

RECLAMATION

Managing Water in the West

Environmental Assessment

Feather Water District – North and South Diversions Fish Screen Project



U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Acronyms and Abbreviations

AES	Analytical Environmental Services
AF	Acre-feet
AFSP	Anadromous Fish Screen Program
APE	Area of Potential Effect
CAA	Clean Air Act
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CO ₂	carbon dioxide
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
cyds	cubic yards
DBH	diameter at breast height
District	Feather Water District
EA	Environmental Assessment
FRAQMD	Feather River Air Quality Management District
FWA	Family Water Alliance
GHG	Greenhouse Gas
ISI	Intake Screens, Inc.
ITA	Indian Trust Assets
NAAQS	National Ambient Air Quality Standard
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO _x	oxides of nitrogen as nitrogen dioxide
Reclamation	Bureau of Reclamation
RM	River Mile
ROG	reactive organic gas
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOP	Standard Operating Procedure
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

Section 1.0 Introduction

1.1 Background

The Bureau of Reclamation (Reclamation), through the Anadromous Fish Screen Program (AFSP), which it co-manages with U.S. Fish and Wildlife Service (USFWS), proposes to provide federal funding to the Feather Water District (FWD or District) to screen two of their existing unscreened diversions along the Feather River, Sutter County, California (Proposed Action, Figure 1). The Proposed Action is a cooperative effort between the AFSP, California Department of Fish and Wildlife (CDFW), Family Water Alliance (FWA), and District. The District operates two unscreened diversions on the Feather River at River Mile (RM) 21.5 (North Diversion) and RM 16 (South Diversion). The Proposed Action involves the installation of barriers and fish screens in the existing pump intake channels to improve fish passage in the Feather River. Installation of the fish screens would help to prevent listed and other migratory or resident fish species in the Feather River from becoming entrained or otherwise impacted by the continued use of the pumps, such as being drawn into the District's irrigation system.

1.2 Need for the Proposal

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) issued a Biological and Conference Opinion on July 28, 2005 directing the District to screen its north and south pumping facilities with state-of-the-art fish screens. Installation of fish screens at both diversions will prevent entrainment of juvenile anadromous fish species.

1.3 Potential Resource Issues

This EA analyzes the Proposed Action and No Action alternatives in order to determine the potential impacts and cumulative effects to the following environmental resources:

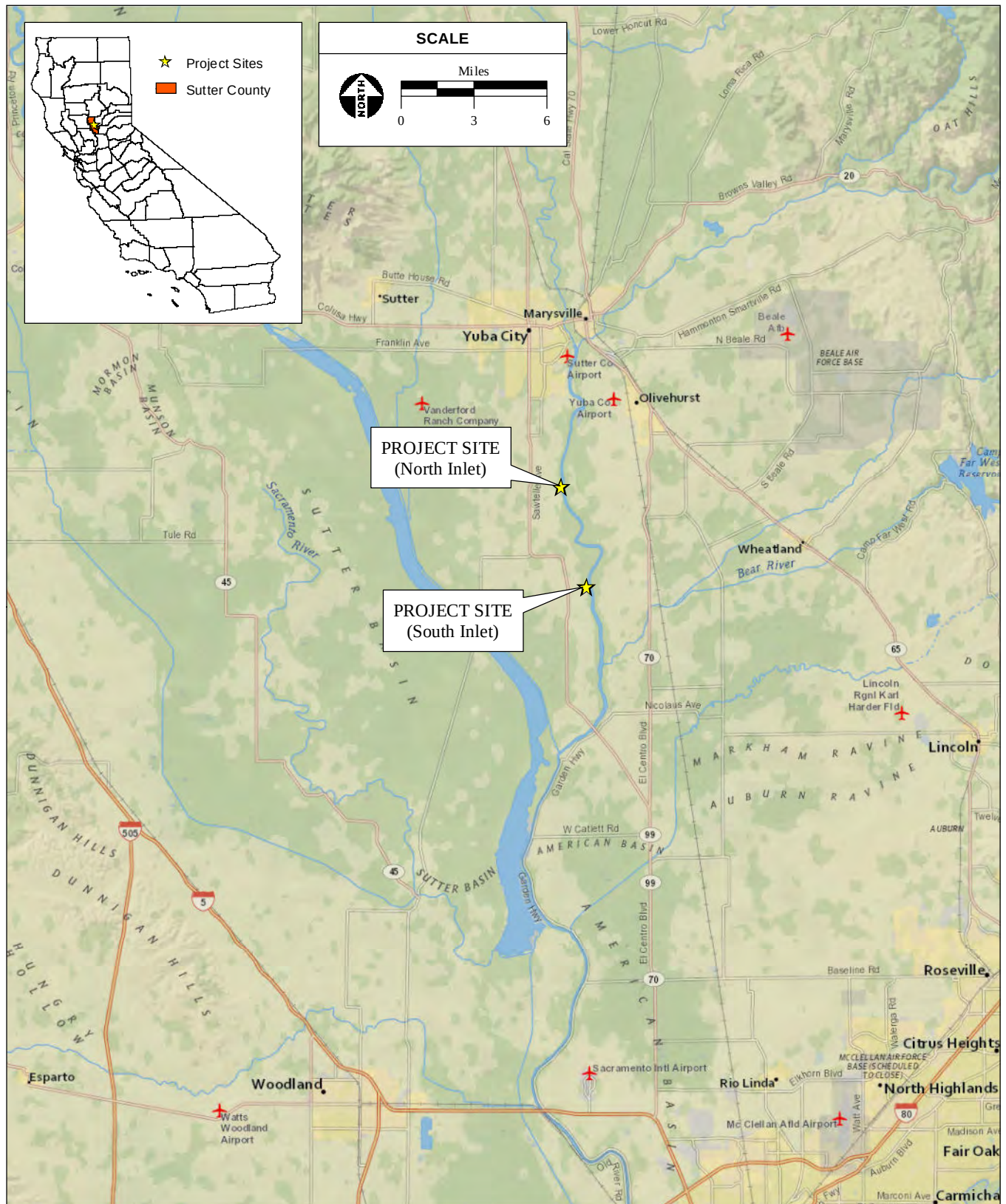
- Air Quality
- Biological Resources
- Cultural Resources

1.4 Resources Not Analyzed in Detail

Effects on several environmental resources were examined and found to be minor. For the reasons noted below, the following resources were eliminated from further review in this EA.

Indian Trust Assets

The Proposed Action does not have a potential to affect Indian Trust Assets (ITA). The nearest ITA is the Auburn Rancheria approximately 18 miles southeast of the project site.



SOURCE: National Geographic, 2012; AES 2013

Feather Water District Initial Study / 209535 ■

Figure 1
Regional Location

Environmental Justice

The Proposed Action would result in no significant changes in agricultural communities or practices and is therefore not likely to affect agricultural employment, which employs a higher proportion of low-income and minority workers than are employed in the general workforce. Accordingly, the Proposed Action would not have any significant or disproportionately negative impact on low-income or minority individuals within the project area.

Section 2.0 Alternatives

2.1 No Action Alternative

Under the No Action Alternative, the AFSP would not provide funding to screen the North and South Diversions, the District would not meet the requirements of the 2005 Biological and Conference Opinion issued by NMFS and fish would continue to be entrained at these locations.

