructed/installed:

- Infiltration Gallery and Pipeline to Hemphill Canal
- Two new Power Poles for electric service extension

Table 3.3-5. Aquatic Resources Impacts

	Creek		Ditch		Seasonal Wetland Swale		Grand Total	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
Phase 1 - All Alternatives								
Erosion Mitigation Feature Installation	0.045						**0.045**	**0**
South Access Road			0.002				**0.002**	**0**
Cofferdam		0.012					**0**	**0.012**
North Staging Area		0.004					**0**	**0.004**
South Staging Area		0.039					**0**	**0.039**
Temporary Diversion Pipe Auburn Ravine		0.095					**0**	**0.095**
Temporary Diversion Pipe Hemphill Canal		0.075					**0**	**0.075**
Subtotal - All Alternatives:	*0.045*	*0.225*	*0.002*	*0.*	*0*	*0*	**0.047**	**0.225**
Alternative 1 – Infiltration Gallery								
Infiltration Gallery Footprint (Alt 1)			0.020				**0.020**	**0**
Infiltration Gallery Work Area (Alt 1)		0.001		0.009			**0**	**0.010**
Subtotal - Alternative 1	0	0.001	0.020	0.010	0	0	**0.020**	**0.011**
Total Phase 1 + Alternative 1	***0.045***	***0.226***	***0.022***	***0.019***	***0***	***0***	**0.067**	**0.246**
Alternative 2 – Fish Passage								
Bypass Pipe Fish Return (Alt 2)		0.017					**0**	**0.017**
Fish Passage (Alternative 2)		0.163					**0**	**0.163**
Hemphill Canal (Alternative 2)				0.624			**0**	**0.624**
Subtotal - Alternative 2	0	0.18	0	0.624	0	0	**0**	**0.804**
Total Phase 1 + Alternative 2	***0.045***	***0.406***	***0.002***	***0.624***	***0***	***0***	***0.046***	***1.029***
Alternative 3 – Pipeline								
Pipeline Terrestrial Impacts (Alt 3)						0.004	**0**	**0.004**
Subtotal - Alternative 3	0	0	0	0	0	0	**0**	**0**
Total Phase 1 + Alternative 3	***0.045***	***0.225***	***0.002***	***0***	***0***	***0.004***	***0.047***	***0.225***

As shown in Table 3.3-5, implementation of the above Alternative 1 improvements is expected to result in 0.011-acre of temporary and 0.020-acre permanent impact to aquatic habitat. When combined with the Phase 1 Hemphill Diversion Structure demolition and removal construction activities, the total Alternative 1 Project would result in 0.246-acre of temporary and 0.067-acre permanent impact wetland and non-wetlands waters of the U.S. Refer to Table 3.3-5 for impact acreage to individual wetland types (i.e., creek and ditch). This is considered a significant impact. Implementation of Mitigation Measures **BIO-1, BIO-2**, **BIO-3**, and **BIO-19** would reduce this impact to ***less than significant with mitigation incorporated***.

Mitigation Measures

See Mitigation Measures **BIO-1, BIO-2, BIO-3** and **BIO-19** presented above.

Fish Passage Construction: Alternative 2

The Fish Passage Alternative would first involve the Phase 1 Hemphill Diversion Structure demolition and removal construction activities described above. Following those activities, while the cofferdam is still in place, the following project components shown on Figure 2-6 would be constructed/installed:

- Installation of Fish Passage Improvements
- Hemphill Canal Improvements
- Hemphill Canal Fish Screen
- Hemphill Bypass Pipe Fish Return
- Two new Power Poles for electric service extension

As shown in Table 3.3-5, implementation of the above Alternative 2 improvements is expected to result in 0.084-acre of temporary and no permanent impact to aquatic habitat. It should be noted that irrigation ditches are not regulated under Section 404 of the Clean Water Act and therefore impacts resulting from lowering of the Hemphill Canal were not considered regulated impacts. When combined with the Phase 1 Hemphill Diversion Structure demolition and removal construction activities, the total Alternative 2 Project would result in 1.029-acre of temporary and 0.046-acre permanent impact to wetland and non-wetlands waters of the U.S. Refer to Table 3.3-5 for impact acreage to individual wetland types (i.e., creek and ditch). This is considered a significant impact. Implementation of Mitigation Measures **BIO-1, BIO-2**, **BIO-3**, and **BIO-19** would reduce this impact to ***less than significant with mitigation incorporated***.

Mitigation Measures

See Mitigation Measures **BIO-1, BIO-2, BIO-3** and **BIO-19** presented above.

Pipeline Installation: Alternative 3

The Pipeline Alternative would first involve the Phase 1 Hemphill Diversion Structure demolition and removal construction activities described above. Following those activities, the following project components shown on Figure 2-6 would be constructed/installed:

- Pipeline and Crossing

The in-road portion of the pipeline alignment would occur within Placer County ROW. Trenching would be approximately 3.5 to 4 feet wide within existing pavement. Pipeline construction would include use of up to five potential staging areas located along the pipeline road alignment as shown on BRA Figure 6 Aquatic Resources Delineation (see draft EIR **Appendix 3.3-A**). As shown, 4 of the 5 staging areas support seasonal wetland swales. Pipeline construction is not expected to require the entirety of the 5 staging areas shown. Rather, it's expected that existing staging area wetlands could be protected and avoided. However, should it be determined that pipeline construction requires temporary impacts to staging area wetlands, a significant impact would result. With implementation of Mitigation Measures BIO-1, BIO-2, BIO-19 and BIO-20, this impact would be ***less than significant with mitigation incorporated.***

At the western end of the alignment, the pipeline would leave Virginiatown Road and head southwest "cross country" through riverine/riparian habitat before crossing over Auburn Ravine and connecting to the existing Hemphill Canal. This cross-country section of pipeline would impact Seasonal Wetland Swale 1 resulting in a temporary impact of approximately 0.004-acre. This temporary impact to Wetland Swale 1 is significant. When added to the aquatic impacts associated with Phase 1 construction activities, Alternative 3 would result in a grand total of 0.247-acre temporary and 0.046-acre permanent impact to seasonal wetland swale. With implementation of Mitigation Measures BIO-1, BIO-2 and BIO-18, this impact would be ***less than significant with mitigation incorporated***.

Mitigation Measures

See Mitigation Measures **BIO-1, BIO-2,** and **BIO-19** presented above. In addition, implement Mitigation Measure **BIO-20** below.

BIO-20 Survey and Protect Pipeline Alignment Staging Area Environmentally Sensitive Resources (Alternative 3 Only)

All road segment pipeline alignment staging areas shall be surveyed by a qualified biologist for sensitive biological resources prior to use. Should any sensitive biological resources be identified within proposed staging areas, they shall be protected consistent with Mitigation Measures BIO-1 and BIO-2. Should the Project require temporary impacts to staging area wetlands, these areas shall be restored following construction consistent with Mitigation Measure BIO-19.

Timing/Implementation: *Prior to, during and following construction*

Monitoring/Enforcement: *NID/Consultant*

Impact 3.3-4: The Project could affect wildlife movement and/or migration. Impact Determination: *less than significant (Alternatives 1 and 2;) Significant Unavoidable (Alternative 3).*

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.*

Hemphill Diversion Structure Demolition and Removal: Alternatives 1, 2, and 3

Terrestrial

The Diversion Structure Demolition and Removal Phase would result in temporary disturbance to localized terrestrial wildlife movement along Auburn Ravine in the vicinity of construction. While this activity would cause temporary disturbance near the banks of Auburn Ravine, 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

To facilitate removal and demolition of the existing structure, a temporary cofferdam would be installed approximately 300 feet upstream of Hemphill Dam and the construction area will be temporarily dewatered by installing two pipelines immediately upstream of the cofferdam, one 300-foot pipeline to maintain the water supply for the Hemphill Canal and NID's customers and a 500-foot pipeline to divert streamflow to a return point located approximately 200 feet downstream of Hemphill Dam. The 300-foot diversion pipeline leading to the canal would be fitted with a fish screen meeting NMFS criteria to preclude fish from entering the canal.

Dewatering of the construction area will result in a temporary loss of aquatic habitat over an approximately 500-foot reach of Auburn Ravine extending from the cofferdam (i.e., approximately 300 feet upstream of the Hemphill Dam) to the outlet of the diversion pipe (i.e., approximately 200 feet downstream of Hemphill Dam). Under existing conditions, seasonal installation of the flashboards (i.e., that coincides with the June 15-October 15 in-water work window) creates an impoundment that extends approximately 300 feet upstream and also creates a temporary (i.e., during the irrigation season) impassible barrier to fish movements and migrations between the reaches upstream and downstream of the existing Hemphill Dam structure. It is assumed that the flashboards will be installed on April 15 (i.e., beginning of the irrigation season) prior to construction and will stay in place until the diversion canal pipeline is installed prior to dewatering of the existing impoundment.

While the in-water work window avoids the migration periods of anadromous salmonids, there is a potential for adult Pacific lamprey to occur in Auburn Ravine during this period. The diversion pipeline would be fitted to minimize the potential for fish injury per NMFS standards, thereby allowing for safe downstream movement of fish (e.g., emigration of post-spawning adult lamprey) past the temporarily dewatered construction area. This would be a temporary improvement in fish passage conditions, relative to existing conditions, which currently precludes downstream fish passage when the flashboards are in place. However, due to the length (i.e., 500 feet), gradient, and unnatural nature of the diversion pipeline, upstream movements of fish past the temporarily dewatered construction area is less likely to occur and, therefore, would be unchanged from the existing condition.

CV Fall-run Chinook Salmon

As stated in the Project Description (Section 2.0), in-water work associated with demolition and removal of the existing Hemphill Diversion Structure would occur during the period June 15 through October 15 to

minimize the potential for adverse effects on anadromous salmonid migrations, spawning, and rearing. Fall-run Chinook salmon may occur in Auburn Ravine up to Hemphill Dam and, under suitable flow conditions, may pass over Hemphill Dam and spawn in the upstream reaches (CDFW 2015; Helix 2019). Immigration of adult fall-run Chinook salmon into Auburn Ravine is precluded until winter storms increase stream flows to provide an adequate connection between Auburn Ravine and the Sacramento River, which typically occurs between mid-October and December. Emigration of juvenile fish occurs throughout the winter and early spring period and is complete by May or June. As such, migrations of adult and juvenile fall-run Chinook salmon are not anticipated to be affected by construction-related activities associated with demolition and removal of the diversion structure, which would occur during the June 15 – October 15 in-water work window.

CCV Steelhead

As discussed under Impact BIO-1 above, migrations of adult CCV steelhead and kelts occur in Auburn Ravine from mid-October through mid-April. Juvenile steelhead typically reside in their natal for a period of 1-3 years before undergoing smoltification (a physiological process that prepares them for saltwater conditions) and beginning their emigration toward the ocean during the winter and spring months, typically under high flow conditions (Moyle 2002; Quinn 2005). As such, migrations of these CCV steelhead life stages would not be affected by demolition and removal of the diversion structure, which would occur during the in-water work window of June 15 – October 15.

During their freshwater residence and rearing period, juvenile CCV steelhead have the potential to occur year-round in Auburn Ravine upstream and downstream of the Hemphill Dam. Therefore, construction-related activities associated with removal and demolition of the Hemphill Diversion Structure may affect the instream movements of juvenile steelhead occurring in the Project area.

Under existing conditions, upstream and downstream migrations of juvenile steelhead are completely blocked during the summer irrigation period when the dam flashboards are installed. The irrigation period overlaps with the June 15 – October 15 in-water construction window. During demolition and removal of the diversion structure, upstream migrations of juvenile steelhead (and all resident fish) would likewise be blocked by installation of the temporary cofferdam approximately 300 feet upstream of the existing dam and by the 500-foot dewatered area that would extend from the temporary cofferdam to 200 feet downstream of the existing dam. However, downstream movements of juvenile steelhead during the in-water construction window would be possible via the diversion pipe that would be installed to divert water from the impoundment created by the temporary cofferdam to the return location 200 feet downstream of the existing dam. This would be an improvement in migration conditions for juvenile steelhead (and all resident fish) compared to existing conditions, which, as discussed above, currently blocks downstream movements of fish during the summer irrigation period.

Pacific Lamprey

Like steelhead, migrations of adult and juvenile Pacific lamprey generally occur during the winter-spring period. In most years, the majority of adult lamprey migration and spawning and juvenile emigration activity occurs prior to the June 15 start of in-water construction; however, there is a potential for adult

fish to occur in Auburn Ravine upstream and downstream of Hemphill Dam into late June. As discussed above for juvenile steelhead, any adult lamprey returning downstream to the ocean from spawning reaches upstream of the dam during the in-water work window will be able to pass the Project area via the diversion pipe. This is an improvement compared to existing conditions, in which the seasonal flashboard dam blocks the downstream migrations of adult lamprey during the entire irrigation period.

While Pacific lamprey are noted for their ability to use their suction-like mouths to pass over structures that are migration barriers to other fish, it is assumed for the purposes of this assessment that they will likely not pass upstream through the 500-foot diversion pipe during the June 15 – October 15 in-water construction window. Under existing conditions, access to reaches upstream of the dam is currently blocked by the seasonal installation of flashboards from mid-April through mid-October. As such, installation of the temporary cofferdam and diversion pipeline will not change the ability of Pacific lamprey to migrate upstream during demolition and removal of the diversion structure, relative to existing conditions. However, should any adult Pacific lamprey migrate upstream past Hemphill Dam prior to installation of the flashboards and/or subsequent installation of the temporary cofferdam, the temporary diversion pipeline will also allow these fish, and any juveniles from the upstream reaches, to migrate downstream past the dewatered area. As such, instream movements and migration conditions would be improved during the in-water construction period, relative to existing conditions.

Based on the above considerations, construction-related activities associated with demolition and removal of the Hemphill Diversion Structure would have a ***less than significant*** impact on terrestrial and aquatic species migration and instream movements.

Alternative 1: Infiltration Gallery

Terrestrial

Under this Alternative, Project construction would result in temporary disturbance to localized terrestrial wildlife movement along Auburn Ravine in the vicinity of infiltration gallery construction. While this alternative would cause temporary disturbance near the banks of Auburn Ravine, 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

In addition to the removal of the Hemphill Diversion Structure, Alternative 1 would construct an infiltration gallery downstream of the existing diversion along the south bank to divert water to Hemphill Canal and NID water customers. The infiltration gallery would extend approximately 25 feet within the existing creek bed and channel but would not substantially block or impede fish migrations. Work would include excavation to weathered granitic rock, which is approximately 15 feet below the creek surface, installation of the infiltration gallery, placement of compacted engineered rock fill, placement of riprap along the bank, and installation of a wet well pump station. As described in Chapter 3, earth work limits would be approximately 100 feet long by 90 feet wide by up to 27 feet below the ground surface. Once the infiltration gallery is installed, the excavated area will be backfilled with compacted engineered

permeable crushed rock and compacted general fill material. The backfill will be re-enforced with heavy riprap which would not allow fish to enter the Infiltration Gallery.

Based on this design, fish passage would be improved, relative to existing conditions, by complete removal of the diversion structure, which would restore the channel to a more natural condition by removing the man-made barrier and abandoning the seasonal installation of flashboards facilitating year-round upstream and downstream fish passage. Water would be diverted from Auburn Ravine through the infiltration gallery at the same rate and season as is currently delivered via the impoundment created by seasonal installation of flashboards. As such, the only change in streamflow that would occur under Alternative 1, relative to existing conditions, would be an increase in flows (i.e., equaling the seasonal diversion rate) between the existing point of diversion at the Hemphill Canal intake and the proposed location of the infiltration gallery a short distance downstream of the existing intake. As such, this alternative would not reduce flows in any reach that could result in an impassible low-flow fish barrier. For these reasons, impacts to fish migration conditions would be improved under Alternative 1 which would have a beneficial effect on fish migrations.

Based on the above considerations, the Alternative 1 Infiltration Gallery would have a ***less than significant impact*** on terrestrial and aquatic wildlife movement and/or migration. No mitigation is required.

Alternative 2: Fish Passage Construction

Terrestrial

Fish Passage construction would occur while the cofferdam is in place and the construction site is dewatered. While this alternative would cause temporary disturbance within Auburn Ravine from bank to bank and within staging and access areas, similar to Alternative 1 surrounding undeveloped lands provide adequate parallel forage, cover and movement opportunities. Therefore, Alternative 2 impacts related to terrestrial wildlife migration would be less than significant.

Aquatic

As described in Chapter 2.0 Project Description, Alternative 2 would remove the existing Hemphill Diversion Structure and replace it with a channel spanning nature-like fishway capable of providing volitional fish passage through a range of flows meeting CDFW and NMFS fish passage flow criteria. In addition to the construction of the fish passage, a positive barrier fish screen would be placed within the Hemphill Canal within 50 feet of the intake and would include a bypass pipe routed back to Auburn Ravine upstream of the crest of the fish passage structure. Installation of the fish screen would improve migration conditions at the current diversion intake, which is currently unscreened. Under this Alternative, the upstream crest elevation of the ramp would be up to two feet lower than the existing dam crest. The rock ramp structure would provide fish passage while also improving sediment continuity over the dam and likely improving bank stability upstream of the dam, relative to Alternatives 1 and 3. Due to its nature-like characteristics, the rock ramp would resemble a typical riffle.

Under Alternative 2, the point of diversion would be at approximately the same location as the existing Hemphill Canal intake. As such, the diversion would not affect stream flows or otherwise create low-flow barriers to fish migrations during the irrigation season that would not otherwise occur under existing conditions.

Based on this design, fish passage would be improved, relative to existing conditions, by complete removal of the diversion structure, which would restore the channel to a more natural condition by removing the man-made barrier and abandoning the seasonal installation of flashboards to allow year-round upstream and downstream fish passage. For these reasons, Alternative 2 would result in a beneficial effect to fish migration conditions.

Based on the above considerations, the Alternative 2 Fish Passage improvements would have a ***less than significant impact*** on terrestrial and aquatic wildlife movement and/or migration. No mitigation is required.

Alternative 3: Pipeline

Terrestrial

Under the Pipeline alternative, Project construction would result in temporary disturbance to localized terrestrial wildlife movement along the pipeline alignment from approximately Auburn Ravine in the vicinity of the proposed pipeline crossing, northeast to Virginiatown Road. The Alternative 3 pipeline would also include construction within roadways, however construction within right-of-way is not necessarily a new impediment to wildlife movement since the roadway itself acts as a barrier. While the Alternative 3 Pipeline would cause temporary disturbance at the pipeline crossing near the banks of Auburn Ravine and along the cross-country underground segment, 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 3.8.3-3, the new pipeline installed under Alternative 3 would deliver an average of approximately 6-8 cfs under the current level of demand to a maximum master plan value of 18 cfs from the NID Placer Yard facility on Gold Hill Road to Hemphill Canal via a pipeline during the April 15 – October 14 irrigation period. The additional difference between future and current levels of demand under this alternative would be accounted for by importing additional flows from the Yuba/Bear system to the Gold Hill Diversion Dam and pipeline, such that the change in Auburn Ravine flows in this 4.5-mile reach would be the same under both future and current levels of demand. This would substantially reduce flows in the approximately 4.5-mile reach between Gold Hill and Hemphill dams during the April 15 to October 14 irrigation season, relative to existing conditions, under both current and future levels of demand. During this period, Auburn Ravine flows in this reach are at summer and early fall baseflow conditions. Habitats in this 4.5-mile reach consist of riffle-run-pool sequences. Under summer and early fall baseflow conditions, depths in riffles may be approaching the minimum thresholds to allow for upstream and downstream movements of fish, particularly any juvenile steelhead rearing in this reach. Because the estimated flows in this reach are typically between 10 and 100 cfs during the irrigation

season, a 6-8 cfs reduction would represent a substantial reduction in instream flows in this reach in drier years. This substantial reduction in flows would increase the potential and number of low-flow barriers in this reach, relative to existing conditions. As such, a substantial reduction in flows in this reach under Alternative 3 could restrict or limit movements of fish occurring in this reach during the critical summer months, thereby increasing their susceptibility to predation and elevated summertime temperatures and decreasing their foraging success. This would be considered a significant impact to aquatic wildlife movement.

Based on the above considerations, including the substantial reduction in flows and associated reduction in habitat quantity and quality that would occur, implementation of Alternative 3 Pipeline improvements would have a ***significant and unavoidable impact*** on aquatic wildlife movement and/or migration, particularly rearing juvenile steelhead in this reach. There is no feasible mitigation available to reduce this impact to less than significant.

Mitigation Measures

No feasible mitigation is available.

Impact 3.3-5: The Project could conflict with local policies and ordinances associated with protection of biological resources. Impact Determination: *less than significant with Mitigation Incorporated*.

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

Consistency with Local Policies and Ordinance: Alternatives 1, 2, and 3

Placer County General Plan Goals and Policies

The Placer County General Plan Natural Resources element establishes goals, objectives, and policies regarding water resources (including wetlands and riparian areas), fish and wildlife habitat, and vegetation (Placer County 2013). Goals applicable to the biological resources found at the Project site are presented in the environmental setting section above.

County General Plan policies require Placer County to identify and protect significant ecological resources and habitat, including wetland areas, stream environment zones, habitat for special-status plants and animals, and large areas of natural habitat. The Proposed Project will be designed and implemented consistent with County Goals and Polices designed to protect surface waters and natural resources. This would be accomplished by implementing all biological resource mitigation measures identified in this DEIR, obtaining all applicable local, state and federal permits and/or implementing all related compensatory mitigation consistent with the County's Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) and Western Placer County Aquatic Resources Plan (CARP). The Proposed Project would be processed consistent with these plans as further discussed below under Impact 4.3-6. Therefore, the Project would not conflict with local policies and ordinances associated with protection of biological resources and this impact is less than significant.

City of Lincoln General Plan Goals and Policies

The City of Lincoln General Plan includes the following goal and policy for protection of the City's natural resources:

- Goal OSC-1: To designate, protect, and encourage natural resources, open space, and recreation lands in the city, protect and enhance a significant system of interconnected natural habitat areas, and provide opportunities for recreation activities to meet citizen needs.
- Policy OSC-1.1: The City shall strive to protect natural resource areas, fish and wildlife habitat areas, scenic areas, open space areas and parks from encroachment or destruction by incompatible development.

Removal of the Hemphill Diversion Structure is consistent with the stated goals and policies of the Placer County General Plan and City of Lincoln General Plan. Demolition and removal of the Hemphill Diversion Structure would be implemented in compliance with the terms and conditions of al required federal, State, and local permits and authorizations, and will employ the necessary BMPs and mitigation measures to protect Auburn Ravine's terrestrial and fisheries resources. As such, the Project is consistent with and will not conflict with the stated goals and policies of the Placer County General Plan or City of Lincoln General Plan. For these reasons, demolition and removal of the Hemphill Diversion Structure is consistent with applicable local policies and ordinances and is ***less than significant***.

Placer County Tree Preservation Article

The Placer County Tree Preservation Article (Article 12.16, Tree Preservation Article) requires documentation of native trees with a dbh (diameter at breast height) of 6 inches or greater for single stemmed trees or 10 inches or greater for multiple stemmed trees, excluding grey pine (*Pinus sabiniana*) trees. The Article also requires documentation of landmark trees and riparian zone trees (Article 12.16.020) and a County tree permit is required for removal of regulated trees. For additional background and related tree permit requirements, see Placer County Tree Preservation Article discussion in the setting section above.

Tree removal required to construct the Project was estimated based on the conceptual plans (see Figure 2-6) and tree mapping and inventory conducted as part of the *Hemphill Diversion Project Arborist Report* (ECORP 2020) (DEIR Appendix 3.3-B). This involved overlaying tree data on proposed improvements to approximate expected tree impacts. Trees that conflict with proposed conceptual improvements were considered permanently impacted and trees that are located in temporary impact areas, and therefore could potentially be retained but may require trimming for construction access, were considered temporarily impacted. The GIS results are contained in DEIR Appendix 3.3-D: Tree Impact Table. Project tree impacts are summarized as follows:

- Alternative 1: 36 Temporary; 18 Permanent
- Alternative 2: 50 Temporary; 7 Permanent
- Alternative 3: 28 Temporary; 7 Permanent

Tree impacts will be confirmed following selection of a preferred alternative and development of more refined improvement plans. Removal of trees protected by the County's tree preservation article is considered a significant impact. With implementation of Mitigation Measure BIO-21, the Project would be implemented consistent with the adopted Tree Preservation Article and/or PCCP and this impact would be **less than significant with mitigation incorporated**.

Mitigation Measures

BIO-21 Obtain a Placer County Tree Permit (All Alternatives)

Tree removal shall be avoided to the maximum extent feasible. Should the Project require removal of trees protected by County Article, NID shall submit a tree permit application to Placer County and implement all conditions outlined in the final tree permit issued to the Project or implement equivalent mitigation consistent with PCCP requirements.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *NID/Consultant*

Impact 3.3-6: The Project could conflict with HCPs, NCCPs, or other conservation plans. Impact Determination: *less than significant.*

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.*

All Alternatives

Placer County Conservation Program (PCCP).

The Project is located in Placer County which has approved the Placer County Conservation Program (PCCP) (County of Placer et al. 2020a), a regional effort that will provide development and infrastructure projects with streamlined federal and State permitting processes while creating a preserve system to protect habitat, open space, and agricultural lands. While the PCCP has been approved at the local level, related resource agency permits required for implementation are currently in process. The PCCP includes three separate but complementary components that support two sets of State and federal permits:

- Western Placer County Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) – protects fish and wildlife, and their habitats, and fulfills the requirements of the federal ESA and the California Natural Community and Conservation Planning Act.
- Western Placer County Aquatic Resources Plan (CARP) – protects streams, wetlands, and other water resources and fulfills the requirements of the federal CWA and analogous State laws and regulations.

- In-Lieu Fee Program – allows requirements under Section 404 of the CWA to be fulfilled by payment of a fee for compensatory mitigation of impacts on aquatic resources from activities covered under the HCP/NCCP and the CARP.

The PCCP/CARP identifies the need to provide passage for anadromous fish at the Hemphill Diversion Structure through elimination or modification of the existing structure. The PCCP was prepared by local participating agencies (who will become the Permittees) including Placer County, the City of Lincoln, South Placer Regional Transportation Authority, Placer County Water Agency, and the Placer Conservation Authority (PCA), an entity created to implement the PCCP on behalf of the other Permittees.

While the Proposed Project is identified in the PCCP/CARP, because NID is not a PCCP Participating Agency, it is not required to obtain regulatory approval for the Proposed Project via the PCCP. Instead, NID may choose to implement the project consistent with CARP goals and objectives and seek to obtain regulatory approvals via the existing standard permit processes. Because NID is not a participating agency, this approach would not be considered inconsistent with PCCP or CARP goals and policies. As such the Proposed Project would not conflict with the PCCP HCP/NCCP and related impacts are less than significant.

Alternatively, NID could request participation in the PCCP as a Special Entity. Should the PCA grant Special Entity status to NID, the Project could take advantage of permit streamlining and implement compensatory mitigation for the Proposed Project via the PCCP In-Lieu Fee Program and CARP. Under this approach, the Project would comply with the following PCCP Conditions as the mechanism for avoiding, minimizing, and mitigating Project impacts to PCCP covered special-status species (for the full text of PCCP minimization measures see DEIR Appendix 3.3-A, Attachment F: PCCP Measures and Conditions).

Species Condition 1. Swainson's Hawk:

The Project applicant shall comply with PCCP AMM Species Condition 1 for Swainson's Hawk (PCCP Section 6.3.5.6). Swainson's hawk surveys will be conducted according to PCCP Section 6.3.5.6.1 and if an occupied nest is identified, minimization measures according to PCCP Section 6.3.5.6.2 must be adopted, and PCCP Section 6.3.5.6.3 if construction monitoring is required.

Species Condition 3. Western Burrowing Owl:

The Project applicant shall comply with PCCP AMM Species Condition 3 for Western Burrowing Owl (PCCP Section 6.3.5.8). Burrowing owl surveys will be conducted according to PCCP Section 6.3.5.8.1. If a burrowing owl or evidence of presence at or near a burrow entrance is found to occur within 250 feet of the Project, applicable measures in PCCP Section 6.3.5.8.2 shall be implemented, and PCCP Section 6.3.5.8.3 if construction monitoring is required.

Species Condition 4. Tricolored Blackbird:

The Project applicant shall comply with PCCP AMM Species Condition 4 for Tricolored Blackbird (PCCP Section 6.3.5.9). Tricolored blackbird surveys will be conducted according to PCCP Section 6.3.5.9.1 and applicable measures in PCCP Section 6.3.5.9.2 will be implemented if a tricolored

blackbird nesting colony is found and PCCP Section 6.3.5.9.3 implemented if construction monitoring is required.

Species Condition 6. California Red-Legged Frog and Western Pond Turtle:

The Project applicant shall comply with PCCP AMM Species Condition 6 for western pond turtle (PCCP Section 6.3.5.11).

Species Condition 7. Central Valley Steelhead and Central Valley Fall-/Late Fall-run chinook Salmon:

The Project applicants shall comply with PCCP AMM Species Condition 7 for Central Valley steelhead and Central Valley fall-/late fall-run chinook salmon (PCCP Section 6.3.5.12).

Species Condition 8. Valley Elderberry Longhorn Beetle:

The Project applicants shall comply with PCCP AMM Species Condition 8 for VELB (PCCP Section 6.3.5.13).

The CARP does not provide a streamlined process for obtaining a Notification of Lake or Streambed Alteration (LSA) Agreement with CDFW, which is required for the Proposed Project because it would impact aquatic features under the jurisdiction of CDFW pursuant to Fish and Game Code Sections 1600-1616. Therefore, an LSA Agreement would still need to be obtained through the standard LSA Notification process.

Under this approach, the Proposed Project would proceed consistent with and under the permit authority of the PCCP and CARP, would implement the above Species Conditions, and impacts related to consistency with HCPs, NCCPs, or other conservation plans would be ***less than significant***.

Mitigation Measures

None required.

3.3.7 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 the City of Lincoln and Greater Placer County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to impacts resulting in impacts to biological resources. However, no other projects of this type are approved, proposed, planned, and/or reasonably foreseeable at this time.

Cumulative Impacts and Mitigation Measures

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

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?*

Cumulative impacts on Auburn Ravine's biological resources from anticipated development within the Auburn Ravine watershed were analyzed in the City of Lincoln's (2003) General Plan EIR. The General Plan EIR determined that development associated with implementation of the General Plan in combination with development in surrounding areas and the unincorporated areas in western Placer County incur loss of annual grasslands, vernal pools and other seasonal wetlands, substantial losses of raptor foraging areas, and fragmentation of wildlife movement corridors, thereby resulting in a significant and unavoidable cumulative impact on biological resources.

As discussed above, construction of the Proposed Project has the potential to result in short-term impacts to biological resources. However, implementation of biological resource mitigation measures cited above would minimize the potential for significant impacts to sensitive species, riparian or other sensitive habitats, and aquatic features. Biological resource mitigation would also adhere to applicable Local, State and Federal resource protection and policy requirements. For these reasons, construction-related effects of the Proposed Project would have a less than considerable contribution to cumulative impacts on biological resources.

In a review of peer-reviewed scientific studies, NMFS identified and summarized the projected long-term effects of climate change on anadromous fish (Crozier 2015). With regard to anadromous fish resources of California's Central Valley, this article identified increased temperatures and associated effects, extreme drought conditions, and increasing stress on water supplies as being key stressors that may lead to a shift in the range of species, local extinction rates and shifts to more warmwater species, loss of genetic diversity.

Based on these considerations, particularly regional development within the watershed, population growth and expansion, increased water demands, and climate change, the future cumulative condition for Auburn Ravine's aquatic biological resources is considered significant and unavoidable. However, because a primary objective of the Proposed Project is to improve fish passage and restore access by anadromous fish to an approximately 4.5-mile reach of high quality spawning and rearing habitat, the Proposed Project will have an incremental improvement on the future cumulative condition for fish and aquatic resources and, therefore, would have a ***less than considerable contribution to cumulative impacts*** on biological resources.

Cumulative Mitigation Measures

None required.

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3.4 CULTURAL RESOURCES

This section considers and evaluates the potential 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 potential cultural resources in the Project Area.

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 NID.

While much of this section includes Native American pre-contact and historic information, Section 4.10 Tribal Cultural Resources of this document includes further analysis of the ethnography of the Project area. Please refer to Section 4.10 for Tribal Cultural Resources.

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).

Local Pre-Contact History

This section provides a regional overview with contextual elements drawn from California's Central Valley Region and the northern Sierra Nevada foothill zone. There has been more extensive research and study of Central Valley pre-contact history than the pre-contact history of the northern Sierra Nevada foothill transition zone, but a fair amount of cultural overlap exists within these regions.

California's Great Central Valley was a focus of early archaeological research in California. Archaeological work during the 1920s and 1930s led to the development of a cultural chronology for central California based on the results of excavations conducted in the lower Sacramento River Valley. This chronology identified three archaeological cultures, named Early, Transitional, and Late. The chronology was redefined in 2007 and divided into three broad periods: The Paleo-Indian Period (approximately 11,550 to 8550 years ago); the three-staged Archaic period, consisting of the Lower Archaic (approximately 8550 to 5550 years ago), Middle Archaic (approximately 5550 to 550 years ago), and Upper Archaic (approximately 550 to 900 years ago); and the Emergent Period (900 years ago to Historic). The three divisions of the Archaic Period correspond to climate changes. This is the most recently developed sequence and is now commonly used to interpret Central California pre-contact history (ECORP 2021).

Paleo-Indian Period

This period began when the first people began to inhabit what is now known as the California culture area. It was commonly believed these first people subsided on big game and minimally processed foods, (i.e., hunters and gatherers), presumably with no trade networks. More recent research indicates these people may have been more sedentary, relied on some processed foods, and traded (ECORP 2021). Populations likely consisted of small groups traveling frequently to exploit plant and animal resources.

Archaic Period

This period was characterized by an increase in plant gathering for food, more elaborate burial goods, and increase in trade network complexity (ECORP 2021). The three divisions, Lower, Middle and Upper Archaic, correspond to pre-contact climate changes characterized by the following aspects:

Lower Archaic Period—this period is characterized by cycles of widespread floodplain and alluvial fan deposition. Artifacts from this period include chipped-stone crescents and early wide-stemmed points, marine shell beads, and obsidian from eastern Nevada and the north Coast Ranges. These types of artifacts found on sites dating to this period indicate trade was occurring in multiple directions. A variety of plant and animal species were also utilized, including acorns, wild cucumber, and manzanita berries.

Middle Archaic Period—this period is characterized by a drier climate period. Rosenthal et al. (2007:153) identified two distinct settlement/subsistence patterns in this period: the Foothill Tradition and the Valley Tradition. Artifacts from the foothill tradition include locally sourced flaked-stone and groundstone cobbles, while the Valley Tradition was generally characterized by diverse subsistence practices and extended periods of sedentism.

Upper Archaic Period—this period is characterized by an abrupt change to wetter and cooler environmental climate conditions. Much greater cultural diversity is evident from this period. More

specialized artifacts, such as bone tools, ceremonial blades, polished and groundstone plummets, saucer, and saddle *Olivella* shell beads, *Haliotis* shell ornaments, and a variety of groundstone artifacts are characteristic of this period.

Emergent Period

This period is most notably marked by the introduction of the bow and arrow, the emergence of social stratification linked to wealth, and more expansive trade networks signified by the presence of clam disk beads that were used as currency. The Augustine pattern (the distinct cultural pattern of the Emergent Period) is characterized by the appearance of small projectile points (largely obsidian), rimmed display mortars, flanged steatite pipes, flanged pestles, and chevron-designed bird-bone tubes. Large mammals and small seeded resources appear to have made up a larger part of the diet during this period (ECORP 2021).

Ethnography

Ethnographically, the Project Area is in the southwestern portion of the territory occupied by the Penutian-speaking Nisenan. Nisenan inhabited the drainages of the Yuba, Bear, and American rivers, and also the lower reaches of the Feather River, extending from the east banks of the Sacramento River on the west to the mid to high elevations of the western flank of the Sierra Nevada to the east. The territory extended from the area surrounding the current city of Oroville in the north to a few miles south of the American River in the south. The Sacramento River bounded the territory on the west, and in the east, it extended to a general area located within a few miles of Lake Tahoe.

As a language group, Nisenan (meaning "from among us" or "of our side") are members of the Maiduan Family of the Penutian stock and are generally divided into three groups based on dialect differences: the Northern Hill (mountain) Nisenan in the Yuba River drainage; the Valley Nisenan along the Sacramento River; and the Southern Hill (foothills) Nisenan along the American River. While much of this section includes Native American pre-contact and historic information, Section 4.10 Tribal Cultural Resources of this Draft EIR includes further analysis of the ethnography of the Project area.

Project Area History

The Project Area is in Placer County, which was formed in 1851 from parts of Sutter and Yuba counties. The principal economic activity in much of the county at that time was placer mining, hence the name. However, gold deposits were absent in the alluvial valley portion of western Placer County, and ranching (cattle and sheep) and agriculture (wheat cultivation) were the principal economic activities.

The lands of this portion of Placer County are primarily dry plains, cut by occasional rivers and drainages such as Bear River, Coon Creek, and Markham and Auburn ravines, and were found to be suitable for dry farming and raising livestock by early Euro-American residents. The lands along the major drainages were the first to be occupied, followed by settlement in the dry plains and on the lesser drainages in the 1860s. The lands near the Project vicinity were used for dry farming of crops, such as grain and hay, and for the grazing of livestock. Some of the ranchers seasonally moved their herds to other holdings at higher

altitudes in the Sierra Nevada after the annual drying of their ranges following the cessation of the rains in May (ECORP 2021).

The western extent of the Project Area is located approximately a mile east of downtown Lincoln. The city of Lincoln has long been an economic hub of activity for the westernmost portion of Placer County. Early connectivity to the railroad, a booming clay manufacturing plant, and rich agricultural fields spurred its early growth. Through this early development period, the lands east of Lincoln consisted primarily of mining, horticulture cultivation, dairy, and cattle ranching. Lincoln developed as a fast-growing suburban residential enclave in the late twentieth and early twenty-first centuries. The lands to the south and west, which were once agricultural fields, are increasingly characterized by dense residential and commercial growth (ECORP 2021).

The town of Lincoln was surveyed and platted in 1864 on the Central California Railroad (CCRR) line from Folsom to Marysville. The town was named after Charles Lincoln Wilson, who built the CCRR, which reached the town of Lincoln on October 31, 1861. During the next few years, the town prospered, climbing to approximately 500 residents, with several trains passing through daily. However, in 1866 the rail stop was moved to Wheatland, cutting off most of the shipping that Lincoln had relied on (ECORP 2021).

Although the railroad and freight economy declined, fruit crops, dry-land agriculture, and cattle ranching continued to comprise a large part of the early economy in Lincoln. In 1873, several coal beds were discovered, leading to such mines as the Lincoln Coal Mine and the Clipper Coal Mine. Large amounts of clay were found within the Lincoln Coal Mine, and when word spread, Charles Gladding, who was visiting from Chicago, took the clay back home to have it tested by ceramics experts. The quality of the clay was so great that Gladding came back to Lincoln and started Gladding, McBean and Company, which eventually made and shipped sewer pipe throughout California. By the 1890s, the company was also making fire brick, ornamental pottery, chimney pipes, and world-renowned terra cotta façades (Gladding McBean 2018). In recent times, Gladding, McBean has been a major contributor to the economy of Lincoln, along with Sierra Pacific Industries' sawmill, located just north of Lincoln.

The eastern extent of the Project Area is located about a mile northwest of the town historically known as Gold Hill which began in the 1850s as a settlement in Auburn Ravine near what is now the intersection of Virginiatown and Gold Hill Roads. Virginiatown was another gold mining town located in Auburn Ravine beginning in the 1850s. Both towns were abandoned soon after 1860 when the town of Lincoln developed.

