

RECLAMATION

Managing Water in the West

Categorical Exclusion Checklist

Geotechnical Investigation for the Experimental Delta Cross Channel Electric Fish Barrier

MP-CEC-14-07

Prepared by:

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Date: March 20, 2015

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Concurred by:

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Date: 3/20/15

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Approved by:

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Date: 3/23/15

Richard J. Woodley
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List of Acronyms and Abbreviations

CWA	Clean Water Act
DCC	Delta Cross Channel
DHC	Dead Horse Cut
DHI	Dead Horse Island
e-barrier	permanent low voltage, graduated electric fish barrier
General Order	19 April 2012 State Water Resources Control Board CWA Section 401 Water Quality Certification of U.S. Army Corps of Engineers 2012 Nationwide Permits
MWT	McCormack-Williamson Tract
NMFS	National Marine Fisheries Service
Reclamation	Bureau of Reclamation
SRI	Smith Root, Inc.

Proposed Action

The project will be implemented on Dead Horse Island (DHI), McCormack-Williamson Tract (MWT), and Dead Horse Cut (DHC) between those islands (see Figure 1). Heavy Sacramento River flows coming through the open Delta Cross Channel (DCC) gates, owned by Bureau of Reclamation (Reclamation), in October and November create a problem for adult Mokolumne River origin fall-run Chinook salmon, which are attempting to return to the main stem Mokolumne. With the gates open, there is a clear pathway for these salmon migrating upstream to stray into the Sacramento River system, and particularly the American River. This causes poor returns to the Mokolumne River and significant salmon genetics issues related to straying into other watersheds.

The DCC gates were closed for two days in 2010 and 10 days in 2011 during the peak adult up-migration in coordination with a pulse flow study timed to draw Chinook salmon into the Mokolumne River. The results showed a reduction in straying by 50 percent and 93 percent respectively. In 2012 Reclamation advised that it does not have the authority to close the DCC gates if the Delta salinity standards are not being met; thus Reclamation agreed to implement a project to test the feasibility of installing a permanent low voltage, graduated electric fish barrier (e-barrier) in proximity to the DCC and DHI to minimize salmonid movement. Reclamation has entered into a contract with Smith-Root Inc. (SRI) to design the experimental e-barrier, which is proposed to be installed in 2016. The design of the e-barrier has yet to be finalized, therefore, potential impacts from that project cannot be consulted on at this time.

SRI proposes to have its contractor, Neil O. Anderson and Associates, lead a geotechnical investigation of the levee and channel materials at the proposed e-barrier location. After a site visit on October 21, 2014 to observe four potential e-barrier locations, SRI drafted a Siting Report and selected Site 1 at the confluence of DHC and North Mokolumne River for the e-barrier site. See coordinates for Drill Holes A&B below. In order to inform the design of the e-barrier's precast concrete slab foundation, information regarding the shear wave velocity, stiffness, classification, gradation, plasticity, and consolidation of subsurface sediments will be obtained. The planned investigations are divided into two activities:

1. **Drill Holes** – Two exploratory drill holes would be drilled in the levee road at the e-barrier site. One drill hole is located on DHI, and the other on the levee road of MWT directly across the channel (see Figure 2). Holes would be drilled to a depth of 20 to 40 feet with a CME-57 truck-mounted drill rig equipped for mud rotary drilling. A total of up to 1,000 gallons of water needed to drill would be obtained from the channel via ¾-inch diameter water hose covered with a mesh screen with either circular or square screen face openings not exceeding 3/32-inch in diameter, as advised by the National Marine Fisheries Service's (NMFS) *Juvenile Fish Screen Criteria for Pump Intakes Addendum* (1996: 13). A total of 500 gallons for each boring would be obtained, which translates to pumping five times during the drilling for five minutes each at 20 gallons per minute, or 0.04 cubic-feet per second. The intake hose would immediately be removed from the channel after each intake period. Subgrade samples would be obtained from the test holes and then the holes would be sealed with a sealant of cement bentonite mix according to standard Reclamation and

industry practice for drill holes in dams and levees. These activities are anticipated to take up to two days, weather permitting.