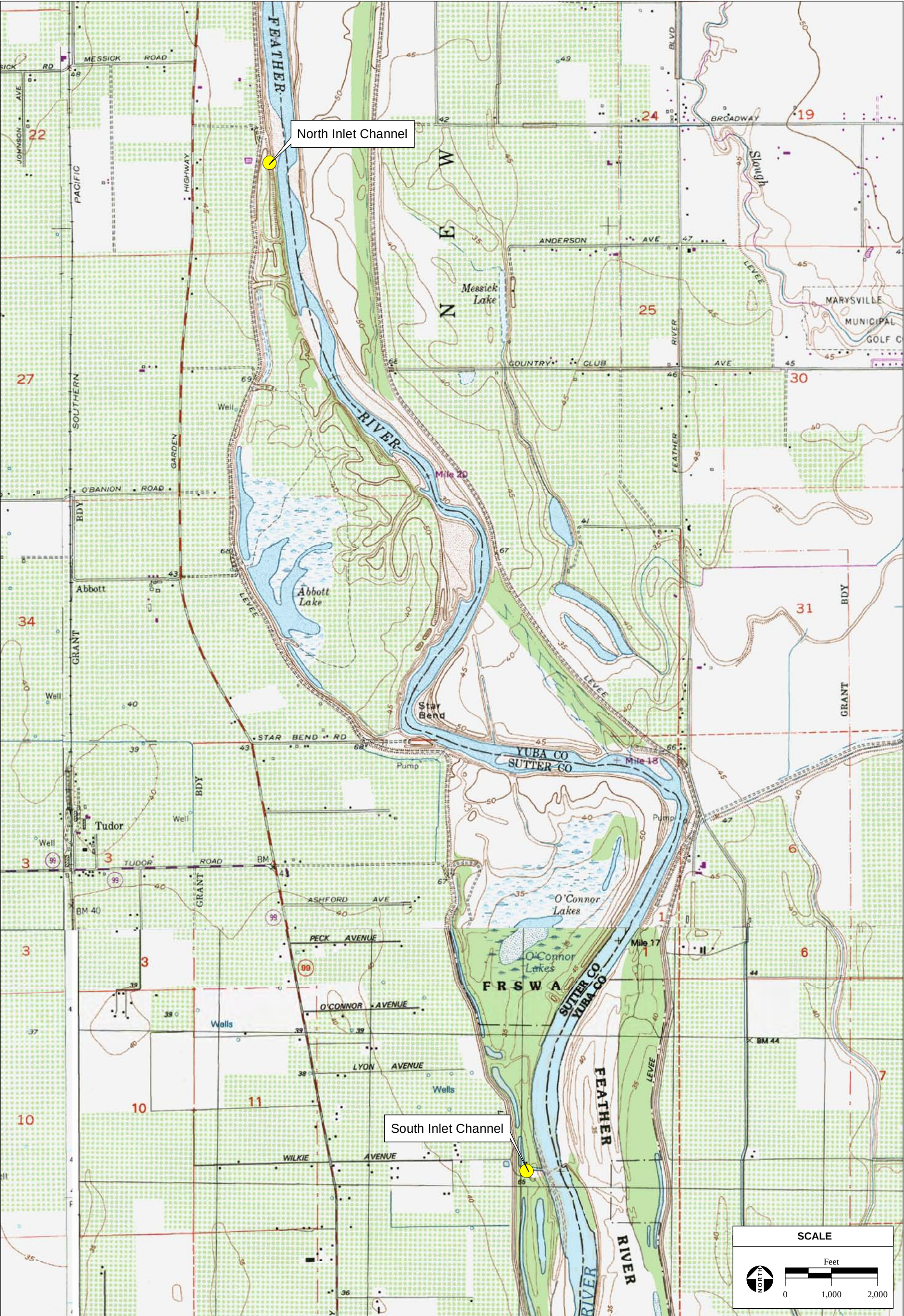
2.2 Proposed Action Alternative

The Proposed Action area for both the North and South Diversions includes the area in the immediate vicinity of the service platforms adjacent to the levee road, the channels leading from the service platforms/diversions to the Feather River, the area within the river where the cone screens are to be placed, and the access roads and staging areas at each diversion. See Figures 2 and 3 for the North and South Diversion Proposed Action areas, respectively.

The Proposed Action involves the installation of barriers in the existing pump intake channels in line with the edge of the existing west bank of the Feather River for the District's North and South pump stations in conjunction with the installation of conical fish screens to prevent fish from getting in the channel where the District pumps its water. With the self-cleaning conical fish screens installed at these locations, any future maintenance dredging should not create a significant effect on listed fish species.

The fish screens (two cone screens at each site for a total of four screens), bases, and controls will be designed and installed by Intake Screens Inc. (ISI). Each fish screen will be anchored to the river bottom by four 8-inch pipe piles and each screen base will be attached to the pipelines under the barriers with a short pipe section.

As part of the construction of the barriers, the existing access roads to the ends of the channels would also be improved (while maintaining function) to facilitate access to the screens by maintenance and/or installation equipment. The North Diversion's inlet channel would be dredged solely from the south side of the channel. The interior of the South Diversion's inlet channel would be dredged from the north side of the channel whereas the mouth of the inlet channel would be dredged from the south side.





North Inlet Close-up



Aerial Vicinity



South Inlet Close-up

For the South Diversion barrier, the top of fill width is 20 feet, the top length is 115 feet, the fill height is approximately 21 feet, the bottom width is 100 feet and the length is 36 feet. For the North Diversion barrier, the top of fill width is 20 feet, the top length is 80 feet, the fill height is about 18 feet, the bottom width is 95 feet and the length is 35 feet. The barriers would be constructed at each of the inlet channels by placing approximately 2,500 cubic yards (cyds) of material at the North Diversion barrier and 4,000 cyds of material at the South Diversion barrier. Approximately 300 cyds of material would be excavated at the North and South Diversion inlet channels for the installation of the structures. See Appendix A for construction drawings detailing barrier construction.

For the South Diversion, the District will be installing two 48-inch diameter by 110-foot long section of steel pipes. The pipes will be installed by digging out a pipe trench in the inlet channel bottom with a long reach excavator, installing the pipes with the same piece of equipment, and then backfilling over them with the rock and existing sand to create the berm across the channel. The fish screen assembly will be placed on the river side of the pipes and a precast concrete outlet box placed on the pump channel side of the pipes. The same procedure will be used for the North Diversion, but the pipes will be two 48-inch diameter by 80-foot long steel pipes.

Section 3.0 Affected Environment & Environmental Consequences

This section identifies the potentially affected environment and the environmental consequences involved with the No Action and the Proposed Action alternatives.

3.1 Air Quality

3.1.1 Affected Environment

Section 176 (C) of the Clean Air Act [CAA] (42 USC 7506 (C)) requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan (SIP) required under Section 110 (a) of the Federal Clean Air Act (42 USC 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be consistent with SIP's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standard (NAAQS) and achieving expeditious attainment of those standards. Each federal agency must determine that any proposed action subject to conformity regulatory requirements would in fact conform to the applicable SIP before the action is taken.

The Proposed Action is under the jurisdiction of the Feather River Air Quality Management District (FRAQMD). Air quality in the area is a function of the criteria air pollutants emitted locally, the existing regional ambient air quality, and the meteorological and topographic factors that influence the intrusion of pollutants into the area from sources outside the immediate vicinity.

3.1.2 Environmental Consequences

No Action Alternative

Air quality within the Proposed Action area would remain unchanged without the installation of fish screens at the North and South diversions.

Proposed Action Alternative

Potential air quality impacts are limited to those resulting from short-term construction activities involved with the development of the Proposed Action. Any material released from the actual pumping is on-going during the irrigation season and will not change as a result of this project. The FRAQMD has prepared guidelines for assessing the Proposed Action's air quality impacts. The FRAQMD provides significance criteria of 25 pounds per day of reactive organic gas (ROG) and oxides of nitrogen as nitrogen dioxide (NO_x). ROG and NO_x emissions are estimated to be 2.09 and 14.47 pounds per day, respectively. Therefore, project-related construction emissions would not exceed the FRAQMD significance threshold. The following assumptions and emission factors were used to estimate project-related emissions:

- Construction of the barriers and fish screens would occur over a 60 day period;
- OFFROAD2007 emission factors were used to estimate construction emissions;
- Construction equipment included one crane and one excavator (may include the additional short-term use of construction equipment such as a backhoe, bulldozer, etc.) and/or a pile driver, two material haul trucks, and ten worker vehicles;
- Workers would travel 25 miles one-way per day;
- Haul trucks would travel 100 miles per day; and
- Emission factors are based on construction year 2014.

The nearest sensitive receptor to the project site is located approximately 850 feet north of the North Diversion. Substantial concentrations of air pollutants from construction equipment, including diesel particulate matter, would not occur at this distance. Operation of the Proposed Action would include periodic vehicle trips by the maintenance staff and maintenance equipment that would emit far less ROG and NO_x than emitted during construction, given the scale of the project.

Construction equipment has the potential to emit odor in the vicinity of the project site. Generally, construction odors are not expected to be detected beyond the project boundaries. Given the agricultural nature of the surrounding land use and the distance to the nearest sensitive receptor (850 feet from the North Diversion), construction-related odors would not affect a substantial number of people and will significantly dissipate before reaching any sensitive receptors. Odor impacts are considered less than significant.