During the 1930s, the gravels from Auburn Ravine and other waterways in this area yielded a considerable amount of gold by dragline dredging. Most draglines used 50- to 60-foot booms and buckets of one to 1.5 cubic yard capacity. The dredge gravels were run through a revolving screen with the finer sands and gravels then being run through sluices. According to Clark's *Gold Districts of California*, the Lincoln District had the most profitable dragline dredge fields in the state. The total area dredged measured about 1,200 acres and yielded 15 to 60 cents per yard. The gravels are underlain with a soft tuff and digging depths reached five to 20 feet. At least five companies were operating draglines or bucket dredges at the mouth

of Doty and Auburn Ravines in 1935, and dredge operations in the district continued until the mid-1950s and 1960s (ECORP 2021).

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 North Central Information Center (NCIC), 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 2021) identified a total of 20 cultural resources, 13 historic-period and seven pre-contact, within or immediately adjacent to the Project Study Area.

3.4.2 Regulatory Framework

Federal

National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires that the federal government list significant historic resources 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.

[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).

State

California Register of Historical Resources

The State Historical Resources Commission designed the California Register of Historic Resources (CRHR) for use 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 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 California Register of Historical Resources (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 physical 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 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.

> "Unique archaeological resource" means 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."

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064[c][4]).

If the project would result in a significant impact to a historical resource or unique archaeological resource, treatment options under PRC § 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).

Section 7050.5(b) of the California Health and Safety Code specifies protocol when human remains are discovered, as follows:

> *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 overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.*

CEQA Guidelines Section 15064.5(e) requires that excavation activities stop whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the NAHC. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

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."

Local

Placer County General Plan

The Placer County General Plan (2013) provides and overall framework for development in the County and protection of its natural and cultural resources. The Countywide General Plan consists of two documents: The General Plan Background Document and the General Plan Policy Document. The Background Report inventories and analyzes existing conditions and trends in Placer County. It provides the formal supporting documentation for general plan policy. This General Plan Policy Document includes the goals, policies, standards, implementation programs, that constitute Placer County's formal policies for land use, development, and environmental quality. The goals and policies relevant to cultural and historical resources and applicable to the Project include:

Goal 5.D: *To identify, protect, and enhance Placer County's important historical, archaeological, paleontological, and cultural sites and their contributing environment.*

Policies:

5.D.2. The County shall solicit the cooperation of the owners of cultural and paleontological resources, encourage those owners to treat these resources as assets rather than liabilities, and encourage the support of the general public for the preservation and enhancement of these resources.

5.D.3. The County shall solicit the views of the Native American Heritage Commission, State Office of Historic Preservation, North Central Information Center, and/or the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.

5.D.6. The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment. Such assessments shall be incorporated into a Countywide cultural resource data base, to be maintained by the Division of Museums.

5.D.7. The County shall require that discretionary development projects are designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American

groups), historical, or paleontological consultants, depending on the type of resource in question.

5.D.11. The County shall support the registration of cultural resources in appropriate landmark designations (i.e., National Register of Historic Places, California Historical Landmarks, Points of Historical Interest, or Local Landmark). The County shall assist private citizens seeking these designations for their property.

City of Lincoln General Plan

The City of Lincoln General Plan has considerations for cultural resources built into its Open Space and Conservation Element. Goals and policies that relate to cultural resources specifically and apply to the Project include:

Goal OSC-6: To preserve and protect existing archaeological, historical, and paleontological resources for their cultural values.

Policies:

OSC-6.1 Evaluation of Historic Resources, The City shall use appropriate State and Federal Standards in evaluating the significance of historical resources that are identified in the City.

OSC-6.2 Historic Structures and Sites, The City shall support public and private efforts to preserve, rehabilitate, and continue the use of historic structures, sites, and districts. Where applicable, preservation efforts shall conform to the current Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Building.

OSC-6.3 Archaeological Resources, The City shall support efforts to protect and/or recover archaeological resources.

OSC-6.7 Discovery of Archaeological / Paleontological Resources, In the event that archaeological / paleontological resources are discovered during ground disturbing activities, the City shall require that grading and construction work within 100 feet of the find shall be suspended until the significance of the features can be determined by a qualified professional archaeologist / paleontologist as appropriate. The City will require that a qualified archeologist / paleontologist make recommendations for measures necessary to protect the find; or to undertake data recovery, excavation, analysis, and curation of archaeological / paleontological materials, as appropriate.

OSC-6.8 Archaeological Resource Surveys, Prior to project approval, the City shall require project applicant to have a qualified professional archeologist conduct the following activities within the area of potential effects (APE): (1) conduct a record search at the North Central Information Center located at California State University Sacramento and other appropriate historical repositories to determine the extent of previously recorded sites and surveys within the project area, and to develop a historical context within which sites can be evaluated for significance, (2) conduct a field survey to locate, map, and record prehistoric and historic resources, and (3) prepare cultural resource inventory and evaluation reports meeting California Office of Historic Preservation Standards to document the results of the record search and field survey, and to provide significance evaluations and management recommendations for any identified historical resources within the APE.

OSC-6.10 Discovery of Human Remains, Consistent with CEQA Guidelines (Section 15064.5), if human remains are discovered during project construction, it is necessary to comply with state laws relating to prohibitions on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (California Health and Safety Code Section 7050.5). If any human remains are discovered or recognized in any location on the project site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

A. The Placer County Coroner / Sheriff has been informed and has determined that no investigation of the cause of death is required; and

If the coroner determines that the remains are of Native American origin,

1. The coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.
2. The NAHC shall identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American.
3. The MLD shall have an opportunity to make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

B. Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

C. The County has notified the United Auburn Indian Community (UAIC) Tribal Council and solicited their input.

3.4.3 Environmental Impacts

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.

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

Methods

Records Search and Literature Review

A records search was conducted for the property at the North Central Information Center (NCIC) of the California Historical Resources Information System (CHRIS) at California State University, Sacramento by NCIC staff on July 23, 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 Placer County, the following historic references were also reviewed: Historic Property Data File for Placer County (OHP 2012); *The National Register Information System* (National Park Service [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), and 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 conducted archival research on the Hemphill Ditch and Hemphill family utilizing newspaper articles, historical maps, and secondary resources where available. Due to limited access relating to the COVID-19 pandemic, online research was undertaken for other documents relating specifically to Placer County, and the industrial context of the community. ECORP also completed searches with online repositories including the Online Archive of California to browse the collections of archives and libraries throughout the state in search of relevant historical information pertinent to the property and appropriate

historic context. ECORP also searched the digital historic photographs on file with the Center for Sacramento History.

ECORP mailed letters to the Placer County Historical Society on July 22, 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 August 5, 6, and 7, 2020 ECORP subjected the Project Study 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 six person-days in the field. At that time, the ground surface was examined for indications of surface or subsurface cultural resources by and under the supervision of archaeologists who meet the Secretary of Interior's Qualifications for prehistoric and historic archaeology.

Results

The records search identified 75 pre-contact and historic-period cultural resources within 0.5-mile of the Project Area, and nine were previously recorded within the Project Study Area.

The nearest NRHP listed property is located two miles southwest of the Project Study Area at the Women's Club of Lincoln.

The nearest California Landmark is #400, Virginiatown (plaque located 0.2-mile east of the Project Study Area at 4725 Virginiatown Road near the intersection of Virginiatown and Fowler roads). The historic period maps and literature indicated the property has been undeveloped land near Auburn Ravine at least since 1856, the roadways present in the Project Study Area were built prior to 1950, and the water conveyance system (Hemphill Ditch) was built in the 1910s. The land surrounding the Project Study Area was historically used primarily for agriculture and some rural residential properties.

The nearest Native American Villages indicated in ethnographic literature were *Bamuma* and *Piuhu*. The *Bamuma* village appears to be located just east of the city of Lincoln, approximately two miles southwest of the Project Study Area, and the *Piuhu* village appears to be located approximately six miles southeast of the Project Study Area.

A search of the Sacred Lands File by the NAHC did not indicate the presence of Native American cultural resources in the vicinity of the Project Study Area (letter dated July 27, 2020). No responses to the letters sent to the Placer County Historical Society have been received as of the preparation of this document.

During the pedestrian survey, six of the nine previously identified resources were confirmed to overlap the APE during the field survey and their records were updated. As a result of the field survey, 12 additional, previously unrecorded cultural resources were identified and recorded. In total, 18 resources were identified within the Project Study Area, two of which do not have surface features present in the project area but may have subsurface components that extend into the Project Study Area, and an additional two resources are immediately adjacent to the project area and may have subsurface components that extend

into the Project Area. These 20 resources (including 18 within the Project Study Area and two that are immediately adjacent) are in Table 4.4-1.

Table 4.4-1. Cultural Resources within or Immediately Adjacent to Project Area

Site Number	Age	Resource Description	Evaluation
P-31-1691	Historic	Ditch segment	Evaluated in 2013 as not eligible
P-31-1692H	Historic	Hemphill Ditch and Diversion Structure	Not eligible
P-31-5897	Historic	Gold Hill Canal segment	Treated as a Historical Resource for the purpose of this project
TCE-1/2	Pre-contact	Bedrock milling site	Eligible, Historical Resource
HD-002	Historic	Virginiatown Road	Not eligible
HD-003	Historic	Fowler Road	Not eligible
HD-004	Historic	Fruitvale Road	Not eligible
HD-005	Historic	Concrete trough	Treated as a Historical Resource for the purpose of this project
HD-006	Historic	Canal	Treated as a Historical Resource for the purpose of this project
HD-007	Historic	Canal	Treated as a Historical Resource for the purpose of this project
HD-008	Pre-Contact	Bedrock milling site	Treated as a Historical Resource for the purpose of this project
HD-009	Pre-Contact	Bedrock milling site	Treated as a Historical Resource for the purpose of this project
HD-010	Historic	Wall and cut granite slabs	Treated as a Historical Resource for the purpose of this project
HD-011	Historic	Segment of Lincoln Canal	Treated as a Historical Resource for the purpose of this project
HD-012	Pre-Contact	Bedrock milling site	Treated as a Historical Resource for the purpose of this project
HD-013	Historic	Barn	Treated as a Historical Resource for the purpose of this project
P-31-1693/ CA-PLA-1332	Pre-contact	Pre-contact artifact scatter	Treated as a Historical Resource for the purpose of this project
P-31-1694/ CA-PLA-1333	Pre-contact	Bedrock milling site	Treated as a Historical Resource for the purpose of this project
P-31-1696/ CA-PLA-1335H	Pre-contact	Bedrock milling site with midden	Treated as a Historical Resource for the purpose of this project
P-31-6116	Historic	Conley Ranch property at 1275 Fowler Road	Not eligible

Resource P-31-1616 (Conley Ranch) had previously been evaluated as not eligible to the NRHP or CRHR. ECORP carried out historical and archival research to evaluate historic-period resources P-31-1692H (Hemphill Canal and diversion structure), HD-002 (Virginiatown Road) HD-003 (Fowler Road) and HD-004 (Fruitvale Road) and found them not eligible. None of these five resources are considered Historical Resources according to CEQA.

In 2010, ECORP carried out subsurface archaeological testing to evaluate TC-1/2 as eligible for both the NRHP and CRHR; therefore, this site is considered a Historical Resource.

The remaining 14 resources (12 resources within the Project Study Area and two resources immediately adjacent to the Project Study Area) have not been formally evaluated for eligibility; however, they are being treated as Historical Resources for the purpose of this project. This determination cannot be reversed outside of the CEQA process later. Therefore, there are 15 Historical Resources to consider when identifying potential Project impacts.

Several of these potential Historical Resources are pre-contact archaeological sites, most of which contain bedrock milling features and some that have surface artifacts. It is typical for pre-contact archaeological sites to be situated near perennial waterways. Consequently, alluvium deposited over time by these waterways has likely obscured and buried surface artifacts that are associated with the known pre-contact sites and surface features, and may have completely buried other sites within the Project Area for which there are no surface indictors. A high potential exists for subsurface archaeological deposits within the vicinity of pre-contact sites TCE-1/2, P-31-1696, P-31-1694, P-31-1693, HD-009, and HD-012.

Despite the fact that the underlying geomorphology pre-dates known human occupation in the region, the proximity of the Project Study Area to meandering perennial waterways such as Auburn Ravine and its tributaries coupled with the number of pre-contact archaeological sites known to exist in the area, a high potential exists to encounter subsurface archaeological deposits within the Project Study Area for all Project alternatives. As mentioned, this potential is the highest near the locations of previously recorded sites.

Project Impact Analysis

Impact 3.4.1: Potential for Impacts to Historical Resources. Impact Determination: *less than significant with mitigation incorporated.*

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

There are 15 Historical Resources located within or immediately adjacent to the Project Study Area.

Diversion Structure Demolition and Removal: Alternatives 1, 2, and 3

The proposed work under all three alternatives that falls within the Near and Instream Improvements Study Area includes the greatest amount of project activity, construction, and ground disturbance, including removal of the diversion, installation of a coffer dam, and erosion control downstream of the coffer dam. Potential impacts to both surface and subsurface Historical Resources are highest in this area

for all three alternatives. While some cultural resources have ambiguous boundaries that are not clearly visible, others are obvious surface features that easily identifiable. Creating a buffer around certain cultural resources identified in this area would help construction crews and equipment avoid any impacts to these resources. In addition, the presence of a qualified archaeologist on site would help assure that if subsurface components of any resources are encountered, they are not significantly impacted.

Further, excavations could occur in association with development of all three alternatives which could affect buried deposits associated with known historical resources, or unknown historical resources buried in the Project Area. Construction personnel may not be able to identify such deposits as cultural resources without a training session. As such, mitigation is required. Therefore, mitigation measures **CUL-1**, **CUL-2** and **CUL-3** have been included to reduce the potential impact to historical resources to be ***less than significant with mitigation incorporated***.

Infiltration Gallery Installation: Alternative 1

Under Alternative 1, there are several resources in the vicinity of the improvement area that may be impacted as a result of the Project. Potential impacts to both surface and subsurface resources may occur under this alternative; however, as mentioned above, avoidance of Historical Resources in this area can be achieved by creating an environmentally sensitive area buffer to help construction crews and equipment avoid any impacts to these resources. In addition, the presence of a qualified archaeologist on site would help assure that if subsurface components of any resources are encountered, they are not significantly impacted. With implementation of **CUL-1, CUL-2,** and **CUL-3,** the impacts under Alternative 1 would be ***less than significant with mitigation incorporated.***

Fish Passage Construction: Alternative 2

As part of Alternative 2, the Hemphill Canal Study Area would be subject to ground disturbing activity and construction movement along the 3,600- foot segment subject to modification and the locations of the four culverts that may require replacement. . Establishing a visible buffer around known cultural resources in this study area and having an archaeologist present to observe all ground disturbing activity will help assure any cultural resources in this area are not significantly impacted by the Project activities. Therefore, with the implementation of **CUL-1, CUL-2**, and **CUL-3**, the impacts under Alternative 2 would be ***less than significant with mitigation incorporated***.

Pipeline Installation: Alternative 3

The Pipeline Alternative Study Area (Alternative 3) would entail the installation of a 4.5-mile-long 24-inch pipeline using a 3.5- to 4-foot-wide trench from the Placer Yard facility extending along Fruitvale Road, Fowler Road, Virginiatown Road, and the cross-country segment to the Hemphill Canal. Although Fruitvale Road, Fowler Road, and Virginiatown Road are historic in age; however, they have been found not eligible and are therefore not Historical Resources. Because the construction and ground disturbing activity for this pipeline would be in the roadways, impacts to surface cultural resources are unlikely along the majority of the route. However, impacts are possible along the route in the vicinity of potential Historical Resources; therefore, the methods of establishing a visual buffer around those resources without obvious surface manifestations to help construction crews and equipment avoid these locations along the route

would help avoid significant impacts. Additionally, because of the subsurface sensitivity of the Project Study Area, potential impacts to subsurface resources can be avoided by having an archaeologist monitor soil excavation below the asphalt.

Although no ground disturbing activity is expected in the Placer Yard Study Area or the Potential Staging Areas, surface resources would be subject to impacts by staging and moving equipment. Keeping all equipment staging and equipment movement/transportation away from surface resources would mitigate any potential impacts.

Therefore, mitigation measures **CUL-1**, **CUL-2** and **CUL-3** have been included in this DEIR to mitigate for impacts on the potential Historical Resources that may be impacted by construction activities in these study areas. With the implementation of these mitigation measures, the impacts under Alternative 3 would be ***less than significant with mitigation incorporated***.

Mitigation Measures

CUL-1 Protect Historical Resources as Environmentally Sensitive Areas

All known Historical Resources shall be avoided by the Project through a combination of project design and establishment of Environmentally Sensitive Areas under the direction of a qualified professional archaeologist, as follows.

Resources TCE-1/2, HD-009, HD-012, P-31-1693, P-31-1694, and P-31-1696 shall be designated Environmentally Sensitive Areas prior to construction activities. High-visibility temporary exclusionary fencing shall be installed surrounding the known boundaries of these sites, plus a 5-meter (approximately 16 foot) buffer, as shown on the *confidential* Environmentally Sensitive Area Fencing map on file with NID. No ground-disturbing activities shall be allowed within the exclusionary fencing.

Additionally, resources P-31-1691, HD-006, HD-008, HD-010, HD-005, HD-007, P-31-5897, HD-011, and HD-013 will be avoided by all project activity. These measures will be documented by the archaeological monitor (mitigation measure **CUL-3**) and tribal monitor (mitigation measure **TCR-2**), and forwarded to NID as proof of compliance. This environmentally sensitive area fence installation and documentation is to be carried out in coordination with mitigation measure **TCR-2**. If the preferred alternative does not overlap or occur adjacent to the location of resources cited herein, the environmentally sensitive area and avoidance measures for those resources can be omitted.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *NID*

CUL-2 Cultural Resources Awareness Training

A consultant and construction worker cultural resources awareness brochure and an in-field training program for all personnel involved in ground-disturbing activities will be

developed and disseminated by a cultural resources professional to all operators of ground-disturbing equipment prior to construction commencing. The program will include relevant information regarding sensitive cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The worker cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources located in, or have the potential to be located in the project area and will outline the communication protocols in the event of the discovery of any potential cultural resources or artifacts during ground-disturbing activities (as outlined in **CUL-1**, **CUL-3**, and **CUL-4**). The program will outline the requirement for confidentiality and culturally appropriate treatment of cultural resources. All ground-disturbing equipment operators shall be required to receive the training and sign a form that acknowledges receipt of the training. A copy of the form shall be provided to NID as proof of compliance. This training is to be carried out in coordination with mitigation measure **TCR-1**.

Timing/Implementation: *Prior to construction*

Monitoring/Enforcement: *NID/Consultant*

CUL-3 **Monitor Ground Disturbance and Stop Work if Cultural Resources or Remains are Detected**

Ground-disturbing activities in the Project Area shall be monitored by an archaeological monitor under the supervision of a qualified professional archaeologist who meets the Secretary of the Interior's (SOI) Professional Qualification Standards for prehistoric and historic archaeology.

The archaeological monitor will be present to observe and assist in the installation of environmentally sensitive area fencing around resources TCE-1/2, HD-009, HD-012, P-31-1693, P-31-1694, and P-31-1696 and provide documentation of the implementation.

The archaeological monitor will be present for ground disturbing activity within 100 feet of resource HD-010, and within 200 feet of the environmentally sensitive area zones for TCE-1/2, HD-009, HD-012, P-31-1693, P-31-1694, and P-31-1696. The monitor shall also be present for all ground disturbing activity in the Hemphill Canal Study Area and Near and Instream Improvements Study Area.

All other ground-disturbing activity in other areas of the project will be spot-checked daily by the archaeological monitor at the outset of the project, after which the frequency of monitoring checks in these areas may be re-assessed based on the observations and professional judgement of the SOI-qualified archaeologist.

If subsurface deposits believed to be cultural or human in origin are discovered during construction by the monitor, all work must halt within 100 feet of the discovery. The monitoring archaeologist will evaluate the significance of the find and shall have the

authority to modify the no-work radius as appropriate, in communication and coordination with the tribal monitor, 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, work may resume immediately, and no agency notifications are required. Should tribal monitors desire to take possession of any such materials, they may do so as long as the possession is documented by the archaeologist and tribal monitor, and as long as removal has been approved in writing by the property owner and authorized by NID.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify NID and the on-site tribal monitor. NID, the archaeologist, and UAIC shall consult on a finding of eligibility. If the find is determined to be a Historical Resource under CEQA, as defined in Section 15064.5(a) of the CEQA Guidelines, appropriate treatment measures will be implemented. Work may not resume within the no-work radius until NID, through consultation as appropriate, determines that the site either: 1) is not a 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 its satisfaction. This mitigation measure will be carried out in concert with **TCR-2**.

If the preferred alternative does not overlap or occur adjacent to the location of resource cited herein, avoidance measures and monitoring for those resources can be omitted.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *NID/Consultant*

Impact 3.4.2: Potential for Impacts to Archaeological Resources. Impact Determination: *less than significant with mitigation incorporated.*

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

Alternatives 1, 2 and 3

The Project Area was investigated by a professional archaeologist, who concluded that there are 15 Historical Resources present. These include resources with surface manifestations, and two adjacent sites with a high potential for buried constituents to exist sub-surface inside the Project Area. There is a further potential that buried sites with no surface manifestations exist within the Project Area. For this reason, the Proposed Project may result in a potentially significant impact to both known and unknown archaeological resources.

Archaeological discoveries of buried artifacts or features during Project implementation of all three alternatives have the potential to affect archaeological resources, resulting in a potentially significant impact. Therefore, mitigation measures **CUL-1**, **CUL-2** and **CUL-3** have been included to reduce the potential impact to archaeological resources to a ***less than significant with mitigation incorporated*** level.

Infiltration Gallery Installation: Alternative 1

Under Alternative 1, there are several archaeological resources in the vicinity of the improvement area that may be impacted as a result of the Project. Potential impacts to both surface and subsurface archaeological sites may occur under this alternative; however, as mentioned above, avoidance of sites in this area can be achieved by creating an environmentally sensitive area buffer and having a qualified archaeologist on site. This would assure that surface components of sites are avoided, and that any subsurface components are not significantly impacted if encountered. With implementation of **CUL-1** and **CUL-2** and **CUL-3**, the impacts under Alternative 1 would be ***less than significant with mitigation incorporated.***

Fish Passage Construction: Alternative 2

As part of Alternative 2, the Hemphill Canal Study Area would be subject to ground disturbing activity and construction movement along the 3,600- foot segment subject to modification and the locations of the four culverts slated for replacement. Establishing a visible buffer around the surface components of known archaeological resources in this study area and having an archaeologist present to observe all ground disturbing activity will help assure any archaeological sites in this area are not significantly impacted by the Project activities. Therefore, with the implementation of **CUL-1**, **CUL-2**, and **CUL-3**, the impacts under Alternative 2 would be ***less than significant with mitigation incorporated***.

Pipeline Installation: Alternative 3

The Pipeline Alternative Study Area (Alternative 3) would entail the installation of a 4.5-mile long 24-inch pipeline using a 3.5 to 4-foot-wide trench from the Placer Yard facility extending along Fruitvale Road, Fowler Road, Virginiatown Road, and the access road to the Hemphill Canal. Although Fruitvale Road, Fowler Road, and Virginiatown Road are historic in age, they have been found not eligible and are therefore not Historical Resources. Because the construction and ground disturbing activity for this pipeline would be in the roadways, impacts to surface components of archaeological sites are unlikely along the majority of the route. However, impacts are possible along the route in the vicinity known archaeological sites; therefore, the methods of establishing a visual buffer around those sites to help construction crews and equipment avoid these locations along the route would help avoid significant impacts. Additionally, because of the subsurface sensitivity of the Project Study Area, potential impacts to subsurface components of these sites can be avoided by having an archaeologist monitor soil excavation below the asphalt. An archaeologist could identify such deposits immediately and stop work to avoid any impacts.

Therefore, mitigation measures **CUL-1**, **CUL-2** and **CUL-3** have been included in this DEIR to mitigate for impacts on archaeological resources that may be impacted by construction activities in these study areas.

Mitigation Measures

Implement mitigation measures **CUL-1**, **CUL-2** and **CUL-3**

Impact 3.4.3: Potential for Impacts to Human Remains. Impact Determination: *less than significant with mitigation incorporated.*

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

Alternatives 1, 2, and 3

No human remains have been identified in the Project Area. However, implementation of any of the Alternatives would include ground-disturbing construction activities within areas of known pre-contact archaeological sensitivity, and in the vicinity of known and potential pre-contact Historical Resources. Such ground-disturbing project activity could result in the inadvertent disturbance of currently undiscovered human remains. 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).

Implementation of mitigation measure **CUL-4** 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/disturbance of human remains to be ***less than significant with mitigation incorporated***.

Mitigation Measures

CUL-4 Stop Work if Human Remains Detected

If construction activity encounters human remains, or remains that are potentially human, the contractor shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641). The archaeologist shall notify the Placer 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 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will 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 will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, then the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, and after the mediation process with NAHC is carried out, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will 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 (AB 2641). 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.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *NID/Consultant*

3.4.4 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 the City of Lincoln and Greater Placer County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to impacts to known and unknown cultural resources in the area. The Environmental Setting subsection provides an overview of cultural resources and the history of the region.

Cumulative Impacts and Mitigation Measures

Impact 3.4.4: Cumulative Impacts to Cultural Resources

Threshold:	*Would Implementation of the proposed project, along with any foreseeable development in the project vicinity, could result in cumulative impacts to cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features)?*

Alternatives 1, 2, and 3

As mitigated, the direct impacts associated with the Project will be reduced to a less than significant level. While it is possible that grading and development will result in the discovery of cultural resources, mitigation measures and state and federal laws already in place will set in motion actions designed to mitigate these potential impacts. The Project is adjacent to residential developments, a golf course, and existing roadways, that have disturbed the soil and may have already affected any cultural resources. As a result of surrounding development, mitigation proposed in this section, and existing federal and state laws, this impact is considered to have a ***less than considerable contribution to cumulative impacts***.

Cumulative Mitigation Measures

None required.

3.4.5 References

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3.5 ENERGY CONSUMPTION

Energy consumption is analyzed in this EIR due to the potential direct and indirect environmental impacts associated with the Project. Such impacts include the depletion of nonrenewable resources (e.g., oil, natural gas, coal) and emissions of pollutants during the implementation phases.

3.5.1 Environmental Setting

Fuel (gasoline) consumption is analyzed in this analysis as the primary source of energy that is relative to the Proposed Project. While Alternative 1 and Alternative 2 would increase electricity consumption for the purpose of operating the wet well pump for Alternative 1 and a brush system for Alternative 2 to facilitate automatic cleaning, the amount of increased electricity would be negligible compared to that consumed in Placer County. This analysis focuses on the construction energy needed to implement each of the Project Alternatives.

Annual combined fuel consumption in Placer County from 2016 to 2020 is shown in Table 3.5-1. As shown, fuel consumption has decreased slightly since 2016.

Table 3.5-1. Annual Fuel Consumption in Placer County 2016-2020

Year	Fuel Consumption (gallons)
2020	181,471,832
2019	182,678,266
2018	184,212,471
2017	185,499,388
2016	189,316,923

Sources: CARB 2017

3.5.2 Regulatory Framework

Federal

Intermodal Surface Transportation Efficiency Act (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

State

Integrated Energy Policy Report

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the California Energy Commissions (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the State's economy; and protect public health and safety (Public Resources Code § 25301a). The CEC prepares these assessments and associated policy recommendations every two years, with updates on alternate years, as part of the Integrated Energy Policy Report (IEPR).

The 2017 IEPR focuses on next steps for transforming transportation energy use in California. The 2017 IEPR addresses the role of transportation in meeting state climate, air quality, and energy goals; the transportation fuel supply; the Alternative and Renewable Fuel and Vehicle Technology Program; current and potential funding mechanisms to advance transportation policy; transportation energy demand forecasts; the status of statewide plug-in electric vehicle infrastructure and challenges and opportunities for electric vehicle infrastructure.

Local

Placer County Sustainability Plan

The Placer County Sustainability Plan is predominantly intended to reduce greenhouse gas emissions generated in the County. However, the Plan's reduction measures address emissions from the building energy consumption and seeks to reduce this consumption. In addition to reducing emissions, implementation of the Placer County Sustainability Plan seeks to achieve multiple community-wide benefits, including lowering energy costs.

3.5.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance and Local CEQA Guidelines (2019). The Project would result in a significant impact to energy if it would do any of the following:

- Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable or energy efficiency.

The impact analysis focuses on the one source of energy that is relevant to the Project Alternatives: the equipment fuel necessary for Project construction. Operational energy usage was not analyzed as the Project is proposing improvements to existing facilities and infrastructure. The Project is not proposing the construction of any buildings and once implementation is complete would not result in new traffic trips or substantial energy demand beyond existing conditions. As previously discussed, while Alternative

1 and Alternative 2 would increase electricity consumption for the purpose of operating the wet well pump for Alternative 1 and a brush system for Alternative 2 to facilitate automatic cleaning, the amount of increased electricity would be negligible compared to that consumed in Placer County.

Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed project. For the purposes of this analysis, the total amount of fuel estimated to be consumed during construction of each Alternative is quantified and compared to the total fuel usage in Placer County in the year 2020.

Methods of Analysis

The amount of total implementation-related fuel used was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1 and compared to the total fuel usage in Placer County in the year 2020.

Project Impact Analysis

Impact 3.5-1 Implementation of the Proposed Project would result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
Impact Determination: *less than significant*.

Threshold:	*Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.*

Alternatives 1, 2, and 3

The impact analysis focuses on the equipment-fuel necessary for Project implementation. Implementation includes material handling and hauling, dewatering activities, excavators, wheel loaders, and other equipment for the various Alternatives. Table 3.5-2 shows the calculated amount of fuel necessary for Project implementation for each Alternative. See Appendix 3.5 for annual energy consumption outputs.

Table 3.5-2. Proposed Project Fuel Consumption

Fuel Consumption	Annual Energy Consumption (Gallons)	Percentage Increase Countywide
Alternative 1 (Riverbank Infiltration Gallery)[1]	64,138	0.035%
Alternative 2 (Fish Passage)[2]	25,517	0.014%
Alternative 3 (Pipeline)	49,852	0.027%

Source: Climate Registry 2016

As shown, the Project's fuel consumption during its implementation is estimated to be 64,138 gallons for Alternative 1, 25,517 gallons for Alternative 2, and 49,852 gallons for Alternative 3. This would increase the combined annual countywide fuel use by 0.035 percent, 0.014 percent, and 0.027 percent, respectively. As

such, Project implementation would have a nominal effect on local and regional energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and requiring recycling of construction debris would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

For these reasons, this impact would be ***less than significant***.

Post-Project Implementation

None of the components of the Proposed Project would include the provision of new buildings or any other substantial energy consuming components. Nor would the Project instigate new gasoline-consuming vehicle trips over existing conditions. Therefore, by its nature, the Project would not cause wasteful, inefficient, and unnecessary consumption of energy from long-term operations over existing conditions and ***no impact*** would occur.

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:	*Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.*

Alternatives 1, 2, and 3

This impact analysis focuses on fuel consumption during the one-time implementation period for the various Alternatives. As discussed above, Project implementation would have a nominal effect on local and regional energy supplies. Furthermore, the main goal of the Project is to provide for passage for anadromous fish at Hemphill Diversion Structure through elimination or modification of the existing structure. For these reasons, none of the Project Alternatives would conflict with or obstruct a plan for renewable energy or energy efficiency and there is ***no impact***.

Mitigation Measures

None required.

3.5.4 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 the City of Lincoln and Greater Placer County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to impacts resulting in energy consumption. However, no other projects of this type are approved, proposed, planned, or reasonably foreseeable at this time.

Cumulative Impacts and Mitigation Measures

Impact 3.5.3: Cumulative Energy Impacts

Threshold:	*Would Implementation of the proposed project, along with any foreseeable development in the project vicinity, result in cumulative impacts to energy consumption?*

As previously described, the impact analysis contained herein focuses on the fuel consumption needed for Project implementation. As shown, Project fuel consumption would be neglectable and would not be considered inefficient, wasteful, or unnecessary with regard to energy. Thus, the Proposed Project's impacts are considered a ***less than considerable contribution to cumulative impacts*** regarding energy consumption.

Cumulative Mitigation Measures

None required.

3.5.5 References

CARB. 2017. EMFAC2017 Emissions Model.

Climate Registry. 2016. General Reporting Protocol for the Voluntary Reporting Program version 2.1. January.

3.6 GEOLOGY, SOILS AND PALEONTOLOGICAL RESOURCES

This section evaluates the potential effects of Project construction and operation on soil erosion and paleontological resources. The existing environmental and regulatory conditions specific to those issues are described and the potential impact posed by each of three proposed project Alternatives are addressed. 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 2.0**). These impacts include the potential exposure of people or structures to substantial risk due to surface ruptures, ground shaking, seismic-related ground failure include liquefaction and landslides due to earthquake, or the potential effects of locating the Project on a potentially unstable geological unit or soil type. Refer to **Appendix 2.0** and Section 3.1 of this DEIR which provide additional details on issues eliminated from further review in this DEIR.

Although the Initial Study found that the direct effects of Project construction on soil erosion were less than significant, additional analysis is presented here because modifications were made to Project Alternatives since public circulation of the Initial Study/NOP which could affect the significance of Project impacts on soil erosion and because public comments on the Initial Study suggested further review of this issue.

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 diversion demolition, site grading and facilities construction activities. Changes in stream hydraulics due to removal of the diversion and installation of new facilities under Alternative 1,2, or 3 could result in increased bank erosion and the downstream transport of sediment that has accumulated in Auburn Ravine behind the diversion structure. This potential effect is addressed in Section 3.8 Hydrology and Water Quality of this DEIR.

Information contained in this section is based in part on four "Custom Soil Resource Reports" prepared by the U.S, Department of Agriculture's Natural Resources Conservation Service at the request of ECORP. These reports identify soil conditions in all areas potentially affected by each of the three Project Alternatives and are included as **Appendix 3.6** to this DEIR.

3.6.1 Environmental Setting

Regional Geology

The project site is located in the northeastern portion of the Great Valley Geomorphic Province of California. The Great Valley, also known as the Central Valley, is an elongated, northwest-trending, nearly flat lowland between the Sierra Nevada Mountains on the east and the Coast Ranges to the west. The Great Valley is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. The northern portion of the Great Valley is the Sacramento Valley, which is drained by the Sacramento River (CGS 2002). The project site is located within the Riverbank Formation (lower and middle units) and the Mehrten Formation geologic units. The Riverbank Formation consists of mainly unconsolidated alluvium extending several hundreds of feet in depth and is considered a well-developed water-bearing unit (City of Lincoln 2008). The Mehrten formation is comprised of conglomerate and tuffaceous

sandstone and siltstone derived from andesitic sources. Some areas within the formation also contain andesitic mudflow breccia rocks approximately 200 feet below the ground surface (City of Lincoln 2008).

Soils

According to the NRCS Web Soil Survey website (NRCS 2020), the Alternative 3 pipeline alignment, which includes an aerial pipe crossing, includes 10 soil units, or types, as shown in Table 3.6-1 below. The majority of soil is Caperton-Andregg coarse sandy loams, making up between 64.3 percent of the site. Among many soil related attributes, the Web Soil Survey identifies drainage, flooding, erosion, runoff, and the linear extensibility potential for the Project soils. According to this survey, the Alternative 3 site is predominately underlain by soils that are excessively drained to well-drained and have a moderate to severe erosion potential. Alternative 3's soils have no frost action potential and a low linear extensibility (shrink-swell) (NRCS 2020).

The area which includes the Hemphill Diversion Structure, Infiltration Gallery and Fish Passage only one soil is identified by the NRCS Web Soil Survey. This soil is Xerofluvents, frequently flooded. This soil has a slight erosion potential and moderate runoff potential (NRCS 2020).

As shown in Table 3.6-1, the Hemphill Canal area, which is part of Alternative 2, includes four soil types: Caperton-Andregg coarse sandy loams, 2 to 15 percent slopes, Pits and dumps, Xerofluvents, frequently flooded, and Xerorthents, placer areas. According to the Web Soil Survey, the Alternative 3 site is predominately underlain by soils that are somewhat excessively drained to somewhat poorly drained and have a slight to severe erosion potential. The site soils have no frost action potential and a low to moderate linear extensibility (shrink-swell) (NRCS 2020).

Table 3.6-1. Project Area Soil Characteristics

Soil	Percentage of Site	Drainage	Flooding Frequency Class	Erosion Hazard[1]	Runoff Potential[2]	Linear Extensibility (Rating)[3]	Frost Action[4]
Pipeline Alignment							
Andregg coarse sandy loam, 2 to 9 percent slopes	8.7%	Well drained	None	Moderate	B	1.5	None
Andregg coarse sandy loam, rocky, 2 to 15 percent slopes	9.0%	Well drained	None	Moderate	B	1.5	None
Andregg-Shenandoah complex, 2 to 15 percent slopes	2.2%	Well drained	None	Moderate	B	1.5	None
Caperton gravelly coarse sandy loam, 2 to 30 percent slopes	3.8%	Somewhat excessively drained	None	Severe	D	1.5	None
Caperton-Andregg coarse sandy loams, 2 to 15 percent slopes	60.5%	Somewhat excessively drained	None	Severe	D	1.5	None

Table 3.6-1. Project Area Soil Characteristics

Soil	Percentage of Site	Drainage	Flooding Frequency Class	Erosion Hazard[1]	Runoff Potential[2]	Linear Extensibility (Rating)[3]	Frost Action[4]
Rubble land	2.7%	Excessively drained	None	Not rated	Not rated	1.5	None
Sierra sandy loam, deep, 9 to 15 percent slopes, LRU 18XI	8.6%	Well drained	None	Moderate	C	2.4	None
Xerofluvents, frequently flooded	0.6%	Somewhat excessively drained	Frequent	Slight	B	2.4	None
Xerorthents, placer areas	3.9%	Well drained	Frequent	Not rated	Not rated	Not rated	None
Hemphill Diversion Structure, Infiltration Gallery and Fish Passage area							
Xerofluvents, frequently flooded	100%	Somewhat excessively drained	Frequent	Slight	B	2.4	None
Hemphill Canal area							
Caperton-Andregg coarse sandy loams, 2 to 15 percent slopes	36.1%	Somewhat excessively drained	Not rated	Severe	D	1.5	None
Pits and dumps	6.4%	Not rated	Not rated	Not rated	Not rated	Not rated	None
Xerofluvents, frequently flooded	31.2%	Somewhat poorly drained	Frequent	Slight	B	4.5	None
Xerorthents, placer areas	26.7%	Well drained	Frequent	Not rated	Not rated	Not rated	None

Source: NRCS 2020

Notes:

1. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and offsite damage are likely, and erosion-control measures are costly and generally impractical.
2. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation. Group A soils have a high infiltration rate (low runoff potential) when thoroughly wet. Group B soils have a moderate infiltration rate when thoroughly wet. Group C soils have a slow infiltration rate when thoroughly wet. Group D soils have a very slow infiltration rate (high runoff potential) when thoroughly wet.
3. Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.
4. Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Erosion

Erosion is the movement of solids (soil, mud, rock, and other particles) by wind, water, or ice and by downward or down-slope movement in response to gravity. Generally, the areas affected by construction for each of the project alternatives is underlain by well-drained soils on a flat to low-gradient land surface. As a result, the potential for substantial and accelerated erosion is low. Soils with a "runoff potential" of "D" (see Table 3.6-1) have high runoff potential when thoroughly wet, usually because some restricting layer (e.g., bedrock or impermeable soil horizon) impedes the downward movement of water within the soil profile. In addition, if the soil has a high erosion factor, runoff could remove substantial quantities of soil and lead to the formation of rills or gullies in the landscape. Areas within the project site underlain by Caperton gravelly coarse sandy loam and Caperton-Andregg coarse sandy loams may have a higher potential for soil loss from erosion relative to other soils in the project vicinity due to their high erosion factor and/or runoff potential. These soil types occur only within the pipeline alignment for Alternative 3 and within the Hemphill Canal alignment in which some grading would occur under Alternative 2 (Fish Passage Alternative). While runoff and erosion behavior can be estimated from the mapped soil series, actual susceptibility to erosion would vary by location and is based on factors other than the soil unit, including slope, vegetation, and human disturbances. Potential impacts of project construction activities for each of project alternatives are considered in the impact discussion below.