Latitude/Longitude of Drill Holes:

Drill Hole A. x: -121°29'39.588"W, **y:** 38°13'41.447"N

Drill Hole B. x: -121°29'37.115"W, **y:** 38°13'41.25"N

2. **Geophysical Testing** – Geophysical testing to determine the streambed composition will be performed by one of two potential methods. One method is by use of a SyQwest StrataBox, which is a portable high-resolution marine sediment imaging instrument designed exclusively for inshore and coastal geophysical marine survey up to 150 meters of water depth. This transducer would be mounted on the side of a boat and use hydroacoustics to survey the strata.

The other method is using a weighted geophysical line, steel plate and a 100-pound weight for a Multi-Channel Analysis of Surface Waves (MCASW). By boat, a weighted geophysical line will be hand-placed across the bottom of Dead Horse Cut through which refraction and MCASW will be tested. The geophysical test will determine the shear wave velocity and stiffness of sediments at the bottom of the channel. A 100-pound weight would be dropped by hand from a height of four feet onto a steel plate on the embankment to produce a “seismic” source. The geophysical line would be attached to a multichannel seismograph and computer to collect data.

Hand samples of the first two to three feet of the sediments at the bottom of the channel would also be obtained via cone penetrometer on the bank where the geophysical line would be placed in the water. If the geophysical line method is used, the line is anticipated to remain in the water for up to four hours.

The geotechnical investigations are anticipated to take no longer than two days between March and April 2015. All equipment would be staged at the drill site. The following Best Management Practices (BMP) will be implemented to avoid and minimize any potential impacts to the human environment:

- The Project will occur for a total of no more than two days.
- All project activities will occur during daylight hours (7am to 6pm).
- Contact landowners a minimum of 48 hours prior to entering the property.
- Drill sites are on levee roads and will be accessed with landowner permission via existing levee roads. Vehicles and drill rigs will not be allowed off the developed levee road or beyond the limits of the Project area marked with orange safety cones or other markers that will be removed once work is finished.
- The drill contractor will clear utilities that are able to be marked out by Underground Service Alert as participating utility members (i.e. PG&E).
- Construction equipment usage shall be arranged to minimize travel adjacent to occupied residences and turned off during prolonged periods of non-use.
- A biologist will perform a pre-construction survey for active raptor and migratory bird nests no more than 15 days prior to the start of Project activities. The survey will area

will include all accessible areas within ¼-mile of the Project area. If active raptor nests are observed within ¼-mile of the Project area, the California Department of Fish and Wildlife and U.S. Fish & Wildlife Service migratory bird program experts will be consulted on appropriate conservation measures. These measures may include, but are not limited to establishing an activity-free buffer zone around the active nest site, having a biological monitor on-site during the Project, and temporarily halting work if a nesting raptor shows signs of disturbance (Boertien 2015).

- Impacts to existing vegetation shall be avoided to the extent practical, minimized to trimming low-hanging tree branches over the levee road to allow drill rig access without causing further damage. No elderberry shrubs will be impacted.
- For project activities that may occur during the valley elderberry longhorn beetle active season, workers will monitor for signs of valley elderberry longhorn beetle emergence and presence in the Project area. If signs are observed, they will be immediately reported to the U.S. Fish & Wildlife Service.
- Project activities will remain outside of the 20-foot buffer zone around each elderberry shrub (*Sambucus nigra ssp. caerulea*) (U.S. Fish & Wildlife Service 1999). Elderberry shrubs within 20 feet of the levee road will be protected by placing orange fencing at the developed edge of the road.
- Signs shall be erected every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs shall be clearly readable from a distance of 20 feet, and be maintained for the duration of construction.
- Contractors shall be briefed on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements. Work crews shall be briefed about the status of the beetle and the need to protect it and its elderberry host plant.
- The geophysical line and associated computer equipment will be carried by hand to its location within the 20 foot buffer and will avoid contact with elderberry shrubs.
- The laying of the geophysical cable across the channel bottom will be done carefully via hand from a boat and will avoid sedimentation and turbidity impacts.
- A positive barrier, consisting of a half-round (half a bucket or coffee can) will be installed around the water intake hose during the water intake periods. The positive barrier will be installed in the ground near the levee embankment, just below the water line, creating a cofferdam effect where there's a barrier between the levee embankment and the main channel. Water will still be able to seep through the ground and be available for pumping without risking entrainment of wildlife or debris.
- The water intake rate and water intake screen material and size for obtaining drill water will follow the NMFS criteria to minimize the potential for juvenile fish impingement as established in its 1996 *Juvenile Fish Screen Criteria for Pump Intakes Addendum*.
- Work will cease upon inclement weather.
- Upon inclement weather, a straw wattle or similar erosion-catching method will be placed on the levee slope between the drill locations and the water channel to trap any sediment that may roll down slope. Once the disturbed areas are stabilized, erosion control materials will be removed from the site.