The Proposed Action would directly generate greenhouse gases (GHGs) during construction of the barrier and installation of the fish screen. GHG emissions are estimated to be 409 metric tons of carbon dioxide (CO₂) equivalent. The same assumptions used to determine NO_x and ROG emissions were used to estimate project-related GHG emissions. Operation of the Proposed Action would include periodic vehicle trips by the maintenance staff and maintenance equipment that would emit far less GHG emissions than the 409 metric tons of CO₂ equivalent emitted during construction given the scale of the project. Construction and operational project-related GHG emissions are less than the threshold of 900 metric tons per year; therefore, the Proposed Action would not affect the environment through GHG emissions.

3.2 Biological Resources

3.2.1 Affected Environment

A reconnaissance-level biological survey was conducted by Analytical Environmental Services (AES) on June 5, 2009 and again on March 13, 2013. Habitat types in the vicinity of the Proposed Action include valley riverine aquatic, valley/foothill, oak woodland riparian, upland cropland, and ruderal/disturbed. The North Diversion's and South Diversion's respective inlet channels connect to the Feather River and are considered jurisdictional waters of the U.S. AES also conducted a search of the USFWS species list and California Natural Diversity Database (CNDDB) for potential listed species within the Proposed Action area. While several species were identified, only the following federally listed species have the potential to occur in the Proposed Action area based on habitat surveys:

- Green sturgeon
- California Central Valley steelhead
- Central Valley spring-run Chinook salmon
- Sacramento River winter-run Chinook salmon
- Swainson's hawk (state listed; Migratory Bird Treaty Act species)
- Valley elderberry longhorn beetle

3.2.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the District would not be in compliance with the 2005 NMFS BO and would continue to potentially impact juvenile fish species.

Proposed Action Alternative

The contractor will be excavating and placing material within the active river channel or "in-the-wet". FWD will run its pumps during all water-related construction, including when the contractor excavates the inlet channel for screen placement and building the berm. Running the pumps will pull water from the Feather River into the inlet channel to reduce/eliminate turbid water from being released into the Feather River. The amount of material excavated for the installation of the pipe is approximately 300 cyds for both the South and North diversions, and

the barriers would be placing approximately 4,000 cyds of material at the South site and 2,500 cyds of material at the North site. It is estimated that the North and South Diversion Proposed Action areas will have approximately 0.10 acres and 0.17 acres of permanent impacts, respectively.

Fish Species:

Direct effects associated with in-river construction work would involve equipment and activities that would produce pressure waves, and create underwater noise and vibration, thereby temporarily altering in-river conditions. The Proposed Action would involve the installation of piles to be constructed in-water at the two screen locations. In-water work would consist of the installation of the piles and supports that would be necessary for the installation of the fish screen components. Based on the type of piles to be used for installation (8-inch steel pipe pile assumed for this Proposed Action noise analysis), shallow site conditions and usage of a vibratory hammer, the peak and accumulated sound pressures are anticipated to be 192 dB (peak) and 177 dB (accumulated). These levels are below NMFS approved criteria for injury to fish from pile driving activities (206 dB peak and 187 dB accumulated for fish greater than 2 grams) (see Appendix B for further detail regarding noise impacts resulting from pile driving).

Construction activities will produce both pulsed (i.e., impact pile driving) and continuous (i.e., vibratory pile driving) sounds. Fish react to sounds which are especially strong and/or intermittent low-frequency sounds. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. Hastings and Popper (2005, 2009) identified several studies that suggest fish may relocate to avoid certain areas of noise energy (Caltrans 2009). Additional studies have documented effects of pile driving (or other types of continuous sounds) on fish, although several are based on studies in support of large, multi-year bridge construction projects (Scholik and Yan 2001, 2002; Govoni et al. 2003; Hawkins 2005; Hastings 1990, 2007; Popper et al. 2006; Popper and Hastings 2009 – referenced in Caltrans 2009). Sound pulses (SPL) at received levels of 160 dB may cause subtle changes in fish behavior while SPLs of 180 dB may cause noticeable changes in behavior (Chapman and Hawkins 1969; Pearson et al. 1992; Skalski et al. 1992 – referenced in Caltrans 2009). SPLs of sufficient strength have been known to cause injury to fish and fish mortality (Caltrans 2001; Longmuir and Lively 2001 – referenced in Caltrans 2009). The most likely impact to fish from pile driving activities at the Proposed Action area would be temporary behavioral avoidance of the areas. The duration of fish avoidance of these areas after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated.

In addition, the areas likely impacted by the pile driving associated with fish screen installations are relatively small. Avoidance by potential prey (i.e., fish) of the immediate area due to the temporary loss of this foraging habitat is also possible. The duration of fish avoidance of these areas after pile driving ends is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated.

To further reduce potential impacts to fish, construction will incorporate a soft start. The use of a soft-start procedure is believed to provide additional protection to fish species by warning, or providing fish species a chance to leave the area prior to the hammer operating at full capacity.

The pile-driving engineer will utilize soft-start techniques (ramp-up and dry fire) recommended by NMFS for impact and vibratory pile driving. The soft-start requires contractors to initiate noise from vibratory hammers for fifteen seconds at reduced energy followed by a one-minute waiting period. This procedure will be repeated two additional times. In addition, pile driving will only be conducted between two hours post-sunrise through two hours prior to sunset, between September 1 and October 31. The majority of the site work is expected to occur over a three week period, with in-water work being no more than three to five days and may not be consecutive days. Should fish species be detected during pile driving, all pile driving activities will be ceased until fish exit project area.

Underwater installation activities could temporarily create minor sediment plumes that could directly affect salmonids. Turbidity could affect salmonid species by releasing gill-occluding sediments. The turbidity plume resulting from site preparation is not expected to extend across the entire river and salmonids would be able to effectively avoid the plume and their upstream or downstream migration would not be blocked. The period of increased turbidity would be limited to the period of installation of the intake structure. In-water activities for the project are scheduled between September 1 and October 31. The potential effects of construction activities on water quality is expected to be intermittent and temporary, return rapidly to baseline conditions, and be localized within the river channel (approximately 100 feet wide and 100 feet or less downstream of the site). No long-term turbidity-related effects are expected. All listed salmonid species are known to occur in the Proposed Action area during their respective periods of juvenile and adult migration to and from the ocean. However, an analysis of the different migration periods and survey data shows that salmonids are unlikely to be using the area when construction would occur during the proposed time period. It is important to note that there is a lack of significant cover or other important habitat features in the immediate Proposed Action areas that could attract juvenile salmonids and other fishes and increase the likelihood of impacts. If salmonid species do enter the Proposed Action area, they would likely exhibit avoidance behavior in response to construction and associated activities and actively move away from the area.

Green sturgeon move to estuaries and the lower reaches of rivers between late winter and early summer, and ascend rivers to spawn in the spring and early summer. Adult green sturgeon leave the rivers soon after spawning (Environmental Protection Information Center et al. 2001). Movement and foraging during downstream migration occurs at night for both larvae (approximately 10 days post-hatch) and juveniles (73 FR 52084; Cech et al. 2000, as cited in Reclamation 2008). Juvenile emigration reportedly occurs from May through September. The proposed in-water construction window (September 1 to October 31), including riverbank and channel bed construction, would be limited to the low-flow period to minimize potential exposure of juvenile green sturgeon to construction effects. In addition, installation activities associated with the Proposed Action would be conducted during daylight hours when green sturgeon are less active. If green sturgeon do enter the Proposed Action area they would likely exhibit avoidance behavior in response to the construction and associated activities and actively move away from the area.

A Fish Avoidance Plan will be implemented by the District prior to construction to ensure that if any fish are within the Proposed Action area, they will be moved via passive methods outside of it into the river itself (Appendix C).

Valley Elderberry Longhorn Beetle:

Four elderberry shrubs occur in the vicinity of the North Diversion. The shrubs are located approximately 100 feet from the existing turn around and access road for the North inlet and are surrounded by existing dense vegetation that will not be disturbed. In addition, the Sutter Butte Flood Control Agency is implementing their Feather River West Levee Project, which occurs in the same area as the Proposed Action and will be fencing those elderberry shrubs for their construction project (USFWS 2013; pers. comm. Monique Briard, ICF, 2014). Therefore, the Proposed Action will not affect valley elderberry longhorn beetle or their habitat.

Migratory Birds:

Swainson's hawk and white-tailed kites may use trees in the area for nesting. No impacts to nesting migratory birds would result however, as construction would occur between September and November, which is outside the nesting season.

