

RECLAMATION

Managing Water in the West

Environmental Assessment

Nimbus Dam Radial Gates Maintenance Project

May 2015



U.S. Department of the Interior
Bureau of Reclamation
Central California Area Office

May 2015

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

A	
AES	Analytical Environmental Services
B	
BA	Biological Assessment
C	
CAA	Clean Air Act of 1970

CalEEMod	California Emissions Estimator Model
CAPs	Criteria Air Pollutants
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDPR	California Department of Parks and Recreation
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CTCP	Comprehensive Traffic Control Plan
CWA	Clean Water Act
CVP	Central Valley Project
D	
dBA	decibels A-weighted
dbh	diameter at breast height
dgl	diameter at ground level
DWR	Department of Water Resources
E	
EA	Environmental Assessment
EO	Executive Order
EPCRA	Emergency Planning & Community Right-To-Know Act
F	
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FLSRA	Folsom Lake State Recreation Area
FONSI	Finding of No Significant Impact
G	
GHG	greenhouse gas
GP/RMP	FLSRA/Folsom Powerhouse State Historic Park General Plan and Resource Management Plan
H	
HAPs	Hazardous Air Pollutants
I	
IPCC	Intergovernmental Panel on Climate Change
IRF	Intermediate Regional Flood
ITAs	Indian Trust Assets
J	
K	
km	Kilometers
L	
Leq	level of equivalence

M

MBTA	Migratory Bird Treaty Act
MSFA	Magnuson-Stevens Fishery Conservation & Management Act

N

NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWP	national wide permits

O

O ₃	ozone
OHWM	Ordinary high water mark
OSFM	Office of the State Fire Marshal

P

Pb	Lead
PCBs	Polychlorinated Biphenyls
PM	Particulate Matter
PM _{2.5}	particulate matter 2.5 microns in diameter
PM ₁₀	particulate matter 10 microns in diameter
PSD	Prevention of Significant Deterioration

Q**R**

RCRA	Resource Conservation & Recovery Act
Reclamation	Bureau of Reclamation
ROG	Reactive Organic gases
RWQCB	Regional Water Quality Control Board

S

SHPO	State Historic Preservation Office
SIPs	State Implementation Plans
SO ₂	sulphur dioxide
SSPC	Society of Protective Coatings
SVAB	Sacramento Valley Air Basin

T

TCLP	Toxicity Characteristics Leaching Procedure Method
TCE	trichloroethylene
TMDL	total maximum daily load
tpy	tons per year
TPQ	Threshold Planning Quantity

U

UAIC	United Auburn Indians Community
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USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
V	
VELB	valley elderberry longhorn beetle
W	
X	
Y	
Z	

Chapter 1 Introduction

1.1 Background

In conformance with the National Environmental Policy Act of 1969 (NEPA), as amended, the Bureau of Reclamation (Reclamation) has prepared this Environmental Assessment (EA) to evaluate and disclose any potential environmental impacts associated with proposed maintenance of the radial gates at the Nimbus Dam on the American River in Sacramento County, California and associated installation of a prefabricated Bulkhead Storage Facility (Proposed Action). The Proposed Action would take place on Reclamation land adjacent to lands managed by the California Department of Parks and Recreation within the Folsom Lake State Recreation Area (FLSRA) (**Figures 1 and 2**).

The federal Central Valley Project (CVP) was authorized in 1935 after initial attempts by the State to fund and implement one of the largest water conservation projects in the United States fell through due to funding limitations brought on by the Great Depression. The American River Division Authorization Act of 1949 (Act) authorized construction of the Nimbus Dam and Lake Natoma as part of the CVP to serve as a regulating reservoir for the Folsom Powerplant. The Act also authorized the construction of a 13,500 kilowatt power plant and the use of the new reservoir, Lake Natoma, for recreation. Lake Natoma is impounded behind Nimbus Dam; the dam itself and Lake Natoma are part of Reclamation's Folsom Unit, American River Division, of the CVP. Lake Natoma has a capacity of 8,760 acre-feet and a surface area of 540 acres (Reclamation, 2011).