Expansive Soils

Expansive soils are types of soil that shrink or swell as the moisture content decreases or increases. Structures built on these soils may experience shifting, cracking, and breaking damage as soils shrink and subside or expand. Expansive soils can be determined by a soil's linear extensibility. There is a direct relationship between linear extensibility of a soil and the potential for expansive behavior, with expansive soil generally having a high linear extensibility. Thus, granular soils typically have a low potential to be expansive, whereas clay-rich soils can have a low to high potential to be expansive.

According to the NRCS, linear extensibility values for the majority of the Project Alternatives sites are between 1.5 and 2.4 percent. Soils with linear extensibility in that range correlate to soils having a low expansion potential, as noted in Table 3.6-1. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. As shown in Table 3.6-1, 100 percent of the Alternatives 1, 2 and 3 site soils have a low shrink-swell potential.

Paleontological Resources

A paleontological records search was requested from the University of California Museum of Paleontology (UCMP) on June 15, 2020. The search included a review of the institution's paleontology specimen collection records for Placer 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); a review of local soils data; and a review of existing literature on paleontological resources of Placer County was completed by ECORP. 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 results of the search of the UCMP indicated that 64 paleontological specimens were recorded from 29 identified localities and 11 unidentified localities in Placer County. Paleontological resources include fossilized remains of birds, mammals, reptiles, and amphibians. No paleontological resources have been previously recorded within or near the Proposed Project area (UCMP 2020).

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. The CBC applies to building design and construction in the state and is based on the federal Uniform Building Code but is modified for California conditions with numerous more detailed and/or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design.

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.

California Environmental Quality Act

The environmental checklist in Appendix G of the CEQA Guidelines includes an evaluation criterion question that asks, "Would the project directly or indirectly destroy a unique paleontological resource or site…?" Although neither CEQA nor the Guidelines define what is "a unique paleontological resource or

site", CEQA section 21083.2 defines "unique archaeological resources" as "…any 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: 1) contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information. 2) it has a special and particular quality such as being the oldest of its type or the best available example of its type. 3) is directly associated with a scientifically recognized import prehistoric or historic event."

Local

Placer County

The Placer County General Plan Health and Safety Element (updated February 2021) contains the following goals and policies pertaining to soils and paleontological resources:

Goal 8.A.1: *To minimize the loss of life, injury, and property damage due to seismic and related geological hazards.*

Policies:

8.A.1.2. The County shall prohibit the placement of habitable structures or individual sewage disposal systems on or in critically expansive soils unless suitable mitigation measures are incorporated to prevent the potential risks of these conditions.

The Placer County General Plan Public Facilities and Services Element (2013) contains the following goals and policies pertaining to soils erosion:

Goal 4.E: *To manage rainwater and stormwater at the source in a sustainable manner that least inconveniences the public, reduces potential water-related damage, augments water supply, mitigates storm water pollution, and enhances the environment.*

Policies:

4.E.5. The County shall continue to implement and enforce its Grading, Erosion and Sediment Control Ordinance and Flood Damage Prevention Ordinance.

The Placer County General Plan Recreation and Cultural Resources Element (2013) contains the following goals and policies pertaining to paleontological resources:

Goal 5.D: *To identify, protect, and enhance Placer County's important historical, archaeological, paleontological, and cultural sites and their contributing environment.*

Policies:

5.D.2. The County shall solicit the cooperation of the owners of cultural and paleontological resources, encourage those owners to treat these resources as assets rather than liabilities, and encourage the support of the general public for the preservation and enhancement of these resources.

5.D.6. The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment. Such assessments shall be incorporated into a Countywide cultural resource data base, to be maintained by the Division of Museums.

5.D.7. The County shall require that discretionary development projects are designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical, or paleontological consultants, depending on the type of resource in question.

City of Lincoln

The Public Facilities & Services Element of the City of Lincoln General Plan provides objectives, policies, and programs regarding stormwater drainage, including the following applicable to proposed Project alternatives:

Goal PFS-4: Stormwater Drainage. To ensure provision and sizing of adequate storm drainage facilities to accommodate existing and planned development.

Policies:

PFS-4.10 Erosion Control Measures. The City shall require adequate provision of erosion control measures as part of new development to minimize sedimentation of streams and drainage channels.

The Open Space & Conservation Element of the City of Lincoln General Plan provides objectives, policies, and programs regarding water quality and erosion control, including the following applicable to proposed Project alternatives:

Goal PFS-4: Water Resources. To preserve and enhance local streams, creeks, and aquifers.

Policies:

OSC-4.3 Protect Surface Water and Groundwater. The City shall ensure that new development projects do not degrade surface water and groundwater.

OSC-4.6 Best Management Practices. The City shall continue to require the use of feasible and practical best management practices (BMPs) to protect surface water and groundwater from the adverse effects of construction activities and urban runoff. Additionally, The City shall require, as part of its Storm Water NPDES Permit and ordinances, to implement the Pollution Prevention Plan (SWPPP) during construction activities for any improvement projects, new development and redevelopment projects for reducing pollutants to the maximum extent practicable.

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 if it would do any of the following:

- result in substantial soil erosion or the loss of topsoil;
- be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Methods of Analysis

Soils

For the purposes of this DEIR, NRCS soils reports, and other studies that included relevant geologic data, were reviewed, and used to determine whether geological impacts could occur from the construction and operation of the three Project Alternatives. As noted, soils information used to determine potential project-related impact on soils erosion is based in part on four "Custom Soil Resource Reports" prepared by the U.S, Department of Agriculture's Natural Resources Conservation Service at the request of ECORP. These reports identify soil conditions in all areas potentially affected by each of the three Project Alternatives and are incorporated herein by reference (USDA 2020 a-d).

Paleontological Resources

A paleontological records search was requested from the University of California Museum of Paleontology (UCMP) on June 15, 2020. The search included a review of the institution's paleontology specimen

collection records for Placer 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); a review of local soils data; and a review of existing literature on paleontological resources of Placer County by ECORP. 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 results of the search of the UCMP indicated that 64 paleontological specimens were recorded from 29 identified localities and 11 unidentified localities in Placer County. Paleontological resources include fossilized remains of birds, mammals, reptiles, and amphibians. No paleontological resources have been previously recorded within or near the Proposed Project area (UCMP 2020).

Project Impact Analysis

Impact 3.6-1: The proposed project could result in soil erosion or the loss of top soil. Impact Determination: *less than significant*.

Threshold:	*Substantial soil erosion or the loss of topsoil.*

Diversion Structure Demolition and Removal: Alternatives 1, 2, and 3

Initial site preparation and grading of the staging area and access point for demolition and removal of the diversion structure under Alternatives 1, 2, and 3 would result in ground disturbance and could create a potential for ground instability and soil erosion. This would also occur with activities associated with the placement and removal of the coffer dam upstream of the diversion site and bypass pipelines. Ground disturbance caused by activities associated with the demolition and removal of the diversion structure also create the potential for ground instability and accelerated erosion during storm events. As shown in Table 3.6-1, the soils at the diversion site have only a "slight" erosion potential.

A predominate instigator of erosion on construction sites are storm events and the resulting stormwater runoff. All projects in California over one acre in size, which would include all of the various Alternatives proposed for the Project, 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. SWPPPs generally include the following BMPs:

- Diversion of offsite runoff away from the construction area;
- Prompt revegetation of proposed landscaped areas;
- Perimeter straw wattles or silt fences and/or temporary basins to trap sediment before it leaves the site;
- Regular sprinkling of exposed soils to control dust during construction during the dry season;

- Specifications for construction waste handling and disposal;
- Erosion control measures maintained throughout the construction period;
- Preparation of stabilized construction entrances to avoid trucks from imprinting debris on public roadways;
- Contained wash out and vehicle maintenance areas;
- Training of subcontractors on general construction area housekeeping;
- Construction scheduling to minimize soil disturbance during the wet weather season; and
- Regular maintenance and storm event monitoring.

Preparation of, and compliance with a required SWPPP would effectively prevent onsite erosion associated with diversion structure demolition and removal and the loss of topsoil from project site. This effect would be further mitigated by elements of the project described in Section 2.0 of this DEIR designed to restore the areas adjacent to the diversion to pre-project conditions. The staging area(s) and access points on the south and north riverbanks would be returned to natural grade and vegetated armoring would be incorporated into the restored riverbank. The staging areas would be revegetated, in areas where future access for maintenance activities is not required, as described in Section 2.0 of this DEIR, construction would occur in a single construction period or two consecutive periods during the seasonally dry period of the year typical of the Central Valley (i.e., June through October) when risk of rainfall and related stormwater runoff at the site would be minimal. Implementation of appropriate erosion control and pollution prevention BMPs and implementation of appropriate measures included in the project's would minimize the potential for soils erosion during and after project construction. The impact on soils erosion therefore is considered ***less than significant***.

As noted above, sedimentation to Auburn Ravine due to possible erosion following implementation of any of the three alternatives is discussed further under Section 3.8 Hydrology and Water Quality.

Infiltration Gallery Installation: Alternative 1

In addition to the removal of the Hemphill Diversion structure, Alternative 1 would also construct an infiltration gallery downstream of the existing diversion structure along the south bank and would extend approximately 25 feet within the existing creek bed and channel. Work would include excavation to weathered granitic rock, which is approximately 15 feet below the creek surface, installation of the infiltration gallery, placement of compacted engineered rock fill, placement of riprap along the bank, and installation of a wet well pump station. As described in Section 2.0, earth work limits would be approximately 100 feet long by 90 feet wide by up to 27 feet below the ground surface. Once the infiltration gallery is installed, the excavated area will be backfilled with compacted engineered permeable crushed rock and compacted general fill material. The backfill will be re-enforced with heavy riprap.

Initial site preparation and grading of the staging area for constructing the infiltration gallery would result in ground disturbance and could create a potential for ground instability and soil erosion. This would also occur with activities associated with the placement of the coffer dam upstream of the gallery construction

site and installation of the gallery itself. These activities could create the potential for ground instability and accelerated erosion during storm events. As shown in Table 3.6-1, the soils at the gallery site have a "slight" erosion potential.

As with the diversion structure removal described above, the staging area for the gallery installation would be revegetated after project completion accept for those areas that will provide permanent access to the site. Installation of the in-channel elements of the gallery would be completed in a single construction period during the seasonally dry period of the year risk of rainfall and related stormwater runoff at the site would be minimal. Although the installation of upland elements of Alternative 1 could occur during the non-irrigation season, implementation of appropriate erosion control and pollution prevention BMPs and implementation of appropriate measures included in the project's SWPPP would minimize the potential for soils erosion during and after project construction. The impact on soils erosion therefore is considered ***less than significant***.

Fish Passage Construction: Alternative 2

As described in Section 2.0, Alternative 2 would remove the existing diversion structure and construct a nature-like roughened rock ramp within the stream channel at the location of the current diversion. A flat plate fish screen would be installed within the Hemphill Canal. Areas outside of the stream channel affected by Alternative 2 construction activities would occur within the 14.9-acre Project Study Area described in Section 2.0 and would use the same construction/improvement, access routes, and laydown/staging area for construction of the access ramp as Alternative 1. As described below, areas outside of the Auburn Ravine channel that would be affected by Alternative 2 construction include portions of Hemphill Canal.

Alternative 2 would also involve modification to Hemphill Canal that would not occur under Alternatives 1 or 3. These modifications would require utilizing an existing access route next to the canal and additional access through the golf course. As described in Section 2.0, once the diversion season ends (approximately October 15), a sheet-pile coffer dam would be installed around the diversion inlet and the canal would be dewatered. The contractor would excavate an approximately 3,400-foot segment of the canal using an excavator and would off-haul material to an approved stockpile location. The contractor would install new headgates, fish screens, flow gaging station, and culverts (if needed) once the canal was regraded. Some or all of the regraded canal may be lined with concrete or piped if recommended during final design. Upon completion of the modifications, the sheet-pile coffer dam would be removed and the contractor would remove all temporary facilities and restore the access route. Removal of the sheet-pile cofferdam can be accomplished from outside the Ravine. Work would require about two months to complete and would not inhibit water diversion as it would be completed during the non-irrigation season (late October thru December).

Implementation of appropriate erosion control and pollution prevention BMPs and implementation of appropriate measures included in the project's SWPPP would minimize the potential for soils erosion during and after project construction. The impact on soils erosion therefore is considered ***less than significant***.

Pipeline Installation: Alternative 3

As described in Section 2.0, Alternative 3 would construct an approximately 4.5-mile 24-inch pipeline from the Placer Yard facility Gold Hill Road extending along Fruitvale Road, Fowler Road, Virginiatown Road, and the access road to the Hemphill Canal. The pipeline alignment includes an Auburn Ravine pipeline crossing near the crest of the existing diversion in order to utilize the headwalls and cross-country connection to Hemphill Canal. Pipeline construction would require the development and use of a number of potential staging areas as shown in Figures 2-2 and 2-12 in Section 2.0. Work is anticipated to occur within the Placer County ROW along Fruitvale, Fowler, and Virginiatown roads. Trenching will be approximately 3.5 to 4 feet wide. Exported soil and asphalt removal and would be limited to the top layer of the trench, estimated to be approximately 4,630 cy. Imported material would be limited to trench restoration and is estimated to be approximately 1,930 cy of aggregate base.

As shown in Table 3.6-1, the Alternative 3 pipeline alignment traverses a variety of soil types with erosion potentials ranging from "slight" to "severe." A rating of "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised. With implementation of construction site restoration activities proposed for Alternative 3 in combination with appropriate erosion control and pollution prevention BMPs employed during construction, the impact on soils erosion is considered ***less than significant.***

Mitigation Measures

None required.

Impact 3.6-2: The project could directly impact a unique paleontological resource during excavation activities. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Direct or indirect destruction of a unique paleontological resource.*

Alternatives 1, 2, and 3

As described above, a search of the UCMP failed to indicate the presence of paleontological resources in the areas potentially affected by construction activities for each of the three proposed project alternatives. Although paleontological resource sites were not identified in the areas affected by any of the project alternatives, there is a possibility that unanticipated paleontological resources will be encountered during ground-disturbing project construction activities. As such, this is considered a potentially significant impact requiring mitigation for all three alternatives. Implementation of Mitigation Measure **PALEO-1** below, addresses the potential discovery of previously unknown unique paleontological resources and implements actions to avoid impact to those resources. For this reason, the impact is considered ***less than significant with mitigation incorporated***.

Mitigation Measures

PALEO-1 Discovery of Unknown Paleontological Resources

If paleontological or other geologically sensitive resources are identified during any phase of project development, the construction manager shall cease operation at the site of the discovery and immediately notify the NID. The NID shall retain a qualified paleontologist to evaluate the find and to prescribe mitigation measures to reduce impacts to a less than significant level. In considering any suggested mitigation proposed by the consulting paleontologist, NID shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for paleontological resources is carried out.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *NID/Consultant*

3.6.4 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 the City of Lincoln and Greater Placer County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to impacts resulting in impacts to geology, soils and paleontological resources. However, no other projects of this type are approved, proposed, planned, and other reasonably foreseeable at this time.

Cumulative Impacts and Mitigation Measures

Impact 3.5.3: Cumulative Geology, Soils and Paleontological Resources Impacts

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?*

Construction activities associated with the proposed project have the potential to result in 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. Potential soil erosion would be temporary only and contained within the project boundary. Because it is reasonable to conclude that all site development 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 proposed project would have a ***less than considerable contribution to cumulative impacts*** on geology and soil resources.

With implementation of mitigation measure **PALEO-1**, any potential impact on any previously unknown paleontological resources would be avoided. The proposed project, therefore, would have a ***less than considerable contribution to cumulative impacts***

Cumulative Mitigation Measures

None required.

3.6.5 References

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3.7 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 Placer County Air Pollution Control District (PCAPCD, 2019). 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 each Project Alternative would have on the environment.

3.7.1 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 3.7-1 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.

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).

Table 3.7-1. 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 about12 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

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 CO2e 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.

3.7.2 Regulatory Framework

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 Placer County portion of the SVAB 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 § 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.

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

Placer County Air Pollution Control District

In October of 2016, the PCAPCD adopted GHG emission thresholds to assist the district in attaining the GHG reduction goals established by AB 32 and SB 32. The updated thresholds adopted bright-line numeric threshold emission level of 1,100 metric tons of CO_2e per year for operations of land use project and 10,000 metric tons of CO_2e per year for construction. Any project that fell below the threshold would be found to have a less than significant impact on GHG emissions, and, thus, would not conflict with any state or regional GHG emission reduction goals. Projects that would result in emissions above the threshold would not necessarily result in substantial impacts if certain efficiency matrix standards are met. The efficiency matrix is calculated on a per capita or square-foot basis.

Placer County Sustainability Plan

The Placer County Sustainability Plan is comprised of two main components: a GHG Emission Reduction Strategy and an Adaptation Strategy. The GHG Reduction Strategy includes a GHG inventory, and

measures for reducing current and future emissions. The reduction measures pertain to County operations as well as community activities within the unincorporated areas of Placer County. The reduction measures address emissions from the building energy, land use and transportation, water consumption, and waste generation sectors. The Placer County Sustainability Plan is a comprehensive road map that outlines various programs and policies that will be undertaken to achieve the most significant GHG emission reductions in the unincorporated county. In addition to reducing emissions, implementation of the Placer County Sustainability Plan will help achieve multiple community-wide benefits, such as lowering energy costs, reducing air and water pollution, supporting local economic development, and improving public health, safety, and quality of life.

The Plan seeks to serve to achieve five primary purposes as follows:

1. Provide a road map to achieve GHG reductions.
2. Demonstrate the County's conformance to California laws and regulations.
3. Implement the General Plan.
4. Identify effective, feasible GHG emission reduction measures for new development subject to environmental review.
5. Improve resiliency to climate-related hazards.

While many community-wide GHG reduction plans prepared throughout the state allow for discretionary projects to tier from the environmental analysis prepared for a community-wide GHG emissions reduction plan, the Placer County Sustainability Plan does not serve this function. However, in support of providing consistency with the community-wide GHG reduction strategies and enhancing certainty and transparency of the project-level environmental review process for GHG emissions analysis, the Plan contains six GHG mitigation strategies that can be applied to discretionary projects, as feasible, when applicable project level CEQA GHG thresholds are exceeded.

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 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:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. 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 Senate Bill 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.

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, Public Resources Code 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. On October 13, 2016, the PCAPCD adopted the bright-line numeric threshold of 1,100 metric tons of CO_2e per year for operations of land use projects and 10,000 metric tons of CO_2e per year for construction. For the purpose of this evaluation, each of the Project Alternatives were compared to the PCAPCD construction-related bright-line numeric threshold of 10,000 metric tons of CO_2e annually. Additionally, Project Alternatives are compared for consistency with the Placer County Sustainability Plan.

Methods of Analysis

GHG-related impacts were assessed in accordance with methodologies recommended by the PCAPCD. Where GHG emission quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2 (California Air Pollution Control Officers Association [CAPCOA] 2017]. 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 Placer County coupled with Project specific information contained in Section 2.0, Project Description. Potential operational emissions associated with the Project is addressed qualitatively.

Project Impact Analysis

Impact 3.7-1 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.*

Alternatives 1, 2, and 3

Implementation of each of the Project Alternatives 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, loaders). Construction-generated emissions associated with each Project Alternative 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 3.7** for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis. Table 3.7-2 illustrates the specific construction generated GHG emissions that would result from construction of the Project.

Table 3.7-2 Construction-Related Greenhouse Gas Emissions

Emissions Source	CO_2e (Metric Tons/Year)
Alternative 1 (Riverbank Infiltration Gallery)[1]	
Construction in the Year 2022 (Temporary Coffer Dam Installation, Diversion Structure Removal & Infiltration Gallery Installation, temporary Coffer Dam Removal)	650
Alternative 2 (Fish Passage)[2]	
Construction in the Year 2022 (Phase 1 – Vegetation Clearing Phase 2 –Temporary Coffer Dam Installation, Diversion Structure Removal, and Fish Passage Installation Phase 3 – Diversion Ditch modification)	259
Alternative 3 (Pipeline)	
Construction in the Year 2022 (Temporary Coffer Dam Installation, Diversion Structure Removal and pipeline installation)	506
PCAPCD Potentially Significant Impact Threshold	*10,000*
Exceed PCAPCD Threshold?	**No**

Table 3.7-2 Construction-Related Greenhouse Gas Emissions	
Emissions Source	**CO_2e (Metric Tons/Year)**

Source: CalEEMod version 2016.3.2. Refer to **Appendix 3.7** for Model Data Outputs.
Notes:
[1] Alternative 1 emissions calculations account for the import of 3,300 cubic yards of gravel, export of 1,000 tons of demolished material, export of 9,000 cubic yards of excavated soil material, and import of 9,000 cubic yards of material with heavy duty haul trucks.
[2] Alternative 2 emissions calculations account for the export of 3,200 cubic yards of vegetative material; import of 8,500 tons of boulders, sand, gravel, and cobble; export of 1,000 tons of demolished material, and export of 9,000 cubic yards of excavated soil material with heavy duty haul trucks.
[3] Alternative 3 emissions calculations account for the import of 3,300 cubic yards of gravel, export of 1,000 tons of demolished material, export of 4,630 cubic yards of excavated asphalt and soil material and import of 1,930 cubic yards of aggregate with heavy duty haul trucks.

As shown in Table 3.7-2, none of the Project Alternatives would exceed the significance threshold of 10,000 metric tons of GHG emissions per year. Once Project implementation is complete, the generation of these GHG emissions would cease.

None of the Alternatives under the Proposed Project would 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. While Alternative 1 and Alternative 2 would increase electricity consumption for the purpose of operating the wet well pump for Alternative 1 and a brush system for Alternative 2 to facilitate automatic cleaning, the amount of increased electricity, indirect GHG emissions would be negligible. Once the proposed Project is implemented, there would be no increase in automobile trips to the area. Thus, there would be no operational impacts concerning GHG emissions.

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

Mitigation Measures

None required.

Impact 3.7-2 **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.*

Alternatives 1, 2, and 3

As explained previously, the Placer County Sustainability Plan is a comprehensive road map that outlines various programs and policies that will be undertaken to achieve the most significant GHG emission reductions in the unincorporated county. In support of providing consistency with the community-wide GHG reduction strategies and enhancing certainty and transparency of the project-level environmental review process for GHG emissions analysis, the Plan contains six GHG mitigation strategies that can be applied to discretionary projects, as feasible, when applicable project level CEQA GHG thresholds are exceeded. The Sustainability Plan includes a GHG inventory, and measures for reducing current and future

emissions. The reduction measures pertain to County operations as well as community activities within the unincorporated areas of Placer County. The reduction measures address emissions from the building energy, land use and transportation, water consumption, and waste generation sectors.

The City of Lincoln does not currently have an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. However, the City is located in the greater Sacramento region and is a member of the Sacramento Area Council of Governments (SACOG). SACOG's Metropolitan Transportation Plan/Sustainable Communities Strategy 2020 (MTP/SCS) is the latest update of a long-range policy and planning program that establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035, and thus establishes an overall GHG target for the region applicable to these subsectors of the transportation sector. SACOG was tasked by CARB to achieve a 9 percent per capita reduction compared to 2012 vehicle emissions by 2020, and a 16 percent per capita reduction by 2035, which CARB confirmed the region would achieve by implementing its MTP/SCS (CARB 2013).

The proposed Project is consistent with the GHG inventory and forecast in the County Sustainability Plan and the 2020 MTP/SCS. Both the existing and the projected GHG inventories in the Sustainability Plan were derived based on the land use designations and associated densities defined in the County's General Plan. The proposed Project does not include residential development or large local or regional employment centers, and thus would not result in significant population or employment growth. The proposed Project is consistent with the land use designation and is thereby consistent with the GHG inventory and forecasts in the Sustainability Plan. As a result, the proposed Project would not conflict with the Plan. There is ***no impact***.

Mitigation Measures

None required.

3.7.4 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 the City of Lincoln and Greater Placer County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to greenhouse gas emissions.

Cumulative Impacts and Mitigation Measures

Impact 3.7-3: Cumulative Greenhouse Gas Emissions Impacts

Threshold:	*Would Implementation of the proposed project, along with any foreseeable development in the project vicinity, could result in cumulative greenhouse gas emission impacts?*

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. 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 the Placer County Sustainability Plan. Furthermore and none of the Project Alternatives would exceed the PCAPCD significance thresholds for GHG emissions. Therefore, the Proposed Project would have a ***less than considerable contribution to cumulative impacts*** regarding GHG emissions.

Cumulative Mitigation Measures

None required.

3.7.5 References

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

3.8 HYDROLOGY AND WATER QUALITY

This section describes the effects of the construction and operation of each of the three Project alternatives on local and regional hydrology and water quality. The existing environmental and regulatory conditions specific to those issues are described and the potential impacts posed by each of the Project alternatives are addressed. An overview of the methods used herein to assess potential Project impact are provided, as are impact significance thresholds. The potential impact of each alternative 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 1.0-A1**). These impacts, all found to be less than significant, include substantial increases in the rate or amount of surface runoff causing on or off-site flooding; Project-caused increases in the amount of runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or the impedance or redirection of flood flows. Other issues addressed in the Initial Study, found to be less than significant, and not evaluated further in this section include the potential for inundation of the Project site due to flood hazard, tsunami, or seiche zones and subsequent release of pollutants.

The Initial Study identified a potentially significant impact on ground water quality and supplies associated with "Alternative 4" which was being considered as a viable Project option when the Initial Study was published. That alternative would permanently abandon the Hemphill Canal and replace current deliveries with alternate water sources including groundwater pumping. This alternative is no longer considered viable for reasons discussed in Section 5.0: Alternatives of this DEIR.

The impact of the Project on the loss of top soil due to erosion related to site preparation, diversion demolition and facilities construction activities is evaluated in Section 3.6 of this DEIR (Geology, Soils and Paleontological Resources). The evaluation presented below, focuses on changes in stream hydraulics due to removal of the diversion and installation of new facilities under Alternative 1,2, or 3 and the potential for increased bank erosion and the downstream transport of sediment that has accumulated in Auburn Ravine behind the diversion structure.

Information contained in this section is based in part on technical reports and assessments including: *Sediment Characterization Report for Hemphill Diversion Structure* (Holdrege & Kull 2017);l *Auburn Ravie-Hemphill Diversion Assessment Sediment Transport Study* (Balance Hydrologics 2020); *Fish Passage Alternatives Developed for Auburn Ravine's NID Gaging Site and Hemphill Dam Site* (Michael Love & Associates 2009); *Hemphill Diversion Structure Final Report On Field Study Investigations* (Kleinschmidt 2017) and *Hemphill Diversion Structure and Fish Passage Assessment – Final Report* (NHC 2020) . These reports are included in **Appendix 3.8** to this DEIR.

3.8.1 Environmental Setting

Climate

Hemphill Diversion lies within the Mediterranean subtropical climate zone that is typical of Central California. Winters are typically cool and wet. Summers are typically hot and dry. Annual rainfall in the region averages 24 inches and occurs primarily during late fall and on into the spring (November through April (City of Lincoln 2019).

Regional Hydrology

The Project is located in the greater Sacramento River hydrologic region. The Sacramento River hydrologic region covers approximately 17.4 million acres (27,200 square miles). The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Small areas of Alpine and Amador counties are also within the region. Geographically, the region extends south from the Modoc Plateau and Cascade Range at the Oregon border, to the Sacramento-San Joaquin Delta (Department of Water Resources [DWR] 2003).

The proposed project is on Auburn Ravine, tributary to the Sacramento River. Other local streams include Coon Creek, Markham Ravine, Pleasant Grove Creek, Curry Creek, Dry Creek, Cordova Creek (aka Clifton's Drain), and Arcade Creek. Most of the creeks enter the floodplain drainage systems of the Natomas Cross Canal and Natomas East Main Drainage Canal in southern Sutter and northern Sacramento Counties. The Natomas Cross Canal drains into the Sacramento River just south of the Feather River, and the Natomas East Main Drainage Canal drains into the Sacramento River just to the north of the American River (SRWP 2020).

Auburn Ravine Watershed

The Hemphill Diversion structure diverts water from Auburn Ravine. The headwaters of Auburn Ravine are located just north of the City of Auburn with a peak elevation of approximately 1,600 feet. Auburn Ravine emerges from the Sierra foothills as it flows west through the City of Lincoln to its confluence with the East Side Canal. The East Side Canal flows into the Cross Canal, which joins the Sacramento River immediately downstream from the confluence of the Feather and Sacramento rivers near Verona.

At its confluence with East Side Canal, Auburn Ravine drains approximately 79 square miles. The elevation of the basin ranges from 1,600 to 30 feet AMSL. The stream flows through the middle of Auburn, where it is channelized, contained in a highly restricted natural channel, and passes through a variety of culverts. The land adjacent to this portion of the watershed is highly urbanized. Immediately west of the City of Auburn, the character of the channel changes, adjacent land uses change, and water from various sources is added to the channel. From the western edge of the City of Auburn to west of Lozanos Road, the channel is high gradient, incised in a narrow canyon, and consists of a number of cascades and pool riffle complexes. The geology is a combination of basalt and granite bedrock. Adjacent land use is generally rural residential with minimal encroachment by development on the channel and floodplain. Just east of Gold Hill Road, the channel gradient decreases to approximately two percent and the channel becomes dominated by pools, runs, and riffles. Channel substrate is dominated by various-sized gravels and coarse

sediment. These habitats continue downstream into the City of Lincoln. Within Lincoln city limits, the channel transitions from a pool/riffle channel with numerous gravel and cobble bars to a sand-bottomed, low-gradient stream. The stream retains this channel type downstream to its confluence with the East Side Canal. In this reach, the channel varies from unconfined with full access to the floodplain to tightly constrained between immediately adjacent levees. (Placer County 2002)

The Auburn Ravine watershed is relatively small and very little of the stream flow during low flow periods is from natural runoff. Water has been imported into Auburn Ravine for over 150 years. Early settlers and miners developed canal systems to bring water into the watershed for a variety of uses. Currently, water is imported into the Auburn Ravine watershed from two primary sources: the Yuba/Bear River watershed and, to a lesser degree, the American River watershed. While winter stream flows are dominated by discharges from wastewater treatment facilities and runoff from rainfall events, summer flows are dominated by irrigation water deliveries to farms, golf courses, and ranches on the valley floor. This is a unique situation for small foothill streams where the normal situation is for stream flows to gradually decline over the spring, summer, and early fall until the first rainstorms occur.

Auburn Ravine has good summer flow conditions in the foothills and downstream to a point well west of Lincoln. The critical low flow period generally occurs in October when irrigation season ends and flows from imported sources cease or greatly diminish. Flows during this period (generally early October until winter rains are sufficient to generate additional natural stream flow) are often only a few cfs and this causes a substantial decrease in aquatic habitat in the low gradient portions of the Auburn Ravine watershed. In Auburn Ravine, this situation occurs from near Joiner Parkway in Lincoln, downstream to its confluence with the East Side Canal. With a flow of only 1-2 cfs, the wetted channel is much narrower than periods when water imports are high and often covered with only a few inches of water.

Given the natural hydrology of the Auburn Ravine watershed (i.e., natural water flows generated by fall/winter/spring rainfall events with summer/early fall flows historically very limited or zero) water management practices are the single most important factor influencing the water dependent resources that use the ravine. The use of Auburn Ravine to convey irrigation water to the western and southeastern side of Placer and Sutter counties, respectively, creates unique summertime habitats not found in other foothill locations. (Placer County 2002).

Project Site Hydrology and Hydraulics

As noted, the Auburn Ravine watershed has a Mediterranean climate with low-elevation rain dominated hydrology. Over 85% of precipitation occurs between November and April. Based on observations and historic streamflow records from other similar streams within the region, flows in Auburn Ravine respond rapidly to rainfall events, with the hydrograph both rising and falling abruptly. Historically, flows within Auburn Ravine would have been extremely low to nonexistent during the dry season (May through October). Flow augmentation has dramatically changed the flow characteristics of Auburn Ravine during the dry season. Auburn Ravine currently serves as a conveyance channel for irrigation water obtained from an inter-basin transfer. The augmented flow is delivered to Auburn Ravine at the Wise Power House, operated by Pacific Gas and Electric and located approximately one mile west of Auburn. Referred to as the "irrigation season", flow augmentation generally begins between April 15th and May 1st, and ends by

October 14th. NID measures flow during the irrigation season at the NID Gaging Station. They provided the design team with daily flow records for the irrigation season for 1974 to 2007. Mean monthly flows range from 37 cfs in September to 116 cfs in July. Mean monthly flow in Auburn Ravine at the NID Gaging Station during periods of flow augmentation are 89 cfs in May, 80 cfs in June, 116 cfs in July, 93 cfs in August, and 37 cfs in September. (Michael Love & Associates 2009). These flow records, however, include deliveries to South Sutter Water District which were discontinued in 2013.

As described in Section 2.0, The critical low-flow period generally occurs in October, when irrigation season ends and flows from imported sources greatly diminish or cease. Flows during this period (generally early October, until winter rains are sufficient to generate additional natural stream flow) are often only a few cfs, which causes a substantial decrease in aquatic habitat in the low-gradient portions of the Auburn Ravine watershed. In Auburn Ravine, this situation occurs from near Joiner Parkway in Lincoln, downstream to its confluence with the East Side Canal. With a flow of only 1 to 2 cfs, the wetted channel is much narrower than normal and often covered with only a few inches of water (Placer County 2002)

Given the natural hydrology of the Auburn Ravine watershed (i.e., natural water flows generated by fall/winter/spring rainfall events with summer/early fall flows historically very limited or zero) water management practices are the single most important factor influencing the water dependent resources that use the Ravine. The use of Auburn Ravine to convey irrigation water to the western and southeastern side of Placer and Sutter counties, respectively, creates unique summertime habitats not found in other foothill locations. (Placer County 2002).

Upstream of the dam is a broad active floodplain along the north side of the channel and a smaller floodplain along the south bank. The channel becomes more incised downstream of the dam and it is uncertain if high flows can access the flood plain. Overbank flows upstream of the dam in 2005/2006 return to the channel along the right (north) bank, causing extensive bank erosion. As a result, NID armored approximately 50 feet of the right bank downstream of the dam with riprap. (Michael Love & Associates 2009).

Hemphill Diversion Site: Dam Stability and Geomorphology

Valley-fill sediment overlies the granitic bedrock at the diversion dam location, and consist of moderately well-graded silt, sand and gravel floodplain and alluvial deposits. Auburn Ravine primarily flows within these deposits, migrating laterally over time. As flow regimes and bed elevation controls have changed, the stream appears to have incised into these deposits, eroding older floodplain deposits and forming an inset floodplain downstream of the diversion dam, as well as bar deposits within the active channel belt. Immediately upstream of the diversion, the channel is migrating to the right (looking downstream), and multiple inset floodplains have developed downstream of the diversion (Balance Hydrologics 2020).

The channel thalweg elevation was measured by NID in March 2020. Based on this survey, average channel slope is approximately 0.2 percent upstream of the dam and 0.4 percent downstream of the diversion dam. Upstream of the diversion dam, the channel slope is likely directly influenced by the dam, which serves to control the bed elevation and gradient. Immediately downstream of the diversion dam, the channel bed is coarser, with a more consistent armor layer of cobbles and boulders and less sand on the bed surface (Holdrege & Kull, 2017).

The current condition of the Hemphill Diversion structure and the geomorphology (physical features) of the stream channel up- and downstream of the structure is described in the Hemphill Diversion Structure and Fish Passage Assessment – Final Report (NHC 2021). This report is included in **Appendix 3.8-E** of this DEIR. As stated in the report, it is evident that the existing dam's foundation has become significantly compromised due to three major flood events as well as ongoing erosion processes. Only the sill of the diversion structure is composed of structural concrete, and that concrete is relatively thin and sitting on a foundation of unreinforced concrete grout with likely voids. Much of the downstream apron is composed of grouted riprap which has been undercut by downstream erosion and damage caused by the 1997, 2006 and 2017 floods. Downstream channel incision has gradually increased the height of the dam as the downstream channel has deepened. As the height of the dam increases, the depth of local scour downstream caused by flow plunging over the dam also increases. Under existing conditions, the dam crest is 10.1 feet above the invert (lowest part of the streambed) immediately downstream of the dam. The channel invert rises about 4.2 feet from the low point of the scour hole to the downstream channel. The hydraulic drop over the dam is approximately 6 feet.

The Hemphill Diversion is acting as a channel bed grade control structure holding the Auburn Ravine channel bed artificially high for perhaps hundreds of feet of channel upstream of the dam. The bed and bank materials at the diversion and upstream and downstream consist of mostly silty sand mining spoils from historic placer gold dredger mining from the mid-1800s to early 1900s. These spoils are highly erodible, fine grained materials with little to no clay content to bind soil particles. The spoils erode rapidly as evidenced by the eroding banks in the Hemphill Diversion Dam impoundment area and other areas upstream and downstream. The erosion around and under the Hemphill Diversion Dam in 1997, 2006, and 2017, as well as the extensive and repeated repair and installation of rip rap and concrete armoring is further evidence of the high erodibility of bed, bank, and overbank materials and their susceptibility to erosion during frequent flood events occurring every ten years (or less) on average.

The channel at and upstream of Hemphill Diversion Structure is unstable as a result of an ongoing, decade-long response of the stream channel to historical modifications near the Hemphill Diversion Dam site and in the Auburn Ravine watershed. These cumulative direct and indirect changes are associated with mining, land reclamation / agricultural practices and urbanization. Auburn Ravine was likely placed in a straight ditch after placer mining in order to accommodate property lines, irrigation, and drainage works for agricultural uses. The straight channel became somewhat naturalized with dense bank vegetation and fairly abundant water during the growing season. Auburn Ravine just upstream of Hemphill Diversion Dam was reportedly a narrow, straight, well vegetated and stable channel until disturbed by the record 1997 flood and its substantial hydraulic forces and sediment loads. The channel is adjusting to a more stable morphology along many reaches as evidenced by actively growing bars, bank erosion and the beginning of channel meandering at many locations upstream and downstream of Hemphill Diversion. (NHC 2021)

Surface Water Quality

Water bodies downstream of Hemphill Diversion, e.g., the Natomas Cross Canal and the Sacramento River, are designated as "impaired" under Section 303(d) of the federal Clean Water Act (CWA). Being impaired (also known as "water quality-limited") means that a water body is "not reasonably expected to

attain or maintain water quality standards" without additional regulation. The law requires that the U.S. Environmental Protection Agency (EPA) develop total maximum daily loads (TMDLs) for each impaired water body in the nation. The TMDLs specify the maximum amount of a pollutant a water body can receive and still meet water quality standards. The most recently approved Section 303(d) List of Water Quality Limited Segments lists a mercury impairment for the Natomas Cross Canal and a number of impairments for the Sacramento River. None of the water bodies listed as impaired under CWA Section 303(d) occur near or upstream of Hemphill Diversion. (City of Lincoln, 2019)

Surface water quality is influenced by a variety of factors including the physical and chemical characteristics of the watershed, hydrologic and climatic factors, and the quality of inputs of waters and wastes that discharge to the surface water. During fall low-flow conditions to Auburn Ravine, water quality conditions of high importance to aquatic organisms include water temperature, dissolved oxygen, and turbidity. Water quality conditions of concern for human activities (e.g., recreational water-contact activities, etc.) or other beneficial uses (e.g., water supply, etc.) are levels of drinking water pollutants, toxic constituents, pathogenic organisms, odors, and nuisance algae forming conditions. (City of Lincoln, 2019)

The quality of water in Auburn Ravine and other local streams is generally good. Previous studies have confirmed that the temperature and dissolved oxygen support a cold-water fishery in Auburn Ravine (City of Lincoln 2008). However, dissolved oxygen values demonstrated a decline along the lower reaches of Auburn Ravine below the developed portions of the city of Lincoln. Additionally, turbidity and coliform bacteria factors increased as water flowed through urban areas. These changes may likely reflect the influences of urban runoff, agricultural activities, septic tanks, and other factors. (City of Lincoln 2019).