Avoidance and Minimization Measures:

The following Avoidance and Minimization Measures will be implemented by FWD prior to and during construction of the Proposed Action:

- Staging areas shall be located on the existing graded access road at least 150 feet from the Feather River. Temporary stockpiling of imported material, spoils, or fill shall occur only in approved construction staging areas. Equipment shall be operated within the construction footprint as identified in this EA at all times. When not in use, all construction equipment shall be confined to existing access roads and construction staging areas.
- Any trees proposed for removal shall occur between September and November. Within 48 hours prior to removal of any trees, a survey shall be conducted to determine whether western red bats are roosting within the trees anticipated for removal. Any trees that must be removed as a result of the construction of the Proposed Action shall be replanted at a replacement ratio of no less than 2:1 for trees over 4 inches diameter at breast height (DBH), and shall be replanted in kind. This tree replacement ratio may vary to meet permit conditions.
- Construction activities shall occur between the months of September 1 and October 31, when the number of anadromous fish species will be lowest in the Feather River.

- Due to the possibility of entrainment behind the fish screen, a fish avoidance procedure shall be implemented during project construction just prior to the channel being closed off from the river, in order to remove fish from the channel and avoid fish entrapment. In addition, a fish avoidance procedure shall be implemented if high river flows inundate the work area during construction and potentially entrap fish within the channel.
- A litter control program shall be instituted at the entire project site. The contractor will provide closed garbage containers for the disposal of all food-related trash items (e.g., wrappers, cans, bottles, food scraps). All garbage will be removed daily from the project site. Construction personnel will not feed or otherwise attract fish or wildlife to the action area.
- After construction, staging areas shall be returned to their original state and any impacted riparian forest must be replanted using native vegetation with the goal of mirroring the control area designated at an undisturbed area near the site within five years.
- To reduce the potential for accidental releases, fuel, oil, and hydraulic fluids shall be transferred directly from a service truck to construction equipment tanks and shall not otherwise be stored on site.
- Personnel shall follow written Standard Operating Procedures (SOPs) for filling and servicing construction equipment and vehicles and any additional requirements of the permits issued by CDFW, United States Army Corps of Engineering (USACE), Central Valley Regional Water Quality Control Board (CVRWQCB) and Colusa County. The SOPs, which are designed to reduce the potential for incidents involving hazardous materials, shall include the following:
 - Refueling shall be conducted only with approved pumps, hoses, and nozzles;
 - Catch pans shall be placed under equipment to catch potential spills during servicing;
 - All disconnected hoses shall be placed in containers to collect residual fuel from the hose;
 - Vehicle engines shall be shut down during refueling;
 - No smoking, open flames, or welding shall be allowed in refueling or service areas;
 - Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill;
 - Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents;
 - Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, State, and Federal regulations;

- All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas shall be inspected monthly. Results of inspections shall be recorded in a logbook that would be maintained on site; and
 - The amount of hazardous materials used in project construction and operation shall be consistently kept at the lowest volumes needed.
- If suspected soil contamination is encountered during excavation and grading activities, all work shall be halted and a qualified individual, in consultation with the CVRWQCB, shall determine the appropriate course of action.
 - During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak.
 - Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles and heavy equipment.
 - To protect water quality, the barriers will be constructed using wet installation methods, which would minimize turbidity and the negative impacts to water quality through project design as described above in the General Work Description. In addition, the District will run its pumps during all water-related construction, which will pull water from the Feather River into the inlet channel, to reduce/eliminate sediment from entering the main stream channel.

3.3 Cultural Resources

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places; such resources are referred to as historic properties.

3.3.1 Affected Environment

The historic property identification efforts included a cultural resources survey report prepared by Origer and Associates for the proposed project, which documented three cultural resources within the Area of Potential Effect (APE): two pump stations with intake channels and the Feather River Levee. These pump stations and levee have no relation to each other with regard to their construction and purpose. Both of the pump stations are less than 50 years old (constructed in 1964) and do not meet the general age criteria for consideration as historic properties pursuant to 36 CFR § 60.4. A 41-mile-long segment of the Feather River Levee, which includes the APE for this undertaking, was previously recorded in 2012 and evaluated in 2013 by consultants (ICF)

as part of continuing Section 106 compliance work conducted for a USACE undertaking. The levee was determined eligible for inclusion on the National Register of Historic Places (National Register) under Criterion A for its association with advances in flood control in Northern California. Given that this Section 106 process is still ongoing, and there has been no consensus regarding this determination, Reclamation assumes for the purposes of this undertaking only that the Feather River Levee is eligible for inclusion on the National Register. No modifications are proposed to the Feather River Levee.

Based on the information provided in the Reclamation cultural resources reports, Reclamation determined that no historic properties will be affected by this undertaking. Utilizing these identification efforts, Reclamation entered into consultation with the California State Historic Preservation Officer (SHPO) on July 25, 2013, seeking their concurrence on a finding of “no historic properties affected §800.4(d)(1).” SHPO concurred with Reclamations’ findings and determination on August 16, 2013.

3.3.2 Environmental Consequences

No Action Alternative

Under the no action alternative, there would be no impacts on cultural resources because the proposed improvements would not be constructed, and there would be no change in operations. Conditions related to cultural resources would remain the same as existing conditions.

Proposed Action Alternative

The Proposed Action is the type of activity that has the potential to affect historic properties. A records search, a cultural resources survey, and Tribal consultation did not identify historic properties within the APE. Reclamation concluded that no historic properties will be affected; therefore, no cultural resources would be affected as a result of implementing the Proposed Action.

Section 4.0 Consultation and Coordination

Federal Endangered Species Act

On February 5, 2014, Reclamation submitted a Biological Assessment to NMFS requesting consultation on the conclusion that the project “may affect, is not likely to adversely affect” federally listed salmonids and sturgeon, “not likely to adversely affect” their designated critical habitat and have “no effect” on Pacific Salmon Essential Fish Habitat. Reclamation is awaiting the Biological Opinion from NMFS and will not proceed with the Proposed Action until it is received.

National Historic Preservation Act

The NHPA of 1966, as amended (16 U.S.C. 470 et seq.), requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties, properties that are eligible for inclusion in the National Register. The 36 CFR Part 800 regulations implement Section 106 of the NHPA.

Section 106 of the NHPA requires federal agencies to consider the effects of federal undertakings on historic properties, properties determined eligible for inclusion in the National Register. Compliance with Section 106 follows a series of steps that are designed to identify interested parties, determine the APE, conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties.