- No heavy equipment or machinery will operate below the Mean High Water Line of Dead Horse Cut, and there are no wetlands or other waters of the U.S., according to the U.S. Army Corps of Engineers, present in the Project action area.
- Drill water and slurry will be contained in barrels to be appropriately disposed of off-site, and no discharges to waterways will be allowed.
- Bore holes will be fully backfilled and sealed with a neat- or bentonite-cement mixture according to standard Reclamation and industry practice for drill holes in dams and levees immediately after necessary samples are taken and observations are made.
- No debris, oil or petroleum products will be allowed to enter the waterway.
- All equipment working near the channel will be inspected daily for fuel, lubrication, and coolant leaks and for leak potentials (e.g. cracked hoses, loose filling caps, stripped drain plugs); and all equipment shall be free of fuel, lubrication, and coolant leaks.
- Spill prevention kits shall be in close proximity to work areas, and workers shall be trained in their use.
- Work will be stopped immediately in areas where drilling may expose human remains, historic artifacts, or prehistoric resources and the State Historic Preservation Officer, Water Board, and Corps of Engineers notified for guidance on how to proceed.
- Additional measures as required by obtained permits shall be implemented.

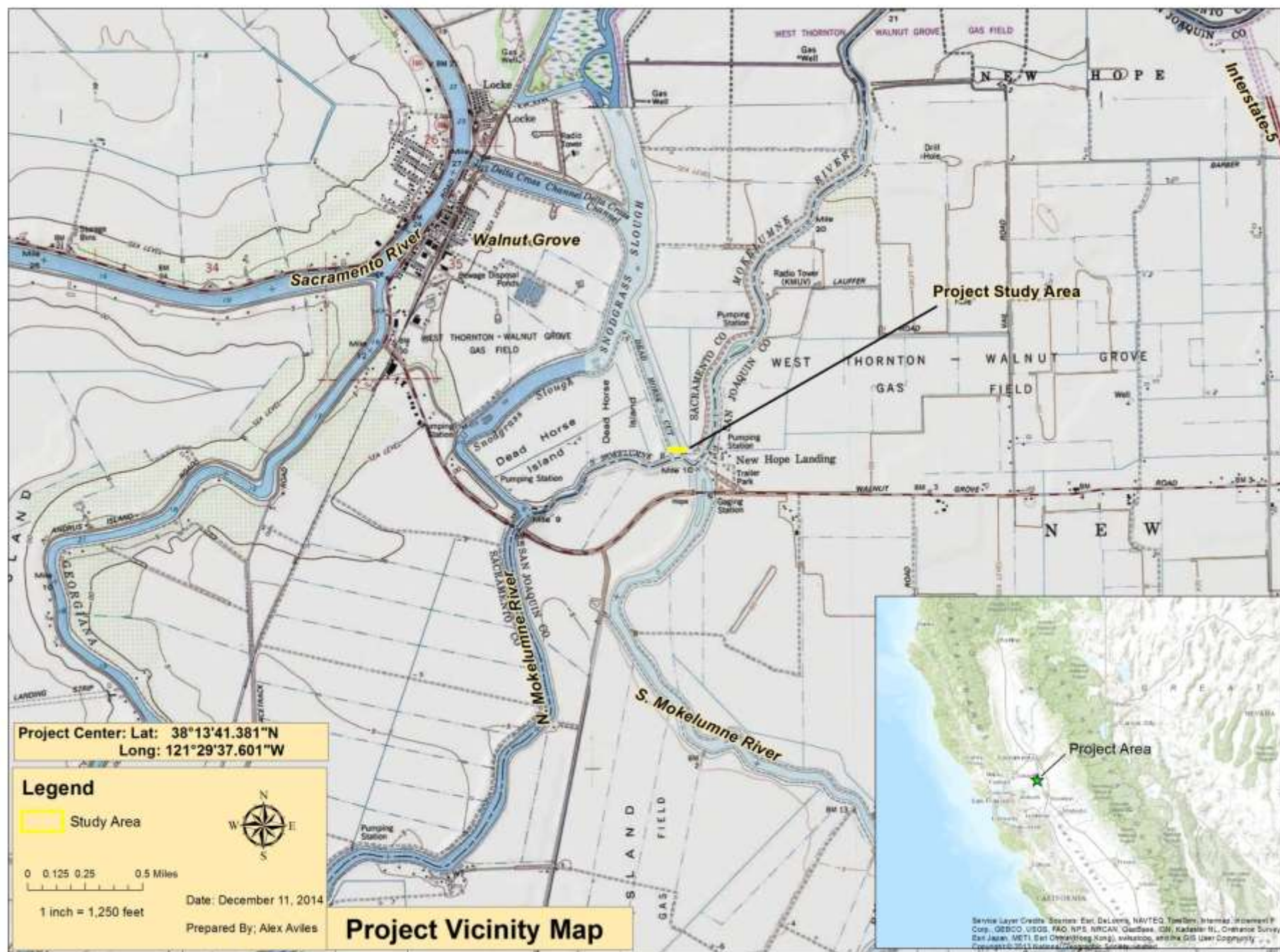


FIGURE 1. PROJECT VICINITY MAP

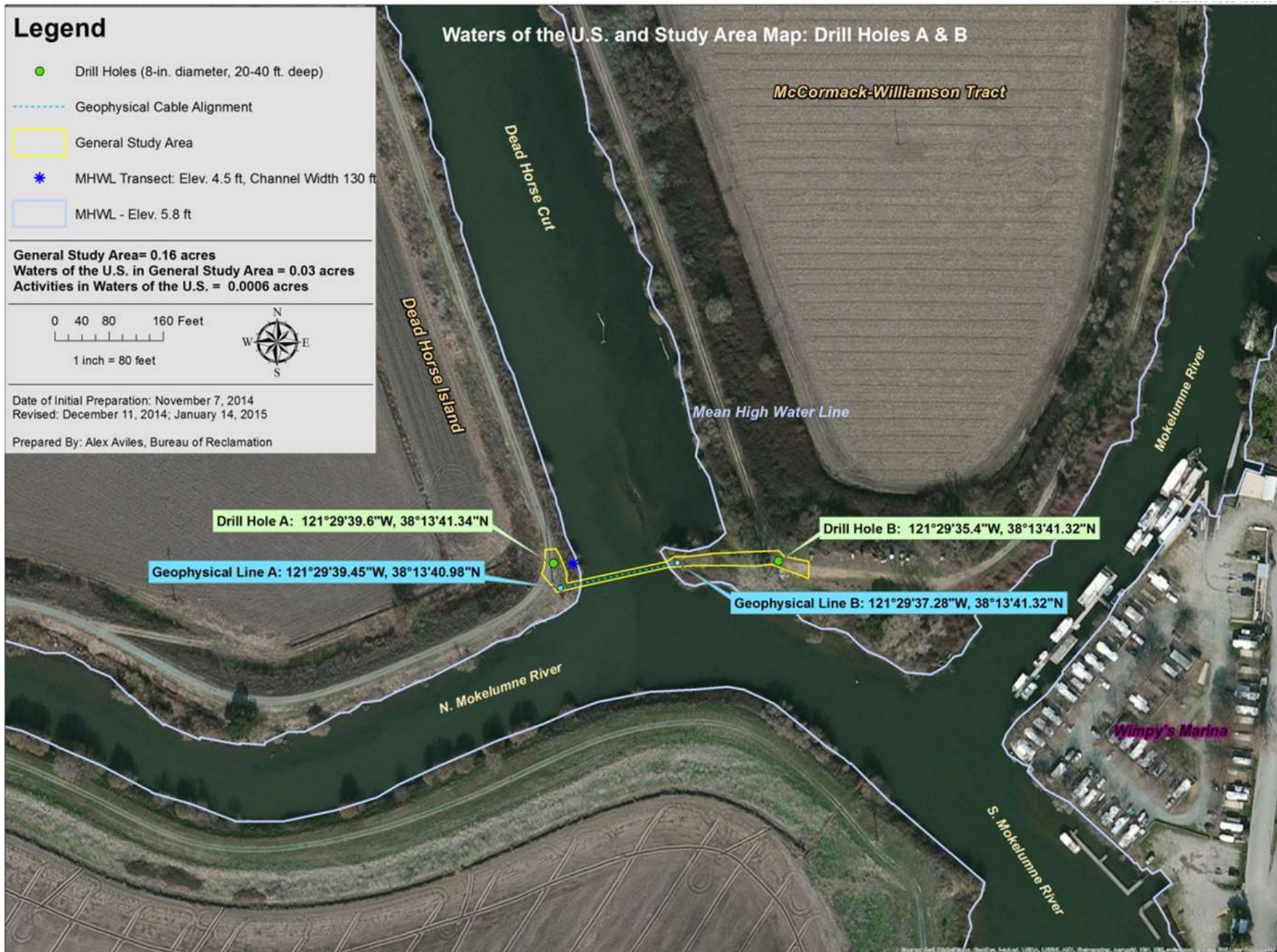


FIGURE 2. PROJECT ACTION AREA MAP

Exclusion Category