Groundwater

The Project site is not located in the defined boundaries of a groundwater basin; rather, the site borders the Sacramento Valley Groundwater Basin and the North American Subbasin, which is directly to the west. The North American Subbasin has a surface area of 351,000 acres (548 square miles). According to the 2003 California Groundwater Bulletin 118 Update, groundwater levels in southwestern Placer County and northern Sacramento County have generally decreased, with many wells experiencing declines at a rate of about 1.5 feet per year for the last 40 years or more. Some of the largest decreases have occurred in the area of the former McClellan Air Force Base. Groundwater levels in Sutter and northern Placer counties generally have remained stable, although some wells in southern Sutter County have experienced declines (DWR 2003). Since this publication, groundwater levels continue to decrease in the valley areas east of Lincoln from spring 2007 to spring 2017 from 10-30 feet, depending on location (DWR 2020). However, in the immediate vicinity of the Project, DWR indicates an average increase of 10 feet in ground surface to groundwater surface between 2012 and 2017 (DWR 2020).

The Lincoln Groundwater Management Plan (City of Lincoln 2003) estimates the North American Subbasin total groundwater in storage to be 4.9 million acre-feet (AF). The 2003 Bulletin 118 estimated inflows include natural recharge at 83,800 AF and applied water recharge at 29,800 AF. There was no artificial recharge. Estimated outflows include urban extraction at 109,900 AF and agricultural extraction at 289,100 AF (DWR 2003). The Sustainable Groundwater Management Act (SGMA) directs DWR to identify groundwater basins and sub basins in conditions of critical overdraft. As defined in the SGMA, "A basin is

subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." The North American Groundwater Subbasin is not listed as a critically overdrafted basin (DWR 2018). DWR is currently working on an update to the Bulletin 118 groundwater report. However, more up-to-date information of the North American Subbasin is unavailable.

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.

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.

Executive Order 11988 (Flood Plain Management)

EO 11988 (Flood Plain Management) links the need to protect lives and property with the need to restore and preserve natural and beneficial flood plain values. Specifically, federal agencies are directed to avoid conducting, allowing, or supporting actions on the base flood plain unless the agency finds that the base flood plain is the only practicable alternative location.

Floodplain Development

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on USACE studies and approved agency studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps, which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas (SFHAs), including the 100-year flood zone. FEMA allows nonresidential development in SFHAs; however, construction activities are restricted depending upon the potential for flooding within each area. Federal regulations governing development in a SFHA are set forth in Title 44, Part 60 of the CFR, which enables FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard education standards for construction and development in 100-year flood plains.

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 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. The San Joaquin River is within the jurisdiction of the Central Valley RWQCB.

Water Quality Control Plan for the Sacramento River and San Joaquin River Basins

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan) (RWQCB 2018) defines the beneficial uses, water quality objectives, implementation programs, and surveillance and monitoring programs for waters of the Sacramento River and San Joaquin River 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.

State Water Resources Control Board Resolution No. 68-16: Statement of Policy with Respect to Maintaining High Quality Waters in California

The goal of SWRCB Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining High Quality Waters in California") is to maintain high quality waters where they exist in the state. Resolution No. 68-16 states, in part:

1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to

the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

2. Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

The SWRCB has interpreted Resolution No. 68-16 to incorporate and be consistent with the federal antidegradation policy (RWQCB 2018).

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—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 best management practices (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 SWPPP, and a signed certification statement by the legally responsible person to the SWRCB prior to construction.

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.

General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (CVRWQCB Order R5-2013-0074, as amended).

The Central Valley Regional Water Quality Control Board (CVRWQCB) has adopted a General Order for short-term discharges of small volumes of wastewater from certain construction-related activities. Discharges may be covered provided they are either (1) 4 months or less in duration or (2) the average dry weather discharge does not exceed 0.25 mgd. Construction dewatering and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the order. To receive coverage, the discharger must submit a Notice of Intent to the RWQCB and describe the activity with sufficient detail to demonstrate that discharge would comply with the discharge prohibitions,

effluent limitations, and receiving water limitations outlined in the order. In no case shall the discharge impair beneficial uses or violate water quality standards or cause a possible nuisance condition. As part of obtaining the Notice of Intent, dischargers must sample and analyze the discharge for specific priority pollutants, and dewatering discharge concentrations must meet the Screening Levels in the General Order for the discharge to be covered under the order.

Central Valley Flood Protection Board

Any project encroaching into rivers, waterways, and floodways within and adjacent to federal- and state-authorized flood control projects or within designated floodways must receive approval from the Central Valley Flood Protection Board (CVFPB). Under Water Code §§ 8534, 8608, and 8710–8723, the CVFPB is required to enforce, within its jurisdiction, on behalf of the State of California, appropriate standards for the construction, maintenance, and protection of adopted flood control plans that will best protect the public from floods. The area of CVFPB jurisdiction includes the entire Central Valley, including all tributaries and distributaries of the Sacramento and San Joaquin rivers and Tulare and Buena Vista basins.

California Sustainable Groundwater Act

The Sustainable Groundwater Management Act (SGMA) is a package of three bills (AB 1739, Senate Bill (SB) 1168, and SB 1319) that provides local agencies with a framework for managing groundwater basins in a sustainable manner. The SGMA establishes minimum standards for sustainable groundwater management, roles and responsibilities for local agencies that manage groundwater resources, as well as priorities and timelines to achieve sustainable groundwater management within 20 years of adoption of a Groundwater Sustainability Plan.

Local

County of Placer

The Placer County General Plan Public Facilities and Services Element (2013) contains the following goals and policies pertaining to erosion:

Goal 4.E: *To manage rainwater and stormwater at the source in a sustainable manner that least inconveniences the public, reduces potential water-related damage, augments water supply, mitigates storm water pollution, and enhances the environment.*

Policies:

4.E.5. The County shall continue to implement and enforce its Grading, Erosion and Sediment Control Ordinance and Flood Damage Prevention Ordinance.

Goal 4.F: *To protect the lives and property of the citizens of Placer County from hazards associated with development in floodplains and manage floodplains for their natural resource values.*

Policies:

4.F.10 The County shall preserve or enhance the aesthetic qualities of natural drainage courses in their natural or improved state compatible with flood control requirements and economic, environmental, and ecological factors.

The Placer County General Plan Natural Resources Element (2013) contains the following goals and policies pertaining to streams and ground water:

Goal 6.A: To protect and enhance the natural qualities of Placer County's rivers, streams, creeks and groundwater.

Policies:

6.A.2 The County shall require all development in the 100-year floodplain to comply with the provisions of the Placer County Flood Damage Prevention Ordinance.

6.A.3 The County shall require development projects proposing to encroach into a stream zone or stream setback to do one or more of the following, in descending order of desirability: a. Avoid the disturbance of riparian vegetation; b. Replace all functions of the existing riparian vegetation (on-site, in-kind); c. Restore another section of stream (in-kind); and/or d. Pay a mitigation fee for in-kind restoration elsewhere (e.g., mitigation banks).

6.A.10 The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

City of Lincoln

The Open Space & Conservation Element of the City of Lincoln General Plan provides objectives, policies, and programs regarding water resources, including the following applicable to proposed development:

Goal OSC-4: Water Resources. To preserve and enhance local streams, creeks, and aquifers.

Policies:

OSC-4.3. Protect Surface Water and Groundwater. The City shall ensure that new development projects do not degrade surface water and groundwater.

OSC-4.4. Protection and Management of Flood Plains. The City shall encourage the protection of 100 year floodplains and where appropriate, obtain public easements for purposes of flood protection, public safety, wildlife preservation, groundwater recharge, access and recreation.

OSC-4. Best Management Practices. The City shall continue to require the use of feasible and practical best management practices (BMPs) to protect surface water and groundwater from the adverse effects of construction activities and urban runoff. Additionally, The City shall require, as part of its Storm Water NPDES Permit and ordinances, to implement the Pollution Prevention Plan (SWPPP) during construction activities for any improvement projects, new development and redevelopment projects for reducing pollutants to the maximum extent practicable.

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;
- 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;
- Otherwise substantially degrade water quality; or
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Methods of Analysis

Overview and Assumptions

The potential effects Project alternatives construction activities on Auburn Ravine hydrology, water quality and flooding are addressed below. Long-term operation of each of the Project alternatives may also affect existing hydrologic and water quality conditions of the stream both upstream and downstream of the Hemphill Diversion site. The determination of the magnitude and significance of these effects takes into account the historical and ongoing operation of existing diversion that would be removed under each of three Project alternatives. Future increases in water diverted to Hemphill Canal are also considered, however, these increases are assumed to be identical for each of the three Project alternatives. Presumably, these increases would also occur if none of the Project alternatives are implemented and the existing diversion remains in place and operational.

The assessment of potential Project impacts on hydrology and water quality is based on information contained in various reports including but not limited to *Sediment Characterization Report for Hemphill Diversion Structure* (Holdrege & Kull 2017); *Auburn Ravine-Hemphill Diversion Assessment Sediment Transport Study* (Balance Hydrologics 2020); *Fish Passage Alternatives Developed for Auburn Ravine's NID Gaging Site and Hemphill Dam Site* (Michael Love & Associates 2009); *Hemphill Diversion Structure Final*

Report On Field Study Investigations (Kleinschmidt 2017) and *Hemphill Diversion Structure and Fish Passage Assessment – Final Report* (Northwest Hydraulic Consultants [NHC] 2021). As noted, these reports are included as **Appendix 3.8** to this DEIR.

NID has a pre-1914 water right (S013791) with a point of diversion at Auburn Ravine #1 Canal. In addition to the SO13791 pre-1914 right, other water rights associated with NID's Yuba-Bear system list Auburn Ravine as a point of re-diversion of the water developed from that project. Based on this, it is assumed that the implementation of any of the proposed Project alternatives could proceed without modifying NID's water right or the rights of any other diverters located on Auburn Ravine between the Gold Hill and Hemphill diversions. However, NID also has pre- and post-1914 rights for the Hemphill Canal (S013790 and A006529). A change petition for the point of diversion may be needed to avoid abandoning these rights if Alternative 3 is selected.

Construction-Related Impacts

As detailed in Section 2.0 of this DEIR, the three alternatives selected for review in this DEIR are:

> *Alternative 1 - Riverbank Infiltration Gallery Alternative*: Includes the removal of the diversion structure, site stabilization, and construction of a subterranean riverbank infiltration structure and pipeline connection to Hemphill Canal.
>
> *Alternative 2 - Fish Passage Alternative:* Includes the removal of the diversion structure, site stabilization, construction of a nature-like roughened rock ramp instream fish passage, installation of a fish screen and improvements to a portion of the Hemphill Canal.
>
> *Alternative 3 - Pipeline Alternative:* Includes the removal of the diversion structure, site stabilization, and installation of a pipeline within roadway right-of-way (ROW) from the NID Placer Yard facility to the Hemphill Canal just downstream of the existing diversion structure.

Each alternative is designed to allow for anadromous fish migration beyond the Hemphill Diversion Structure site. While varied in their approaches to enhancing fish passage at the Hemphill Diversion site, each Project alternative would require removal of the existing diversion structure.

Diversion Removal

Removal of the diversion is described in Section 2.0 and would entail site and staging area preparation, the installation of temporary erosion control measures in advance of the start of in-water work. In-water work would begin on or after June 1st. At that time, a coffer dam would be installed approximately 300 feet upstream of the diversion to divert water around the diversion site. This location was chosen to also facilitate the installation of permanent erosion control improvements along the ravine upstream of the diversion that are proposed for each of the Project alternatives. The demolition/construction site would be dewatered to facilitate demolition and removal of the diversion structure. Streamflow would be diverted around the site and discharged back to the ravine downstream of the site. At the end of the demolition and construction of any new in-stream facilities (i.e., fish passage, infiltration gallery), the contractor would remove temporary facilities from the site access and staging areas and install permanent erosion control best management practices (BMPs).

The Hemphill Diversion Structure provides grade control for surface water elevation upstream of the structure. This moderates streamflow over the structure and allows some deposition of sediments immediately upstream of the diversion. The removal of the structure eliminates that grade control, resulting in increased stream velocities immediately upstream of the diversion site, erosion and transport of sediment from deposits above the diversion, lowering of the thalweg (streambed), and the potential for increased bank erosion upstream of the diversion. Implementation of Alternative 2 would reestablish grade control at the diversion site to an elevation approximately two feet lower than the existing concrete portion of the diversion without flashboards in place. As such, the upstream effects on sediment transport and erosion would be somewhat mitigated. Implementation of Alternatives 1 and 3, would reestablish no grade control at the diversion site, so the potential erosion impacts would be greater than that for Alternative 2.

Facilities Construction

Construction of any of the three Project alternatives including the demolition and removal of the existing Hemphill Diversion 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 Auburn Ravine is anticipated to occur from June 15 through October 15. During construction, the construction area would be hydraulically isolated from the stream channel by a cofferdam installed approximately 300 feet upstream of the diversion. Construction staging and work upland of the river channel may begin earlier. Based on the proposed construction window, construction activities are not expected to adversely affect flooding conditions on Auburn Ravine.

The potential 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 potential water quality effects considers all beneficial uses of Auburn Ravine as identified in the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan;* Central Valley Regional Water Quality Control Board [RWQCB] 2018). 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, are generally anticipated to be less sensitive to these types of short-term water quality disturbances.

Operation and Maintenance-Related Water Quality Impacts

Under Alternative 2, Fish Passage Alternative, diversions to Hemphill Canal would pass through a perforated flat fish screen. This screen would require automatic brushing to clean the screen and prevent accumulation of debris. Potential operation and maintenance-related water quality effects are assessed qualitatively considering the type and duration of the operation and maintenance activities for each of the Project alternatives, and identification of which water quality constituents of concern could be released to the environment. Hydrology-related impacts consider the degree to which stream channel configurations would be modified and the effect of those modifications on runoff, erosion, and channelization of Auburn Ravine streamflow.

Project Impact Analysis

Impact 3.8-1 The proposed Project could adversely affect water quality during construction by increasing the concentration of pollutants in surface runoff from the Project site. Impact Determination: *less than significant*.

Threshold:	*Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality; or* *Otherwise degrade water quality.*

Diversion Structure Demolition and Removal: Alternatives 1, 2, and 3

Initial site preparation and grading of the staging area and access point for demolition and removal of the diversion structure under Alternatives 1, 2, and 3 would result in ground disturbance and could create a potential for ground instability and soil erosion. This would also occur with activities associated with the placement and removal of the coffer dam upstream of the diversion site and bypass pipelines. Ground disturbance caused by activities associated with the demolition and removal of the diversion structure also create the potential for ground instability and accelerated erosion during storm events.

The demolition site would be dewatered to maintain dry conditions during dam demolition and the subsequent construction of facilities associated with the selected Project alternative. Water pumped from the Project site would be discharged in a suitable upland area. Potential water quality impacts of this discharge are addressed in Section 3.5 of this DEIR (Soils, Geology and Paleontological Resources).

A predominate instigator of erosion on construction sites are storm events and the resulting stormwater runoff. All projects in California over one acre in size, which would include all of the various Alternatives proposed for the Project, 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. SWPPPs generally include the following BMPs:

- Diversion of offsite runoff away from the construction area;
- Prompt revegetation of proposed landscaped areas;
- Perimeter straw wattles or silt fences and/or temporary basins to trap sediment before it leaves the site;
- Regular sprinkling of exposed soils to control dust during construction during the dry season;
- Specifications for construction waste handling and disposal;
- Erosion control measures maintained throughout the construction period;
- Preparation of stabilized construction entrances to avoid trucks from imprinting debris on public roadways;
- Contained wash out and vehicle maintenance areas;
- Training of subcontractors on general construction area housekeeping;
- Construction scheduling to minimize soil disturbance during the wet weather season; and
- Regular inspections and maintenance BMPs and storm event monitoring.

These BMPs would be refined and/or supplemented, by a qualified SWPPP after the preferred Project alternative is selected by NID and final Project design is complete to meet the performance standards listed in the Construction General Permit. To obtain coverage under the Construction General Permit, the project applicant or its construction contractor must submit to the SWRCB a Notice of Intent and associated permit registration documents including a SWPPP and site plan and must obtain a Waste Discharge Identification Number.

Preparation of, and compliance with a required SWPPP would effectively prevent onsite erosion associated with diversion structure demolition activities including access road and staging area preparation, construction equipment and materials storage; and activities to be carried out adjacent to the stream channel. This effect would be further mitigated by elements of the Project described in Section 3.0 of this DEIR designed to restore the areas adjacent to the diversion to pre-project conditions. The staging area(s) and access points on the south and north riverbanks would be returned to natural grade and vegetated armoring would be incorporated into the restored riverbank. The staging areas would be revegetated.

As detailed in Section 2.0, diversion structure removal activities that would occur within the banks of Auburn Ravine include coffer dam installation approximately 300 feet upstream of Hemphill Diversion; installation of two bypass pipelines (one to Hemphill Canal and the other to Auburn Ravine downstream of the diversion); diversion site fish rescue and dewatering; and dam demolition and removal; and in-channel site restoration. Diversion demolition and removal would involve the transport, storage, and use of hazardous materials such as gasoline, diesel fuel, and various other materials needed to carry out the proposed demolition. As discussed in Section 3.1 of this DEIR, the potential hazard to the public or the environment through the transport, use, or disposal of hazardous materials associated with the Project

alternatives would be avoided through compliance with mandatory regulations as 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.

The BMPs required for coverage under the Construction General Permit would require measures to prevent construction-related contaminants from reaching impaired surface waters and contributing to water quality impacts within Auburn Ravine and/or the Sacramento River and downstream receiving waters. Compliance with the Construction General Permit and City ordinances 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. For these reasons, water quality impacts resulting from activities associated with the demolition and removal of Hemphill Diversion under Alternatives 1, 2, and 3 and ground disturbances associated with those activities would be ***less than significant***.

Post-Demolition Water Quality Effects of Hemphill Diversion Removal: Alternatives 1, 2, and 3

The removal of Hemphill Diversion and the temporary cofferdam would have no long-term significant impacts on water quality within Auburn Ravine related to equipment and materials used during demolition and removal. As described above, however, the removal of the diversion will likely result in the accelerated erosion and transport of sediment deposited upstream of the diversion, and enhanced bank erosion in areas immediately upstream of the diversion by eliminating the grade-control features provided by the diversion. This effect is evaluated in the *Auburn Ravine-Hemphill Diversion Assessment Sediment Transport Study* (Balance Hydrologics 2020). The effect of dam removal on sediment transport and bank erosion are addressed below under Impact 3.8-2.

The increase in sediment transport caused by the removal of the diversion structure could have adverse effects on downstream receiving water in the event that transported sediments contain elevated levels of contaminants. Based on the assessment of sediment constituents presented in the *Sediment Characterization Report for Hemphill Diversion Structure* (Holdrege & Kull 2017) (see **Appendix 3.8A** of this DEIR), this would not be the case. The 2017 report found the chemical characterization of the sediment did not detect organic or inorganic constituent concentrations that were notably elevated with respect to background conditions. Additionally, the physical characterization of the sediment indicates that the sediment is predominantly coarse-grained (sand and gravel), with only 1.6% on average passing the No. 200 sieve. The report found that sediment management practices associated with the impoundment are not likely to have a significant impact on water quality given the chemical and physical characterization described in the report. Based on these findings, the impact on water quality due to increased transport of sediment from behind the impoundment is considered ***less than significant***.

Infiltration Gallery Installation: Alternative 1

In addition to the removal of the Hemphill Diversion structure, Alternative 1 would construct an infiltration gallery downstream of the existing diversion structure along the south bank and would extend approximately 25 feet within the existing creek bed and channel. Work would include excavation to weathered granitic rock, which is approximately 15 feet below the creek surface, installation of the infiltration gallery, placement of compacted engineered rock fill, placement of riprap along the bank, and

installation of a wet well pump station. As described in Section 2.0, earth work limits would be approximately 100 feet long by 90 feet wide by up to 27 feet below the ground surface. Once the infiltration gallery is installed, the excavated area will be backfilled with compacted engineered permeable crushed rock and compacted general fill material. The backfill will be re-enforced with heavy riprap. Although final project design details for the infiltration gallery have yet to be developed, we assume that, upon completion, the structure would conform to the up- and downstream morphology of the stream channel and would not, therefore, present a substantial impediment to fish passage or a constriction of streamflow at the diversion site.

In its comment letter in response to the NOP, the National Marine Fisheries Service (NMFS) identified several concerns regarding potential limitations concerning the siting, final design and operation of the infiltration gallery alternative. These concerns include but are not limited to the gallery's effect on spawning near the gallery, potential effects of backwashing on juvenile salmon downstream of the gallery, the effect on fish of future repairs in the event of gallery failure, and whether the gallery could operate as planned given its proposed location. As described in Section 2.0 of this DEIR, if Alternative 1 is selected as the proposed Project, final design of the infiltration gallery would incorporate a design report addressing each of the limitations identified by NMFS and include an Operation and Management Plan demonstrating the backwashing capability of the system to avoid clogging under a variety of stream conditions and the full range of anticipated diversion rates. The plan will include a description of the procedures for periodic inspection and maintenance required to achieve fish screening effectiveness over the life of the Project.

Initial site preparation and grading of the staging area for constructing the infiltration gallery would result in ground disturbance and could create a potential for ground instability and soil erosion. This would also occur with activities associated with the placement of the coffer dam upstream of the gallery construction site and installation of the gallery itself. These activities could create the potential for ground instability and accelerated erosion during storm events. As shown in Table 3.5-1, the soils at the gallery site have a "slight" erosion potential.

As with the diversion structure removal described above, construction activities for Alternative 1 would implement BMPs required for coverage under the Construction General Permit would require measures to prevent construction-related contaminants from reaching impaired surface waters and contributing to water quality impacts within Auburn Ravine and/or the Sacramento River and downstream receiving waters. Compliance with the Construction General Permit 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 return of collected debris to the stream from the screen during these cleanings would not substantially adversely affect water quality in the stream.

For these reasons, the impact of facilities construction under Alternative 1 on water quality would be ***less than significant***.

Fish Passage Construction: Alternative 2

As described in Section 2.0, Alternative 2 would remove the existing diversion structure and construct a nature-like roughened rock ramp within the stream channel at the location of the current diversion. A flat

plate fish screen would be installed within the Hemphill Canal. Areas outside of the stream channel affected by Alternative 2 construction activities would occur within the same 14.9-acre Project Study Area described in Section 2.0 and would use the same construction/improvement, access routes, and laydown/staging area for construction of the access ramp as Alternative 1. In addition to the construction of the fish passage, a fish screen would be installed near the Hemphill Canal inlet designed to prevent fish from entering the canal.

To provide year-round fish passage, the crest of the rock ramp will not require flashboards during irrigation season. Because of this, the entrance of the Hemphill diversion canal will need to be lowered by up to five feet. As such, an approximately 3,600-foot section of the diversion canal will need to be regraded, starting at the intake, which may affect certain structures within the canal (i.e., gaging station and culverts). Additionally, a portion of the canal may be piped with smooth-walled HDPE pipe or lined with smooth concrete to further improve hydraulic efficiency (NHC 2021). Additionally, to prevent water in the canal during non-irrigation season, a gate assembly will be installed near the intake. These canal modifications would not be required for Alternatives 1 or 3.

Canal modifications for Alternative 2 would require the use of an existing access route adjacent to the canal and through the golf course. As described in Section 2.0, once the diversion season ends (approximately October 15), a sheet-pile cofferdam would be installed around the diversion inlet and the canal would be dewatered. The contractor would excavate the canal using an excavator and off-haul material to an approved stockpile location. The contractor would install new headgates, fish screens, flow gaging station, and culverts (if needed) once the canal was regraded. Some or all of the regraded canal may be lined with concrete or piped if recommended during final design. Upon completion of the modifications, the sheet-pile cofferdam would be removed and the contractor would remove all temporary facilities and restore the access route. The sheet-pile cofferdam can be removed from outside the Ravine. Work would require about two months to complete and would be completed during the non-irrigation season.

Compliance with the Construction General Permit 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. For these reasons, the impact of facilities construction under Alternative 2 on water quality would be ***less than significant***.

Pipeline Installation: Alternative 3

As described in Section 2.0, Alternative 3 would construct an approximately 4.5-mile 24-inch pipeline from the Placer Yard facility Gold Hill Road extending along Fruitvale Road, Fowler Road, Virginiatown Road, and the access road to the Hemphill Canal. The pipeline alignment includes an above-channel pipeline crossing of Auburn Ravine and cross-country connection to Hemphill Canal. Pipeline construction would require the development and use of a number of potential staging areas. Work is anticipated to occur within the Placer County ROW along Fruitvale, Fowler, and Virginiatown roads. Trenching will be approximately 3.5 to 4 feet wide. Exported soil and asphalt removal and would be limited to the top layer of the trench, estimated to be approximately 4,630 cy. Imported material would be limited to trench restoration and is estimated to be approximately 1,930 cy of aggregate base.

Construction activities for Alternative 3 would implement BMPs required for coverage under the Construction General Permit would require measures to prevent construction-related contaminants from reaching impaired surface waters and contributing to water quality impacts within Auburn Ravine and/or the Sacramento River and downstream receiving waters. Compliance with the Construction General Permit 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. For these reasons, the impact of facilities construction under Alternative 3 on water quality would be ***less than significant***.

Mitigation Measures

Implementation of BMPs and mandatory compliance with all conditions of the SWPPP and Construction General Permit are adequate for all alternatives to meet applicable water quality standards or waste discharge requirements and any substantial degradation of water quality. Thus, additional mitigation measures are not proposed.

Impact 3.8-2 The Project would alter flow conditions in Auburn Ravine by removing Hemphill Diversion and constructing new diversion facilities to service Hemphill Canal which could result in increased erosion and or siltation within the ravine. Impact determination: *less than significant with mitigation incorporated*.

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.*

Alternatives 1 and 3

As described above, the Hemphill Diversion structure would be removed under each of the three alternatives being considered in this DEIR. The structure provides grade control for surface water elevation upstream of the structure. This moderates streamflow over the structure and allows some deposition of sediments immediately upstream of the diversion. Under Alternative 1 and 3, the removal of the structure would eliminate that grade control and no new grade control structure would be installed, resulting in accelerated stream velocities immediately upstream of the diversion site allowing for increased sediment transport from deposits above the diversion, lowering of the thalweg (streambed) and the potential for channel widening and increased bank erosion upstream of the diversion.

Balance Hydrologic (2020) completed a sediment transport analysis of existing channel conditions and multiple dam removal scenarios during 2-year, 10-year, and 25-year events. The model results showed full removal of the Hemphill Dam will likely result in channel incision upstream of the dam and in-channel deposition downstream of the dam. Analysis results suggest channel incision may be up to 5-8 feet in the 500 to 1,000 feet or so upstream of the dam, and less than three feet further upstream. Incision of less than three feet appear consistent with typical channel fluctuations in existing conditions and are unlikely to cause significant bank or channel erosion. In the 1,000 feet upstream of the dam, the channel incision may induce bank instability and erosion over a multi-year period as the channel adjusts.

Full removal of the dam without reestablishing grade control at the diversion site (Alternatives 1 and 3) would likely require features to be designed to limit impacts to channel stability. The channel incision would likely lead to bank erosion and channel over-widening, prior to the formation of a generally more stable channel. The channel corridor likely has adequate width of natural floodplain to adjust to the over-widening and limit bank erosion, with the exception of the north bank in the 500-1,000 feet upstream of the existing dam. This bank appears steep and on the outside of an existing bend with little existing vegetation to resist bank undercutting and slumping. This location would likely require additional stabilization. Stabilization measures could include incorporation or flow deflection structures such as log groynes or engineered log jams, key in rock bank protection, or regrading/planting the bank lines and channel at the time of dam removal. The selection and final design of the erosion countermeasures would be defined in further levels of design. The grouted riprap along the right bank just upstream of the dam would also need to be removed and replaced/modified as it will likely be undercut by channel incision. This bank line would likely be regraded as part of the dam removal project and protected with biotechnical techniques.

If the diversion structure is removed and no previously-impounded sediment is removed from the channel, flows would be allowed to freely transport and re-work the stored sediment, transporting it downstream. Simulations presented in the Balance Hydrologic study indicate that after a 2-year flow event, a new channel thalweg would be carved through the impounded sediment and transported downstream, but channel slope adjustment would not propagate upstream without additional or larger-magnitude flow events. Up to approximately 2 feet of sediment is predicted to be deposited downstream under this simulation. After a 10-year event, model results indicate that overall channel adjustment would propagate farther upstream and an average of 3 to 4 feet of sediment would be deposited in the existing downstream scour pool. In this scenario the overall channel slope is predicted to become mostly adjusted to the slope of the reach downstream of the dam, but additional flow events would likely result in further channel change upstream of the impoundment, as allowed by bedrock control.

After a 25-year event, model results indicate that channel adjustment would propagate farther upstream throughout the model domain. Additionally, a local slope break, or "bump" in the sediment accumulation downstream of the former dam (approximately station ~2500) indicates that the receding limb of a 25-year event may be sufficient to transport some of the deposited sediment downstream.

Sediment is predicted to accumulate downstream of the dam under Alternatives 1 and 3, and this may be a desirable condition. After construction of the dam, the coarse sediment supply was likely interrupted and therefore depleted. Bed scour and an armored, coarse, and tightly-interlocked bed downstream of the dam corroborates this, and could be returned to a more natural channel condition with restored longitudinal slope and sediment transport continuity. (Balance 2020).

Alternative 2

Implementation of Alternative 2 would reestablish grade control at the diversion site to an elevation approximately five feet lower than the existing diversion when the flashboards are in place and two feet lower without flashboards. As such, the upstream effects on sediment transport and erosion would be somewhat mitigated relative to Alternatives 1 and 3. Implementation of Alternatives 1 and 3, would

reestablish no grade control at the diversion site, so the impact on sediment transport, thalweg incision, and upstream channel change under Alternative 2 would be somewhat reduced, though the degree of this reduction has not been established.

The existing conditions model presented in Balance (2020) showed ongoing sediment deposition upstream of the existing structure. Rebuilding the nature-like fishway to the similar elevation of the existing concrete structure would not significantly alter upstream geomorphic processes. The bar upstream of the dam would continue to grow due to ongoing deposition causing bank erosion by pushing the channel into bankline. This could put more pressure on flanking of the structure; however rock riprap or flow deflection structures may be required to mitigate this ongoing deposition.

Balance Hydrologics (2020) showed an approximate two-foot reduction in dam height below the existing concrete dam elevation would likely reduce deposition on the existing bar and may erode the bar. The two-foot reduction did not have impacts further upstream suggesting the impacts of lowering the structure height would be localized. The material from the bar would likely be deposited downstream on the toe of the new nature-like fishway. No significant impacts upstream would be expected from implementation of Alternative 2 with the lower bound of the upstream structure elevation. Flow deflection structures may still require placement on the north bank upstream of the structure, and the toe of the existing rock riprap on the north bank upstream of the existing structure, however, and this may need to be stabilized to prevent undercutting. (NHC 2020).

Comparison of All Alternatives

Implementation of Alternative 1, 2, or 3 may result in temporary increases in turbidity and bedload transport which may affect fish movement and transport. These issues are addressed in Section 3.3, Biological Resources of this DEIR.

Alternatives 1 and 3 would result in a greater geomorphic shock to the Auburn Ravine than Alternative 2. The channel incision from full dam removal would likely mobilize more sediment into the downstream reach than Alternative 2 and cause deeper incision upstream of the dam. Finer sediments stored behind the dam may cause fish habitats by increasing turbidity downstream or filling in existing gravel runs which would be exasperated under the full dam removal. Although the location and extent of erosion mitigation features are comparable between Alternatives, the scale of the fully designed features would likely be less significant for Alternative 2 due to the reduced geomorphic shock relative to the full dam removal (Alternatives 1 and 3). Alternative 2 would also provide a more reliable fish passage in the short-term relative to the full dam removal alternatives. After full dam removal, oversteepened slopes may occur in the reach as head cuts form while the channel adjusts to a new equilibrium over a period of a few years.

For the reasons presented above, the impact of Alternatives 1, 2, and 3 on erosion and siltation within Auburn Ravine are considered potentially significant. With implementation of mitigation measure **HYD/WQ-1** however, the impact is reduced to less than significant. The impact for each alternative, therefore, is considered ***less than significant with mitigation incorporated.***

Mitigation Measures

HYD/WQ-1 Bank Stabilization Measures

Following selection of the preferred project alternative and initiation of final project design, the project design engineer will develop bank stabilization measures as appropriate to minimize the anticipated effects of increased channel incision and channel widening. Specific measures to address the geomorphic impacts will be identified and detailed during final project design. The specific measures will be developed using hydraulic models of the post-project condition as grading limits and features of the selected Project alternative are refined. Measures needed within the upstream 200 feet of the existing dam will likely be incorporated during the dam removal construction with the coffer dam in place. Features further upstream may be installed at the time of dam removal, or as part of an adaptive management program. The adaptive management approach would address locations where some initial erosion may be tolerable but would intervene if erosion progresses beyond established thresholds. The criteria for adaptive management would be coordinated with landowners, fisheries agencies, and other interested parties on approaches that minimize risk to landowner, resource impacts, and cost.

Measures may include upstream flow deflection structures such as log groynes or engineered log jams, key in rock bank protection, or regrading/planting the bank lines and channel to be employed at the time of dam removal if either Alternative 1 or 3 is selected as the proposed project. Measures likely to be required for Alternative 2 would include the placement of flow deflections structures on the right bank upstream of the fish passage structure, and at the toe of the existing rock riprap on the right bank upstream of the existing diversion to be stabilize the channel adjacent to the fish passage structure to prevent undercutting.

Timing/Implementation: *Prior to and during construction*

Monitoring/Enforcement: *NID/Consultant*

Impact 3.8-3: Implementation of Alternative 3 would divert existing and future stream flow in Auburn Ravine at the Gold Hill diversion for delivery at Hemphill Canal and could reduce groundwater recharge along the reach of Auburn Ravine between Gold Hill and the Hemphill Canal diversion sites. Impact Determination: *less than significant*.

Threshold:	*Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.*

Alternative 3: Pipeline Alternative

As described in Section 2.0, Alternative 3 would divert water from Auburn Ravine at the Gold Hill Diversion Dam to Auburn Ravine 1 canal which would convey water to the NID Placer Yard facility on Gold Hill Road to a new pipeline. The new pipeline would then deliver the raw water supply to the Hemphill canal. Raw water delivery to the Hemphill canal via the pipeline would range from an average historic rate of about six cfs to a maximum diversion of 18 cfs as described in NID's Raw Water Master Plan (Kleinschmidt 2011). To demonstrate the effect of implementing Alternative 3 on Auburn Ravine hydrology and groundwater recharge, the current operations are described below followed by a description of Alternative 3 operations and the associated changes when compared to the current operations.

Current Operations

Currently, NID Auburn Ravine deliveries below the Gold Hill Diversion Dam include the Hemphill Diversion and 26 active pump accounts totaling eight to ten cfs. Historic diversions to the Hemphill Canal from 2015 – 2020 are shown in Figure 3.8-1 below. These diversions are limited to the April 15 through October 14 irrigation season and would generally not affect Auburn Ravine flows outside of this period. In addition to demands along the Hemphill Canal, NID has 26 active pump accounts on Auburn Ravine. In total of the active accounts, 78 miner's inches or about 2 cfs is purchased and diverted by these customers. Some of the primary Project features are shown in Figure 3.8-2, below.