The Nimbus Dam was completed in 1955 and measures approximately 75 feet high and 1,090 feet in length. The dam serves as an afterbay structure for Folsom Dam to re-regulate flows of the American River for flood control, as a diversion dam to direct water into the Folsom South Canal, and as a forebay for the hydroelectric generation station (Simonds, 1994). Nimbus Dam includes two generators capable of producing more than 15,520 kilowatts of power. As a regulating reservoir, variations in water levels on Lake Natoma occur daily, but are generally only between two and four feet (California Department of Parks and Recreation and U.S. Bureau of Reclamation [CDPR and USBR], 2007). Flow control is accomplished through 18 radial gates with individual gate bays. The 18 gates are the original gates installed in 1955. The coating system has been replaced on four of the eighteen gates and therefore fourteen of the gates still have the original coating system.

1.2 Purpose and Need

The Proposed Action to conduct radial gate maintenance is needed on the radial gates, because both the coating system and the lifting bracket assembly are degraded due to corrosion. The proposed activities would ensure Nimbus Dam maintains the required flood control and flow maintenance capabilities as part of the CVP. The Bulkhead Storage Facility is needed to ensure the safety and longevity of the bulkhead equipment used for maintenance of the Nimbus Dam. Re-sealing or encapsulating the existing coatings is not anticipated to provide the minimum coating system design life (20 years).