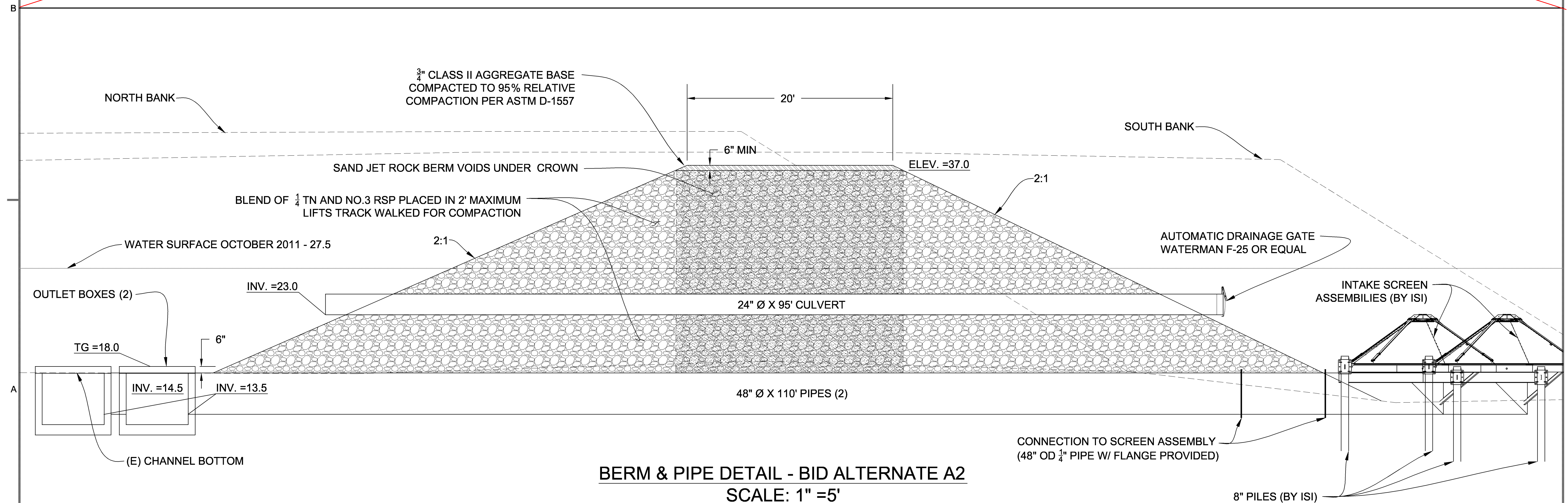
Section 5.0 References

- Adams, P.B., C.B. Grimes, J.E. Hightower, S.T. Lindley, and M.L. Moser. 2002. *Status Review for North American Green Sturgeon, Acipenser medirostris*. National Marine Fisheries Service. 58 pp.
- California Department of Fish and Wildlife. 1998. *A status review of the spring-run Chinook salmon (Oncorhynchus tshawytscha) in the Sacramento River drainage*. Report to the Fish and Game Commission, Candidate Species Status Report 98-01.
- California Department of Transportation (Caltrans). 2009. *Final Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish*. Prepared for Caltrans by ICF Jones & Stokes and Illingworth and Rodkin Inc. February 2009.
- California Department of Water Resources. 2004. *Project effects on temperature regime. SPW6. Oroville Facilities Relicensing FERC Project No. 2100*. Draft Final Report.
- Cech, J. J., S. I. Doroshov, G. P. Moberg, B. P. May, R. G. Schaffter, and D. M. Kohlhorst. 2000. *Biological Assessment of Green Sturgeon in the Sacramento-San Joaquin Watershed* (Phase 1). Final report to CALFED Bay-Delta Program. Project # 98-C-15.
- Deng, X., J.P. Van Eenennaam, and S.I. Doroshov. 2002. Comparison of early life stages and growth of green and white sturgeon. *Transactions of the American Fisheries Society* 28:237-248.
- Environmental Protection Information Center, Center for Biological Diversity, and WaterKeepers Northern California. June 2001. *Petition to List the North American Green Sturgeon as an Endangered or Threatened Species under the Endangered Species Act*.
- Kohlhorst, D. W., L. W. Botsford, J. S. Brennan, and G. M. Cailliet. 1991. *Aspects of the structure and dynamics of an exploited Central California population of white sturgeon (Acipenser transmontanus)*. In: P., Williot (ed.), *Acipenser: acts of the first international sturgeon symposium*. October 3-6, 1989. Bordeaux, France, Cemagref-Dicova. Pp. 277-293.

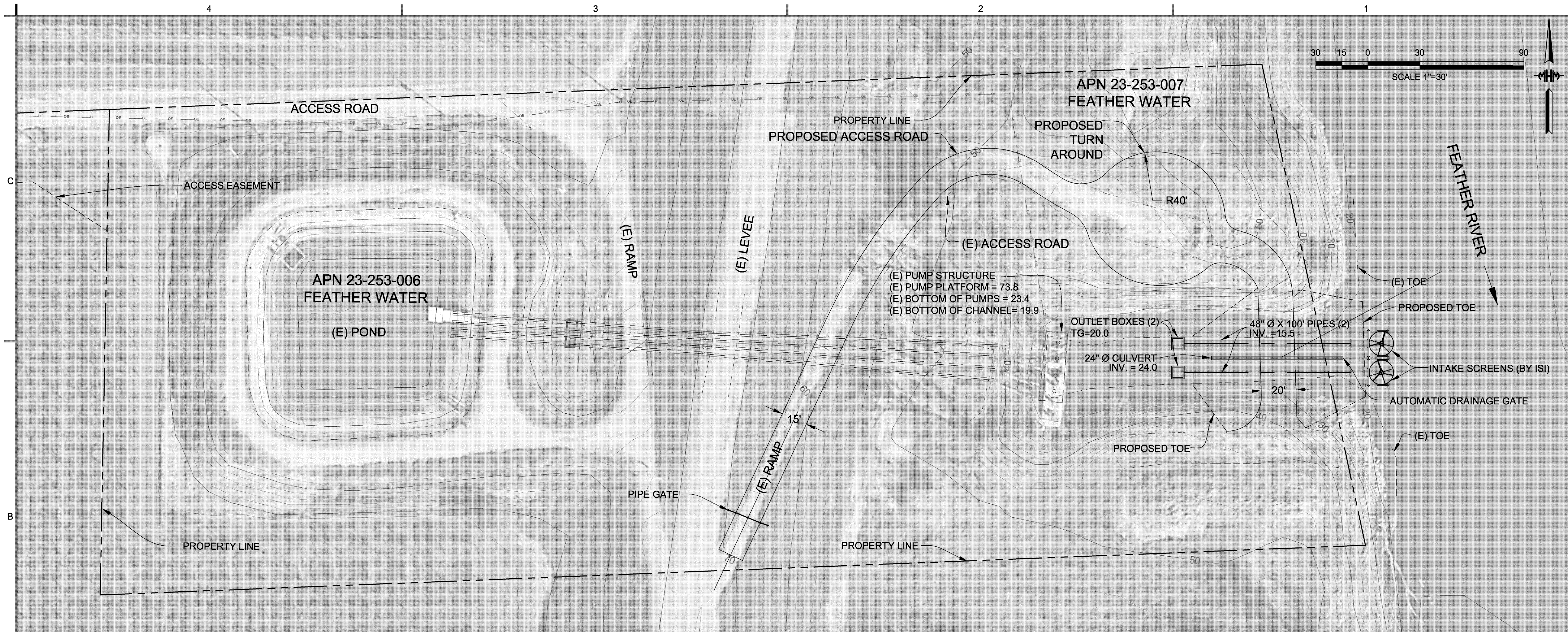
- Moyle, P.B. 2002. *Inland Fishes of California*. Revised and Expanded. University of CA Press, Berkeley.
- National Marine Fisheries Service 1997. *NMFS Fish Screening Criteria for Anadromous Salmonids*. National Marine Fisheries Service, Southwest Region.
<http://swr.nmfs.noaa.gov/hcd/fishscrn.pdf>
- National Marine Fisheries Service 1997. *NMFS Proposed Recovery Plan for the Sacramento River Winter-Run Chinook Salmon*. Long Beach, CA: National Marine Fisheries Service, Southwest Region.
- National Marine Fisheries Service 2003. *Preliminary Conclusions Regarding the Updated Status of Listed ESUs of West Coast Salmon and Steelhead*: Draft Report. West Coast Salmon Biological Review Team: Northwest Fisheries Science Center, Seattle, WA and Southwest Fisheries Science Center, Santa Cruz, CA
- National Marine Fisheries Service. 2006. *Biological Opinion for the Sacramento River Flood Control Project, Critical Levee Erosion Repair Project*. June 21. Letter to Colonel Ronald Light, U.S. Army Corps of Engineers.
- Personal Communication with Monique Briard, Project Manager at ICF, regarding Valley Elderberry Longhorn Beetle. April 9, 2014.
- Reclamation. 2003. *Freeport Regional Water Project Draft EIS/EIR*.
- Reclamation. 2004. *South Delta Improvement Program Action Specific Implementation Plan (ASIP)*.
- Reclamation. 2008. *Biological Assessment on the Continued Long-term Operations of the Central Valley Project and the State Water Project*. Chapter 8. Basic Biology and Life History of Green Sturgeon & Factors that May Influence Green Sturgeon Distribution and Abundance. Sacramento, CA. August 2008.
- Stevens, D. E. 1989. *When do winter-run Chinook salmon smolts migrate through the Sacramento–San Joaquin Delta?* Memorandum: June 19, 1989. California Department of Fish and Game. Stockton, CA.
- U.S. Fish and Wildlife Service. 2013. *Formal Consultation on the Feather River West Levee Project, Sutter County, California*. Letter to Ms. Alicia Kirchner (U.S. Army Corps of Engineers). May 2, 2013.