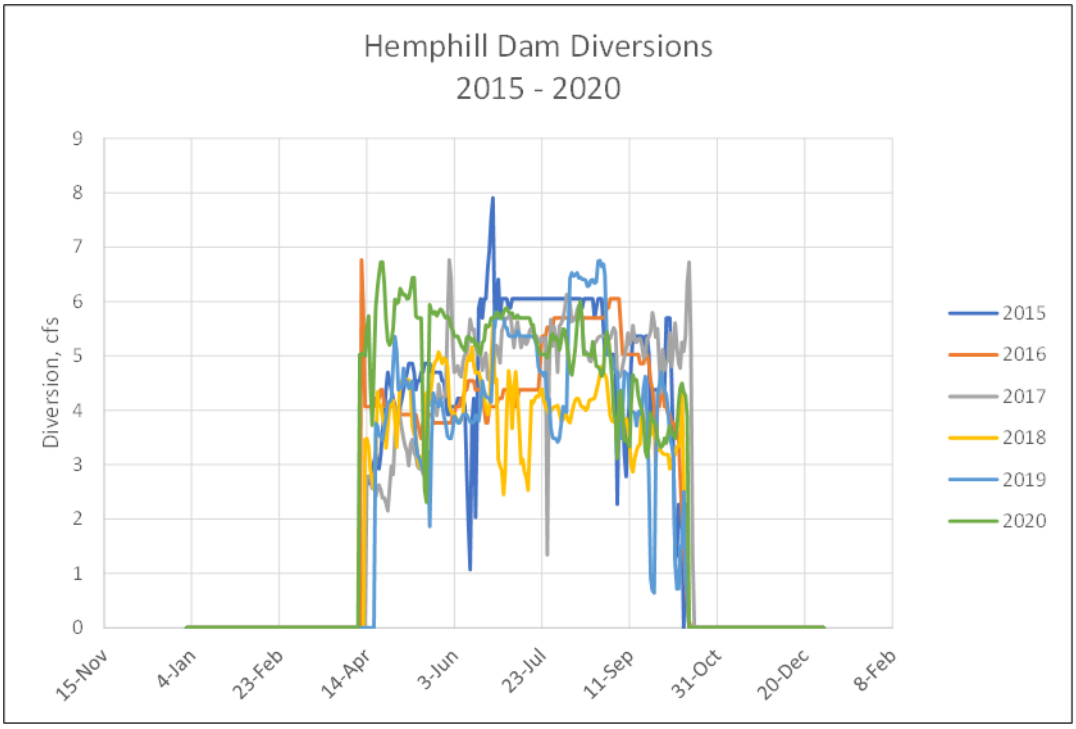
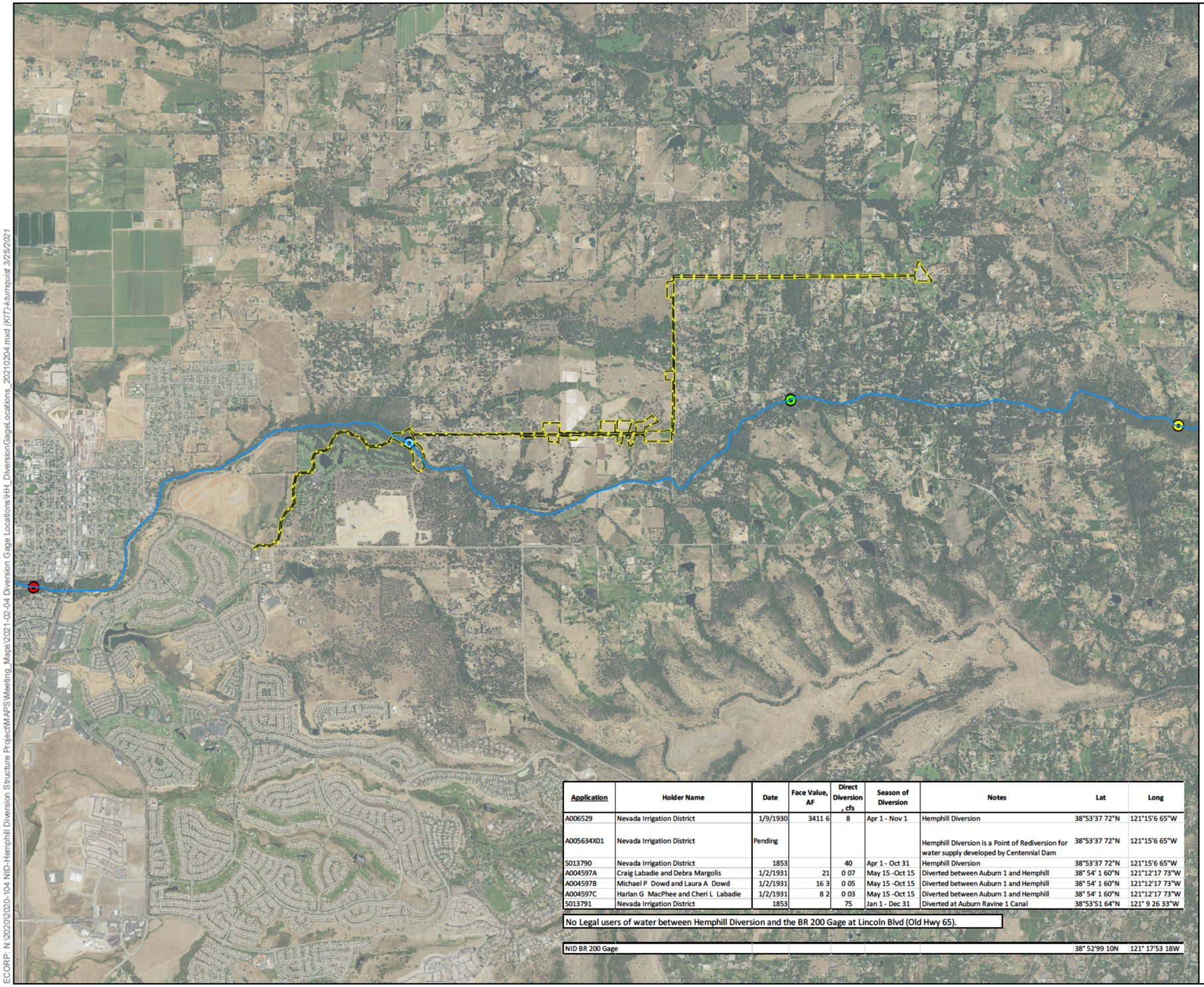


Figure 3.8-1. Hemphill Dam Diversion (2015-2020)



Application	Holder Name	Date	Face Value, AF	Direct Diversion , cfs	Season of Diversion	Notes	Lat	Long
A006529	Nevada Irrigation District	1/9/1930	3411 6	8	Apr 1 - Nov 1	Hemphill Diversion	38°53'37 72"N	121°15'6 65"W
A005634X01	Nevada Irrigation District	Pending				Hemphill Diversion is a Point of Rediversion for water supply developed by Centennial Dam	38°53'37 72"N	121°15'6 65"W
S013790	Nevada Irrigation District	1853		40	Apr 1 - Oct 31	Hemphill Diversion	38°53'37 72"N	121°15'6 65"W
A004597A	Craig Labadie and Debra Margolis	1/2/1931	21	0 07	May 15 -Oct 15	Diverted between Auburn 1 and Hemphill	38° 54' 1 60"N	121°12'17 73"W
A004597B	Michael P Dowd and Laura A Dowd	1/2/1931	16 3	0 05	May 15 -Oct 15	Diverted between Auburn 1 and Hemphill	38° 54' 1 60"N	121°12'17 73"W
A004597C	Harlan G MacPhee and Cheri L Labadie	1/2/1931	8 2	0 03	May 15 -Oct 15	Diverted between Auburn 1 and Hemphill	38° 54' 1 60"N	121°12'17 73"W
S013791	Nevada Irrigation District	1853		75	Jan 1 - Dec 31	Diverted at Auburn Ravine 1 Canal	38°53'51 64"N	121° 9 26 33"W
No Legal users of water between Hemphill Diversion and the BR 200 Gage at Lincoln Blvd (Old Hwy 65).								
NID BR 200 Gage							38° 52'99 10N	121° 17'53 18W

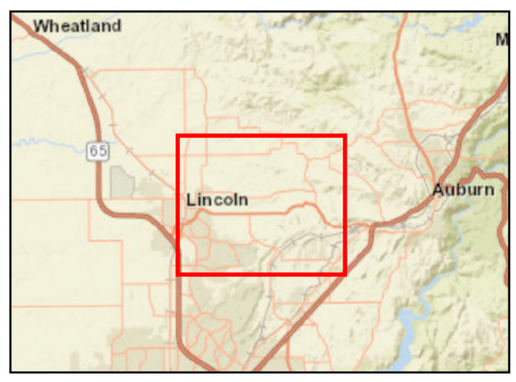
Map Features

- NID Hemphill Diversion Project Location
- Auburn Ravine

Points of Interest

- A004597 A,B, & C Point of Diversion
- Auburn 1 Canal Diversion
- Hemphill Diversion
- NID BR 200 Stream Gage

Sources: NAIP 2020



ECORP: N:\2020\2020-104 NID-Hemphill Diversion Structure Project\MAPS\Meeting_Maps\2021-02-04 Diversion Gage Locations\HH_DiversionGageLocations_20210204.mxd (KIT) 4/turnquist 3/25/2021

Map Date: 3/25/2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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Figure 3.8-2. Auburn Ravine Diversion Points and Project Features

2020-104 NID-Hemphill Diversion Structure

NID has no customers and makes no deliveries beyond Hemphill Dam. Occasionally, South Sutter Water District (SSWD) purchases surplus water from NID downstream of Hemphill Dam using the Old HWY 65 gage as a point of delivery. SSWD has not purchased water from NID since 2013. NID operators currently make sure there is enough water below Gold Hill Diversion Dam (AR1 diversion) for deliveries at Hemphill plus the delivery to the 26 active pump accounts along Auburn Ravine and any surplus water sold to SSWD. Placer County Water Agency also sends water through Auburn Ravine to their customers beyond the Old Hwy 65 gage during the irrigation season. NID operators use the Old HWY 65 gage to determine if water needs to be added to the system. There is no minimum flow requirement at the Old HWY 65 gage but NID imports water to Auburn Ravine to match demand when natural flows recede in the late summer and fall.

To ensure the deliveries are made while maintaining flows in Auburn Ravine, NID operators monitor the Old Hwy 65 gage, located downstream of the Hemphill Diversion Dam. The Old Hwy 65 gage, also known as BR200, is located about 1,000 feet downstream of Old Hwy 65, now known as Lincoln Boulevard. NID has implemented flow goals it attempts to achieve at the BR200 gage. The NID BR200 flow goals are listed in italics below:

NID BR200 Flow Goals

> *NID will not divert the natural flow during times when the flow as measured at NID's Old Hwy 65 gage is less than 8 cfs provided that during those times NID is not inhibited by a planned or unplanned outage from being able to import water from alternate conveyance facilities (i.e. Bear River Canal, Combie-Ophir Canal).*
>
> *NID will pass any future instream flow of PG&E's under their new FERC License for the Drum-Spaulding Project through both the Auburn Ravine I and Hemphill diversions.*
>
> *During periods when NID is operating under a Post-1914 Water Right Curtailment Order from the SWRCB it will exercise its right to divert under its pre-1914 right in Auburn Ravine regardless of the flow at the Old Hwy 65 gage. However; to ensure a portion of the flow remains in the Ravine, the available natural flow will be proportionality split with the amount being imported into the Ravine (i.e. If there is 10 cfs of natural flow and 25 cfs of import; 28% of the natural will remain in the Ravine (10/(10+25)).*

Figure 3.8-3 below, illustrates the flow below the Hemphill Dam from 2015-2020 as measured at the Old Hwy 65 gage (BR200). This gage is located about 3.1 miles below the Hemphill Diversion Dam and represents Auburn Ravine flows after all NID deliveries have been made. The gage is rated to 200 cfs. Any flow above 200 cfs is reported as missing or above rating.

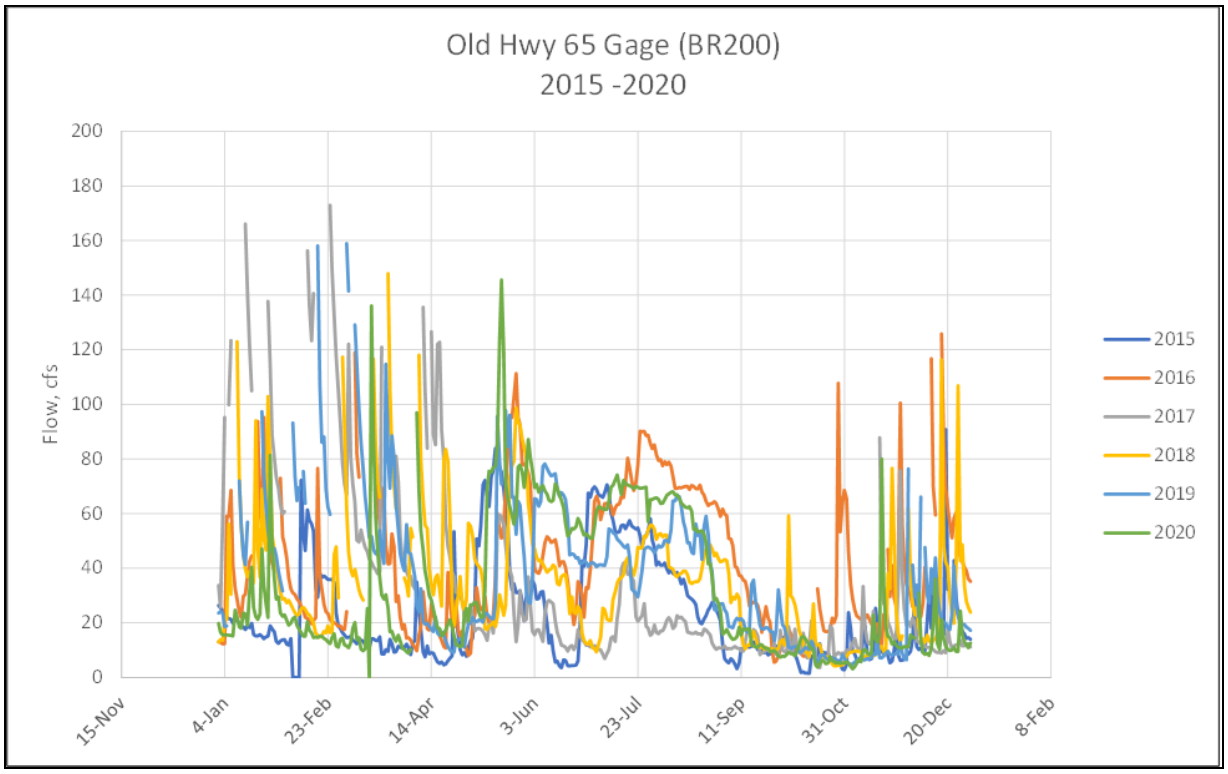

Figure 3.8-3. Auburn Ravine Flow at Old Highway 65 Gage

Effect of Alternative 3 Diversions on Current NID Operations

Alternative 3 would result in an additional diversion at the Gold Hill Diversion Dam resulting in a reduction in flows below Gold Hill Diversion Dam during the irrigation season. The reduction in flow below the Dam would be approximately equal to the current Hemphill diversion, totaling about six to eight cfs. There is no stream gage below the Gold Hill Diversion Dam, but an estimate can be made based upon flow measured at the BR200 gage plus diversions at Hemphill Dam plus approximately 2 cfs delivered to NID's 26 pump contractors. Figure 3.8-4 illustrates the estimated flow below the Gold Hill Diversion Dam. These estimated flows do not include potential losses or accretions between the Gold Hill Diversion Dam and the BR200 gage 11 miles downstream. This flow estimate should only be used provide a general idea of the magnitude of flows below the Gold Hill Diversion Dam. Multiple canal system tailwater points enter Auburn Ravine between the Gold Hill Diversion Dam and the BR200 gage. Likewise, there are losses due to evapotranspiration and percolation that are not accounted for in the estimate. The estimated flow below the Gold Hill Diversion Dam during the irrigation season appears to range between roughly 10 and 100 cfs with the lowest flows occurring in the drought of 2015. By increasing diversion at the Gold Hill Diversion Dam to serve Hemphill canal demands as suggested by Alternative 3, flows below Gold Hill Diversion Dam could be reduced substantially during the irrigation season. The degree of this reduction relative to historic conditions and conditions expected under Alternatives 1 and 2, would vary depending on the water-year type, the volume of releases to Auburn Ravine at Gold Hill, and other variables.

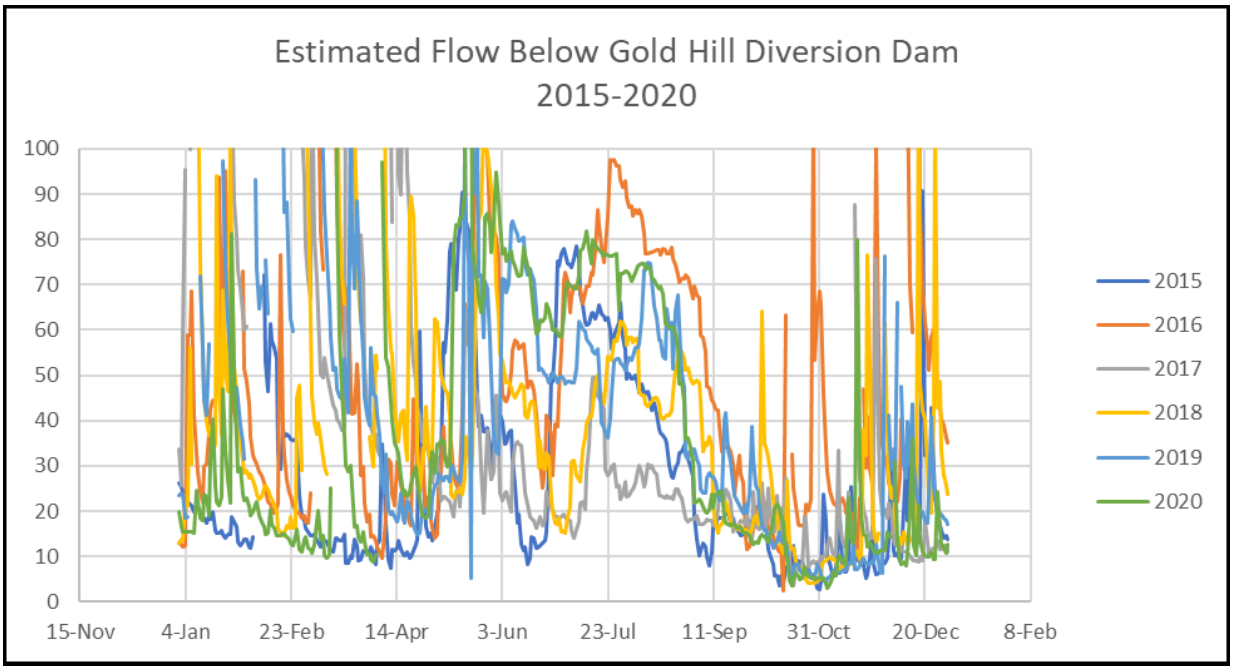

Figure 3.8-4**.** Estimated Flow below Gold Hill Diversion (2015-2020)

Figure 3.8-5 below, illustrates the historic diversions at the Gold Hill Diversion Dam for the 2015 – 2020 period. Deliveries to the 26 active pump accounts would continue below the Gold Hill Diversion Dam. Under Alternative 3, an additional six to eight cfs could be added to the Gold Hill Diversions at current levels of demand. At future levels of demand, as much as 18 cfs could be added to these diversions.

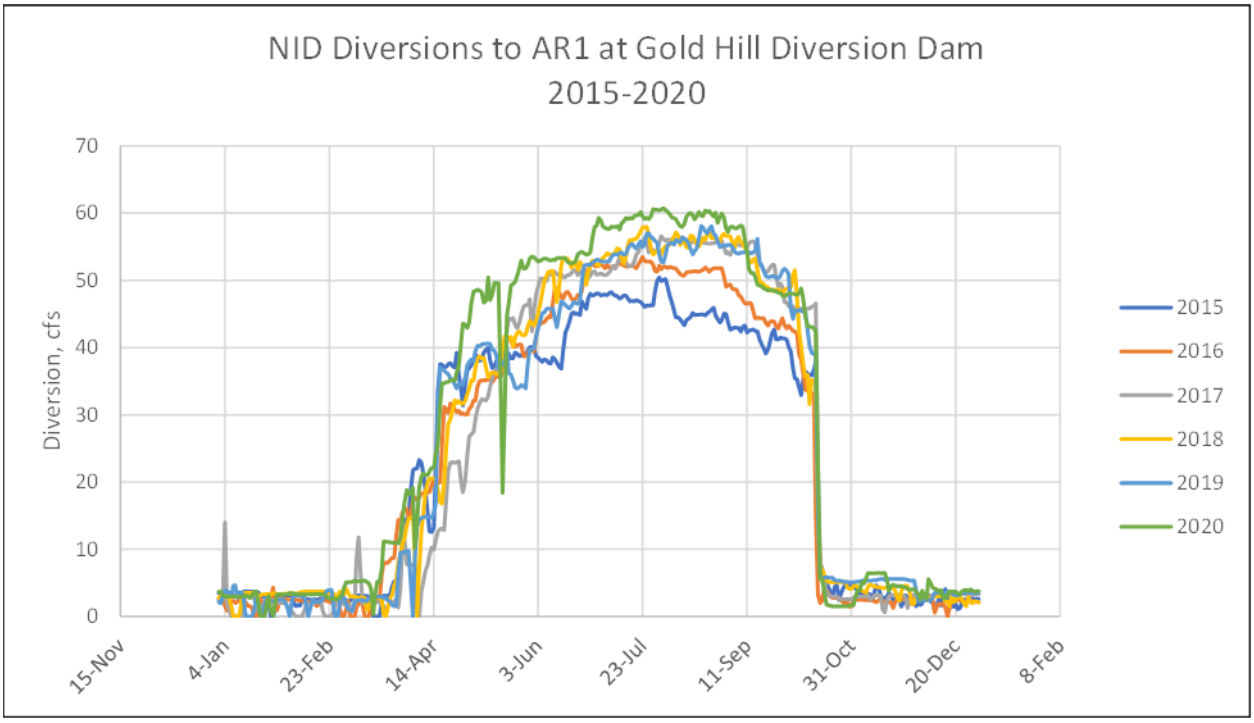

Figure 3.8-5. NID Diversion to AR1 at Gold Hill Diversion Dam (2015-2020)

Under the Alternative 3 scenario, as demands increase to 18 cfs over time, NID would continue to increase diversions at the Gold Hill Diversion Dam to serve the additional demand. The diversions necessary to serve the future demand would be supplemented with additional imported water from NID's Yuba Bear system, minimizing, or eliminating any additional flow reductions below Gold Hill Diversion Dam.

In addition to the NID demands, there are a number of groundwater wells along Auburn Ravine. If these wells are hydraulically connected to Auburn Ravine, they may create additional demand on the system. These wells benefit from NID operations which supplement releases below Gold Hill Diversion when flows at the Old Hwy 65 gage drops below 8 cfs. In addition to meeting flow requirements at the gage, NID also increases imports to ensure its customers are receiving enough water to meet consumptive demands. Under Alternative 3, NID would ensure that enough water is released to Auburn Ravine to serve all of its pumping accounts below AR-1.

Alternative 3 Diversions Effect on Groundwater Recharge

Although data concerning the correlation between surface water elevation in Auburn Ravine and nearby well production is lacking, extensive research on another gold-rush era canal operated by NID provides some guidance in determining the potential impact on local wells that could be expected with reduced diversions to Auburn Ravine downstream of Gold Hill Diversion Dam. A multi-year groundwater monitoring program was conducted for NID about a decade ago along Lower Cascade Canal, east of Nevada City and Grass Valley. With installation of the proposed Banner-Cascade Pipeline most of the flow to the gold-rush era canal would be diverted to the new pipeline. Concerns were raised during the CEQA review of that project regarding loss of groundwater to adjacent well owners if flow in the canal was reduced.. From 2010 to 2012, a major, multi-year monitoring program was conducted by Dr. Andrew Kopania for NID (A. Kopania, personal communication with ECORP, March 12, 2021). For the study, several piezometers were installed along the canal and dataloggers were installed in the piezometers and also in about a dozen private wells or private spring boxes along a several mile section of the canal. The wells were monitored through two full water years which, included a drought year and a very wet year. Without exception, the monitoring showed that the water levels in the wells and the flow rates from the springs was correlated 100% to rainfall and had no relationship at all to the water level or flows in the canal. These results were not unexpected given that Lower Cascade Canal, like other gold-rush era canals in the region including Auburn Ravine, have likely self-sealed with silts by this point in time. Based on his experience with the Lower Cascade Canal, Dr. Kopania expressed confidence that Auburn Ravine provides little or no recharge to the local groundwater system and thus reductions in flow under Alternative 3 would have little or no effect on well production along the reach of Auburn Ravine between the Gold Hill and Hemphill diversions.

For the reasons presented above, it is reasonable to expect that, even with the proposed increase in diversions to AR-1 Canal at the Gold Hill Diversion, NID will continue to release water to Auburn Ravine downstream of Gold Hill Diversion Dam to meet demand for its pump accounts along Auburn Ravine below the dam and to meet flow requirements at the Old Hwy 65 gage. For this reason, and because of the limited degree to which recharge occurs along this reach of the ravine currently, the impact of Alternative 3 on groundwater recharge is considered ***less than significant***.

Alternatives 1 and 2

Under Alternatives 1 and 2, increased diversions at Gold Hill Diversion as proposed for Alternative 3 would not occur. As such, any impact on groundwater recharge below Gold Hill Diversion Dam associated with the increase would be avoided under Alternatives 1 and 2. The impact, therefore is ***less than significant.***

Mitigation Measures

None required.

Impact 3.8-4 Stream channel downcutting due to the Project could affect groundwater well production upstream of the Hemphill Diversion site. Impact Determination: *less than significant*.

Threshold:	*Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.*

Alternative 1 (Infiltration Gallery) and Alternative 3 (Pipeline Alternative)

As described above, Alternatives 1 and 3 would remove the Hemphill Diversion structure without reestablishing grade-control features at the diversion site. As such, the implementation of either alternative would also cause some degree of head cutting erosion up to several feet deep at the diversion site and propagate upstream downcutting of the channel bed at least several feet over hundreds of feet upstream. This lowering of the channel bed upstream would lower the water surface in the channel during the irrigation season and could adversely affect pumps and shallow groundwater wells. However, as detailed in the discussion of Impact 3.8-3 above, the impact of Alternative 3 was found to be less than significant. As such, the potential effect of either Alternative 1 or 3 on groundwater well production due to streambed downcutting is expected to be ***less than significant***.

Alternative 2: Fish Passage Alternative

As described in the Impact 3.8-2 discussion above, Alternative 2 would differ from Alternatives 1 and 3 in that it would reestablish grade control at the Hemphill Diversion site and thus substantially reduce the potential for upstream downcutting of the stream channel that would occur under the other two alternatives. Without this effect, the potential for substantial reductions in production of any groundwater wells adjacent to the stream channel is minimal. As such, the impact for Alternative 2 is considered ***less than significant***.

Mitigation Measure

None required.

3.8.4 Cumulative Setting, Impacts and Mitigation Measures

Cumulative Setting

The impacts of implementing Alternatives 1, 2, and 3 on surface hydrology, water quality, and groundwater in Section 3.8.4, above, would have the potential to contribute to hydrology and water quality impacts associated with from past, present, and reasonably foreseeable future projects within the stream channel and Auburn Ravine watershed. Of primary concern, are the potential effects of the alternatives on sediment transport and groundwater supply addressed under Impacts 3.8-2, 3.8-3, and 3.8-4, above.

Cumulative Impacts and Mitigation Measures

Impact 3.2.5: Cumulative Hydrology and Water Quality Impacts

Threshold:	*Would Implementation of the proposed project, along with any foreseeable development in the project vicinity, result in cumulative impacts to hydrology and water quality?*

Cumulative impacts on Auburn Ravine hydrology and water quality from anticipated development within the Auburn Ravine watershed adjacent to the Project site were analyzed in the City of Lincoln's General Plan EIR and evaluated furthermore recently in the *SUD-B Northeast Quadrant Specific Plan Final EIR* (City of Lincoln 2019). The General Plan EIR found that changes to hydrology and water quality as a result of urban development could result in a potentially significant impact. Policies adopted in the General Plan and the City's municipal code address the evaluation of development to ensure adequate drainage facilities, the requirement for impact fees to fund storm drain improvements, and provision of storm drain master plans to guide development approvals, and ensure evaluation of drainage patterns, of flood risks, and of the facilities needed to protect water quality and maintain drainage systems. The SUD-B Northeast Quadrant Specific Plan and other potential projects in the vicinity of the Project site would be required to comply with the NPDES General Permit for Discharges of Storm Water Discharge Associated with Construction Activities issued by the State Water Resources Control Board. This permit requires projects to implement measures to prevent impacts, individual and cumulative, to water quality during construction. As discussed under Impact 3.8-1 above, construction activities associated with each of the three Project Alternatives would be subject to the same requirements. As such, any contribution that Project construction activities would have on water quality in Auburn Ravine have a ***less than considerable contribution to cumulative impacts.***

In relation to the effects of operation of the Project alternatives on sediment transport and erosion, the channel at and upstream of Hemphill Diversion structure is and has been unstable as a result of an ongoing, decades-long response of the stream channel to historical modifications near the Hemphill Diversion Dam site and in the Auburn Ravine watershed (NHC 2021). These cumulative direct and indirect changes are associated with mining, land reclamation / agricultural practices and urbanization. Auburn Ravine was likely placed in a straight ditch after placer mining in order to accommodate property lines, irrigation, and drainage works for agricultural uses. The straight channel became somewhat naturalized with dense bank vegetation and fairly abundant water during the growing season. Auburn Ravine just upstream of Hemphill Diversion Dam was reportedly a narrow, straight, well vegetated and stable channel

until disturbed by the record 1997 flood and its substantial hydraulic forces and sediment loads. The channel is presently adjusting to a stable morphology along many reaches as evidenced by actively growing bars, bank erosion and the beginning of channel meandering at many locations upstream and downstream of Hemphill Diversion Dam. As discussed under Impact 3.8-2 above, implementation of each of the Project alternatives has the potential to contribute to Auburn Ravine channel instability upstream of the Hemphill Diversion site, though the contribution of Alternative 2 to these conditions would be substantially less than Alternatives 1 and 3. With implementation of mitigation measure **HYD/WQ-1**, the effects of each of the alternatives would be minimized and their contribution of Auburn Ravine channel instability and related bank erosion and sediment transport would have a ***less than considerable contribution to cumulative impacts.***

Future development in the Project vicinity and within the Auburn Ravine watershed would be subject to Placer County and City of Lincoln stormwater design standards and groundwater recharge planning intended to limit the effect of future development on local groundwater conditions. As discussed under Impacts 3.8-3 and 3.8-4 above, Project Alternatives 1, 2, and 3 would result in no significant reduction in groundwater well production in wells adjacent to the affected reach of Auburn Ravine. The contribution to any cumulative reduction in groundwater supplies due to either Alternative 1, 2, or 3, would, therefore, have a **less than considerable contribution to cumulative impacts.**

Cumulative Mitigation Measures

None required.

3.8.5 References

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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 Project noise levels to noise standards promulgated by the County of Placer General Plan Noise Element and County Code. The purpose of this section is to estimate Project-generated noise levels and determine the level of impact each Project Alternative would have on the environment. The existing environmental and regulatory conditions specific to noise are described and the potential impact posed by each of the three Proposed Project Alternatives are addressed.

This section does not further address a noise-related impact found to be less than significant in the Initial Study circulated with the Notice of Preparation (NOP) prepared for this Project (see **Appendix 1.0**). This impact includes the potential exposure of people to excessive noise from airport-related operations.

3.9.1 Fundamentals of Noise and Environmental Sound

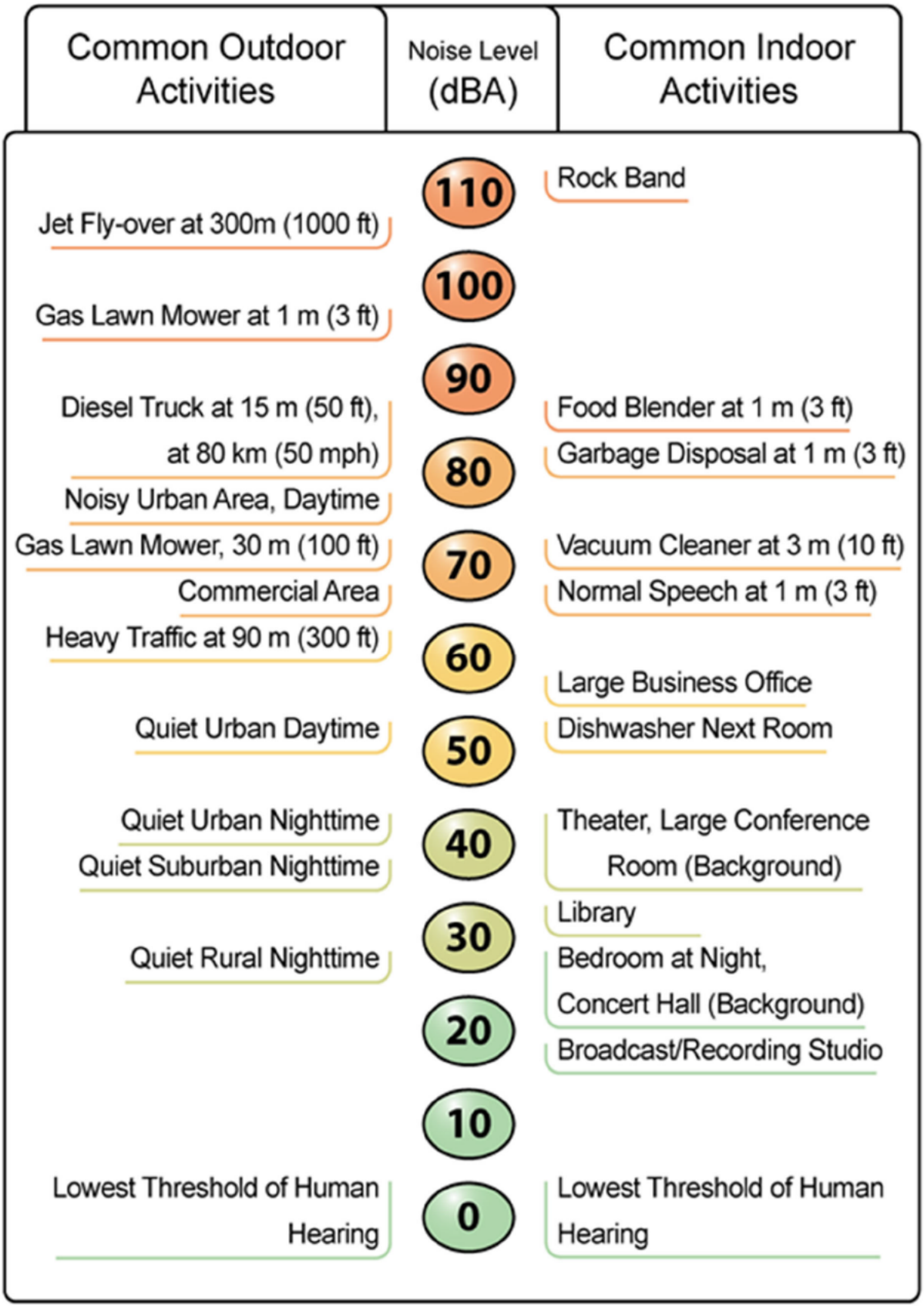
Addition of Decibels

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

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 3.9-1. Common Noise Levels
Hemphill Diversion Structure Project

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 L_{eq} is a measure of ambient noise, while the Community Noise Equivalent Level (CNEL) is a measurement of community noise. Each applies to this analysis and are defined in Table 3.9-1.

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.
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 ± 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 ± 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.

The Occupational Safety and Health Administration (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. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

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, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 3.9-2 is considered very

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 2020b

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.

As noted, Nevada Irrigation District (NID) is considering three alternatives for construction: Alternatives 1 (Riverbank Infiltration Gallery) and 2 (Fish Passage) would replace the existing diversion structure with new facilities in roughly the same location as the Hemphill Diversion. This area is bounded by Turkey Creek Golf Course to the southwest, undeveloped land to the northwest, and rural residential and agricultural uses to the east and northeast. The Lincoln Newcastle Highway (State Route [SR] 193) is located approximately 0.7 mile south of the Project site, while Virginiatown Road is located 250 feet north of the Diversion. Alternative 3 (Pipeline) would demolish and remove the existing diversion structure and

construct a new water line within existing roadways to transport water from the NID Placer Yard Facility on Gold Hill Road to Hemphill Canal. Existing land uses along these roadways include low-density rural residential development surrounded by grassland (often grazed) and agricultural fields.

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 5 or 6.

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 Noise 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

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}
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: The American National Standards Institute (ANSI) 2013

3.9.4 Regulatory Framework

Federal

Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act (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 Code of Federal Regulations 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 Office of Planning and Research (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

Placer County General Plan

The Noise Element of the Placer County General Plan provides a basis for comprehensive local policies to control and abate environmental noise and to protect the citizens of Placer County from excessive noise exposure. By identifying noise-sensitive land uses and establishing compatibility guidelines for land use and noises, noise considerations will influence the general distribution, location, and intensity of future land uses. The result is that effective land use planning and mitigation can alleviate the majority of noise problems.

The Noise Element sets various goals and policies that would apply to projects within unincorporated areas of Placer County. The following goals are applicable to the proposed Project:

Goal 9.A: *To protect County residents from the harmful and annoying effects of exposure to excessive noise.*

Policies:

9.A.2 Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of [Table 3.9-4] as measured immediately within the property line of the lands designated for noise-sensitive use.

Table 3.9-4. Allowable Noise Levels (Applicable to New Projects Affected by or Including Non-Transportation Noise Sources)

Zone District of Receptors	Property Line Receiving Use (L_{dn})	Interior Spaces (L_{dn})[1]
Residential Adjacent to Industrial	60	45
Other Residential	50	45
Office/Professional	70	45
Transient Lodging	65	45
Neighborhood Commercial	70	45
General Commercial	70	45
Heavy Commercial	75	45

Table 3.9-4. Allowable Noise Levels (Applicable to New Projects Affected by or Including Non-Transportation Noise Sources)

Zone District of Receptors	Property Line Receiving Use (L_{dn})	Interior Spaces (L_{dn})[1]
Limited Industrial	75	45
Highway Service	75	45
Shopping Center	70	45
Industrial	--	45
Industrial Park	75	45
Industrial Reserve	--	--
Airport	--	45
Unclassified	--	--
Farm	--	--
Agriculture Exclusive	--	--
Forestry	--	--
Timberland Preserve	--	--
Recreation & Forestry	--	--
Open Space	70	--
Mineral Reserve	--	--

Source: Placer County 2013
Notes:
[1]Interior spaces are defined as any locations where some degree of noise-sensitivity exists. Examples include all habitable rooms of residences, and areas where communication and speech intelligibility are essential, such as classrooms and offices.

Placer County Code

The County's regulations with respect to noise are included in Chapter 9, *Public Peace, Safety & Welfare,* of the County Code. Section 9.36.030, *Exemptions,* states that noise sources associated with construction occurring between the hours of 6:00 a.m. to 8:00 p.m. Monday through Friday, and between 8:00 a.m. and 8:00 p.m. on Saturdays and Sundays are exempt from noise standards. All construction equipment must be fitted with factory installed muffling devices and all construction equipment shall be maintained in good working order.

Section 9.36.060, *Sound Limits from Sensitive Receptors,* states that it is prohibited to cause the exterior sound level, when measured at the property line of any affected sensitive receptor, to exceed the ambient sound level by 5 dBA or exceed the noise level standards presented in Table 3.9-5.

Table 3.9-5. Sound Level Standards

Sound Level Descriptor	Daytime (7:00 am to 10:00 pm)	Nighttime (I0:00 pm to 7:00 am)
Hourly L_{eq}, dB	55	45
Maximum level, (L_{max}) dB	70	65

Source: Placer County 2020

Notes: Each of the sound level standards specified in Table 3.9-5 shall be reduced by 5 dBA for simple tone noises, consisting of speech and music. However, in no case shall the sound level standard be lower than the ambient sound level plus 5 dBA.

City of Lincoln General Plan

The Health and Safety Element contains goals and policies related to noise designed to protect the public health, safety, and welfare of the community from any unreasonable risks while minimizing damage to structures, property, and infrastructure resulting from natural and man-made hazards. The following policies are applicable to the Proposed Project:

Goal HS-8: *To protect residents from health hazards and annoyance associated with excessive noise levels.*

Policies:

HS-8.2 *Protect Residential Areas,* The City will strive to achieve exterior noise levels for existing and future dwellings in residential areas that do not exceed exterior noise levels of 60 dBA CNEL and interior noise levels of 45 dBA CNEL.

HS-8.8 *Construction Noise,* The City will provide guidelines to developers for reducing potential construction noise impacts on surrounding land uses.

HS-8.9 Noise Compatibility Guidelines, The City shall use adopted noise compatibility guidelines to evaluate compatibility of proposed new development and ensure compatibility between residential, commercial and other surrounding land uses (See Table 8-1, Maximum Allowable Noise Exposure by Land Use).

Table 8-1. Maximum Allowable Noise Exposure by Land Use

	Noise Level (CNEL)						
	0-55	56-60	61-65	66-70	71-75	75-80	>81
Residential - Low Density Single Family, Duplex, Mobile Homes							
Residential - Multiple Family, Group Homes							
Motels / Hotels							
Schools, Libraries, Churches, Hospitals, Extended Care Facilities							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arenas, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

	Normally Acceptable. Specified land use is satisfactory, based on the assumption that any buildings involved are of normal, conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable. New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed insulation features have been included in the design.
	Normally Unacceptable. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.
	Unacceptable. New construction or development should not be undertaken.

HS-8.14 *Noise Analysis,* The City shall require noise analysis of proposed development projects as part of the environmental review process and to require mitigation measures that reduce noise impacts to acceptable levels. The noise analysis shall:

- Be the responsibility of the applicant.
- Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

- Estimate existing and projected noise levels in terms of Ldn/CNEL and compare the levels to the adopted policies of the City's General Plan.
- Recommend appropriate mitigation to achieve compatibility with the adopted noise policies and standards of the City's General Plan. Where the noise source in question consists of intermittent single events, the acoustical analysis must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
- Estimate noise exposure after the prescribed mitigation measures have been implemented. If the project does not comply with the adopted standards and policies of the City's General Plan, the analysis must provide acoustical information for a statement of overriding considerations for the project.
- Describe a post-project assessment program, which could be used to evaluate the effectiveness of the proposed mitigation measures.

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 to noise-sensitive land uses located in the unincorporated County. While Project implementation would result in noise that would be heard in the City of Lincoln, there are no nearby noise-sensitive receptors in the portion of Lincoln that would potentially be affected by the Project. The only land use within the City of Lincoln that would be affected by Project construction noise is a golf course located to the southwest of the existing diversion structure.

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 Model (2006). Construction haul truck noise levels on the vicinity roadways of Virginiatown

Road, Fowler Road, Fruitvale Road, and SR 193 were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). Groundborne vibration levels associated with construction-related activities for the 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. Potential operational noise associated with the Project is addressed qualitatively.

Project Impact Analysis

Impact 3.9-1: The proposed project could result in short-term construction generated noise in excess of City or County standards. Impact Determination: *less than significant with mitigation incorporated*.

Threshold:	*Exceed noise standards during construction.*

Alternatives 1, 2, and 3

Construction noise associated with each of the proposed Alternatives 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, structure demolition, excavation, paving). 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.

Alternatives 1 (Riverbank Infiltration Gallery) and 2 (Fish Passage) would replace the existing diversion structure with new facilities in roughly the same location as the Hemphill Diversion. As previously described, this area is bounded by Turkey Creek Golf Course located within the City of Lincoln to the southwest, undeveloped land to the northwest, and rural residential and agricultural uses to the east and northeast. The closest sensitive receptor is a single-family residence located within unincorporated Placer County on the south side of Virginiatown Road, with a property line approximately 100 feet from the eastern boundary of the Project site. Additionally, it is noted that Phase 3 of Alternative 2 (Hemphill Canal Improvements) would require the replacement of two culverts located in fairways on the Turkey Creek Golf Course.