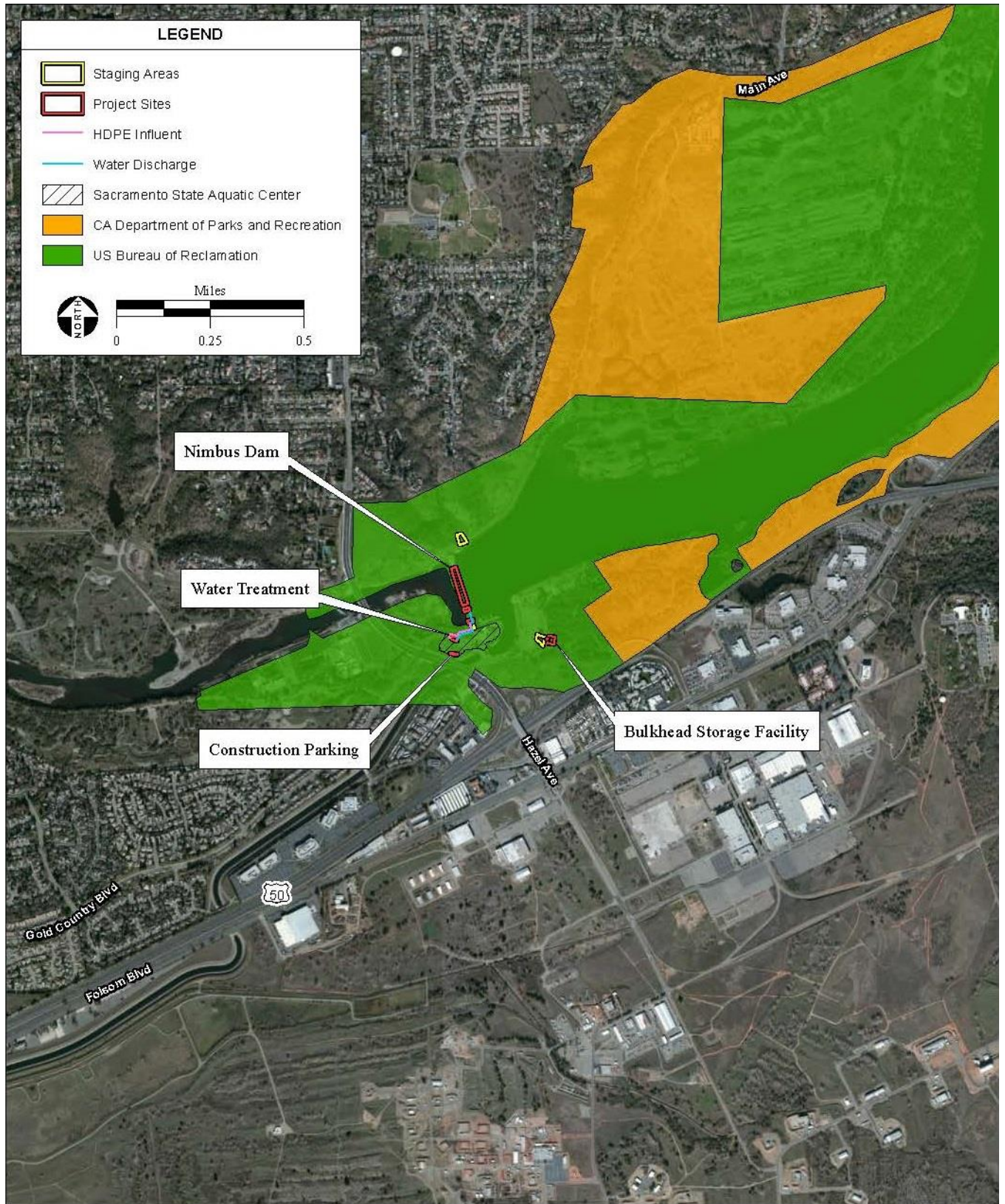


Figure 2 – Site and Vicinity

Chapter 2 Alternatives Including Proposed Action

2.1 No Action Alternative

The No Action Alternative would consist of Reclamation not moving forward with the radial gate maintenance and construction of the bulkhead storage facility.

2.2 Proposed Action Alternative

The Proposed Action would consist of five main components:

1. Waterway and Marine Construction,
2. Radial Gate Maintenance,
3. Sediment Removal and Disposal,
4. Bulkhead Storage Facility Construction, and
5. Handrail Improvements.

A site plan identifying the locations of the project components is included in **Figure 3** and the specification drawings are included as **Appendix A**.

2.2.1 Waterway and Marine Construction

Implementation of the Proposed Action would involve construction activities within Lake Natoma. No work would occur within the American River downstream of the Nimbus dam. Diver teams would be used to conduct sediment, debris, and structural surveys/inspections upstream of the dam; set and seal the bulkheads; assist in the removal of sediment and debris from the upstream side of the radial gates; assist with bulkhead inspections; and ensure adequate seating of the bulkhead to minimize leakage. The bulkhead assembly would only be installed in the bay currently undergoing maintenance and moved to the next gate or stored until the next gate is scheduled for maintenance (a preliminary schedule for gate maintenance is presented in **Chapter 2.2.6**). A Water Removal Plan has been prepared by the Contractor and approved by Reclamation (**Appendix B**) to ensure radial gate work areas remain dewatered while maintenance activities are completed. The following is a summary of the Water Removal Plan:

After the bulkhead has been installed, the radial gate would be opened to pressurize the bulkhead. Divers would plug any leaks around the bulkhead with wood pellets and/or other environmental friendly material to keep the bulkhead leakage to a minimum. A six inch submersible pump would be placed inside the bulkhead on the downstream side of the bulkhead to initially lower the water below the gate sill area. A steel support frame (see **Appendix B** for drawings) would be erected to hold the six inch pump and the PVC discharge piping. The support frame would extend vertically up the downstream side of the bulkhead and hook over the top of the bulkhead. The PVC discharge pipe would be attached to the support frame and discharged