APPENDICES

APPENDIX A
CONSTRUCTION DRAWINGS



Drawing
reference
number
C-1
Sheet 5 of 11
Dwg.:11-147



M.H.M.
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Rev	Date	Description	Symbol	Approved

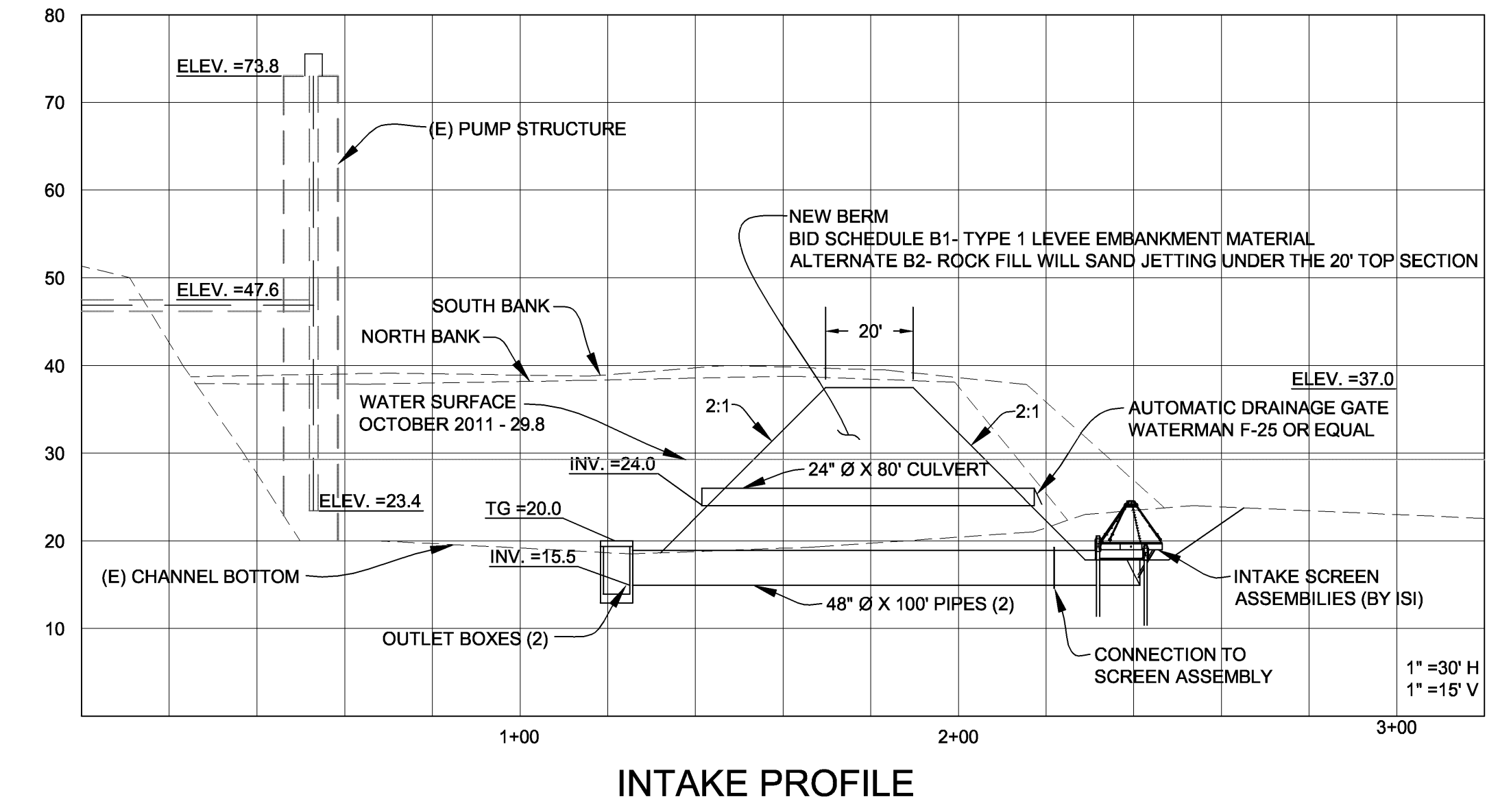
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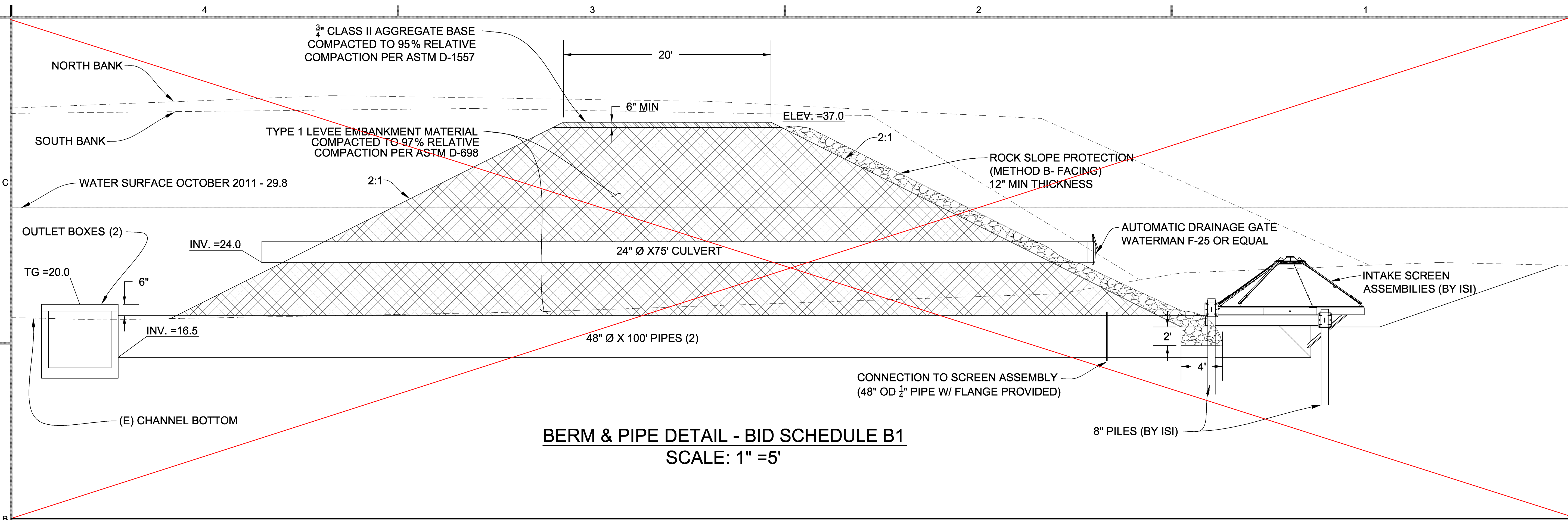
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LAYOUT**

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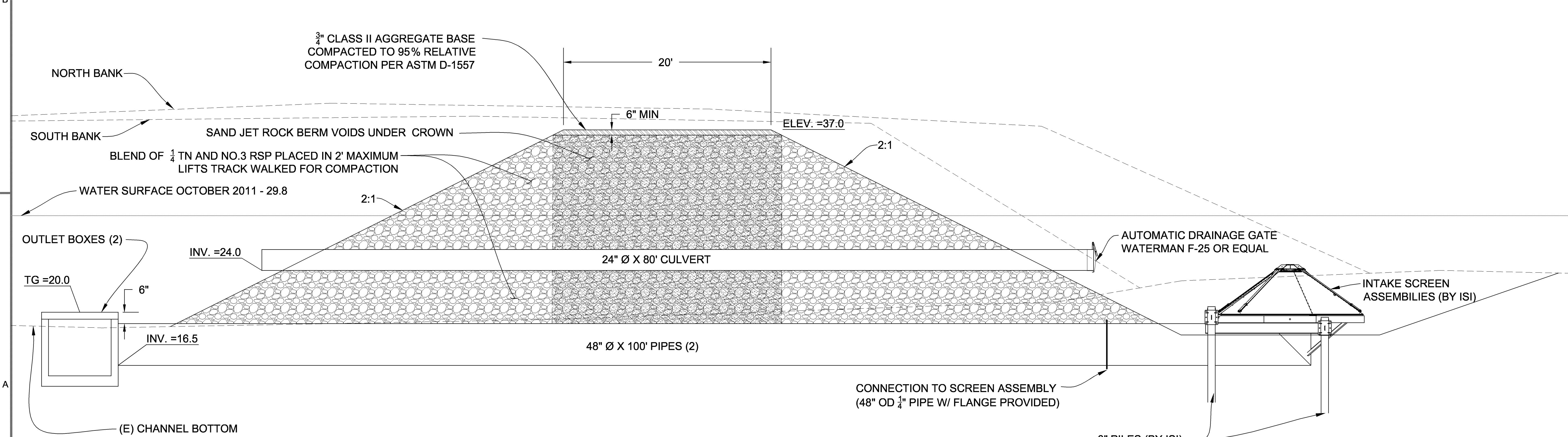
CONSTRUCTION DOCUMENTS FOR:
Feather Water District Water
Water Intake Structure Upgrades
Sutter County, California
Feather Water District