Alternative 3 (Pipeline) would demolish and remove the existing diversion structure and construct a new water line within existing roadways to transport water from the NID Placer Yard Facility on Gold Hill Road to Hemphill Canal. Existing noise-sensitive land uses along these roadways include low-density rural residential development within unincorporated Placer County. Construction involved in the installation of

the proposed pipeline would occur within 25 to 50 feet of several rural single-family residences fronting Virginiatown Road, Fowler Road, and Fruitvale Road. It is acknowledged that construction activities would occur throughout the linear Project site and would not be concentrated at any one point along the 4.5-mile long pipeline corridor.

As previously described, Section 9.36.030, *Exemptions,* of the Placer County Code states that noise sources associated with construction occurring between the hours of 6:00 a.m. to 8:00 p.m. Monday through Friday, and between 8:00 a.m. and 8:00 p.m. on Saturdays and Sundays are exempt from noise standards (see Table 3.9-5). However, all construction equipment must be fitted with factory installed muffling devices and all construction equipment must be maintained in good working order. It is noted that the Project proposes construction activities under each Alternative to span from 7:00 a.m. to 7:00 p.m. Monday through Saturday. These proposed construction hours fall within the hours when construction noise is exempt from County noise standards, with the exception of the single hour between 7:00 a.m. and 8:00 a.m. on Saturdays. Construction activities occurring within this hour are not exempt from County noise standards and must be limited to generating noise levels of 55 dBA or lower (at affected receptors) in order to be considered less than significant.

The City of Lincoln does not have construction noise standards since construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. There are no noise-sensitive receptors in the portion of Lincoln that would potentially be affected by the Project. The only land use within the City of Lincoln that would be affected by Project construction noise is the Turkey Creek Golf Course located approximately 430 feet from the existing diversion structure. Phase 3 of Alternative 2 (Hemphill Canal Improvements) would require the replacement of two culverts located in fairways on the Turkey Creek Golf Course. In order to provide a conservative analysis, noise attributable to Project implementation is compared to the golf course-related noise standard of 80 dBA derived from Lincoln General Plan Policy HS-8.9.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptor in the Project vicinity, typical construction equipment noise levels were calculated using the Roadway Noise Construction Model (RCNM). Construction noise generated, during the hours in which noise is exempted from County noise standards, is compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by National Institute for Occupational Safety and Health (NIOSH). A division of the US Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receptors. This methodology for evaluating construction noise that is exempt from local standards is consistent with the California Court of Appeal decision found in *King and Gardiner Farms, LLC, v. County of Kern* (2020). Construction noise generated, during the hour when such noise is not exempt from County noise standards (7:00 a.m. to 8:00

a.m. on Saturdays), is compared to the County standard of 55 dBA as experienced at an affected receptor. See Table 3.9-6. As previously stated, the City of Lincoln does not have construction noise standards. Nonetheless, in order to provide a conservative analysis, noise attributable to Project implementation is compared to the golf course-related noise standard of 80 dBA derived from Lincoln General Plan Policy HS-8.9. See Table 3.9-7.

The anticipated short-term construction noise levels generated for the necessary equipment were calculated using the RCNM for each Alternative of the Proposed Project. The anticipated short-term construction noise levels, as experienced by noise-sensitive land uses in the unincorporated County, generated from the necessary equipment are presented in Table 3.9-6. Consistent with FTA recommendations for calculating construction noise, construction noise was measured from the center of the Project site (FTA 2018).

Table 3.9-6. Construction Average (dBA) Noise Levels at Nearest Receptors – Placer County

Construction Activity	Equipment	Distance to Nearest Receptor from Center of Construction Site	Construction Noise Level at Nearest Receptor	Construction Noise Standards (dBA L_{eq})			
				Standard for County Exempt Hours	Exceeds Standard at Nearest Sensitive Receptor?	Standard for County Non-Exempt Hours	Exceeds Standard at Nearest Sensitive Receptor?
Alternative 1 (Riverbank Infiltration Gallery)							
Existing Diversion Structure Removal	Excavators Dewatering Pumps Pile Driver Wheel Loaders Dump Truck	200 Feet	**82.8**	85 dBA	**No**	**55 dBA**	**Yes**
Infiltration Gallery Installation	Excavators Dewatering Pumps Wheel Loaders Dump Truck	200 Feet	**73.6**		**No**		**Yes**
Alternative 2 (Fish Passage)							
Phase 1 – Site Preparation	Chainsaws Manlifts Dump Truck	100 Feet	**77.2**	85 dBA	**No**	**55 dBA**	**Yes**
Phase 2 – Existing Diversion Structure Removal & Fish Passage Installation	Crane Excavators Dewatering Pumps Pile Driver Wheel Loaders Dump Truck	200 Feet	**83.0**		**No**		**Yes**
Phase 3 – Hemphill Canal Modifications	Crane Excavator Concrete Trucks	200 Feet	**69.0**		**No**		**Yes**

Table 3.9-6. Construction Average (dBA) Noise Levels at Nearest Receptors – Placer County

Construction Activity	Equipment	Distance to Nearest Receptor from Center of Construction Site	Construction Noise Level at Nearest Receptor	Construction Noise Standards (dBA L_{eq})			
				Standard for County Exempt Hours	Exceeds Standard at Nearest Sensitive Receptor?	Standard for County Non-Exempt Hours	Exceeds Standard at Nearest Sensitive Receptor?
Alternative 3 (Pipeline)							
Existing Diversion Structure Removal	Excavators Dewatering Pumps Pile Driver Wheel Loaders Dump Truck	200 Feet	**82.8**	85 dBA	**No**	55 dBA	**Yes**
Pipeline Construction	Asphalt Trucks Concrete Trucks Excavators Roller Wheel Loaders Dump Truck	50 Feet	**83.9**		**No**		**Yes**

Source: Construction noise levels were calculated by ECORP Consulting, Inc. using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to **Appendix 3.9** for Model Data Outputs.
Notes: Construction equipment assumptions were based on construction-related information provided in Section 2.0, Project Description.

As shown in Table 3.9-6, no component of construction would exceed the 85 dBA NIOSH construction noise threshold. However, the Project proposes construction activities under each Alternative to span from 7:00 a.m. to 7:00 p.m. Monday through Saturday and construction noise generated during the hour when such noise is not exempt from County noise standards (7:00 a.m. to 8:00 a.m. on Saturdays) must be assessed against the County standard of 55 dBA as experienced at an affected receptor. As shown in Table 3.9-6, Project construction occurring in the single hour that construction noise is not exempt from County noise standards would potentially result in noise greater than 55 dBA. Therefore, implementation of mitigation measure **NOI-1** is required (see below).

The anticipated short-term construction noise levels, as experienced by the golf course in the City of Lincoln, are presented in Table 3.9-7.

Table 3.9-7. Construction Average (dBA) Noise Levels at Nearest Receptors – City of Lincoln

Construction Activity	Equipment	Distance to Golf Course from Center of Construction Site	Construction Noise Level at Golf Course	Construction Noise Standards (dBA L_{eq})	
				Golf Course Standard for City of Lincoln	Exceeds Standard at Nearest Sensitive Receptor?
Alternative 1 (Riverbank Infiltration Gallery)					
Existing Diversion Structure Removal	Excavators Dewatering Pumps Pile Driver Wheel Loaders Dump Truck	430 Feet	**76.1**	*80 dBA*	**No**
Infiltration Gallery Installation	Excavators Dewatering Pumps Wheel Loaders Dump Truck	430 Feet	**66.9**		**No**
Alternative 2 (Fish Passage)					
Phase 1 – Site Preparation	Chainsaws Manlifts Dump Truck	530 Feet	**62.8**	*80 dBA*	**No**
Phase 2 – Existing Diversion Structure Removal & Fish Passage Installation	Crane Excavators Dewatering Pumps Pile Driver Wheel Loaders Dump Truck	430 Feet	**76.3**		**No**
Phase 3 – Hemphill Canal Modifications	Crane Excavator Concrete Trucks	430 Feet	**62.3**		**No**
Phase 3 – Culvert Replacement on the Turkey Creek Golf Course	Crane Excavator Concrete Trucks	50 Feet	**79.8**		**No**
Alternative 3 (Pipeline)					
Existing Diversion Structure Removal	Excavators Dewatering Pumps Pile Driver Wheel Loaders Dump Truck	430 Feet	**76.1**	*80 dBA*	**No**
Pipeline Construction	Asphalt Trucks Concrete Trucks Excavators Roller Wheel Loaders Dump Truck	530 Feet	**63.4**		**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** for Model Data Outputs.
Notes: Construction equipment assumptions were based on construction-related information provided in Section 2.0, Project Description.

As shown in Table 3.9-7, no component of construction would exceed the golf course-related noise standard of 80 dBA derived from Lincoln General Plan Policy HS-8.9.

In addition to noise generated by construction-related heavy-duty equipment, Project construction of any of the proposed Alternatives would result in a substantial amount of haul trucks importing material to the Project site and exporting material offsite, thus generating noise on local roadways. Each Alternative involves the removal of the existing diversion structure, which is estimated to result in the need to haul more than 1,000 tons of demolished material offsite. Additionally, removal of the existing diversion structure would require the need to import 3,300 cubic yards of gravel with haul trucks traversing local roadways. The installation of the infiltration gallery (Alternative 1) would involve excavation, resulting in the exporting of excavated material. Similarly, Alternative 2 would instigate haul trucks transporting vegetative waste from the division structure vicinity; haul trucks importing 8,500 tons of boulders, sand, gravel, and cobble for construction of the fish passage; and haul trucks exporting soil material. Alternative 3 would involve the hauling of demolished diversion structure material, the export of 4,630 cubic yards of demolished roadway asphalt and associated soil material and import of 1,930 cubic yards of fill material.

Project haul trucks associated with Alternatives 1 and 2 would primarily traverse SR 193, Fowler Road, and Virginiatown Road. Alternative 3 haul trucks would also traverse State Route 193, Fowler Road, and Virginiatown Road yet would additionally use Fruitvale Road to haul construction-related material.

Table 3.9-8 shows the calculated roadway noise levels as a result of Project haul trucks during construction.

Table 3.9-8. Construction Haul Truck Noise Levels

Roadway	Surrounding Uses	L_{eq} at 25 feet from Centerline of Roadway	Construction Noise Standards			
			Standard for County Exempt Hours	Exceeds Standard at Nearest Sensitive Receptor?	Standard for County Non-Exempt Hours	Exceeds Standard at Nearest Sensitive Receptor?
Alternative 1: Diversion Structure Removal [511 Total Haul Truck Trips] & Riverbank Infiltration Gallery Installation [2,250 Total Haul Truck Trips][1]						
Virginiatown Road	Residential	**60.1**	85 dBA	**No**	55 dBA	**Yes**
Fowler Road	Residential	**60.1**		**No**		**Yes**
State Route 193	Residential	**57.0**		**No**		**Yes**
Alternative 2 – Phase 1: Vegetative Clearing [400 Total Haul Truck Trips][2]						
Virginiatown Road	Residential	**57.0**	85 dBA	**No**	55 dBA	**Yes**
Fowler Road	Residential	**57.0**		**No**		**Yes**
State Route 193	Residential	**54.8**		**No**		**No**

Table 3.9-8. Construction Haul Truck Noise Levels

Roadway	Surrounding Uses	L_{eq} at 25 feet from Centerline of Roadway	Construction Noise Standards			
			Standard for County Exempt Hours	Exceeds Standard at Nearest Sensitive Receptor?	Standard for County Non-Exempt Hours	Exceeds Standard at Nearest Sensitive Receptor?
Alternative 2 – Phase 2: Diversion Structure Removal [511 Total Haul Truck Trips] & Fish Passage Installation [840 Total Haul Truck Trips][3]						
Virginiatown Road	Residential	**55.3**	85 dBA	**No**	55 dBA	**Yes**
Fowler Road	Residential	**55.3**		**No**		**Yes**
State Route 193	Residential	**53.1**		**No**		**No**
Alternative 2: Phase 3: Diversion Ditch Installation [1,125 Total Haul Truck Trips][4]						
Virginiatown Road	Residential	**58.3**	85 dBA	**No**	55 dBA	**Yes**
Fowler Road	Residential	**58.3**		**No**		**Yes**
State Route 193	Residential	**56.1**		**No**		**Yes**
Alternative 3: Diversion Structure Removal [511 Total Haul Truck Trips] & Pipeline Installation [820 Total Haul Truck Trips][5]						
Virginiatown Road	Residential	**55.3**	85 dBA	**No**	55 dBA	**Yes**
Fowler Road	Residential	**55.3**		**No**		**Yes**
Fruitvale Road	Residential	**52.3**		**No**		**No**
State Route 193	Residential	**53.1**		**No**		**No**

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model.

[1] Number of haul trips is based on the proposed import of 3,300 cubic yards of gravel, export of 1,000 tons of demolished material during diversion structure removal, and export of 9,000 cubic yards of excavated material associated with installing the infiltration gallery. Additionally, the import of 9,000 cubic yards of soil material is accounted.

[2] Number of haul trips is based on the assumption of 20 haul truck trips daily to export vegetative material.

[3] Number of haul trips is based on the proposed import of 3,300 cubic yards of gravel, export of 1,000 tons of demolished material during diversion structure removal, and import of 8,500 tons of material import to accommodate fish passage installation.

[4] Number of haul trips is based on the export of 9,000 cubic yards of excavated material.

[5] Number of haul trips is based on the proposed import of 3,300 cubic yards of gravel, export of 1,000 tons of demolished material during diversion structure removal, export of 4,630 cubic yards of demolished asphalt, and import of 1,930 cubic yards of fill material.

Refer to **Appendix 3.9** for traffic noise modeling assumptions and results.

As shown in Table 3.9-8, no component of construction would result in haul truck trips exceeding the 85 dBA NIOSH construction noise threshold. Nor would any component of construction result in haul truck trips exceeding the 80 dBA golf course-related noise standard derived from Lincoln General Plan Policy HS-8.9.

However, the Project proposes construction activities under each Alternative to span from 7:00 a.m. to 7:00 p.m. Monday through Saturday. Noise generated during the hour when construction noise is not exempt from local County noise standards (7:00 a.m. to 8:00 a.m. on Saturdays) must be assessed against the County standard of 55 dBA as experienced at an affected receptor. As shown in Table 3.9-8, Project construction haul trips occurring in the single hour that construction noise is not exempt from County

noise standards would potentially result in noise greater than 55 dBA. Therefore, implementation of mitigation measure **NOI-2** is required.

None of the Alternatives under the Proposed Project would include the provision of new permanent stationary or mobile sources of noise in proximity to sensitive receptors. Thus, there would be no operational noise impacts.

Implementation of mitigation measures **NOI-1** and **NOI-2** ensure that construction noise would not exceed construction noise thresholds during the implementation of any of the Proposed Project Alternatives at the nearby noise-sensitive receptors. With implementation of mitigation measures **NOI-1** and **NOI-2**, potential impacts from heavy-duty construction equipment and construction-related haul trucks would be ***less than significant with mitigation incorporated***.

Mitigation Measures

NOI-1 Equipment Use

The use of all heavy-duty construction equipment shall be prohibited during all Project construction occurring between 7:00 a.m. and 8:00 a.m. on Saturdays.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *NID*

NOI-2 Imports and Exports

All Project material deliveries and material export hauling during all Project construction shall be restricted during 7:00 a.m. and 8:00 a.m. on Saturdays, to the extent feasible.

Timing/Implementation: *During construction*

Monitoring/Enforcement: *NID*

Impact 3.9-2 Implementation of the Proposed Project could generate excessive groundborne vibration or groundborne noise levels.
Impact Determination: *less than significant*.

Threshold:	*Would generate excessive groundborne vibration or groundborne noise levels.*

Alternatives 1, 2, and 3

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to each of the Project Alternatives would be associated with short-term construction-related activities. Construction of each Alternative would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. 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 Project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 3.9-9.

Table 3.9-9. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Impact Pile Driver	1.518
Sonic Pile Driver	0.734
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: Federal Transit Administration (FTA) 2018; Caltrans 2020

Neither the County of Placer nor City of Lincoln regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020) 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.

As shown in Table 3.9-9, the most potent source of groundborne vibration includes the impact pile driver. A pile driver would be used during demolition of the existing diversion structure and installation of a temporary sheet pile coffer dam at the existing Hemphill Canal intake. The nearest building to the existing diversion structure includes an outbuilding associated with a residential property to the north, located approximately 650 feet distant. Based on the representative vibration levels presented for an impact pile driver in Table 3.9-9 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:

$$[PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}]$$

Based on this equation, it can be predicted that an impact pile driver would generate groundborne vibration of 0.007 inch per second PPV at the outbuilding located 650 feet distant [$0.007 = 1.518 \times (25/650)^{1.5}$]. This is less than the 0.2 inch per second PPV threshold and since impact pile drivers are the most potent source of groundborne vibration noise, it can be concluded that no other piece of construction equipment at the existing diversion structure would negatively impact the nearest structure.

A vibratory roller would be used during Alternative 3, specifically during the installation of the proposed water pipeline within Virginiatown, Fowler, and Fruitvale roads. The nearest structures to Alternative 3

include a single-family residence on Fowler Road and a single-family residence on Fruitvale Road (approximately 50 feet from the roadway centerline). Based on the representative vibration level identified in Table 3.9-9 and the FTA equation, it can be predicted that a vibratory roller would generate groundborne vibrations of 0.074 inch per second PPV at the residential structures located 50 feet distant [$0.074 = 0.21 \times (25/50)^{1.5}$]. This is less than the 0.2 inch per second PPV threshold and since vibratory rollers are the most potent source of groundborne vibration noise that would be used during installation of the water pipeline under Alternative 3, it can be concluded that no other piece of construction equipment would negatively impact the nearest structures. (Pile drivers would not be employed during water pipeline installation.)

Vibration as a result of construction activities would not exceed 0.2 PPV at the nearest structure. Thus, Project construction would not exceed the recommended threshold. This impact is ***less than significant***.

Mitigation Measures

None required.

3.9.6 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 the City of Lincoln and Greater Placer County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to noise impacts during construction. However, once construction is completed, the project would not have any noise related impact. Additionally, no other projects of this type are approved, proposed, planned, and other reasonably foreseeable at this time.

Cumulative Impacts and Mitigation Measures

Impact 3.9.3: Cumulative Noise Impacts

Threshold:	*Would Implementation of the proposed project, along with any foreseeable development in the project vicinity, result in cumulative noise impacts?*

Implementation activities associated with any of the Project Alternatives and other construction projects 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 Proposed 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 sensitive receptors in the Project area. However, each project would be required to comply with the applicable limitations on allowable hours of construction-type activities. For these reasons, the Proposed Project would have a ***less than considerable contribution to cumulative impacts*** regarding noise.

Cumulative Mitigation Measures

None required.

3.9.7 References

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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 for Tribal Cultural Resources (TCRs) in the Project Area. The following analysis of the potential environmental impacts related to TCRs is derived primarily from the following sources and agencies:

- California Native American Heritage Commission Sacred Lands File Search, July 22, 2020;
- The cultural resources inventory and evaluation report for the project (ECORP 2020);
- Ethnographic overviews of the Nisenan (Beals 1933; Kroeber 1976; Levy 1978; Littlejohn 1928; Loeb 1933; Wilson and Towne 1978); and
- Tribal consultation under AB52 between NID and the United Auburn Indian Community (UAIC).

3.10.1 Environmental Setting

Ethnography

Ethnographically, the Project Area is in the southwestern portion of the territory occupied by the Penutian-speaking Nisenan. Nisenan inhabited the drainages of the Yuba, Bear, and American rivers, and also the lower reaches of the Feather River, extending from the east banks of the Sacramento River on the west to the mid to high elevations of the western flank of the Sierra Nevada to the east (Wilson and Towne 1978). The territory extended from the area surrounding the current city of Oroville in the north to a few miles south of the American River in the south. The Sacramento River bounded the territory on the west, and in the east, it extended to a general area located within a few miles of Lake Tahoe.

As a language group, Nisenan (meaning "from among us" or "of our side") are members of the Maiduan Family of the Penutian language group and are generally divided into three groups based on dialect differences: the Northern Hill (mountain) Nisenan in the Yuba River drainage; the Valley Nisenan along the Sacramento River; and the Southern Hill (foothills) Nisenan along the American River (Beals 1933; Kroeber 1925; Wilson and Towne 1978). Individual and extended families "owned" hunting and gathering grounds, and trespassing was discouraged (Kroeber 1925; Wilson and Towne 1978). Residence was generally patrilocal, but couples had a choice in the matter (Wilson and Towne 1978).

The basic social and economic group for the Nisenan was the family or household unit. The nuclear and/or extended family formed a corporate unit. These basic units were combined into distinct village or hamlet groups, each largely composed of blood-related kin (Beals 1933; Littlejohn 1928). Lineage groups were important political and economic units that combined to form tribelets, which were the largest sociopolitical unit identified for Nisenan (Wilson and Towne 1978). Each tribelet had a chief or headman who exercised political control over all villages within it. Villages typically included family dwellings, acorn granaries, a sweathouse, and a dance house, owned by the chief. The role of chief seems to have been an advisory role with little direct authority (Beals 1933), but with the support of the shaman and the elders, the word of the chief became virtually the law (Wilson and Towne 1978). Tribelets assumed the name of the head village where the chief resided (Beals 1933; Levy 1978).

The office of tribelet chief was hereditary, with the chieftainship being the property of a single patrilineage within the tribelet. Tribelet populations of Valley Nisenan were as large as 500 persons (Wilson and Towne 1982:6). Each tribelet exercised control over the natural resources of a boundless tract of land (Littlejohn 1928). Beals (1933:359) estimated that Valley Nisenan tribelet territories averaged approximately 10 miles along each boundary, or 100 square miles. Littlejohn (1928) noted that in many instances, these boundaries were indicated by piles of stones. Regardless, Nisenan groups tended to stay within their village areas except during the summer season when groups of people would journey into the mountains to hunt and gather (Littlejohn 1928).

Nisenan practiced seasonal migration, a subsistence strategy involving moving from one area or elevation to another to harvest plants, fish, and hunt game across contrasting ecosystems that were in relatively close proximity to each other. Valley Nisenan generally did not range beyond the valley and lower foothills, while foothill and mountain groups ranged across a more extensive area that included jointly shared territory whose entry was subject to traditional understandings of priority of ownership and current relations between the groups (d'Azevedo 1963).

During most of the year, Nisenan usually lived in permanent villages located below about 2,500 feet that generally had a southern exposure, were surrounded by an open area, and were located above, but close to, watercourses (Littlejohn 1928). The rather large uninhabited region between the 3,000-foot contour and the summit of the Sierra Nevada was considered "open ground" that was only used by communities living along its edge (Littlejohn 1928:20). Beals (1933) noted that permanent villages in the foothills and mountains were usually located on high ground between rivers. Valley villages were also usually located on raised areas to avoid flooding. Littlejohn (1928) stated that at one time or another there were settlements located on every small stream within Nisenan territory, but permanent villages were not located in steep, dark, narrow canyons of large rivers, or at altitudes where deep snows persisted throughout the winter. In fact, permanent occupation sites above 3,500 feet were only located in protected valleys (Littlejohn 1928).

Communally organized Nisenan task groups exploited a wide variety of resources. Communal hunting drives were undertaken to obtain deer, quail, rabbits, and grasshoppers. Bears were hunted in the winter when their hides were at their best condition. Runs of salmon in the spring and fall provided a regular supply of fish, while other fish such as suckers, pike, whitefish, and trout were obtained with snares, fish traps, or with various fish poisons such as soaproot (Beals 1933; Faye 1923; Wilson and Towne 1978). Birds were caught with nooses or large nets and were also occasionally shot with bow and arrow. Game was prepared by roasting, baking, or drying. In addition, salt was obtained from a spring near modern-day Rocklin (Wilson and Towne 1978).

Acorns were gathered in the fall and stored in granaries for use during the rest of the year. Although acorns were the staple of the Nisenan diet, they also harvested roots like wild onion (Wilson and Towne 1978). Buckeye, pine nuts, hazelnuts, and other edible nuts further supplemented the diet. Key resources such as acorns, salmon, and deer were ritually managed through ceremonies to help successful and equitable distribution of resources (Beals 1933; Swezey 1975; Swezey and Heizer 1977).

Trade was important with goods traveling from the coast and valleys up into the Sierra Nevada and beyond to the east, and vice versa. Coastal items like shell beads, salmon, salt, and foothill pine nuts were traded for resources from the mountains and farther inland, such as bows and arrows, deer skins, and sugar pine nuts. In addition, obsidian was a valued resource imported from the north (Wilson and Towne 1978).

Flaked and ground stone tools were common among the Nisenan and included knives, arrow and spear points, club heads, arrow straighteners, scrapers, rough cobble and shaped pestles, bedrock mortars, grinding stones (metates), pipes, charms, and short spears (Barrett 1917; Beals 1933; Voegelin 1942; Wilson and Towne 1978). Nisenan used baskets for a variety of tasks, including storage, cooking, serving and processing foods, traps, cradles, hats, cages, seed beaters, and winnowing trays. Basket manufacturing techniques included both twining and coiling, and baskets were decorated with a variety of materials and designs. Other woven artifacts include tule matting and netting made of milkweed, sage fibers, or wild hemp (Wilson and Towne 1978).

The Spanish arrived on the central California coast in 1769, and by 1776 it had been explored by José Canizares. 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.

Known Tribal Cultural Resources in the Project Area

Prior to ECORP's 2020 study, thirty previous cultural resource investigations have been conducted within 0.5 mile of the Project Area between 1927 and 2017, covering approximately 35 percent of the total area surrounding the property. These studies revealed the presence of 31 pre-contact sites associated with Native American occupation of the vicinity, including lithic scatters and habitation sites. Two of these sites P-31-1694 and TCE 1/2, are located within the Project Study Area and two P-31-1693 and P-31-1696 are located immediately adjacent to the Project Study Area. Subsurface components of the two adjacent sites may extend into the Project Study Area. ECORPs 2020 study identified three additional pre-contact sites within the Project Study Area: HD-008, HD-009, and HD-012. All seven pre-contact sites may qualify as potential TCRs, however, identification of TCRs can only be made by California Native American tribes.

3.10.2 Regulatory Framework

Federal

National Historic Preservation Act

The NHPA requires that the federal government list significant historic resources 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 traditional cultural significance at the national, state, or local level. The act defines the responsibilities of federal agencies to

protect and preserve historic properties found eligible for or listed in the NRHP. Sections 106 and 110 include specific provisions for the identification and evaluation of these properties for inclusion in the NRHP, such as consulting with interested parties that often include local Native American tribes.

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.

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. In 1990, National Register Bulletin 38 presented guidelines for evaluating traditional cultural significance as a kind of cultural significance for which historic properties can be found eligible for inclusion in the NRHP using established criteria (Parker and King 1990; revised in 1992 and 1998). The process for considering TCPs is situated within the framework of the NRHP as the preservation of tangible cultural properties that have historical and ongoing significance to living communities, as evidenced in their traditional cultural practices, values, beliefs, and identity.

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.

Additionally, the NRHP guidelines describe a type of cultural significance for which properties 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

Assembly Bill 52

Effective July 1, 2015, Assembly Bill 52 (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 Public Resource Code 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 California Register of Historical Resources; 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 avoidance, impact minimization, and mitigation measures.

In accordance with Section 21082.3(c)(1) of the PRC, "… 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

Placer County General Plan

The Placer County General Plan (2013) provides and overall framework for development in the County and protection of its natural and cultural resources. The Countywide General Plan consists of two documents: The General Plan Background Document and the General Plan Policy Document. Background Report inventories and analyzes existing conditions and trends in Placer County. It provides the formal supporting documentation for general plan policy. This General Plan Policy Document includes the goals, policies, standards, implementation programs, that constitute Placer County's formal policies for land use, development, and environmental quality. The goals and policies relevant to Native American Resources and applicable to the Project include:

Goal 5.D: *To identify, protect, and enhance Placer County's important historical, archaeological, paleontological, and cultural sites and their contributing environment.*

Policies:

5.D.3. The County shall solicit the views of the Native American Heritage Commission, State Office of Historic Preservation, North Central Information Center, and/or the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.

5.D.7. The County shall require that discretionary development projects are designed to avoid potential impacts to significant paleontological or cultural resources whenever possible. Unavoidable impacts, whenever possible, shall be reduced to a less than significant level and/or shall be mitigated by extracting maximum recoverable data. Determinations of impacts, significance, and mitigation shall be made by qualified archaeological (in consultation with recognized local Native American groups), historical, or paleontological consultants, depending on the type of resource in question.

City of Lincoln General Plan

The City of Lincoln General Plan has considerations for Native American cultural resources built into its Open Space and Conservation Element. Goals and policies that relate to Native American resources specifically and apply to the Project include:

Goal OSC-6: To preserve and protect existing archaeological, historical, and paleontological resources for their cultural values.

Policies:

OSC-6.9 *Native American Resources:* The City shall consult with Native American representatives, including appointed representatives from United Auburn Indian Community, to discuss concerns regarding potential impacts to cultural resources and to identify locations of importance to Native Americans, including archeological sites and traditional cultural properties. Coordination with the Native American Heritage Commission should begin at the onset of the review of a proposed project.

OSC-6.10 *Discovery of Human Remains:* Consistent with CEQA Guidelines (Section 15064.5), if human remains are discovered during project construction, it is necessary to comply with state laws relating to prohibitions on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (California Health and Safety Code Section 7050.5). If any human remains are discovered or recognized in any location on the project site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

A. The Placer County Coroner / Sheriff has been informed and has determined that no investigation of the cause of death is required; and

If the coroner determines that the remains are of Native American origin,

1. The coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.
2. The NAHC shall identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American.
3. The MLD shall have an opportunity to make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

B. Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.
C. The County has notified the United Auburn Indian Community (UAIC) Tribal Council and solicited their input.

3.10.3 Environmental Impacts and Mitigation Measures

Thresholds of Significance

Following Appendix G of the CEQA Guidelines, tribal cultural resource 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?

Methods of Analysis

Summary of Tribal Consultation

At the time NID was ready to initiate CEQA review, the agency had received written requests from three California Native American Tribes which identified themselves as being traditionally and culturally affiliated with the lands subject to NID's jurisdiction:

- Colfax's Todd's Valley Consolidated Tribe;
- Nevada City Rancheria; and
- United Auburn Indian Community of Auburn Rancheria (UAIC).

On September 3, 2020, NID determined that it had a complete project description and it was ready to begin review under CEQA. On September 3, 2020, NID issued an NOP for the Project and sent initial notification letters via both email and mail to Colfax Todd's Valley, Nevada City Rancheria, and UAIC with an invitation to consult on the Project. NID requested responses to the offer to consult within 30 days of the receipt of the letter, by October 2, 2020.

No responses were received from Colfax Todd's Valley or Nevada City Rancheria within either the required timeframe or to date. UAIC responded on October 9, 2020 and requested to consult with NID under AB52. On October 28, 2020, NID initiated consultation under Section 21080.3.1(e) of the California Public Resources Code. Consultation is summarized below.

United Auburn Indian Community

In UAIC's initial response to NID requesting formal consultation, the tribe also requested that UAIC tribal representatives observe and participate in all cultural resource surveys, including initial pedestrian surveys

for the project. UAIC also requested copies of the drafted cultural resources reports and results of records searches so the tribe can comment on identification, assessment, and culturally appropriate treatment related to TCRs.

On October 28, 2020, NID provided a copy of the ECORP 2020 cultural resources report and invited UAIC to a field meeting at 10:00 am on November 10, 2020 at the NID Placer Yard. At that time, Tonia M. Tabucchi Herrera from NID, Theadora Fuerstenberg from ECORP, and Joshua Stuart from UAIC met and reviewed the project and maps of the pre-contact resources ECORP had identified in the 2020 study. NID described the project alternatives and anticipated timeline for the environmental review.

The field meeting included a visit to pre-contact site HD-008 along Alternative 3. The property owners were present and explained that HD-008 was not a pre-contact bedrock mortar; rather, they had commissioned an artist to create a realistic sculpture of a bedrock mortar for decorative purposes. Upon inspection, both Ms. Furstenberg and Mr. Stuart agreed the bedrock was, indeed, a sculpture made of unnatural composite material and was not the product of pre-contact (prehistoric) Native American groups.

The group discussed the types of mitigation for impacts to TCRs that NID would implement if the pre-contact sites were identified as TCRs, and Tonia M. Tabucchi Herrera explained that NID would focus on avoidance as its preferred measure and once the preferred alternative is chosen, the specific mitigation measures would be developed in consultation with UAIC. Josh Stuart indicated he would review the information and perform a second site visit on Tuesday November 24, 2020 to examine the sites on the golf course south of the Auburn Ravine before making any final determinations about TCRs.

On Tuesday November 24, 2020 Ms. Tabucchi Herrera from NID met with Mr. Stuart and Travis Young from UAIC at the Turkey Creek Golf Course. They were joined by Mike Kaveney, Chris Wilson, and Jeff Wilson from the Turkey Creek Golf Course. They discussed the purpose of tribal consultation for the benefit of the Turkey Creek representatives, reviewed various project alternatives, and reviewed and located pre-contact sites. They also discussed the potential for avoidance of sites HD-009 and HD-012.

The group discussed avoidance as the primary objective for all TCRs, which were identified by UAIC as the pre-contact archaeological sites identified by the ECORP study (excluding HD-008) and any subsequent pre-contact features or artifacts that may be discovered in the Project Area. No additional features, artifacts, or sites were identified during the November 24, 2020 field visit. UAIC indicated that it would likely recommend a tribal monitor and other treatment measures.

On February 24, 2021, Ms. Tabucchi Herrera from NID sent an update email to Mr. Young and Mr. Stuart of UAIC. In the email, Ms. Tabucchi Herrera provided a contact for the maintenance manager of Turkey Creek and updated the tribe with details about which alternatives were being considered for the Project. NID asked UAIC to provide recommend treatment measures for the TCRs in these alternatives. To date, the tribe has not provided NID with recommendations.

Consultation is ongoing as of the preparation of this EIR, but will be concluded prior to the final certification of this EIR.

Cultural Resources Study

ECORP completed a cultural resources study for the Project Area (ECORP 2020), which consisted of a records search of the California Historical Recourse Information System (CHRIS) at the North Central Information Center (NCIC), a search of relevant literature and historic maps of the Project Area, a search of the Native American Heritage Commission's Sacred Lands File, and a pedestrian survey of the Project Area.

Literature Review

A CHRIS records search was completed by NCIC staff on July 23, 2020. The purpose of the records search was to determine the extent of previous surveys within a 0.5-mile (800-meter) 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. Twenty-nine previous cultural resource investigations have been conducted within 0.5 mile of the property, covering approximately 35 percent of the total area surrounding the property within the record search radius. These studies revealed the presence of pre-contact sites, including lithic scatters and habitation sites; and historical sites, including rock walls and sites associated with historic mining activities.

Historical and ethnographic references and maps were also reviewed and no ethnographic villages were identified within the Project Study Area. A search of the Sacred Lands File by the NAHC failed to indicate the presence of Native American cultural resources in the Project Study Area.

Pedestrian Survey

On August 5, 6, and 7, 2020, ECORP subjected the Project Study Area to an intensive pedestrian survey. At that time, the ground surface was examined for indications of surface or subsurface cultural resources. The general morphological characteristics of the ground surface were inspected for indications of subsurface deposits that may be manifested on the surface, such as circular depressions or ditches. Seven pre-contact resources were identified during the survey either within or immediately adjacent to the Project Study Area. Four had been previously recorded and three were newly identified.

Tribal Cultural Resources

Information about potential 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 CHRIS (as relayed in ECORP 2020); and 4) AB52 tribal consultation record for the Project between NID and UAIC.

Sacred Lands File Search

A search of the NAHC Sacred Lands File was requested on July 22, 2020. The NAHC responded on July 27, 2020 that the search was negative for the presence of sacred lands in the vicinity. The NAHC included a list of suggested tribal representatives to contact who are culturally affiliated with the region. The tribal contacts listed included Colfax-Todds Valley and UAIC, both of whom had been contacted about the Project.

Ethnographic Information

The ethnographic information reviewed for the Project, including ethnographic maps (Wilson and Towne 1978) lists the nearest Native American villages as *Bamuma* and *Piuhu*. Although the map depicting the location of these villages is small and difficult to discern exact scale, the *Bamuma* village appears to be located just east of the city of Lincoln, approximately two miles southwest of the Project Area, and the *Piuhu* village appears to be located approximately six miles southeast of the Project Area. Neither is situated within the Project Area.

Ethnographic literature from Beals (1933), Kroeber (1976), Littlejohn (1928), and Wilson and Towne (1978), indicate that Nisenan lived in permanent villages located below about 2,500 feet that generally had a southern exposure, were surrounded by an open area, and were located above, but close to, watercourses. Permanent villages in the foothills were usually located on high ground between rivers. Valley villages were also usually located on raised areas to avoid flooding. Littlejohn (1928) stated that at one time or another there were settlements located on every small stream within Nisenan territory.

Archaeological Site Records

The entire Project Study Area was subjected to an archaeological survey and records search review. Five pre-contact Native American sites were located within the Project Study Area boundaries, and two additional sites were located immediately adjacent:

- P-31-1696/CA-PLA-1335H is a pre-contact bedrock mortar site with midden. It was identified during the record search as partially overlapping the Project Area although no surface features are located within the Project Area.
- P-31-1694/CA-PLA-1333 is pre-contact bedrock milling site identified during the record search, immediately adjacent to the Project Area. No surface features or artifacts were confirmed within the project area during ECORP's survey.
- P-31-1693/CA-PLA-1332 is a pre-contact artifact scatter identified during the record search immediately adjacent to the Project Area. No surface features or artifacts were confirmed within the project area during ECORP's survey.
- TCE-1/2 is a pre-contact bedrock milling site that overlaps the current Project Area. This resource was evaluated as eligible for the NRHP and CRHR and is considered a Historical Resource according to CEQA.
- HD-008 was identified during ECORP's 2020 field effort as a bedrock milling site; however, upon further inspection and communication with the landowner, this site was confirmed to be a modern sculpture of a pre-contact feature created by an artist in the 2010s.
- HD-009 is a pre-contact bedrock milling site identified and recorded during ECORP's 2020 field effort.
- HD-012 is a pre-contact bedrock milling site identified and recorded during ECORP's 2020 field effort.

In sum, excluding HD-008, six pre-contact archaeological sites that are also TCRs are located within the Project Area. Because of the proximity of the Project Study Area to meandering perennial waterways such as Auburn Ravine and its tributaries, alluvium deposited over time may have buried surface artifacts and components associated with these sites, so as the boundaries could extend further subsurface than is presently known.

Tribal Consultation Results

Six TCRs were identified within and immediately adjacent to the Project Study Area by UAIC and NID, and these TCRs coincide with the pre-contact bedrock milling and artifact scatter sites identified in the Project Study Area and identified as: P-31-1693, P-31-1694, P-31-1696, TCE-1/2, HD-009, and HD-012. Due to the presence of these sites, and the presence of known nearby pre-contact sites in close proximity to the Project Study Area, there remains a strong possibility that additional undiscovered TCRs could become known during construction, or underground components of known TCRs could be discovered.

If sites P-31-1693, P-31-1694, P-31-1696, TCE-1/2, HD-009, and HD-012 are impacted by the Project, this would be considered a significant impact. Therefore, mitigation measures are required to avoid these TCRs and reduce the impact to less than significant.

If any of these underground TCRs are impacted by the Project, this would be considered a significant impact. Therefore, a mitigation measure is required to reduce the impact to unknown TCRs to less than significant.

Project Impact Analysis

Impact 3.10.1: Impacts to Tribal Cultural Resources. Impact Determination: *less than significant with mitigation incorporated.*

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?*

Four TCRs are within the Project Study Area and two additional TCRs are immediately adjacent to the Project Study Area; TCRs are located in portions of the Study Area for all three alternatives.

Under Alternative 1, movement of construction equipment along access roads, excavation, and staging in the Project Study Area could impact the surface manifestations of several TCRs; further, subsurface components associated with both known and unknown TCRs may be uncovered during the ground disturbance required for Project construction. Implementation of Mitigation measures **TCR-1** and **TCR-2** would reduce these potential impacts to less than significant.