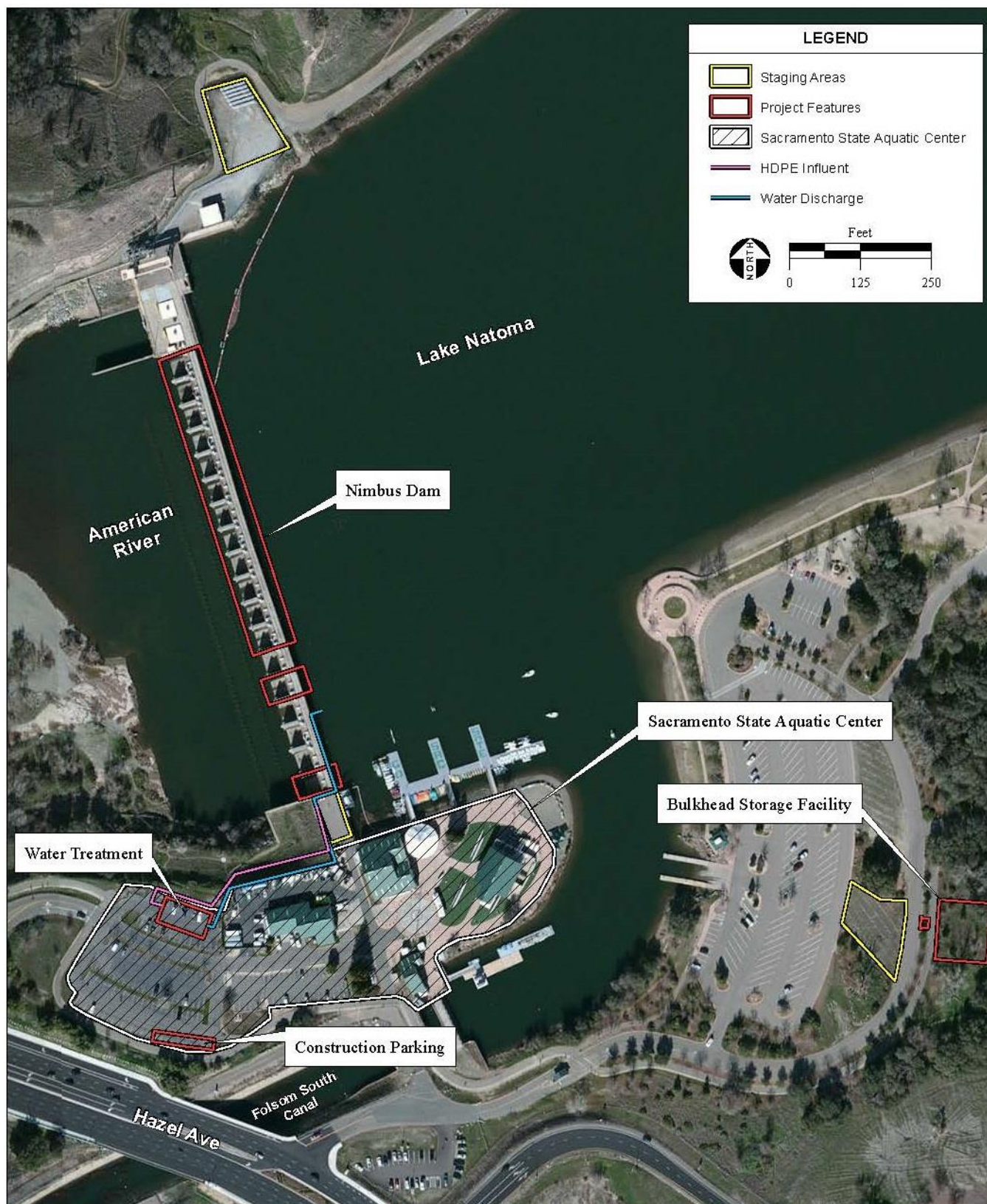


Figure 3 – Aerial Photograph

upstream of the bulkhead into Lake Natoma. Two 1.5 inch electric pumps equipped with on/off float systems would be installed on the downstream side of the bulkhead. The pump discharge hoses would be run from the pumps across the sill area and down the gate bay about 20 feet. These pumps would be used to maintain the water level so water won't pass over the spillway crest or under the scaffolding and containment areas. In the case of power outages, a portable generator would be used to operate the pumps. Spare pumps would be made readily available at the jobsite in the event of pump failure.

Upstream removal of sediment from four gateways would be required to allow proper placement and seating of the bulkhead. Specific details are provided below under **Chapter 2.2.3**. During the flood season from December 1 to April 15 of each year, the floating bulkhead would be stored in the reservoir at the North end of the dam and adequately secured in place. The bulkhead would be moored at the north abutment of the dam. An engineered mooring plan would be developed and followed consisting of using mooring ropes connected to deck cleats anchored to the abutment and deck cleats mounted to the bulkhead. After all gate maintenance activities have been completed, the bulkhead assembly, consisting of floating bulkhead caissons, pier braces, radial gate supports and links, and all related equipment, would be disassembled and stored in the newly constructed Bulkhead Storage Facility (discussed in **Chapter 2.2.4**) and would take approximately two-three days to complete. The Contractor would coordinate with the California State University, Sacramento (CSUS) Aquatic Center to ensure utilization of the boat ramp to transport the bulkhead assembly would not adversely impact ongoing activities at the center.