Drawing
reference
number
L-2
Sheet 6 of 11
Dwg.:11-147





BERM & PIPE DETAIL - BID SCHEDULE B1
SCALE: 1" = 5'



BERM & PIPE DETAIL - BID ALTERNATE B2
SCALE: 1" = 5'

M·H·M

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Submitted by:

Date:
1-23-12

Design file no:
1117/mist

Drawing Code:
C-1

File name:
Plot date:
1-23-12

Rev:
50%

Plot scale:

**NORTH INTAKE
BERM CROSS SECTIONS**

CONSTRUCTION DOCUMENTS FOR:
Feather Water District Water
Water Intake Structure Upgrades
Sutter County, California
Feather Water District

Drawing
reference
number
C-2
Sheet 7 of 11

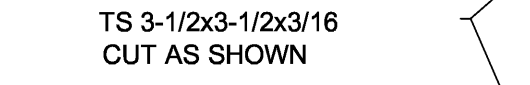


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SECTION A-A

SECTION B-B



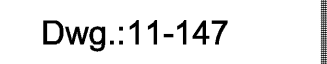
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APPENDIX B
NOISE ANALYSIS

Intake Screens, Inc.
Environmental Analysis of Pile Driving Impacts on Fishery Resources
Generalized for Typical Cone Fish Screen Project Installation

1. Feather Water District North and South Water Intake Upgrades

The Feather Water District projects involve the installation of a low flow barrier across the side channel at each site. Two pipelines will be placed under each barrier with an Intake Screens, Inc.'s (ISI) fish screen on the river side of each pipeline. The new intake screens will protect the multiple currently unscreened pumps at each location with a state-of-the-art fish protection screens by screening the water in the river before entering the side channel.

The barriers will prevent unscreened water from entering the side channels during normal river flows and will also be used as an access point allowing the District to maintain the fish screens by giving them the ability to remove the screens for repairs if necessary without working with equipment in the river.

The self-cleaning cone shaped fish screens, bases, and controls will be designed and installed by ISI. Each cone shaped fish screen will be anchored to the river bottom by four pipe piles. Each screen base will be attached to the pipelines under the barriers with a short pipe section. ISI is supplying the fish screens, the bases, piles, and controls for this project and will be installing them in coordination with the installation of the barriers.

This cone fish screen system will prevent endangered and threatened fish species, including federally listed salmonids and green sturgeon, within the Feather River system from being entrained by the water diversions. ISI's cone screens will be fabricated and installed to meet NMFS and California Department of Fish and Wildlife fish screen criteria at full pumping capacity at the lowest expected water levels, given the site constraints of shallow water. This fish screen system will provide long-term beneficial effects to these species and their critical habitats, as it creates a safer passageway for migrating salmonids and sturgeon.

2. Description of Piles and Pile Driving Activities

ISI has driven a number of in-water support pilings for fish screen installations on various diversions located within the Sacramento-San Joaquin River systems, tributaries and Delta region. Pile driving activities normally occur between August 1 and October 15. ISI is typically able to drive between six and 10 piles per day from a land-based crane utilizing 6-inch to 12-inch Standard Schedule 40 steel pipe pilings, with pile penetrations expected up to 40 feet below the existing ground surface. All pilings are normally driven in less than 10 feet of water and into a silt and stiff clay river bottom material.

Pile Driver Information

ISI will be utilizing an APE Model 64X Vibratory Extractor pile driver for installation of pilings on this fish screen project (see attached driver specifications).

Vibratory hammers use oscillatory hammers that vibrate the pile, causing the sediment surrounding the pile to liquefy and allow pile penetration. Peak sound pressure levels for vibratory hammers can exceed 180 dB; however, the sound from these types of hammers rises relatively slowly. The vibratory hammer produces sound energy that is spread out over time and is generally 10 to 20 dB lower than impact pile driving.

Vibratory hammers can be feasible and utilized for pile installation, but it is typical that piles need to be proofed (i.e., tested for bearing capacity and structural integrity) with an impact pile driver. The project engineer may find it necessary to proof pilings using an impact type pile driver, but past experience has shown it has not been needed.

3. Noise Criteria

NMFS approved criteria for injury to fish from pile driving activities are 206dB peak and 187dB accumulated SEL for all fish greater than 2 grams. These criteria were developed based on scientific evaluation and are considered to be very conservative (Popper, et al. 2006 – referenced in Caltrans 2009). For example, assumptions number four in Appendix A of Popper, et al. (2006) states that the SEL criterion is based on exposure of fish weighing 0.01g. Furthermore, data from Hasting and Popper (2005) suggest that the “no injury” level for 0.01g occurs at 193dB SEL (referenced in Caltrans 2009).

The Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish (Caltrans 2009) summarizes anticipated unattenuated sound pressures for in-water pile driving using vibratory hammers. Based on the type of pile to be used for installation (8-inch steel pipe pile) and shallow site conditions, the peak and accumulated sound pressures are anticipated to be:

Vibratory hammer: 192dB peak and 177dB accumulated

The anticipated peak and accumulated sound pressure levels are below the threshold to injure fish (Table 1):

Table 1. Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities		
	Peak (<2g/60mm)	Accumulated (<2g/60mm)
Interim Criteria for Injury¹	206 dB	187 dB - for fish size of two grams or greater. 183 dB 0 for fish of less than two grams*
Anticipated Vibratory Hammer (12" Steel Pipe)²	192 dB	177 dB
Source: ¹ Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities. June 12, 2008 (attached). ² Caltrans 2009.		

Piles less than Standard 12-inch diameter are significantly less than the values shown above and many of the fish screen projects will be using smaller piles, such as 6-inch, if applicable to the project.

4. Impact Assessment

A. Pile Driving Effects on Potential Prey (Fish)

Construction activities will produce both pulsed (i.e., impact pile driving) and continuous (i.e., vibratory pile driving) sounds. Fish react to sounds which are especially strong and/or intermittent low-frequency sounds. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. Hastings and Popper (2005, 2009) identified several studies that suggest fish may relocate to avoid certain areas of noise energy (Caltrans 2009). Additional studies have documented effects of pile driving (or other types of continuous sounds) on fish, although several are based on studies in support of large, multiyear bridge construction projects (Scholik and Yan 2001, 2002; Govoni et al. 2003; Hawkins 2005; Hastings 1990, 2007; Popper et al. 2006; Popper and Hastings 2009 – referenced in Caltrans 2009). Sound pulses (SPLs) at received levels of 160 dB may cause subtle changes in fish behavior. SPLs of 180 dB may cause noticeable changes in behavior (Chapman and Hawkins 1969; Pearson et al. 1992; Skalski et al. 1992 – referenced in Caltrans 2009). SPLs of sufficient strength have been known to cause injury to fish and fish mortality (Caltrans 2001; Longmuir and Lively 2001 – referenced in Caltrans 2009). The most likely impact to fish from pile driving activities at the project area would be temporary behavioral avoidance of the area. The duration of fish avoidance of this area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated.

B. Pile Driving Effects on Potential Foraging Habitat

In addition, the area likely impacted by the pile driving associated with fish screen installation is relatively small. Potentially a maximum of 1.82 meters (19.6 feet) (based on a 1.5-meter [60-inch] diameter pile) of species foraging habitat may have decreased foraging value as each pile is driven. Avoidance by potential prey (i.e., fish) of the immediate area due to the temporary loss of this foraging habitat is also possible. The duration of fish avoidance of this area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated.

C. Measures to Further Reduce Potential Impacts to Fish

Soft Start

The use of a soft-start procedure is believed to provide additional protection to fish species by warning, or providing fish species a chance to leave the area prior to the hammer operating at full capacity. The pile driving engineer will utilize soft-start techniques (ramp-up and dry fire) recommended by NMFS for impact and vibratory pile driving. The soft-start requires contractors to initiate noise from vibratory hammers for fifteen seconds at reduced energy followed by a one minute waiting period. This procedure will be repeated two additional times.

Daylight Construction

Pile driving will only be conducted between two hours post-sunrise through two hours prior to sunset (civil twilight), between the periods of September 1 to October 15. Should fish species be detected during pile driving, all pile driving activities will be ceased until fish exit project area.