Under Alternative, 2, movement of equipment along the access road and modifications to the Hemphill Canal including replacement of the culverts could impact the surface manifestations and subsurface components of several TCRs.. Implementation of Mitigation measures **TCR-1** and **TCR-2** would reduce these potential impacts to less than significant.

Under Alternative 3, construction equipment movement and trenching for the pipeline installation could impact both surface manifestations of TCRs and subsurface components associated with the TCR in this area. Implementation of Mitigation measures **TCR-1** and **TCR-2** would reduce these potential impacts to less than significant.

Under all three alternatives, subsurface components associated with both known and unknown TCRs may be uncovered during the ground disturbance required for Project construction. Implementation of Mitigation measures **TCR-1** and **TCR-2** would reduce these potential impacts to less than significant. Further, implementation of mitigation measure **CUL-3** (see Section 3.4.4) would assure that any discovery of TCRs within the Project area would be subject to these procedural requirements. implementation of mitigation measure **CUL-4** (see Section 3.4, Cultural Resources) would reduce impacts associated with the discovery/disturbance of human remains to a ***less than significant with mitigation incorporated*** level.

Mitigation Measures

TCR-1 Worker Awareness Training

A consultant and construction worker tribal cultural resources awareness brochure and in-field training program for all personnel involved in ground-disturbing activities will be developed and disseminated by a UAIC tribal representative to all operators of ground-disturbing equipment prior to construction commencing. The program will include relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The worker tribal cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources that have the potential to be located in the project area and will outline the communication protocols in the event of the discovery of any potential tribal cultural resources or artifacts are encountered during ground-disturbing activity. The program will underscore the requirement for confidentiality and culturally appropriate treatment of any find of significance to Native Americans, and behaviors consistent with Native American tribal values. All ground-disturbing equipment operators shall be required to receive the training and sign a form that acknowledges receipt of the training. A copy of the form

shall be provided to NID as proof of compliance. This mitigation measures shall be carried out in coordination with mitigation measure **CUL-2**.

Timing/Implementation: Prior to construction

Monitoring/Enforcement: NID/UAIC

TCR-2 Monitor Ground Disturbance, Installation of environmentally sensitive area fencing, and Stop Work if Cultural Resources or Remains are Detected

Resources TCE-1/2, HD-009, P-31-1696 (Alternative 1), P-31-1693, P-31-1694 (Alternative 2), and HD-012 (Alternative 3) shall be designated Environmentally Sensitive Areas prior to construction activities with high-visibility temporary exclusionary fencing installed surrounding the known boundaries of these sites, plus a 5 meter (approximately 16 foot) buffer, as shown on the *confidential* Environmentally Sensitive Area Fencing map on file with NID. No ground-disturbing activities shall be allowed within the exclusionary fencing. A tribal representative from UAIC shall be present to observe the installation of environmentally sensitive area fencing around these resources.

The tribal monitor shall also be present for all ground disturbing activity within the Project Area at the outset of the project, after which the frequency of monitoring in areas deemed less sensitive for TCRs may be re-assessed based on the observations and judgment of the UAIC tribal monitor.

If subsurface deposits believed to be cultural or human in origin are discovered during construction by the monitor, all work must halt within 100 feet of the discovery. The UAIC tribal monitor will work with the onsite archaeologist to evaluate the significance of the find and shall have the authority to modify the no-work radius as appropriate, in communication and coordination with the archaeologist, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the tribal representative determines that the find does not represent a TCR, work may resume following the procedures outlined in mitigation measure **CUL-3**.
- If the tribal monitor determines the find represents a TCR, he or she shall immediately notify NID and the on-site archaeologist, and the parties shall consult on appropriate treatment measures. Work may not resume within the no-work radius until NID, through consultation as appropriate, determines that the find either: 1) is not a TCR under CEQA, as defined in Section 21074(a) of the Public Resources Code; or 2) that the treatment measures have been completed to its satisfaction.
- Should tribal monitors desire to take possession of any materials the archaeologist does not deem a cultural resource, they may do so as long as the possession is documented by the archaeologist and tribal monitor, and as long as removal has been approved in writing by the property owner and authorized by NID.

- This mitigation measure will be carried out in concert with mitigation measure **CUL-3**.

Timing/Implementation: Prior to and during construction

Monitoring/Enforcement: NID/UAIC

3.10.4 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 Lincoln and greater Placer County. Developments and planned land uses, including the Proposed Project, would cumulatively contribute to impacts to known and unknown tribal cultural resources in the area. Section 3.9.1 Environmental Setting provides an overview of tribal cultural resources and the history of the region.

Cumulative Impacts and Mitigation Measures

Impact 3.10.2: Cumulative Impacts to Cultural Resources

Threshold:	*Would Implementation of the proposed project, along with any foreseeable development in the project vicinity, could result in cumulative impacts to tribal cultural resources?*

As mitigated, the direct impacts associated with the Proposed Project will be reduced to a less than significant level. While it is possible that ground disturbing activities will result in impacts to known TCRs and/or discovery of previously unknown TCRs, mitigation measures **TCR-1, TCR-2, and CUL-4** and state and federal laws already in place will set in motion actions designed to mitigate these potential impacts. The Proposed Project is adjacent to existing residential and recreational development that has disturbed the soil and likely already affected TCRs. As a result of surrounding development, mitigation proposed in this section, and existing federal and state laws, this impact is considered to have a ***less than considerable contribution to cumulative impacts*** .

Cumulative Mitigation Measures

None required.

3.10.5 References

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Section 4.0
Alternatives to the Proposed Project

4.0 ALTERNATIVES TO THE PROPOSED PROJECT

4.1 INTRODUCTION

The CEQA Guidelines specify that an Environmental Impact Report (EIR) must describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic project objectives (Guidelines §15126.6(a)). The alternatives analysis must focus on alternatives that are capable of avoiding or substantially lessening 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 2.2, "Project Objectives," NID is pursuing the Hemphill Diversion Structure Project to eliminate the impediment the current structure poses to fish passage in Auburn Ravine and correct other deficiencies associated with operation of the existing diversion. Specifically, the District's objectives for pursuing the Project are:

1) Provide for passage for anadromous fish at Hemphill Diversion Structure through elimination or modification of the existing structure.
2) Provide for a project that limits operational and maintenance activities within Auburn Ravine.
3) Maintain NID's water rights (pre- and post-1914) within Auburn Ravine.
4) Continue to provide raw water deliveries via the Hemphill Canal.
5) Minimize or eliminate fish passage into Hemphill Canal.
6) Provide for a project that reduces the risk of further upstream erosion.
7) Provide a project that is economically feasible to implement, operate, and maintain.

Consideration of Project objectives are an important element in developing a reasonable range of alternatives required to be provided in an EIR. As stated in CEQA Guidelines Section 15124(b):

(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.

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, one key element of selecting an alternative for consideration is that alternative's ability to meet most of the basic objectives of the project.

After consideration of numerous potential Project alternatives to meet the District's objectives for the proposed Project, the three Project alternatives addressed in this DEIR were determined to provide a reasonable range of alternatives in keeping with CEQA requirements. As described in Section 2.0, this DEIR presents an equal-level analysis of the three Project Alternatives. This chapter consolidates and summarizes information and analysis presented in Section 3.0 to provide a comparative assessment of the impact of each alternative relative to the various resource issue areas addressed herein.

In deriving the three Project Alternatives evaluated in Section 3.0 above, NID considered various other potential Project alternatives to meet the District's Project objectives but that were eliminated from further consideration in favor of Alternatives 1, 2, and 3 addressed in detail in this DEIR. The following section describes those alternatives and explains why they were eliminated from further review in this DEIR.

4.2 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."

CEQA Guidelines §15126.6(f)(2)(A) states, "[o]nly locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR." Further, CEQA Guidelines §15126.6(f)(2)(B) states in part, "[i]f the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR..."

In preparing this DEIR, a number of alternatives were considered for review but were eliminated from further analysis because it was determined they did not meet the guidelines set forth in Section 15126.6(a). Alternatives considered but eliminated from further analysis in this DEIR are discussed below.

4.2.1 Diversion Removal and Abandonment of Hemphill Canal

The Initial Study prepared as part of the scoping process for this DEIR (See **Appendix 1.0** presented a potential Project alternative (Alternative 4) that would remove the Hemphill Diversion Structure and discontinue water deliveries to Hemphill Canal. This alternative assumed that alternate sources of raw water supply would be developed to serve existing customers that currently divert from the canal. This alternative was eliminated from further review in this DEIR because it was unclear whether feasible, cost-effective, and reliable alternative sources of raw water supply were available to replace current diversions to Hemphill Canal.

4.2.2 Diversion Removal and Installation of a Ranney Collector

NID considered the installation of a "Ranney Collector" for diverting water from Auburn Ravine into Hemphill Canal after removal of the existing diversion structure. A Ranney Collector is a radial well used to extract water from an aquifer with direct connection to a surface water source like a river or lake. The instream viability of this approach relies on the porosity (permeability) of the material underlying the riverbed. To construct a Ranney well, a vertical receiving pit is excavated below grade and screened wells are bored horizontally in a radial pattern at depth below the stream channel. Water is collected in the receiving pit and pumped. A pumping well and several observation wells were drilled along the right abutment of the Hemphill Diversion in August 2019. The water was pumped out of the pumping well and drawdown was recorded in the observation wells. The pumping well went dry after 30 minutes, indicating low permeability material. Weathered granitic rock was logged at a depth of 15 feet below ground surface or roughly elevation 187 feet. With the removal of the diversion structure, the stream channel thalweg would require the radial wells to be drilled below elevation 187 feet, putting the radial screens below elevation 187 feet and into the weathered granitic rock. The Ranney well and screens would be below elevation 187 feet indicating that the Ranney well is not a viable Project alternative. (NV5 2019)

4.2.3 Alternative Approaches to the Fish Passage Alternative (Alternative 2)

In developing the Fish Passage Alternative evaluated in this DEIR, NID considered various approaches to improving fish passage at the Hemphill Diversion site while still maintaining water deliveries to Hemphill Canal. This process was informed, in part, by the reports *Fish Passage Alternatives Developed for Auburn Ravine's NID Gaging Site & Hemphill Dam Site* (Michael Love & Associates 2009) and *Hemphill Diversion Structure and Fish Passage Assessment Final Report* (Northwest Hydraulic Consultants [NHC] 2021). Fish passage alternatives that were addressed by Michael Love & Associates (2009) included the following:

Two-Stage Bypass Channel

As described by Michael Love & Associates (2009) (see **Appendix 3.9** of this DEIR), this alternative approach to fish passage at Hemphill Diversion involved constructing a nature-like bypass channel along the north or south bank possibly configured with two fishway exits to provide year-round fish passage

with and without dam flashboards. This alternative placed the bypass channel along the north bank to minimize loss of mature riparian trees and avoid having to relocate the diversion headworks.

Partial Width Roughened Channel

This potential Project alternative consisted of a partial width roughened channel 170 feet in length and approximately 15 feet wide, which cuts through the existing dam abutment along the north bank. The channel bed would consist of chutes and pools constructed at an overall slope of 3.5%. The 6% chutes have 2 feet of drop, with 24-foot-long pools below each chute to dissipate energy and provide holding habitat. The chutes and pools would be built with a matrix of large rock mixed with smaller material, sized to remain stable up to the 100-year flood. Under this alternative, the existing Hemphill Diversion structure would remain in place.

Single Stage Pool-and-Chute Fish Ladder

A pool-and-chute fish ladder built across the apron of the existing diversion dam along the south bank would provide fish passage during winter operations (no flashboards on dam). The ladder would be placed along the south bank due to the high erosion potential along the north bank associated with the return of overbank flood flows. The entrance weir to the ladder would be 25 feet downstream of the dam apron. Upstream of the exit weir would be a removable gate, potentially constructed of removable H-beams and stoplogs. This gate would be installed when the flashboards are installed at the beginning of the irrigation season, shutting off flow to the ladder.

Two Stage Fish Ladder for Year-Round Passage

In addition to the pool-and-chute fish ladder developed in the single stage ladder discussed above, an alternative with a secondary ladder was also considered to provide passage during the irrigation season. The second stage is a pool and weir ladder with a width of 4 feet and overall length of 36 feet. Weirs would be formed with stoplogs, and the drop over each weir is limited to 6 inches. The exit weir height may need to be adjusted periodically as flows ramp up and down at the beginning and ending of the irrigation season.

Each of the four alternative approaches to fish passage presented above would keep the existing dam in place. Two of the alternatives include a bypass fishway around the dam, and the other two entailed notching into the existing dam and installing a pool and chute fish ladder past the dam. Of the four alternatives proposed, NID identified a two-stage fish ladder, installed in the main stem of the river, as the most desirable alternative. Due to concerns about the structural integrity of the existing diversion structure and the reliance on the above alternatives on continued use of the structure, NID pursued development of additional fish passage alternatives that did not require use of the existing diversion structure.

NID directed Northwest Hydraulics (NHC) to explore alternatives to fish passage at the Hemphill Diversion site that did not require the retention or rehabilitation of the existing diversion structure. The results of this study were presented in their report *Hemphill Diversion Structure and Fish Passage Assessment Final Report, NHC, (2021)* (see **Appendix 3.9** of this DEIR). In that report, NHC evaluated a number of

alternative approaches to enhance fish passage at the Hemphill Diversion site including the alternative ultimately selected for further review in the DEIR: Alternative 2: Fish Passage Alternative described in detail in Section 2.0.

Alternatives considered by NHC (2021), but not included for further review in this DEIR, included the following:

Nature-like Chutes and Pools

This alternative consists of a nature-like roughened channel with chutes and pools, similar to the passage structure at the Lincoln Gaging Station farther downstream. This alternative entails removing the existing Hemphill Dam and replacing it with the nature-like chute and pool structure. The chute and pool structure would provide adequate fish passage while also maintaining the existing grade of Auburn Ravine upstream of the dam. The crest of the chute and pool structure would be at the same elevation as the existing dam crest (without flashboards). This alternative is designed primarily to maintain the grade upstream of the dam, which is showing evidence of bank instability. However, it is important to note that a 2020 sediment transport report by Balance Hydrologics indicates that lowering the dam crest by two feet likely will not adversely affect the bank stability upstream. To maintain a stable grade throughout the structure, several channel-spanning sheet pile or concrete weirs, fortified with large boulders, are recommended. The weirs will keep the structure stable during high flow events to minimize detrimental erosion and scour within the structure.

Vertical Slot Bypass Fishway

A vertical slot fishway is a traditional, technical fishway. It is constructed in a rectangular concrete channel with a downstream sloping floor and is divided into a number of pools. Each pool is separated by a concrete partition with a vertical slot extending to the floor. As water passes downstream through the fishway, fish are able to migrate upstream through the vertical slots. In vertical slot fishways, the water level is self-adjusting based on the flow rate through the structure allowing it to function both with and without flashboards installed on top of the existing dam. For this alternative, a segment of the existing dam would be left in place. The vertical slot fishway would be constructed close to the dam within the scour pool immediately downstream, which is approximately 13 feet lower than the top of the flashboards during diversion season. Vertical slot fishways are typically suitable for fish species with strong swimming abilities, such as salmonids. Weaker fish, such as lamprey often have a harder time overcoming the fast current through each of the vertical slots. However, some modifications, such as rounded corners, can be made to make the vertical slots more suitable for Pacific Lamprey to provide a continuous attachment point.

Larinier Fishway

Larinier Fishways are modified Denil fishways and are typically designed for passing salmonids and sea trout in the United Kingdom. They are constructed with vertical walls – generally from concrete – and have steel herringbone baffles on the bottom. They also tend to have strong attraction flows. Given similar species characteristics with Chinook salmon and steelhead, this structure may be compatible with NID's project objectives while also meeting fish passage requirements for salmonids. Larinier fishways can be

constructed at a steep slope, up to approximately 15%, which reduces its overall footprint. Two potential approaches to the Larinier Fishway include: 1) installing the fishway as a bypass around the dam, and 2) installing a seasonal, modular Larinier fishway over the existing dam.

Rationale for Eliminating Fish Passage Alternatives from Further Review in this DEIR

A number of alternatives to aid fish passage described above would leave the existing dam in place. Two of these include a bypass fishway around the dam, and another entailed notching into the existing dam and installing a pool and chute fish ladder past the dam. Pursuit of an alternative that requires continued use of the existing diversion structure, however, is considered problematic given the current condition of the structure. As described by NHC (2021), the downstream edge of the dam's concrete apron constructed as part of the 1997 repair is perched approximately 1.5 feet above the downstream channel, and the scour hole extended approximately 11 feet under the concrete apron. Some of the wire mesh had become exposed within the shotcrete on top of the apron. It was also evident that there was seepage flow under the dam. Based on field observations, and continuing attempts to plug the dam with concrete, it is likely that another large flood event may further compromise the dam or cause it to fail entirely, given that its foundation is already compromised.

Due to concern that the structural integrity of the existing diversion would become compromised and would not support fish passage alternatives that would incorporate the existing diversion, these alternatives were eliminated from further review in this DEIR in deference to Alternative 2: the proposed Fish Passage Alternative.

Alternative 2 was selected for further review in this DEIR over other fish passage alternatives that would also remove the existing diversion based in part on the recommendation of NHC (2021) which states:

> Based on the fish passage alternatives presented in this report, and other previous reports, we believe this alternative best meets all of the current needs at the Hemphill site. Alternative 2 would replace the existing dam with a more stable grade control structure. Lowering its crest by two feet would provide better sediment continuity, allowing impounded sediments upstream to deposit downstream, thus reversing some of the effects of channel incision and possibly providing suitable instream fish spawning habitat. Lowering the crest height by two feet would also have minimal erosion effects upstream while also relieving the lateral stress that is promoting the meander bend upstream. An elevation gain of 3.9 feet would be the least exhausting option for migrating fish compared to all of the other alternatives presented in this report.

4.2.4 Alternate Approaches to the Pipeline Alternative (Alternative 3)

In developing potential project alternatives for this DEIR, NID considered alternatives to deliver water to Hemphill Canal if the existing Hemphill diversion structure in Auburn Ravine is abandoned and NID would no longer operate within the Auburn Ravine in this area, except for still providing water to the pump accounts in the area. As a result of this review, Alternative 3: Pipeline Alternative was selected for further evaluation in the DEIR. Alternatives considered but eliminated from further review are discussed below.

Lincoln Canal Improvements

This alternative would improve NID's existing Lincoln Canal and install a new 18-inch raw water pipeline from Lincoln Canal near Sego Lane to the head of the Hemphill Canal. The alternative would enlarge the size of NID's existing Lincoln Canal, from the head down approximately 4.5 miles to where it crosses Sego Lane. From there, an inlet structure would be installed to serve an 18-inch raw water pipeline. This would extend from the Lincoln Canal approximately 2,400 ft to the head of the Hemphill Canal. Similar to Alternative 3, this alternative would have an aerial crossing of the Auburn Ravine. but with a smaller diameter pipe. The improvements to the existing Lincoln Canal would consist of excavation to enlarge the canal for the additional flow capacity. Portions of the newly enlarged canal may be lined with gunite depending on soil types to reduce seepage loss.

An 18-inch pipeline would also need to be installed on Fruitvale Road from Auburn Ravine I located on NID's Placer Maintenance yard to the intersection of the Lincoln Canal and Fruitvale Road. The pipeline would be approximately 4,200 ft in length.

The existing alignment of the Lincoln Canal traverses through multiple private properties. Most all of NID's rights relating to this canal are prescriptive in nature and would require a considerable amount of effort to obtain the necessary easements to enlarge the canal. Additionally, due to the close proximity of private structures, driveways and yards, the aesthetic impacts to private properties would be significant. Construction throughout the alignment would also be slow and difficult due to these conditions.

Install Recycled Water Pipeline from City of Lincoln Wastewater Treatment Plant to Hemphill Canal

This alternative would involve construction of approximately 25,000 ft of 18-inch recycled water pipeline and at least one pump station. The potential location and number of pump stations required has not been identified. Approximately 4,000 ft of existing recycled water line would require upsizing or installation of a parallel pipe to accommodate the necessary flows. That section of existing pipe is located along Joiner Parkway between Moore Road and Ferrari Ranch Road. Pipeline installation would require jack and bore construction under Highway 65, Highway 193 and railroad tracks. In addition, most of the remaining pipeline route is within heavily used roadways in Lincoln. Existing utilities and traffic control would complicate construction.

Other potential disadvantages of this alternative include the limited capacity of recycled water available which could impact the ability of this alternative to meet current demand; supply may be limited; overall construction costs may be higher than Alternative 3 (Pipeline Alternative); potential higher cost of service for the recycled water; and the acquisition of a right-of-way from Caltrans and from the railroad to allow construction which may be problematic.

Install New Municipal Groundwater Well Near Head of Hemphill Canal for Discharge to Hemphill Canal

This alternative would involve the construction of permanent municipal well that would be owned and operated by NID. The well would be installed near the head of the Hemphill Canal. Groundwater would

be pumped to the surface and discharged into the existing Hemphill Canal. A raw water pump station would be constructed. The pumps would most probably be a combination of fixed and variable speed pumps to accommodate fluctuations in demand. NID would need to demonstrate sustainability of the groundwater basin, which could require NID to contribute additional raw water to the basin. NID currently contributes to the basin from existing unlined canals and spills, but that amount would need to be quantified as part of the sustainability discussion. And as noted in Section 3.8, the likelihood of significant groundwater recharge is somewhat suspect as the watershed is the highest contributor. This alternative would be initially less costly than any of the proposed Alternatives but would likely have higher maintenance costs as well as electrical costs for the pump station. Other potential disadvantages of this alternative include uncertainties related to future regulatory requirements for the groundwater basin and maintenance and replacement costs for pumps.

Construct Reservoir near Hemphill Diversion to store flow from Lincoln Canal

This alternative would involve utilizing current excess capacity in the existing Lincoln Canal by increasing flows to maximum capacity and constructing an off-stream reservoir on the Turkey Creek Golf Club property. Initial analysis determined that to meet even the current demands of the Hemphill Canal, the size of the reservoir needed would be too large to construct on the property or to keep it full during use, and thus would be infeasible.

Selection of Alternative 3 (Pipeline Alternative) For Further Evaluation In the DEIR

Upon consideration of each of the alternatives considered above, Alternative 3 (Pipeline Alternative) was selected for further review and evaluation in the DEIR because, for reasons discussed above, it is the least restrictive project in terms of construction, permitting and right of way requirements. Construction costs were also a factor in its selection. As noted, although the Municipal Groundwater Well alternative would be less costly to implement, it would be more costly to operate and maintain than the Pipeline Alternative. Also as noted, the Lincoln Canal alternative could pose the risk of impact on adjacent residences that would be avoided with Alternative 3. Importantly, no other alternative considered presented a significant reduction in potential project impact on environmental resources and in some, if not most cases, presented a potentially higher risk of impact.

For the above reasons and in consideration that none of the alternatives considered exhibited distinct environmental advantage over Alternative 3, they were eliminated from further review in this DEIR.

4.3 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS IN THIS DEIR

For purposes of this DEIR, three Project alternatives and the No Project alternative were selected for further analysis and consideration. This selection meets CEQA requirements for the comparative analysis of alternatives to be presented in the EIR and constitutes a reasonable range of alternatives for comparison. The alternatives selected for further analysis in this EIR consist of the following and each is described below:

- No Project Alternative
- Alternative 1: Riverbank Infiltration Gallery Alternative

- Alternative 2: Fish Passage Alternative
- Alternative 3: Pipeline Alternative

4.3.1 No Project Alternative

Under CEQA, an EIR must include a comparative analysis of a No Project Alternative (see CEQA Guidelines § 15126.6(e)). This requirement encourages a Lead Agency to compare the environmental effects of approving a proposed project with the effects of not approving it. The No Project Alternative generally assumes that the land area affected by Project construction would remain in its existing state, while taking into account what would be reasonably expected to occur in the foreseeable future if the Project were not approved. This is typically predicated on the continuation of current plans and ongoing operation of existing available infrastructure, and community services.

Under the No Project Alternative for this DEIR the following is anticipated to occur:

- The existing Hemphill Diversion structure would remain in place;
- Diversions to Hemphill Canal will continue to meet the demand of diverters along the Canal;
- NID will continue to release water to Auburn Ravine below Gold Hill Diversion in volumes sufficient to meet customer demand of diverters between Gold Hill and Hemphill Diversions and Hemphill Canal;
- In accordance with the NID Raw Water Master Plan, future diversions to Hemphill Canal could increase to 18 cfs;
- Diversions from Auburn Ravine to Hemphill Canal will remain unscreened;
- Due to the deteriorated condition of the diversion structure, future repairs to, or replacement of the structure are expected; and
- The diversion structure will continue to pose a significant impediment to fish passage in Auburn Ravine.

4.3.2 Alternative 1: Riverbank Infiltration Gallery Alternative

As described in Section 2.0 of this DEIR, the Riverbank Infiltration Gallery Alternative (Alternative 1) would remove the existing Hemphill Diversion structure and construct an infiltration gallery downstream of the existing diversion site along the south bank of Auburn Ravine. The gallery would extend approximately 25 feet within the existing creek bed and channel. Water drawn into the gallery would be pumped to Hemphill Canal downstream of the current intake through an underground pipeline into either an armored canal or concrete distribution box. The gallery would be approximately 65-foot-long by 30-foot-wide by seven-foot-high is size. Earth work limits would be approximately 100 feet long by 90 feet wide by up to 27 feet below the ground surface. Once the infiltration gallery is installed, the excavated area will be backfilled with compacted engineered permeable crushed rock and general fill material. The backfill will be re-enforced with heavy riprap.

4.3.3 Alternative 2: Fish Passage Alternative

Alternative 2 would remove the existing Hemphill Diversion and construct a nature-like roughened rock ramp within the stream channel at the location of the current diversion. The upstream crest elevation of the ramp would be two feet lower than the existing dam crest. The rock ramp structure would provide fish passage while also improving sediment continuity over the dam and likely improving bank stability upstream of the dam in comparison to Alternatives 1 and 3. Due to its nature-like characteristics, the rock ramp would aesthetically blend in with the natural riverine environment and resemble a typical riffle. In addition to the construction of the fish passage, a fish screen would be installed near the Hemphill Canal inlet designed to prohibit fish and Pacific lamprey (*Entosphenus tridentatus*) from entering the canal. A flat plate fish screen would be installed within the Hemphill Canal. To facilitate continued gravity flow for diversions to Hemphill Canal, a 3,600- foot segment of the canal would be excavated to a depth of up to 5 feet below the existing canal floor. This would require alterations to the inlet structure and modifications to the existing gaging station and replacement of up to four culverts.

4.3.4 Alternative 3: Pipeline Alternative

As described in Section 2.0, Alternative 3 would remove the existing Hemphill Diversion structure and would divert water from Auburn Ravine to the AR-1 Canal at the NID Placer Yard facility via the Gold Hill Diversion. To deliver water to Hemphill Canal, a new pipeline would be constructed to convey water from AR-1 to Hemphill Canal. Alternative 3 would construct an approximately 4.5-mile 24-inch pipeline from the Placer Yard facility extending along Fruitvale Road, Fowler Road, Virginiatown Road, and the access road to the Hemphill Canal. Alternative 3 includes one Auburn Ravine pipeline crossing near the crest of the existing diversion structure. This alternative would require a new concrete inlet structure within Hemphill Canal just downstream of the existing inlet. Also, approximately a 10-foot-wide path of tree and vegetation trimming and/or removal would be required from where the pipeline would leave Virginiatown Road to the connection to Hemphill Canal. Work is anticipated to occur within the Placer County ROW along Fruitvale, Fowler, and Virginiatown roads as well as private property near the existing diversion structure. Trenching will be approximately 3.5 to 4 feet wide. This alternative would require the removal of the Hemphill Canal existing inlet and filling in of the canal to the point where the new pipeline inlet would occur.

4.4 COMPARATIVE ANALYSIS OF PROJECT ALTERNATIVES

4.4.1 Introduction

This section examines the potential environmental impacts associated with each of the alternatives selected for further analysis in comparison to the other alternatives considered. Through comparison of each alternative, the relative environmental advantages and disadvantages of each are identified. The section is organized by environmental resource area in the same order as presented in Section 3.0 of this DEIR. Under each resource area, the environmental advantage/disadvantage of each alternative relative to each other is assessed.

4.4.2 Air Quality

No Project Alternative

Under the No Project Alternative, the construction of new facilities would not occur. As such, the alternative would have no impact on air emissions due to Project construction activities. Air pollutant and odor emissions associated with construction of the proposed Project alternatives are detailed in Section 3.2 of this DEIR. Construction activities for the alternatives 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.

Alternatives 1, 2, and 3

As detailed in Section 3.2, construction activities for each of the three Project alternatives considered herein would result in no 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 Alternatives would not result in the development of any substantial sources of air toxics. While construction activities for each of the Project Alternatives would not exceed PCAPCD significance thresholds for ROG, NO_x, and PM_{10} (see Table 3.2-5), Alternative 1 (Infiltration Gallery) would generate the highest levels of ROG and NO_x (7.68 and 73.26 pounds per day, respectively), and Alternative 3 (Pipeline) would generate the highest levels of PM_{10} (21.75 pounds per day). Alternative 2 would generate the lowest level of emissions for ROG, NO_x, and PM_{10} (2.02, 23.86, and 4.44 pounds per day, respectively) of any of the alternatives.

When complete, the Project would provide for passage for anadromous fish at Hemphill Diversion Structure through elimination or modification of the existing structure. There would be no stationary sources associated with the implementation of any of the Project alternatives. 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, none of the Project alternatives would create a significant source of TACs after implementation.

Analysis presented in Section 3.2 of the DEIR concluded implementation of each of the Project alternatives would have no impact related to odor emissions.

4.4.3 Biological Resources

No Project Alternative

Under the No Project Alternative, the construction of new facilities would not occur. Therefore, the No Project Alternative would have no impact on biological resources over the current baseline conditions. The retention of the Hemphill Diversion structure, however, would continue to present an impediment to the movement of anadromous fish species within Auburn Ravine. The current degraded condition of the facility must also be considered given the likelihood of future structural failure or extensive rehabilitation required to ensure continued use of the diversion structure.

Diversion Demolition and Removal (Alternatives 1, 2, and 3)

As described in Section 2.0, the removal of the Hemphill Diversion structure is proposed for each of the three Project Alternatives. Impacts on biological resources specific to dam removal, and mitigation measures required to reduce those impacts to less than significant, would not be substantially different for each Alternative. The following discussion focuses on impacts associated with activities that are unique and specific to each of the three Alternatives as they pertain to significant biological resources and mitigation requirements for each.

Alternative 1: Riverbank Infiltration Gallery Alternative

In addition to the demolition and removal of Hemphill Diversion, Alternative 1 would also construct the Infiltration Gallery downstream of the existing diversion structure on the south bank. This improvement would extend approximately 25 feet into the existing creek bed and channel. Work would include excavation to weathered granitic rock, which is approximately 15 feet below the creek surface, installation of the infiltration gallery, placement of compacted engineered rock fill, placement of riprap along the bank, and installation of a wet well pump station. As described in Section 3.0, earth work limits would be approximately 100 feet long by 90 feet wide by up to 27 feet below the ground surface. Once the infiltration gallery is installed, the excavated area will be backfilled with compacted engineered permeable crushed rock and compacted general fill material. The backfill will be re-enforced with heavy riprap.

As described in Section 3.3, Alternative 1 site preparation activities would include grading of staging areas and access roads which would facilitate Infiltration Gallery construction. As such, Alternative 1 impacts to sensitive species would also be significant as would Diversion demolition and removal activities. This impact can be reduced to less than significant with implementation of mitigation measures **BIO-1** through **BIO-16** and/or participation in the PCCP for covered species.

Construction of the instream portions of the Infiltration Gallery improvements would occur within the dewatered section of Auburn Ravine and therefore would not involve any new sensitive species impacts compared to those identified for Phase 1 construction. Mitigation measures **BIO-1** through **BIO-17** would also apply to Infiltration Gallery construction and would ensure related sensitive species impacts are reduced to less than significant. No additional mitigation is required.

As shown in Table 3.3-4, construction of the gallery would result in permanent impact to riverine/riparian habitat which is considered a significant impact. Implementation of mitigation measures **BIO-2**, **BIO-3**, and **BIO-18**, would reduce this impact to less than significant.

As shown in Table 3.3-5 Construction Impacts, construction of the Infiltration Gallery would result in permanent impact to wetland and non-wetlands waters of the U.S. This is considered a significant impact. Implementation of mitigation measures **BIO-1, BIO-2**, **BIO-3**, and **BIO-19**, would reduce this impact to less than significant.

With implementation of Alternative 1, fish passage would be improved, relative to existing conditions, by complete removal of the diversion structure, which would restore the channel to a more natural condition by removing the man-made barrier and abandoning the seasonal installation of flashboards to allow year-

round upstream and downstream fish passage. Water would be diverted from Auburn Ravine through the infiltration gallery at the same rate and season as is currently delivered via the impoundment created by seasonal installation of the flashboards. As such, the only change in streamflow that would occur under Alternative 1, relative to existing conditions, would be an increase in flows (i.e., equaling the seasonal diversion rate) between the existing point of diversion at the Hemphill Canal intake and the proposed location of the infiltration gallery a short distance downstream of the existing intake. As such, this alternative would not reduce flows in any reach that could result in an impassible low-flow fish barrier. For these reasons, fish migration conditions would be improved under Alternative 1.

Alternative 2: Fish Passage Alternative

As described in Section 2.0, in addition to the demolition and removal of Hemphill Diversion, Alternative 2 would construct Fish Passage improvements comprised of a nature-like roughened rock ramp within the stream channel at the location of the current diversion A flat plate fish screen would also be installed on the Hemphill Canal to prevent fish from entering the canal. A bypass pipe (fish return) would be constructed through the left overbank prior to the fish screen to deliver bypass flow and any downstream migrating juvenile fish back to Auburn Ravine at a location just up-stream of the nature like fishway. The above improvements would not introduce any new sensitive species impacts and installation of the fish screen would improve conditions at the current diversion intake which is currently unscreened.

Alternative 2 would also involve modification to the Hemphill Canal flow line. As discussed in the Section 2.0, near the end of the diversion season (just prior to October 15), a sheet-pile coffer dam would be installed around the Hemphill Canal diversion inlet and the canal would be dewatered. The contractor would then use an excavator to lower 3,600 lineal feet of the canal by up to five feet. Access to this activity would be via an existing dirt maintenance road that parallels the north side of the canal. Spoils from canal excavation would be spread over the existing maintenance access road and/or off hauled to an approved location. Following canal regrading, the contractor would install new headgates, flow gaging equipment, and culverts (if needed). Some or all of the regraded canal may be lined with concrete or piped if recommended during final design. Upon completion of canal modifications, the sheet pile coffer dam would be removed (from the bank of Auburn Ravine), the contractor would remove all temporary facilities and restore the access routes. This work would require about two months to complete.

Construction site preparation activities would include grading of staging areas and access roads to facilitate Fish Passage improvements. As such, Alternative 2 impacts to sensitive species would be potentially significant and similar to those described above for Diversion demolition and removal activities. This impact that could be reduced to less than significant with implementation of mitigation measures **BIO-1** through **BIO-17**.

Alternative 2 would add the Fish Passage and Hemphill Canal improvement areas to the construction footprint. Construction of Fish Passage improvements would occur within the dewatered section of Auburn Ravine, would replace the former diversion structure, and would not involve any new sensitive species impacts compared to those identified for Phase 1 construction. Mitigation measures **BIO-1** through **BIO-17** would remain applicable to Fish Passage construction and would ensure related sensitive species impacts are reduced to less than significant.

As shown in Figure 3.3-1, at least 17 elderberry shrubs are located within 100 feet of the Hemphill Canal construction access road. Based on the current conceptual design, at least 4 of these shrubs may require trimming from construction access. Per the 2017 USFWS guidance entitled *USFWS 2017 Framework for Assessing Impacts to the VELB* (USFWS 2017), ground disturbance/construction occurring within 100 feet of elderberry shrubs is considered an indirect effect to VELB and its habitat and should any shrub removals be required a direct effect to VELB is assumed. Therefore, indirect effect impacts to elderberry shrubs are expected, and depending on final design, direct effect impacts may also result. Therefore, impacts to VELB and its habitat due to implementation of Alternative 2 are potentially significant. To address impacts to VELB and its habitat, the project would implement mitigation measures **BIO-2** and **BIO-3**. Because VELB is listed as threatened under the federal Endangered Species Act, prior to construction, mitigation measure **BIO-5** would also be implemented. With implementation of mitigation measures **BIO-2**, **BIO-3** and **BIO-5**, potential impacts to VELB resulting from Alternative 2 Hemphill Canal improvements would be reduced to less than significant.

Lowering the upstream crest elevation of the existing diversion structure by two feet and constructing a nature-like roughened rock ramp within the stream channel extending approximately 180 ft downstream of the existing diversion structure under this alternative would improve migration conditions for anadromous and resident fish relative to existing conditions. The channel downstream of the diversion structure, which currently consists of an incised channel with substrates dominated by fine sediments, would be replaced with a riffle-type habitat constructed of large boulders and engineered streambed material (ESM; i.e., a mix of sand, gravels, and cobbles) designed to mimic gradations in natural riffles but maintain stability in high-flow event. Large boulders buttressed across the channel to maintain grade would also provide holding and foraging habitats for fish. As such, instream habitat in this reach would be improved for migration and rearing for special-status anadromous fish, including CV fall-run Chinook salmon, CCV steelhead, and Pacific lamprey.

As discussed above, entrainment in the Hemphill Canal would be precluded by installation of a flat plate fish screen that will be sized to meet CDFW or NMFS requirements for fish screening, including sweeping and approach velocities. The fish screen will be outfitted with a brush system to facilitate automated cleaning. A juvenile bypass pipe will be constructed through the left overbank to deliver bypass flow back to Auburn Ravine just upstream of the nature-like fishway and return fish to the main channel. As such, entrainment in the canal will be avoided. Based on these considerations, Alternative 2 would have a less than significant impact on special-status fish species.

As shown in Table 3.3-4, construction of the above components is expected to result in permanent impact to riverine/riparian habitat. This is considered a significant impact. Implementation of mitigation measures **BIO-2**, **BIO-3**, and **BIO-18**, would reduce this impact to less than significant.

As shown in Table 3.3-5, construction of the above components is expected to result in permanent impact to wetland and non-wetlands waters of the U.S. This is considered a significant impact. Implementation of mitigation measures **BIO-1**; **BIO-2**, **BIO-3**, and **BIO-19** would reduce this impact to less than significant.

Fish Passage construction would occur while the cofferdam is in place and the construction site is dewatered. While this alternative would cause temporary disturbance within Auburn Ravine from bank to

bank and within staging and access areas, similar to Alternatives 1 and 2, surrounding undeveloped lands provide adequate parallel forage, cover and movement opportunities. Therefore, Alternative 2 impacts related to terrestrial wildlife migration would be less than significant.

As described in Section 2.0 Project Description, Alternative 2 would remove the existing diversion structure and replace it with a channel spanning nature-like fishway capable of providing volitional fish passage through a range of flows meeting CDFW and NMFS fish passage flow criteria. In addition to the construction of the fish passage, a positive barrier fish screen would be placed within the Hemphill Canal within 50 feet of the intake and would include a bypass pipe routed back to Auburn Ravine upstream of the crest of the fish passage structure. The upstream crest elevation of the ramp would be up to two feet lower than the existing dam crest. The rock ramp structure would provide fish passage while also improving sediment continuity over the dam and likely improving bank stability upstream of the dam, relative to Alternatives 1 and 3. Due to its nature-like characteristics, the rock ramp would resemble a typical riffle.

Under Alternative 2, the point of diversion would be at approximately the same location as the existing Hemphill Canal intake. As such, the diversion would not affect streamflows or otherwise create low-flow barriers to fish migrations during the irrigation season.