516 DM 14.5 Paragraph B (3): *Data collection studies that involve test excavations for cultural resources investigations or test pitting, drilling, or seismic investigations for geologic exploration purposes where the impacts will be localized.*

Extraordinary Circumstances

Below is an evaluation of the extraordinary circumstances as required in 43 CFR 46.215.

- | | | | | | | |
|---|----|-------------------------------------|-----------|--------------------------|-----|--------------------------|
| 1. This action would have a significant effect on the quality of the human environment (40 CFR 1502.3). | No | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 2. This action would have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources (NEPA Section 102(2)(E) and 43 CFR 46.215(c)). | No | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 3. This action would have significant impacts on public health or safety (43 CFR 46.215(a)). | No | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 4. This action would have significant impacts on such natural resources and unique geographical characteristics as historic or cultural resources; parks, recreation, and refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (EO 11990); flood plains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas (43 CFR 46.215 (b)). | No | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 5. This action would have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks (43 CFR 46.215(d)). | No | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 6. This action would establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects (43 CFR 46.215 (e)). | No | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |
| 7. This action would have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects (43 CFR 46.215 (f)). | No | <input checked="" type="checkbox"/> | Uncertain | <input type="checkbox"/> | Yes | <input type="checkbox"/> |

- | | |
|--|--|
| 8. This action would have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by Reclamation (LND 02-01) (43 CFR 46.215 (g)). | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 9. This action would have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant impacts on designated critical habitat for these species (43 CFR 46.215 (h)). | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 10. This action would violate a Federal, tribal, State, or local law or requirement imposed for protection of the environment (43 CFR 46.215 (i)). | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 11. This action would affect Indian Trust Assets (ITA) (512 DM 2, Policy Memorandum dated December 15, 1993). | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 12. This action would have a disproportionately high and adverse effect on low income or minority populations (EO 12898) (43 CFR 46.215 (j)). | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 13. This action would limit access to, and ceremonial use of, Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (EO 13007, 43 CFR 46.215 (k), and 512 DM 3)). | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 14. This action would contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act, EO 13112, and 43 CFR 46.215 (l)). | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |

Archaeologist concurred with Items 4 and 8 (see Appendix A for concurrence).

ITA Designee concurred with Item 11 (see Appendix B for concurrence).