2.2.2 Radial Gate Maintenance

A total of 14 of the 18 radial gates at Nimbus Dam would undergo maintenance activities under the Proposed Action (refer to **Figure 4**). Maintenance activities would be conducted on each of the 14 radial gates (Gates 1 through 12, 14, and 18) one at a time. No in-water work would occur on the downstream side of the dam. The following describes the activities to be conducted at each of the 14 gates in accordance with the time schedule presented in **Chapter 2.2.6**.

An engineered scaffolding system would be installed on the upstream and downstream faces of the gate, and along both gate arms (above the ordinary high water mark of the American River and Lake Natoma) to provide access to work areas. After installation of the bulkhead assembly, containment areas would be established using the engineered scaffolding on the upstream and downstream faces and along the downstream structural metalwork of gate. The gate faces would then be sandblasted utilizing special containment and disposal considerations due to high concentrations of lead and heavy metals. The specific containment provisions incorporated into the Proposed Action are provided in more detail below under ***Removal and Disposal of Coatings***. With an approximate surface area of 2,800 square feet, it is estimated that it would take two weeks to remove the existing coatings from each gate. After the old coatings have been completely removed from the work area, a new coating would be applied to the upstream and downstream faces, and along the downstream (above the ordinary high water mark) structural metalwork. A metal protection system