Based on this design, fish passage would be improved, relative to existing conditions, by complete removal of the diversion structure, which would restore the channel to a more natural condition by removing the man-made barrier and abandoning the seasonal installation of flashboards to allow year-round upstream and downstream fish passage. For these reasons, fish migration conditions would be improved under Alternative 2 relative to existing conditions.

Alternative 3: Pipeline Alternative

As described above, Alternative 3 would also construct an approximately 4.5-mile 24-inch pipeline from the Gold Hill Road Placer Yard facility to the Hemphill Canal. The pipeline alignment would extend along Fruitvale, Fowler, and Virginiatown Roads, and then head southwest via a "cross-country" alignment to the Hemphill Canal. The pipeline would transition to above ground at, and then cross over, Auburn Ravine at the location of the former diversion dam which would be demolished and removed during construction.

Initial site preparation and grading of the staging areas and access roads that would facilitate the construction of the pipeline crossing of Auburn Ravine would occur as part of construction activities. As such, Alternative 3 impacts to sensitive species would be significant, the same as described above for Diversion demolition and removal activities. These impacts can be reduced to less than significant with implementation of mitigation measures **BIO-1** through **BIO-17**.

With the exception of in-road pipeline construction, Alternative 3 would only add the cross-country pipeline segment located southwest of Virginiatown Road to the Project's overall disturbance footprint. As shown in Figure 3.3-1, installation of this pipeline segment would involve construction within a few feet of elderberry shrubs. As discussed above, ground disturbance/construction occurring within 100 feet of elderberry shrubs is considered an indirect effect to VELB and its habitat which would be a significant impact. To address impacts to VELB and its habitat, the project would implement mitigation measures

BIO-2, and **BIO-3**. Because VELB is listed as threatened under the federal Endangered Species Act, prior to construction, mitigation measure **BIO-5** would also be implemented. With implementation of mitigation measures **BIO-2**, **BIO-3** and **BIO-5**, potential impacts to VELB resulting from Alternative 3 Pipeline Installation would be reduced to less than significant.

Removal of Hemphill Dam under Alternative 3 will restore year-round upstream and downstream passage of anadromous and resident fish at this location and, therefore, improve fish migration, relative to existing conditions. However, as discussed in Impact 3.8.3-3 Hydrology and Water Quality (Section 3.8), Alternative 3 would result in an additional diversion at the Gold Hill Diversion Dam resulting in a reduction in flows below Gold Hill Diversion Dam during the irrigation season. The reduction in flow below the Dam would be approximately equal to the current Hemphill diversion, totaling about six to eight cfs. As discussed in Section 3.8, the estimated flow below the Gold Hill Diversion Dam during the irrigation season appears to range between roughly 10 and 100 cfs with the lowest flows occurring in the drought of 2015. By increasing diversion at the Gold Hill Diversion Dam to serve Hemphill canal demands via a pipeline as suggested by Alternative 3, flows below Gold Hill Diversion Dam could be reduced by as much as 50% of the irrigation season flow during drought conditions.

The range of effects that could occur under such substantial flow reductions include decreased rearing habitat quantity and quality, increased stream temperatures, increased potential for low-flow barriers (e.g., shallow riffles or dry reaches), reduced food availability, dewatering of fish redds and associated egg desiccation, conversion to habitats that favor non-native fish, and increased susceptibility to predation. The potential effects of this reduction on Central Valley fall-run Chinook salmon, CCV steelhead, and Pacific lamprey are discussed in detail in Section 3.3, above.

Based on the above considerations, the substantial reduction in flows in particular during drought conditions and associated reduction in habitat quantity and quality that would occur under Alternative 3, relative to existing conditions, would have a significant and unavoidable impact on rearing juvenile Chinook salmon, steelhead, and Pacific lamprey in this reach.

As shown in Table 3.3-4, construction of the pipeline and crossing is expected to result in permanent impact to riverine/riparian habitat. When combined with the Diversion structure demolition and removal activities, this loss is considered a significant impact. Implementation of mitigation measures **BIO-2**, **BIO-3**, and **BIO-18**, would reduce this impact to less than significant.

The in-road portion of the pipeline alignment would occur within Placer County ROW. Trenching would occur within existing pavement and would be approximately 3.5 to 4 feet wide. Pipeline construction would include use of up to five potential staging areas located along the pipeline road alignment as shown on BRA Figure 6 Aquatic Resources Delineation (see draft EIR **Appendix 3.3**). As shown, 4 of the 5 staging areas support seasonal wetland swales. The filling of wetland swales would be a significant impact. However, it is expected these swales would be avoided during project staging activities and protected consistent with mitigation measures **BIO-1, BIO-2** and **BIO-3**. However, should staging area swales be temporarily impacted by staging activities, a significant impact would occur. This impact could be reduced to less than significant with implementation of **BIO-19**.

At the western end of the alignment, the pipeline would leave Virginiatown Road and head southwest "cross country" through riverine/riparian habitat before crossing over Auburn Ravine and connecting to the existing Hemphill Canal. As shown in Figure 3.3-3, this cross-country section of pipeline would cross and impact Seasonal Wetland Swale 1. This temporary impact to Wetland Swale 1 is considered significant. This impact could be reduced to less than significant by restoring the swale following pipeline placement consistent with implementation of mitigation measure **BIO-19**.

As discussed above, Alternative 3 would deliver an average of approximately 6-8 cfs to a maximum of 18 cfs from the NID Placer Yard facility on Gold Hill Road to Hemphill Canal via a pipeline during the April 15 – October 14 irrigation period. This would substantially reduce flows in the approximately 4.5-mile reach between Gold Hill and Hemphill dams especially during drought conditions during the April 15 – October 14 irrigation season. During this period, Auburn Ravine flows in this reach are at summer and early fall baseflow conditions. Habitats in this 4.5-mile reach consist of riffle-run-pool sequences. Under summer and early fall baseflow conditions, depths in riffles may be approaching the minimum thresholds to allow for upstream and downstream movements of fish, particularly any juvenile steelhead rearing in this reach. Up to a 50% reduction in flows during drought conditions would increase the potential and number of low-flow barriers in this reach, relative to existing conditions. As such, a substantial reduction in flows in this reach especially during drought conditions under Alternative 3 could restrict or limit movements of fish occurring in this reach during the critical summer months, thereby increasing their susceptibility to predation and elevated summertime temperatures and decreasing their foraging success.

Based on the above considerations, the substantial reduction in flows and associated reduction in habitat quantity and quality that would occur under Alternative 3, relative to existing conditions, would have a ***significant and unavoidable impact*** on migrations and instream movements of fish, particularly rearing juvenile steelhead in this reach.

4.4.4 Cultural Resources

No Project Alternative

The No Project Alternative envisions no new construction. As such, potential construction-related impacts on cultural resources identified in Section 3.43 of this DEIR would not occur, and implementation of proposed mitigation would be unnecessary.

Alternatives 1, 2 and 3

As discussed in Section 3.4.3 of this DEIR, the Project Area was investigated by a professional archaeologist, who concluded that there are 15 Historical Resources present. These include resources with surface manifestations, and two adjacent sites with a high potential for buried constituents to exist sub-surface inside the Project Area. There is a further potential that buried sites with no surface manifestations exist within the Project Area. For this reason, implementation of any of the proposed Project alternatives could result in a potentially significant impact to both known and unknown archaeological resources.

Cultural resources occur in the area affected by the removal of Hemphill Diversion which would occur under each of the proposed alternatives. In addition, the section discusses the possibility of the discovery

of previously unknown historical resources associated with facilities construction that would be unique to each of the Project alternatives. With implementation of mitigation measures **CUL-1**, **CUL-2** and **CUL-3**, the potential impact on historically significant resources would be less than significant for each of the three Project alternatives.

Although implementation of the proposed mitigation measures listed above would avoid significant impact for each of the three Alternatives, the degree of mitigation required for each would vary. Significant resources adjacent to Hemphill Canal would require mitigation under Alternative 2, for example, but not Alternatives 1 and 3 which do not require further excavation of the canal. Resources potentially affected along the pipeline alignment for Alternative 3 would also require mitigation that would not be required under Alternatives 1 and 2. Mitigation requirements for Alternative 1 (Riverbank Infiltration Gallery), however, would be essentially the same measures required for Alternatives 1 and 3 for activities associated with the removal and demolition of Hemphill Diversion, which again would be required for all three Alternatives.

Thus, the degree of mitigation required to avoid significant cultural resources is considered greatest for Alternative 2. Alternative 1 would require the least mitigation to avoid potential impact.

The potential for the discovery of previously unknown human remains also exists for each of the three Project alternatives. This impact is less than significant for each with the implementation of the mitigation measure **CUL-4**.

4.4.5 Energy Consumption

No Project Alternative

Under the No Project Alternative, construction activities associated with Project Alternatives 1, 2 and 3 would not occur, and operations at the Hemphill Diversion would continue unchanged relative to existing conditions. Operation of the Diversion is operated by gravity and does not consume energy to divert water to Hemphill Canal.

Alternatives 1, 2, and 3

As described in Section 3.5 of this DEIR, fuel consumption during Project construction is estimated to be 64,138 gallons for Alternative 1, 25,517 gallons for Alternative 2, and 49,852 gallons for Alternative 3. This would increase the combined annual countywide fuel use by 0.035 percent, 0.014 percent, and 0.027 percent respectively. As such, Project implementation would have a nominal effect on local and regional energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and requiring recycling of construction debris would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption

associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

4.4.6 Geology, Soils and Paleontological Resources

No Project Alternative

Under the No Project Alternative, the construction activities proposed for Project Alternatives 1, 2 and 3 would not occur. Geological and soils features associated with the Hemphill Diversion site would remain unchanged and would not impact any currently unknown paleontological resources.

Diversion Removal (Alternatives 1, 2 and 3)

As described in Section 3.6 of this DEIR, each of the proposed Project Alternatives would demolish and remove the existing Hemphill Diversion structure. Construction activities specific to this process could potentially result in significant soil erosion due to stormwater runoff. Preparation of, and compliance with a required SWPPP, however, would effectively prevent onsite erosion associated with diversion structure demolition and removal and the loss of topsoil from project site. This effect would be further mitigated by elements of the project described in Section 2.0 of this DEIR designed to restore the areas adjacent to the diversion to pre-project conditions. The staging area(s) and access points on the south and north riverbanks would be returned to natural grade and vegetated armoring would be incorporated into the restored riverbank. The staging areas would be revegetated. construction would occur in a single construction period or two consecutive periods during the seasonally dry period of the year typical of the Central Valley (i.e., June through October) when risk of rainfall and related stormwater runoff at the site would be minimal. Implementation of appropriate erosion control and pollution prevention Best Management Practices and implementation of appropriate measures included in the project's would minimize the potential for soils erosion during and after project construction. The impact on soils erosion related to the removal of Hemphill Diversion, therefore, is considered less than significant for each of the Project Alternatives.

Alternative 1

In addition to the removal of the Hemphill Diversion structure, Alternative 1 would also construct an infiltration gallery downstream of the existing diversion structure along the south bank and would extend approximately 25 feet within the existing creek bed and channel. Work would include excavation to weathered granitic rock, which is approximately 15 feet below the creek surface, installation of the infiltration gallery, placement of compacted engineered rock fill, placement of riprap along the bank, and installation of a wet well pump station. As described in Section 2.0, earth work limits would be approximately 100 feet long by 90 feet wide by up to 27 feet below the ground surface. Once the infiltration gallery is installed, the excavated area will be backfilled with compacted engineered permeable crushed rock and compacted general fill material. The backfill will be re-enforced with heavy riprap.

Under Alternative 1, the staging area for the gallery installation would be revegetated after project completion. Installation of the gallery would occur in a single construction period during the seasonally dry period of the year risk of rainfall and related stormwater runoff at the site would be minimal.

Implementation of appropriate erosion control and pollution prevention BMPs and implementation of appropriate measures included in the project's SWPPP would minimize the potential for soils erosion during and after project construction. The impact on soils erosion therefore is considered less than significant.

No known paleontological resources occur in any areas affected by the construction of Alternative 1 or Alternatives 2 and 3. The potential exists, however, that unanticipated paleontological resources will be encountered during ground-disturbing construction activities associated with each of the three alternatives. With implementation of mitigation measure **PALEO-1**, this potential impact is considered less than significant for each of the Project Alternatives.

Alternative 2

Alternative 2 would remove the existing diversion structure and construct a nature-like roughened rock ramp within the stream channel at the location of the current diversion. Areas outside of the stream channel affected by Alternative 2 construction activities would be similar to those of Alternative 1 because work within Auburn Ravine for these two alternatives would occur in the same general area and would occur within the same 14.9-acre Project Study Area described in Section 2.0 and would use the same construction/improvement, access routes, and laydown/staging area for construction of the access ramp.

Alternative 2 would also involve modification to Hemphill Canal that would not occur under Alternatives 1 or 3. These modifications would occur along a 3,600 foot segment to the first point of diversion and require use of an access route next to the canal and access through the Turkey Creek Golf Course. As described in Section 2.0, at the end of the diversion season and prior to the end of the instream work window (approximately October 15), a sheet-pile coffer dam would be installed around the diversion inlet and the canal would be dewatered. The contractor would excavate the canal using an excavator and would spoil the material on the existing access road and/or off-haul material to an approved stockpile location. The contractor would install new headgates, fish screens, reinstall the flow gaging station, and replace culverts (if needed) once the canal was regraded. Some or all of the regraded canal may be lined with concrete or piped if recommended during final design. Upon completion of the modifications, the coffer dam would be removed and the contractor would remove all temporary facilities and restore the access route. Work would require about two months to complete and would not inhibit water diversion as it would be completed during the non-irrigation season.

Implementation of appropriate erosion control and pollution prevention BMPs and implementation of appropriate measures included in the project's SWPPP would minimize the potential for soils erosion during and after project construction. The impact on soils erosion therefore is considered less than significant.

Alternative 3

As described in Section 2.0, Alternative 3 would construct an approximately 4.5-mile 24-inch pipeline from the Placer Yard facility Gold Hill Road extending along Fruitvale Road, Fowler Road, Virginiatown Road, and the access road to the Hemphill Canal. The pipeline alignment includes an aerial Auburn Ravine pipeline crossing and cross-country connection to Hemphill Canal. Pipeline construction would require the

development and use of a number of potential staging areas. The Alternative 3 pipeline alignment traverses a variety of soil types with erosion potentials ranging from "slight" to "severe." A rating of "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised. With implementation of construction site restoration activities proposed for Alternative 3 in combination with appropriate erosion control and pollution prevention BMPs employed during construction, the impact on soils erosion is considered less than significant.

4.4.7 Greenhouse Gas Emissions and Climate Change

No Project Alternative

Under the No Project Alternative, the construction activities proposed for Project Alternatives 1, 2 and 3 would not occur. Greenhouse gas emissions would remain unchanged relative to existing conditions.

Alternatives 1, 2, and 3

As detailed in Section 3.7 of this DEIR, each of the proposed Project Alternatives is consistent with the GHG inventory and forecast in the County Sustainability Plan and the 2020 MTP/SCS. The proposed Project Alternatives do not include residential development or large local or regional employment centers, and thus would not result in significant population or employment growth. Each of the Alternatives is consistent with the land use designation and is thereby consistent with the GHG inventory and forecasts in the Sustainability Plan. As shown in Section 3.7.4 above, construction activities associated with Alternatives 1, 2, and 3 would generate 650, 259, and 506 metric tons of CO2e, respectively, but these projections are well below the PCAPCD threshold of 10,000 tons. For these reasons, each of the proposed Project Alternatives have no significant impact relative to GHG emissions.

4.4.8 Hydrology and Water Quality

No Project Alternative

Under the No Project Alternative, the construction of new facilities would not occur. As such, project area drainage, hydrology, and water quality characteristics would remain unchanged relative to existing conditions.

Hemphill Diversion Demolition and Removal (Alternatives 1, 2, and 3)

As detailed in Section 3.8 of this DEIR, diversion structure removal activities that would occur within the banks of Auburn Ravine include coffer dam installation approximately 300 feet upstream of Hemphill Diversion; installation of two bypass pipelines (one to Hemphill Canal and the other to Auburn Ravine downstream of the diversion); diversion site fish rescue and dewatering; and dam demolition and removal; and in-channel site restoration. Diversion demolition and removal would involve the transport, storage, and use of hazardous materials such as gasoline, diesel fuel, and various other materials needed to carry out the proposed demolition. As discussed in Section 3.1 of this DEIR, the potential hazard to the public or the environment through the transport, use, or disposal of hazardous materials associated with the Project alternatives would be avoided through compliance with mandatory regulations as 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.

The BMPs required for coverage under the Construction General Permit would require measures to prevent construction-related contaminants from reaching impaired surface waters and contributing to water quality impacts within Auburn Ravine and/or the Sacramento River and downstream receiving waters. Compliance with the Construction General Permit and City ordinances 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. For these reasons, water quality impacts resulting from activities associated with the demolition and removal of Hemphill Diversion under Alternatives 1, 2, and 3 and ground disturbances associated with those activities would be less than significant.

Alternative 1, 2 and 3

Impact 3.8-1 addresses the potential for the proposed Project to adversely affect water quality during construction by increasing the concentration of pollutants in surface runoff from the Project site. The BMPs required for coverage under the Construction General Permit would require measures to prevent construction-related contaminants from reaching impaired surface waters and contributing to water quality impacts within Auburn Ravine and/or the Sacramento River and downstream receiving waters. Compliance with the Construction General Permit and City ordinances 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. For these reasons, water quality impacts resulting from activities associated with the demolition and removal of Hemphill Diversion and ground disturbances associated with those activities would be less than significant for Alternative 1, 2, or 3.

Impact 3.8-2 addresses how the Project would alter flow conditions in Auburn Ravine by removing Hemphill Diversion and constructing new diversion facilities to Hemphill Canal and how that alteration could result in increased erosion and or siltation within the ravine. As discussed, Alternatives 1 and 3 would result in a greater geomorphic shock to the Auburn Ravine than Alternative 2. As discussed, Hemphill Diversion currently provides grade-control for surface water elevation at the diversion site which, in turn, moderates upstream flow velocities, streambed incision and bank erosion on Auburn Ravine. Alternatives 1 and 3 would eliminate grade control at the diversion site. Alternative 2 would reestablish grade control at the diversion site albeit up to two feet lower than the existing diversion without flashboards and up to five feet lower than with flashboards in place.

The channel incision from full dam removal under Alternatives 1 and 3 would likely mobilize more sediment into the downstream reach than Alternative 2 and cause deeper incision upstream of the dam. The scale of the features to adequately mitigate upstream downcutting and bank erosion would be less extensive for Alternative 2 due to the reduced geomorphic shock relative to the full dam removal under Alternatives 1 and 3, however, with implementation of mitigation measure **HYD/WQ-1**, the impact for each Alternative would be reduced to less than significant.

Impact 3.8-3 addresses the potential effect of Alternative 3 flow reduction in Auburn Ravine between the Gold Hill and Hemphill diversions on groundwater recharge. Under Alternatives 1 and 2, deliveries to Hemphill Canal would continue to be released to Auburn Ravine below Gold Hill and, thus, no reduction relative to existing conditions would occur. As such, Alternatives 1 and 2 would have no impact on groundwater recharge on the reach below Gold Hill. While Alternative 3 would result in a reduction in flow below Gold Hill relative to existing conditions, the effect of the reduction on groundwater recharge was found to be less than significant based on the analysis presented in section 3.8.

4.4.9 Noise

No Project Alternative

Under the No Project Alternative, NID would continue to operate Hemphill Diversion with no new construction currently envisioned. No new sources of noise or vibration above existing conditions are anticipated under this alternative.

Alternatives 1, 2, and 3

As described in Section 3.9 under Impact 3.9-1, no component of project construction under Alternatives 1, 2, or 3 would exceed the 85 dBA NIOSH construction noise threshold. However, the Project proposes construction activities under each Alternative to span from 7:00 a.m. to 7:00 p.m. Monday through Saturday and construction noise generated during the hour when such noise is not exempt from County noise standards (7:00 a.m. to 8:00 a.m. on Saturdays) must be assessed against the County standard of 55 dBA as experienced at an affected receptor. As shown in Table 3.9-6, Project construction occurring in the single hour that construction noise is not exempt from County noise standards would potentially result in noise greater than 55 dBA at nearby sensitive receptors. Therefore, implementation of mitigation measure **NOI-1** is required for each Alternative.

As shown in Table 3.9-7, no component of construction would exceed the golf course-related noise standard of 80 dBA derived from Lincoln General Plan Policy HS-8.9.

Project haul trucks associated with Alternatives 1 and 2 would primarily traverse SR 193, Fowler Road, and Virginiatown Road. Alternative 3 haul trucks would also traverse State Route 193, Fowler Road, and Virginiatown Road yet would additionally use Fruitvale Road to haul construction-related material. As shown in Table 3.9-8, no component of construction would result in haul truck trips exceeding the 85 dBA NIOSH construction noise threshold. Nor would any component of construction result in haul truck trips exceeding the 80 dBA golf course-related noise standard derived from Lincoln General Plan Policy HS-8.9. However, the Project proposes construction activities under each Alternative to span from 7:00 a.m. to 7:00 p.m. Monday through Saturday, therefore, implementation of mitigation measure **NOI-2** is required for each Project Alternative.

4.4.10 Tribal Resources

No Project Alternative

The No Project Alternative envisions no new construction. As such, potential construction-related impacts on Tribal resources identified in Section 3.11 of this DEIR would not occur, and implementation of proposed mitigation would be unnecessary.

Alternatives 1, 2, and 3

Four Tribal cultural resources (TCRs) are within areas to be disturbed by construction of each of the three Project Alternatives and two additional TCRs are immediately adjacent to the Project Area. Movement of construction equipment, excavation, and staging in the Project Area for all three alternatives could impact the surface manifestations of these TCRs; further, subsurface components associated with both known and unknown TCRs may be uncovered during ground disturbance required for Project construction of all three alternatives. Implementation of Mitigation measures **TCR-1** and **TCR-2** would reduce these potential impacts to less than significant. Further, implementation of mitigation measure **CUL-3** (see Section 3.4.4) would assure that any discovery of TCRs within the Project area would be subject to these procedural requirements. Implementation of mitigation measure **CUL-4** (see Section 3.4, Cultural Resources) would reduce impacts associated with the discovery/disturbance of human remains to a less than significant level.

As discussed in Section 3.4.3 of this DEIR, the Project Area was investigated by a professional archaeologist, who concluded that there are 15 Historical Resources present. These include resources with surface manifestations, and two adjacent sites with a high potential for buried constituents to exist sub-surface inside the Project Area. There is a further potential that buried sites with no surface manifestations exist within the Project Area. For this reason, implementation of any of the proposed Project alternatives could result in a potentially significant impact to both known and unknown archaeological resources.

Although implementation of the proposed mitigation measures listed above would avoid significant impacts for each of the three Alternatives, the degree of mitigation required for each would vary. Significant resources adjacent to Hemphill Canal would require mitigation under Alternative 2, for example, but not Alternatives 1 and 3 which do not require further excavation of the canal. Resources potentially affected along the pipeline alignment for Alternative 3 would also require mitigation that would not be required under Alternatives 1 and 2. Mitigation requirements for Alternative 1 (Riverbank Infiltration Gallery), however, would be essentially the same measures required for Alternatives 1 and 3 for activities associated with the removal and demolition of Hemphill Diversion, which again would be required for all three Alternatives.

Thus, the degree of mitigation required to avoid significant cultural resources is considered greatest for Alternative 2. Alternative 1 would require the least mitigation to avoid potential impacts.

4.5 SUMMARY OF THE ALTERNATIVES ANALYSIS

The following section provides a qualitative summary of the comparative analysis presented above for each of the three Project Alternatives and No Project Alternative. The following discussion emphasizes those impacts for which key differences are identified between the Alternatives regarding either the degree of impact or the level of mitigation required to reduce the impact of an Alternative to a less-than-significant level.

No Project Alternative

As noted, an EIR must include a comparative analysis of a No Project Alternative. The No Project Alternative generally assumes that the land area affected by Project construction would remain in its existing state, while taking into account what would be reasonably expected to occur in the foreseeable future if the Project were not approved. Under the No Project Alternative for this DEIR, the existing Hemphill Diversion will remain in place and diversions from Auburn Ravine will continue as they have historically.

The Diversion structure exhibits evidence of degradation that may result in future failure during flooding events. Continued long-term operation of the Diversion would likely require significant rehabilitation of replacement of the existing structure. As detailed above in Section 2.0 and Section 3.3 of this DEIR, Hemphill Diversion presents a significant impediment to fish migration within Auburn Ravine.

Alternative 1 – Riverbank Infiltration Gallery Alternative

Alternative 1 construct an infiltration gallery downstream of the existing diversion site along the south bank of Auburn Ravine. Under Alternative 1, additional excavation of Hemphill Canal (required for Alternative 2) and pipeline installation between NID's Placer Yard and Hemphill Canal (required for Alternative 3) would be avoided. As such, mitigation activities required to reduce potentially significant impacts on cultural resources would be substantially reduced under Alternative 1, relative to Alternatives 2 and 3.

As discussed in Section 3.8 (Hydrology and Water Quality) Alternative 1 (and Alternative 3) would remove Hemphill Diversion without reestablishing grade-control at the diversion site. As such, the potential for streambed downcutting and increased erosion and sediment transport upstream of the Diversion site would be greater than that expected for Alternative 2, which would in fact reestablish grade control at the Diversion site, albeit two to five feet lower than the current diversion structure. As such, mitigation actions required to reduce potential impacts of Alternatives 1 and 3 would be greater than those required for Alternative 2.

As discussed in Sections 3.2 and 3.7 (Air Quality and Greenhouse Gasses, respectively), construction activities associated with Alternative 2 would generate fewer emissions that either Alternative 1 or 3. While emissions generated by all Alternatives would not exceed established thresholds and, thus are not considered significant, total emissions would be less under Alternative 2.

As discussed in Section 3.3 (Biological Resources), Alternative 1 construction activities could adversely affect various biological resources including special status wildlife and fish species, riparian habitat and

other natural communities, waters of the U.S., and wildlife and fish movement. Implementation of Alternative 1 would require all mitigation measures identified in Section 3.3 to reduce the potential impact of Alternative 1 on biological resources to less-than-significant levels. These measures are also required for Alternatives 2 and 3, but given the reduced construction footprint of Alternative 1, the extent of required mitigation would likely be less than required for Alternatives 2 and 3.

It is important to note that Alternatives 1 and 2 would not alter releases for Gold Hill Diversion to Auburn Ravine and, thus, streamflow in the ravine between the Gold Hill and Hemphill Diversion sites would be unaffected relative to existing conditions during irrigation season. As discussed in Section 3.3, however, implementation of Alternative 3 would substantially reduce flow in that reach of Auburn Ravine relative to existing conditions. This was found to have a ***significant and unavoidable*** impact on fish habitat and movement in the stream reach below Gold Hill Diversion. Implementation of Alternatives 1 and 2, however, would benefit fish movement and habitat in that reach.

Alternative 2 – Fish Passage Alternative

The significant differences between Alternative 2 and Alternatives 1 and 3 are addressed in the section above. It is important to reiterate, however, one important distinction of Alternative 2. As note Alternative 2 would reestablish grade control at the Hemphill Diversion site after removal of the existing diversion structure. As discussed in detail in Section 3.8 (Hydrology and Water Quality) of this DEIR, Alternatives 1 and 3 would not. The elimination of grade control at the diversion site under Alternatives 1 and 3 would substantially increase the potential for streambed downcutting, erosion, and downstream sediment transport relative to Alternative 2. Although mitigation in the form of implementation of upstream erosion control measures would reduce the impact to less than significant, the mitigation required for Alternative 2 would be considerably less extensive, if indeed it is needed at all.

As noted above, the potential impact of Alternative 2 on cultural and tribal resources is considered potentially significant requiring mitigation. This is due in large part to proposed improvements to Hemphill Canal that would only occur with Alternative 2. As described above, the extent of mitigation required to reduce these impacts to less than significant would be greater under Alternative 2 relative to Alternatives 1 and 3.

Alternative 3 – Pipeline Alternative

The significant differences between Alternative 3 and Alternatives 1 and 2 are addressed in the two preceding subsections. It is important to reiterate, however, one important consideration relative to Alternative 3. As noted, Alternatives 1 and 2 would not alter releases for Gold Hill Diversion to Auburn Ravine and, thus, streamflow in the ravine between the Gold Hill and Hemphill Diversion sites would be unaffected relative to existing conditions. Alternative 3, however, would substantially reduce flow in that reach of Auburn Ravine relative to existing conditions during irrigation season. This was found to have a ***significant and unavoidable*** impact on fish habitat and movement in the stream reach below Gold Hill Diversion. This is the only significant and unavoidable impact identified in this DEIR and would require a finding of overriding considerations from NID in order to implement this Alternative. In comparison,

implementation of Alternatives 1 and 2 would improve conditions for fish movement and habitat in that reach relative to existing conditions.

4.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires that all EIRs identify an "Environmentally Superior Alternative." Section 15126.6(e)(2) of the CEQA Guidelines 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 relative to the Alternatives considered herein. While construction-related impacts associated with facilities of each of the Project Alternatives would be avoided under the No Project Alternative, preservation and continued operation of Hemphill Diversion would continue to present a substantial impediment to fish passage at the diversion site and the use of habitat upstream of the diversion for spawning and rearing of salmon, steelhead and lamprey. This determination is also made in consideration of the existing diversion's current degraded condition and likely prospect of future failure of the structure and the potential impacts associated with that failure or activities associated with future rehabilitation or replacement of the existing structure.

Table 4.0-1 summarizes the potential impacts of the three alternatives evaluated in this section, as compared with each other. Table 4.0-2 identifies how well an alternative meets the Project objectives. As shown in Table 4.0-1 and based on the evaluation contained in Section 4.4, the No Project Alternative would have fewer adverse environmental impacts relative to existing conditions than any of the analyzed Alternatives and was determined to have the fewest adverse impacts of the lowest magnitude on the physical environment of the alternatives. For reasons presented above, however, it is not considered the environmentally superior alternative.

An EIR must describe a reasonable range of alternatives to a project that would feasibly attain the basic project objectives while avoiding or reducing one or more of the project's significant effects (CEQA Guidelines Section 15126.6(a)). The Proposed Project has seven objectives. Table 4.0-2 illustrates a comparison of the alternatives to the basic Project objectives. As shown in this table, the No Project Alternative does not meet the majority of the Project objectives and Alternatives 1, 2 and 3 meet all of the Project objectives.

In consideration of the comparative analysis presented above and information and conclusions presented in Section 3.0 of this DEIR, Alternative 2 is considered to be the Environmentally Superior Alternative relative to the No Project Alternative and Alternatives 1 and 3. This is due in large part to the reestablishment of grade controls at the Hemphill Diversion site that would occur with Alternative 2. The potential for streambed downcutting that would occur upstream of the diversion site under Alternatives 1 and 3, and the mitigation requirements to address the effects would be largely avoided under Alternative 2. As such, Alternative 2 is considered to be the Environmentally Superior Alternative.

Table 4.0-1. Alternatives Impacts Comparison

Environmental Issue Area		Alternatives Impact Levels			
		No Project	1	2	3
Air Quality	Level of Impact	NI	LTS	LTS	LTS
	Ranking	1	4	2	3
Biological Resources	Level of Impact	NI	LTSM	LTSM	SU
	Ranking	1	3	2	4
Cultural Resources	Level of Impact	NI	LTSM	LTSM	LTSM
	Ranking	1	2	4	3
Energy Consumption	Level of Impact	NI	LTS	LTS	LTS
	Ranking	1	4	2	3
Geology, Soils, and Paleontological Resources	Level of Impact	NI	LTSM	LTSM	LTSM
	Ranking*	1	2	3	4
Greenhouse Gases and Climate Change	Level of Impact	NI	LTS	LTS	LTS
	Ranking	1	4	2	3
Hydrology and Water Quality	Level of Impact	NI	LTSM	LTSM	LTSM
	Ranking	1	3	2	4
Noise	Level of Impact	NI	LTSM	LTSM	LTSM
	Ranking	1	2	3	3
Tribal Resources	Level of Impact	NI	LTSM	LTSM	LTSM
	Ranking	1	2	4	3
Overall Determination by Ranking		**1**	**3**	**2**	**4**

Notes: Level of Impact is based on the greatest impact level within that environmental issue area.
NI = no impact, LTS = less than significant impact, LTSM = less than significant impact with mitigation incorporated, SU= significant and unavoidable impact.
Ranking: ranking of alternative by level of overall environmental impact. Rankings are from 1 to 4 with 1 being the alternative with the least amount of impact. The same ranking for multiple alternatives is possible.
* Because all impacts can be mitigated, ranking is based on the amount of potential disturbance area.

Table 4.0-2. Comparison of Alternatives by Project Objectives

Project Objectives	Alternatives			
	No Project	1	2	3
1) Provide for passage for anadromous fish at Hemphill Diversion Structure through elimination or modification of the existing structure.	-	=	=	=
2) Provide for a project that limits operational and maintenance activities within Auburn Ravine.	-	=	=	=
3) Maintain NID's water rights (pre- and post-1914) within Auburn Ravine.	=	=	=	=
4) Continue to provide raw water deliveries via the Hemphill Canal.	=	=	=	=
5) Minimize or eliminate fish passage into Hemphill Canal.	-	=	=	=
6) Provide for a project that reduces the risk of further upstream erosion.	-	=	=	=
7) Provide a project that is economically feasible to implement, operate, and maintain.	=	=	=	=

= Meets project objective
- Does not meet project objective

4.7 REFERENCES

NV5 2019. Technical Memorandum: Embankment Infiltration Gallery. Prepared by Chuck Kull. Submitted to Gary King, NID. May 14.

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Section 5.0
Other CEQA Analysis

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

5.1.1 Introduction

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 action. 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.

5.1.2 Project-Specific Growth-Inducing Impacts

The potential for growth inducing impacts for Alternatives 1 through 3 is discussed below.

Alternative 1: Riverbank Infiltration Gallery Alternative

Alternative 1 would construct an infiltration gallery downstream of the existing diversion structure and result in the removal of the Hemphill Diversion Structure. This Alterative is not expected to have growth-inducing impacts as it will not attract new permanent residents to the area by providing additional housing. Additionally, Alternative 1 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 Alternative 1. Construction of the infiltration gallery 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 alternative. For these reasons, Alternative 1 would not result in growth inducement.

Alternative 2: Fish Passage Alternative

Alternative 2 would construct a fish ladder within Auburn Ravine. The installation of a fish ladder and alteration of the existing diversion structure is not expected to have growth-inducing impacts as it will not attract new permanent residents to the area by providing additional housing. Alternative 2 would not result in an increase in employment opportunities and consequential increased growth in the area. Construction of the fish passage 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 alternative. For these reasons, Alternative 2 would not result in growth inducement

Alternative 3: Pipeline Alternative

Alternative 3 would construct a 24-inch pipeline from NID's Placer Yard on Gold Hill Road and then along Fruitvale Road, Fowler Road, Virginiatown Road, and the access road to the Hemphill Canal. Once installed, the pipeline would allow for the opportunity for existing properties adjoining the pipeline to connect. However, because this pipeline would only provide non-potable raw water, any future residential or commercial developments using this water would be required to provide treatment for this water based on California drinking water standards. This would require extensive treatment and treatment facilities and result in further CEQA analysis. This action is not part of the project as the Project's water is only meant to be used as raw water. As such, Alternative 3 would not result in growth inducing impacts.

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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Section 6.0
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6.0 LIST OF PREPARERS

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Section 7.0
Acronyms and Abbreviations

7.0 ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrometers per cubic meter
1992 CO Plan	South Coast Air Quality Management District 1992 Federal Attainment Plan for Carbon Monoxide
AB	Assembly Bill
AF	Acre-feet
AMM	Avoidance and Mitigation Measure
AMSL	above mean sea level
ANSI	American National Standards Institute
APE	area of potential effects
AR1	Auburn Ravine 1
BA	Biological Assessment
BCC	Bird of Conservation Concern
BIOS	Biogeographic Information and Observation System
BLM	Bureau of Land Management
BMI	Benthic macroinvertebrate
BMP	Best management practices
BO	Biological opinion
BP	before present
BRA	biological resources assessment
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CARP	County Aquatic Resources Plan
CBC	California Building Code
CBOC	California Burrowing Owl Consortium
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCRR	Central California Railroad

CCV	California Central Valley
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife, Region 2
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CGS	California Geological Survey
CH4	Methane
CHL	California Historical Landmark
CHRIS	California Historical Resources Information System
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
CRPR	California Rare Plant Rank
CTR	California Toxics Rule
CV	Central Velley
CVFPB	Central Valley Flood Protection Board
CVRWQCB	Central Valley Water Quality Control Board
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibel
DEIR	Draft Environmental Impact Report
DNL	Day/Night Noise Level
DOC	California Department of Conservation
DPM	Diesel particulate matter
DPS	Distinct Population Segment
Draft EIR	Draft Environmental Impact Report

DWQ	Department of Water Quality
EA	Environmental Assessment
ECHRP	Erosion Control and Habitat Restoration
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMFAC	Emissions
EO	Executive Order
ERP	Ecosystem Restoration Plan
ESA	Endangered Species Act
ESA	Environmentally Sensitive Area
ESM	Engineered streambed material
ESU	Evolutionarily Significant Unit
FEIR	Final EIR
FEMA	Federal Emergency Management Agency
FERC	Federal Electric Regulatory ????
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
GHG	Greenhouse gas
GLO	General Land Office
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HDPE	high-density polyethylene
HMMH	Harris Miller, Miller & Hanson Inc
Hz	Hertz
IEPR	Integrated Energy Policy Report
IPaC	Information, Planning, and Consultation System
IPCC	Intergovernmental Panel on Climate Change
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
L_{dn}	Day/Night Noise Level
L_{eq}	Equivalent Noise Level

LSA	Lake or Streambed Alteration
MBTA	Migratory Bird Treaty Act
MLD	Most likely descendant
MMRP	Mitigation Monitoring and Reporting Program
MPOs	Metropolitan Planning Organizations
MSA	Magnussen-Stevens Act
MSL	Mean sea level
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy 2020
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NCIC	North Central Information Center
NFIP	National Flood Insurance Program
NHC	Northwest Hydraulic Consultants
NHPA	National Historic Preservation Act
NID	Nevada Irrigation District
NIOSH	National Institute for Occupational Safety and Health
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	Nitrous oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	USDA Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTR	National Toxics Rule
O_3	Ozone
OHP	Office of Historic Preservation's

OHWM	Ordinary high-water mark
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PCA	Placer Conservation Authority
PCAPCD	Placer County Air Pollution Control District
PCCP	Placer County Conservation Plan
PCWA	Placer County Water Agency
PG&E	Pacific Gas and Electric Company
PM	Particulate matter
PM_{10}	Coarse particulate matter
$PM_{2.5}$	Fine particulate matter
PPV	Peak particle velocity
PRC	Public Resources Code
Project	Hemphill Diversion Structure Project
RCNM	Roadway Noise Construction Model
RMS	Root mean square
ROG	Reactive organic gas
ROW	Right of way
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SCH	State Clearinghouse
SFEI	San Francisco Estuary Institute
SFHA	Special Flood Hazard Area
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SOI	Secretary of the Interior
SR	State Route
SSC	Species of Special Concern
SSWD	South Sutter Water District
STC	Sound Transmission Class

SVAB	Sacramento Valley Air Basin
SVAQEEP	Sacramento Valley Air Quality Engineering and Enforcement Professionals
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SWRP	State Water Resources Board
TAC	Toxic air contaminant
TCP	Traditional Cultural Properties
TCR	Tribal Cultural Resource
TMDL	Total maximum daily load
TRBL	Tricolor Blackbird
UAIC	United Auburn Indian Community
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corp of Engineers
USC	U.S. Code
USDA	US Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
VELB	Valley Elderberry Longhorn Beetle
VOC	Volatile organic compound
WBWG	Western Bat Working Group
WDR	Waste Discharge Requirements
WEAL	Western Electro-Acoustic Laboratory, Inc.