Special Considerations

Clean Water Act Permits

The Project is located in the Primary Legal Delta and Lower Sacramento watershed. Reclamation received an approved Preliminary Jurisdictional Determination on February 25, 2015, where the only waters of the U.S. in the Project area are DHC and the north and south branches of the Mokelumne River. These water bodies are regulated under Section 10 of the Rivers and Harbors Act and Sections 401 and 404 of the Clean Water Act (CWA). Project activities that would occur in waters of the U.S. involve temporary placement of a geophysical cable across the channel bottom, obtaining hand samples of the channel sediment, and drafting water for drilling activities. Drill cuttings and drill water would be products of Project activities. The need for a CWA Section 404 Nationwide Permit and Section 401 Water Quality Certification was investigated and deemed necessary.

CWA Section 404 will be complied with via use of the U.S. Army Corps of Engineers Nationwide Permit No. 5 – *Scientific Measurement Devices* for the geophysical testing activities in the water. The Project under Nationwide Permit No. 5 is also eligible for coverage under the 19 April 2012 State Water Resources Control Board CWA Section 401 Water Quality Certification of U.S. Army Corps of Engineers 2012 Nationwide Permits (General Order). The Central Valley Regional Water Quality Control Board approved the Project's qualification under the General Order and issued the Water Quality Certification on January 13, 2015.

Of primary concern for impacts to waters of the U.S. were the potential turbidity effects from MCASW testing and collecting hand samples, as well as the risk of discharging drill slurry in DHC. However, all drilling activities are designed to occur outside of any waters of the U.S. with the exception of drafting up to 1,000 gallons of water. The MCASW testing and hand samples would cause negligible suspension of sediment particles. The BMP listed in the Project Description include measures that will be implemented to avoid and minimize any potential impacts to waters of the U.S.

Endangered Species Act of 1973 Consultation

Reclamation initiated informal consultation with the U.S. Fish & Wildlife Service on November 25, 2014 on the determination that the Project may affect, is not likely to adversely affect the Federally-listed as threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and threatened delta smelt (*Hypomesus transpacificus*) and its designated critical habitat. The U.S. Fish & Wildlife Service concurred with this determination on February 23, 2015.

Reclamation initiated informal consultation with NMFS on November 25, 2014 on the determination that the Project may affect, is not likely to adversely affect winter-run Chinook salmon (*Oncorhynchus tshawytscha*), spring-run Chinook salmon (*O. tshawytscha*), Central

Valley steelhead (*Oncorhynchus mykiss irideus*) and its designated critical habitat, and Southern Distinct Population Segment of North American green sturgeon (*Acipenser medirostris*) and its designated critical habitat. On December 19, 2014, NMFS concurred with this determination and concluded that the action would not adversely affect essential fish habitat designated under the Magnuson-Stevens Fishery Conservation and Management Act. The BMP listed in the Project Description include measures that will be implemented to avoid and minimize potential impacts to Federally-listed species.

Migratory Bird Treaty Act

The raptor nesting season in the Delta is from March 1 to July 31, and there are several occurrences of Swainson's hawk within the general vicinity of the Project area. Equipment noise from project activities has a potential to disturb nesting birds. However, BMP in the Project Description include measures that will be implemented to avoid and minimize potential impacts to Swainson's hawk.

NEPA Action Recommended

☒ CEC – This action is covered by the exclusion category and no extraordinary circumstances exist. The action is excluded from further documentation in an EA or EIS.

☐ Further environmental review is required, and the following document should be prepared.

☐ EA

☐ EIS

References

Boertien, A. 2015. California Department of Fish and Wildlife. Email communication with Alexandra Aviles, Bureau of Reclamation, on February 25, 2015.

NMFS. 1996. Juvenile Fish Screen Criteria for Pump Intakes Addendum. NMFS, Environmental & Technical Services Division, Portland, Oregon. May 9. 15 pages. Available at: <ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Procedural%20Manuals/Biology/Screening%20Criteria/Fish%20Screening%20Criteria%20NMFS.pdf>. Accessed: 14 November 2014.

U.S. Fish & Wildlife Service. 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle: Survey Protocols. Sacramento Fish and Wildlife Office, Sacramento, California. July 9.