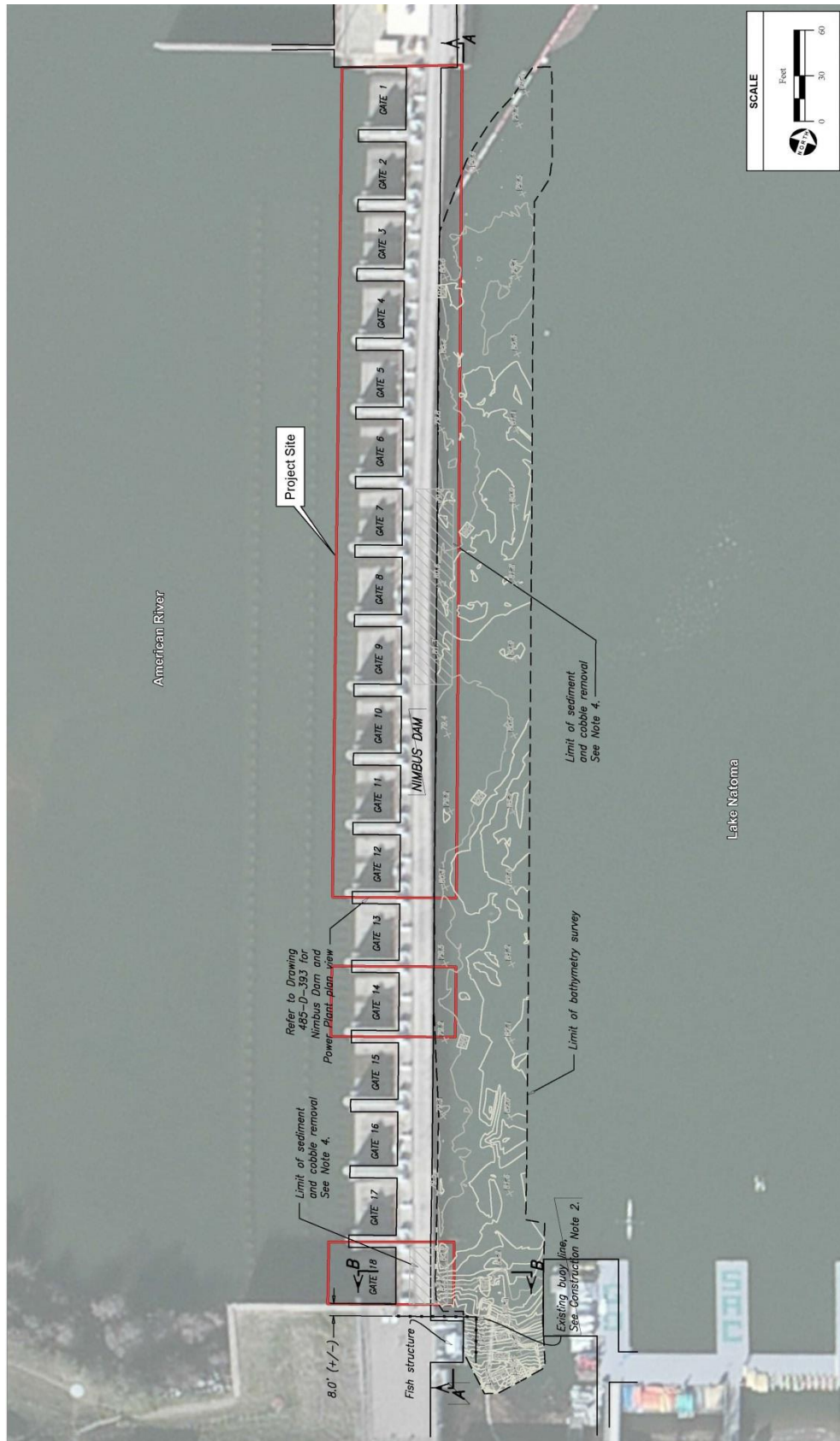


Figure 4 – Nimbus Dam Sediment Survey

(cathodic protection system) would be installed and tested to prevent erosion of the metal gates. Various maintenance activities would be conducted to remove the rusted and impaired components of the radial gates that are currently compromising the integrity of the gate mechanisms. These activities include replacement of seals, clamps, fasteners, and wire rope assemblies on each of the 14 radial gates. Warnings that were removed from the radial gates during sandblasting would be re-painted on the downstream faces of gates 2, 8, and 14. The warning light assemblies would be temporarily disconnected as needed during repair/maintenance activities and reconnected at these gates as maintenance activities are completed at the gate. Various concrete repairs would be conducted at spot locations along the spillway chutes and below trunnion blocks at various gates above the ordinary high water mark to further ensure long-term operation of the Central Valley Project and associated operations at Nimbus Dam which serve as an afterbay structure for Folsom Dam to re-regulate flows of the American River for flood control, as a diversion dam to direct water into the Folsom South Canal, and as a forebay for the hydroelectric generation station.

Removal and Disposal of Coatings

The existing coatings on the radial gates contain high concentrations of lead and may contain other heavy metals. Paint samples of the Nimbus Dam spillway gate metalwork were collected on June 8, 2004. A stainless-steel chisel was used to scrape the upper gray layer and orange primer layer from the structure to bare metal. Three samples were collected at the upstream face of one of the spillway gates. The results indicate that the pigment layer and primer layer of the paint utilized on the radial gates contains high concentrations of lead. The paint also contained identifiable concentrations of chromium, zinc, and arsenic. In addition, the existing orange-pigmented coatings on the handrail along the dam and power plant decks are highly suspected to contain lead; however, this has not been confirmed through previous sampling and laboratory analyses.

Prior to sandblasting coatings of the radial gates would be sampled for heavy metal content. Sampling would include soil and sediment background sampling for baseline results. Due to known lead levels within the radial gate coatings, the Contractor has developed a detailed Containment System Plan (**Appendix C**) approved by Reclamation and signed/stamped by a registered professional engineer licensed in the State of California. In addition, a Lead and Heavy Metals Work Plan (**Appendix C**) was developed with oversight from a Certified Industrial Hygienist in accordance with Occupational Safety and Health Administration Construction Industry Lead Standard 29 CFR 1926.62. The two plans would be implemented to prevent the release of coatings, metals, dusts, vapors and solvents during the disturbance, removal, and reapplication of coatings in accordance with Society of Protective Coatings (SSPC) Guide 6-97 to ensure compliance with applicable federal and state laws and regulations. The plans include drawings identifying the layout, attachment to structure, and relationship to structure of the containment system (photos of the proposed containment system are presented on the following page); detailed plans, descriptions, and performance criteria of the proposed containment system; and design calculations for ventilation system. The system would entail establishing six isolation zones utilizing the engineered scaffolding system and air impermeable material (such as poly sheeting) as indicated in **Appendix C**