APE Model 64X Vibratory Driver Extractor Specifications

The Worlds Largest Provider of
Foundation Construction Equipment



SPECIFICATIONS	DATA
Eccentric Moment	781 in-lbs (9.00 kgm)
Drive Force	59 tons (525 kN)
Frequency Maximum (VPM)	0 - 2,400 vpm
Max Line Pull	51 tons (454 kN)
Max Bare Hammer Weight	4,650 lbs (2,109 kg)
Throat Width	13.75 in (35 cm)
Length	70.00 in (178 cm)
Height w/o Clamp	42.50 in (108 cm)

APE Model 275 Power Unit

SPECIFICATIONS	DATA
Engine Type	Caterpillar C7 Tier III
Horse Power	275 HP (202 kW)
Drive Pressure	0 - 4,800 psi (331 bar)
Drive Flow	85 gpm (322 lpm)
Clamp Pressure	Consult Factory
Clamp Flow	Consult Factory
Speed	Consult Factory
Weight	11,000 lbs (4,990 kg)
Length	117 in (296 cm)
Width	59 in (149 cm)
Height	84 in (212 cm)
Hydraulic Reservoir	Consult Factory
Fuel Capacity	Consult Factory



Corporate Offices
7032 South 196th
Kent, Washington 98032



<i>NOAA's Fisheries Northwest and Southwest Regions</i>	<i>U.S. Fish and Wildlife Service Regions 1 & 8</i>	<i>California/Washington/ Oregon Departments of Transportation</i>	<i>California Department of Fish and Game</i>	<i>U.S. Federal Highway Administration</i>
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MEMORANDUM

June 12, 2008

From: Fisheries Hydroacoustic Working Group

Subject: Agreement in Principle for Interim Criteria for Injury to Fish from Pile Driving Activities

To: Applicable Agency Staff

The signatory agencies, identified below, have agreed in principle to use the attached Interim Criteria for Injury to Fish from Pile Driving Activities. The agreement was concluded at a meeting in Vancouver, Washington on June 10-11, 2008 with key technical and policy staff from the Federal Highway Administration, NOAA Fisheries, U.S. Fish and Wildlife Service, the Departments of Transportation from California, Oregon, and Washington; and national experts on sound propagation activities that affect fish and wildlife species of concern. The agreed upon criteria identify sound pressure levels of 206 dB peak and 187 dB accumulated sound exposure level(SEL) for all listed fish except those that are less than 2 grams. In that case, the criteria for the accumulated SEL will be 183 dB.

These criteria will apply to all new projects beginning no later than 60 days from the date of this memorandum. During the interim 60 day period, the Transportation Agencies will work with the Services to identify projects currently in the consultation process and reach agreement on which criteria will be used to assess project effects.

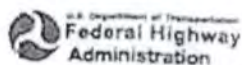
The agencies agree to review the science periodically and revise the threshold and cumulative levels as needed to reflect current information. Behavioral impacts to fish and impacts to marine mammals are not addressed in this agreement. Sub-injurious effects will continue to be discussed in future meetings.

The respective agencies also agree to develop appropriate training for staff on these revised criteria, as well as a process to review and possibly refine the criteria, when appropriate.

For questions or concerns about the revised criteria, we recommend staff contact their agency environmental coordinator or agency expert on pile driving issues.

Carol S. Atkins

Federal Highway Administration*



*FHWA supports the use of these interim criteria in the states signing this agreement in principle. FHWA leaves the schedule for implementation to the discretion of the state DOTs in cooperation with their respective FHWA Division Offices and the Services.

Michael J. Chan

NOAA Fisheries - NWR



Russell M. Strock

NOAA Fisheries - SWR



Ken S. Berg

US Fish and Wildlife Service Region 1



Michael E. Dwyer

US Fish and Wildlife Service Region 8



[Signature]
California Department of Transportation



[Signature]
California Department of Fish and Game



A. C. [Signature]
Oregon Department of Transportation



FHWG Agreement in Principle
Technical/Policy Meeting Vancouver, WA
June, 11 2008

Interim Criteria for Injury	Agreement in Principle
Peak	206 dB (for all size of fish)
Cumulative SEL	187 dB - for fish size of two grams or greater. 183 dB - for fish size of less than two grams.*

**see Table—to be developed*

APPENDIX C
FISH AVOIDANCE PLAN

FISH AVOIDANCE PLAN

1.0 Background

Diversions from rivers have the potential to substantially affect biological resources, including steelhead trout (*Oncorhynchus mykiss*), fall-run, winter-run and spring-run Chinook salmon (*Oncorhynchus tshawytscha*), green sturgeon (*Acipenser medirostris*), warm water fish species, and other terrestrial or aquatic species of special concern. Existing diversions from rivers often use a strong pump, and screening the entrances to these diversions can prevent fish entrapment or mortality within the pump. The fish screen installation process includes the installation of an earthen barrier that may have the capacity to trap any fish present during and subsequent to the construction process without implementation of avoidance procedures prior to initiation of construction. Fish restrained behind the barrier would no longer be capable of accessing the main stem of the river. Contained fish could become impinged or trapped within any nearby water intake apparatus such as pipes or pumps. They may be more susceptible to other dangers associated with construction including increased risk of predation mortality, exposure to increased turbidity and closer proximity to potentially damaging sound pressure waves. Low impact measures will be utilized to encourage fish to evacuate the construction area and to prevent their return during installation of the earthen barrier.

2.0 Feather Water District Project

The Feather Water District is proposing to screen its two existing diversions off the Feather River. Both pumping stations, referred to as the north inlet or diversion and the south inlet or diversion, are located outside of the main channel, but within the floodway where fish have the potential to occur. As part of the construction process, an earthen barrier will be installed across the inlet to the channels in both locations.

3.0 Fish Avoidance Plan

3.1 Low Impact Activity and Fish Count

Most fish, including steelhead and salmon, tend to avoid areas of activity. An initial approach, prior to installation of the earthen barrier, would be to engage in low impact activity in the area which would encourage any fish using the area as a holding pool to move to a new location. Immediately prior to construction of the earthen barrier, technicians should conduct a visual survey for anadromous salmonids and other fish species by snorkeling within the channel and using a counting device to record the number of fish visually observed. The visual surveys will be performed twice. The first survey will serve as a baseline and a second survey will check the accuracy of the first survey.

Should fish continue to be present in the construction area additional procedures will have to be enacted to save these individuals before the earthen barrier is installed.

3.2 Crowding Net

The use of fish seining prior to dredging has been employed in the past as part of the California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement process. If the visual surveys indicate the presence of adult fish within the construction area, a seine will be used to crowd the fish towards the outlet of the channel and back into the river. A block net, or a second seine, will prevent reentry of fish into the project site.

Crowding will begin by placing the seine across the width of the channel as near as possible to the closed end. The net would be tall enough to span the entire vertical water column of the canal, and weighted at the bottom to ensure proper position within the channel and to prevent fish from escaping underneath the net or around the edges. The net would be moved towards the downstream end of the channel so that fish are corralled into the main course of the river.

The net may need to be maneuvered differently depending on the channel depth. In shallow water that is easily waded, the edges of the net can be moved by qualified staff positioned within the canal. The net would need to be managed by several technicians, including people to move the ends of the net and to monitor the central sections for breaches where fish may escape. In deeper water, the net may need to be maneuvered using other equipment such as motor driven rafts or boats.

After the first pass of the seine, a block net would be installed securely across the mouth of the channel so that it is positioned outside of the future location of the earthen barrier. The block net would act to prevent fish from reentering the project site and can be composed of the original seine used for the first pass or a separate net designated for this purpose. The block net would remain in place until the construction of the earthen barrier is complete.

Use additional seine passes to crowd and evacuate remaining fish trapped behind the block net. As the seine is maneuvered towards the mouth of the channel, the block net may be temporarily moved aside to allow fish to escape the crowded area. Fish would be allowed to swim into adjacent habitat of suitable type and composition in the river. Should a modification to these procedures become necessary, NMFS and CDFW would be consulted prior to additional action.

A snorkel crew would then conduct another visual survey to determine if fish remain within the channel. The process of inspection, crowding, and fish removal should be repeated until no fish are observed during the visual survey. The block net would be removed once construction of the earthen barrier is complete.

4.0 Reporting Requirements

Upon the completion of the fish avoidance and salvage activities, a Fish Salvage Operation Report would be submitted to NMFS and CDFW. The report would document the procedures implemented to avoid and salvage fish within the project site and would include information on the number of fish salvaged and the type and size of fish and special-status fish salvaged. The project proponents would respond to any comments by agencies, including those listed above, on the initial report and submit a finalized version in order to comply with appropriate reporting requirements.