Appendix A – NHPA Section 106 Compliance

CULTURAL RESOURCE COMPLIANCE
Mid-Pacific Region
Division of Environmental Affairs
Cultural Resources Branch

MP-153 Tracking Number: 15-CCAO-017

Project: Geotechnical Investigations for Delta Cross Channel Fish E-Barrier Project

NEPA Document: MP-CEC-14-07

MP 153 Cultural Resources Reviewer: Scott Williams



Date: October 27, 2014

The proposed undertaking by Reclamation is to implement geotechnical investigations for Delta Cross Channel Fish E-Barrier Project. This is the type of undertaking that does not have the potential to cause effects to historic properties, should such properties be present, pursuant to the NHPA Section 106 regulations codified at 36 CFR § 800.3(a)(1). Reclamation has no further obligations under NHPA Section 106, pursuant to 36 CFR § 800.3(a)(1).

Reclamation proposes to have its contractor, Neil O. Anderson and Association, conduct geotechnical investigations at the e-barrier site in order to obtain information regarding the shear wave velocity, stiffness, classification, gradation, plasticity, and consolidation of subsurface sediments. Two exploratory drill holes would be drilled in the levee crest at the e-barrier site. One hole is located on Dead Horse Island and the other on the levee road directly across the channel. The potential locations have been narrowed down to four locations. When a location is chosen, two holes will be drilled at one of the four locations, on opposing sides of the channel. Holes would be drilled to a depth of 20 to 40 feet with a CME-57 truck-mounted drill rig equipped for mud rotary drilling. After reviewing CEC MP-CEC-14-07, Reclamation has concluded this action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places.

This document is intended to convey the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.

Appendix B – ITA Determination



ITA Request: Geotechnical Investigation for Experimental Delta Cross Channel E-Barrier

RIVERA, PATRICIA <privera@usbr.gov>

Fri, Oct 31, 2014 at 5:45 AM

To: "Aviles, Alexandra" <aaviles@usbr.gov>

Cc: "Mary (Diane) Williams" <marywilliams@usbr.gov>, Kristi Seabrook <kseabrook@usbr.gov>

Alex,

I reviewed the proposed action noted below and determined there are no potential impacts to Indian Trust Assets.

Description of Project:

In order to inform the design of an experimental electric barrier proposed for installation in 2016, Reclamation proposes to have its contractor, Neil O. Anderson and Association, conduct geotechnical investigations at the electric barrier site in order to obtain information regarding the shear wave velocity, stiffness, classification, gradation, plasticity, and consolidation of subsurface sediments. The planned investigations are divided into two activities:

1. **Drill Holes** – Two exploratory drill holes would be drilled in the levee crest at the e-barrier site. One hole is located on Dead Horse Island, and the other on the levee road directly across the channel. The potential locations have been narrowed down to four sites (see Figure 1 and Project Location for xy-coordinates). Holes would be drilled to a depth of 20 to 40 feet with a CME-57 truck-mounted drill rig equipped for mud rotary drilling. Water needed to drill would be obtained from the channel via three-inch diameter water intake pipe covered with a ¾-inch screen. The pipe would be placed in the channel three times for five minutes during the drilling of each hole in order to obtain a few hundred gallons. Subgrade samples would be obtained from the test holes and then the holes would be sealed with a sealant of cement bentonite mix according to standard Reclamation and industry practice for drill holes in dams and levees. These activities are anticipated to take two days.
2. **Geophysical Testing** – By boat, a weighted geophysical line will be laid across the bottom of the channel through which refraction and Multi-Channel Analysis of Surface Waves (MASW), which will determine the shear wave velocity and stiffness of sediments at the bottom of the channel. A sledge hammer will be used by hand to slam against a steel plate on the embankment to produce a "seismic" source. The geophysical line would be attached to a multichannel seismograph and computer to collect data.

Hand samples of the first two to three feet of the sediments at the bottom of the channel would also be obtained via cone penetrometer on the bank where the geophysical line is in the water. The line is anticipated to remain in the water for up to four hours.

The geotechnical investigations are anticipated to take no longer than three days, starting in mid-December 2014. All equipment would be staged at the drill site and location of the geophysical line.

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