Containment System Examples



Photo 1: Containment Scaffolding



Photo 2: Poly Sheeting Containment



Photo 3: Interior of Containment Compartment

and shown in the photos above. Each chamber would be connected to an exhaust fan via flexible fabric ducting establishing negative pressure within the chamber. The exhaust system would include a High Efficiency Particulate Air (HEPA) filter to ensure airborne lead laden dust does not escape the chamber. The design calculations indicating appropriate negative pressure scenarios are achievable to ensure sandblasting emissions do not escape the containment chamber are presented in **Appendix C**. Signs and barriers would be installed at each entry point to prevent unauthorized personnel access. The containment would remain in place during all containing paint lead removal and debris clean-up activities until surfaces have been coated. The containment would be monitored during the blast cleaning both visually and through air monitoring conducted by the contractor. The contractor would conduct two daily inspections of the containment zone during sand blasting operations to ensure negative pressure is consistently established within the work zone. Inspections would be documented on Lead Jobsite Inspection and Mechanical Ventilation Evaluation Forms, which would be maintained on site during sand blasting operations. Air monitoring would include both personal air monitoring of works within the containment zone to assess personal exposures and area monitoring outside of the containment zone to assess for undetected leakage of the containment system. Area samples would be collected twice daily for the two weeks of the sand blasting operation and would be adjusted accordingly if additional sampling is required. . Sample cartridges would be delivered to Forensics Analytical in Hayward, California with the results available within 48 hours. Forensics Analytical is accredited by the State of California under the Environmental Laboratory Accreditation Program (ELAP) and certified by the American Industrial Hygiene Association. If the containment area becomes visually compromised or air monitoring results indicate release of sand blasting debris, the blast operation would be shut down by the Contractor until the containment is modified or repaired and the escaped sand blast debris is cleaned up with oversight by a Certified Industrial Hygienist in accordance with SSPC 6-97.

HEPA vacuum equipped power tools for spot paint removal activities and air compressors and abrasive blast pots for removal of gate coatings would be utilized within the negatively pressured containment areas. The blast debris would be tested, and disposed of per a Waste Characterization, Handling, and Disposal Plan to be approved by Reclamation and signed/stamped by a registered professional engineer licensed in the State of California that outlines the procedures for assessing the required disposal method for generated wastes. At a minimum, this plan would include:

1. Procedures for sampling, testing, characterization of waste:
 - a. Characterization of solid waste debris generated from coating removal operations, in accordance with 40 Code of Federal Regulations (CFR) 261, Toxicity Characteristics Leaching Procedure Method 1311(TCLP). Waste would be presumed to be hazardous until characterized.
 - b. If TCLP testing concludes that the lead waste is considered non-hazardous waste in accordance with the Resource Conservation and Recovery Act (RCRA) definition, California State tests would be conducted in accordance with 22 California Code of Regulations (CCR) 66261.24. If the waste fails either the CAL leachate test or totals test, the waste would be considered a California Hazardous Waste.

2. Procedures for handling, storing, transporting, and disposing of project-generated waste and cleaning of reusable items.
3. Plan for disposal of wastewater generated during coating removal activities: Include name, location, and address of proposed treatment facility and contact person at proposed treatment facility.
4. Name, address, and qualifications of testing laboratory, waste transporter, and disposal facility with agreement to accept waste generated under the Proposed Action.

The blast debris would then be removed using a vacuum truck in accordance with all laws and regulations conducted by Safety-Kleen Systems, based in Sacramento, in accordance with the results of the sampling conducted under the Waste Characterization, Handling, and Disposal Plan. Disposal of the spent abrasives containing lead paint debris would be completed by Kleen Industrial Services, based in Danville, California, in accordance with all applicable laws, regulations, and permits. Post-construction sampling would be conducted for heavy metals within the same areas as the pre-construction samples were collected. These samples would be compared to the baseline samples to assess environmental conditions after the paint removal activities have been completed at each gate.

2.2.3 Sediment Removal and Disposal

Bathymetry surveys were conducted at locations upstream of the dam in 2008 (Reclamation, 2009) and 2013. The results of the 2013 survey are presented in **Figure 4**. Based on the results of these assessments, dredging of sediment is anticipated to be required in the upstream bays of Gates 7, 8, 9, and 18 (refer to **Figure 4**). A Bathymetric Survey would be conducted to verify the extent of dredging activities required to conduct the radial gate maintenance. The survey shall be completed before dredging commences on or around August 1, 2015. Dredging shall be completed prior to November 1, 2015. The majority of dredging work would be located at Gate 18, where there is an accumulation of sediment, mostly fine and surficial debris primarily along the left side of the upstream bay. Additionally, at Gates 7, 8, and 9 there are cobbles in areas up to 2 feet in depth, particularly Gate 9, where the right 20-foot half-width of the upstream bay has cobble layers ranging from 18 inches to 2 feet in depth. Due to the type and small volume of sediment anticipated at these three gates, dredging by mechanical means, using a clamshell or other type equipment, may be sufficient. However, this would not exclude the use of hydraulic (suction) dredging or other methods at these three gates. Dredging is not expected to be necessary at each of the other 10 gates being repaired (Gates 1 through 6, 10 through 12, and 14), due to very small quantities of sediment anticipated to be present in the apron immediately upstream of these gates. Based on the available data, fine sediments at gates 1 through 6, 10 through 12, and 14 ranges from two inches to six inches in depth, plus minor deposits of cobbles are located along the entirety of the dam and are less than two feet in depth. At these gates it is anticipated that either: (1) the bulkhead can penetrate by its own weight through the residual sediment and hence allow for proper seating, or (2) the residual sediment can be removed by assistance from dive crew personnel, either by hand or through use of divers' tools and equipment. Dredging is expected to start and continue for three-four weeks and no sediment removal would occur

until the required permits are obtained. It is anticipated that dredging activities would result in a total of 500 cubic yards of dredged material.

In addition, Ballard Marine Construction (the dredging subcontractor) collected sediment samples on December 19, 2014 along the upstream face of radial gates 3, 7, 8, 9, and 18. The sediment was sampled for metals including methyl mercury. The results indicate that sediment along the upstream face of the radial gates contains low-levels (below hazardous material disposal limits) of chromium, copper, nickel, and zinc (**Appendix D**). The results also indicate the presence of trace amounts of methyl mercury (less than 0.0015 milligrams methyl mercury per kilogram [mg/kg] of sampled soil or 1.5 parts methyl mercury per billion parts soil). The levels of identified metals do not meet the definition of hazardous materials and may be disposed of at a regulated landfill without pretreatment.

Dredging Activities and Containment

The Contractor has developed a preliminary detailed Sediment Dredging and Disposal Plan (Sediment Plan) describing the entire dredging and disposal process (**Appendix E**). The Sediment Plan presents the labor, materials, equipment, procedures, and work sequence for removing sediment to allow for proper seating of the bulkheads. Provisions of the Sediment Plan are summarized below.

The Sediment Plan includes additional sampling requirements to confirm the appropriate disposal method of sediment removed from the upstream face of the radial gates. The Sediment Plan and associated dredging activities would be in conformance with requirements of the U.S. Army Corps of Engineers (USACE) Section 404 permit, California Regional Water Quality Control Board (RWQCB) Section 401 permit, and any other necessary permits.

Prior to commencing dredging operations, the Contractor would deploy a Type II HD turbidity curtain. The turbidity curtain sections would be bundled at the water's edge or even floated in a staging pattern in the water until all sections are connected. A tow bridle would be used to tow the assembled turbidity curtain into place. This method of towing would prevent damage to the curtain and connector. The tow bridle mates directly to the connector on the curtain and is secured with a toggle pin. The curtain would then be towed to the first location on the south upstream side of Gate 18 and placed in such a manner as to protect the intake for the Fish Hatchery that is located south of Gate 18. The curtain would be guided under the Fish Hatchery intake structure overhang and secured under the deck near the intake structure. The curtain would be deployed in such a manner as to minimize the potential for disturbed sediment to inundate the Fish Hatchery intake structure. The northern portion of the turbidity curtain would be connected to the northern pier of Gate 17. This process would be repeated during upstream dredging operations of Gates 7 through 9. The curtain would be deployed in a manner that ensures complete coverage of the turbidity areas of influence. Removal of the curtain after dredging operations are completed within the protected areas would take place in roughly the opposite process. Refer to **Appendix E** for further details regarding the installation of the turbidity curtains.

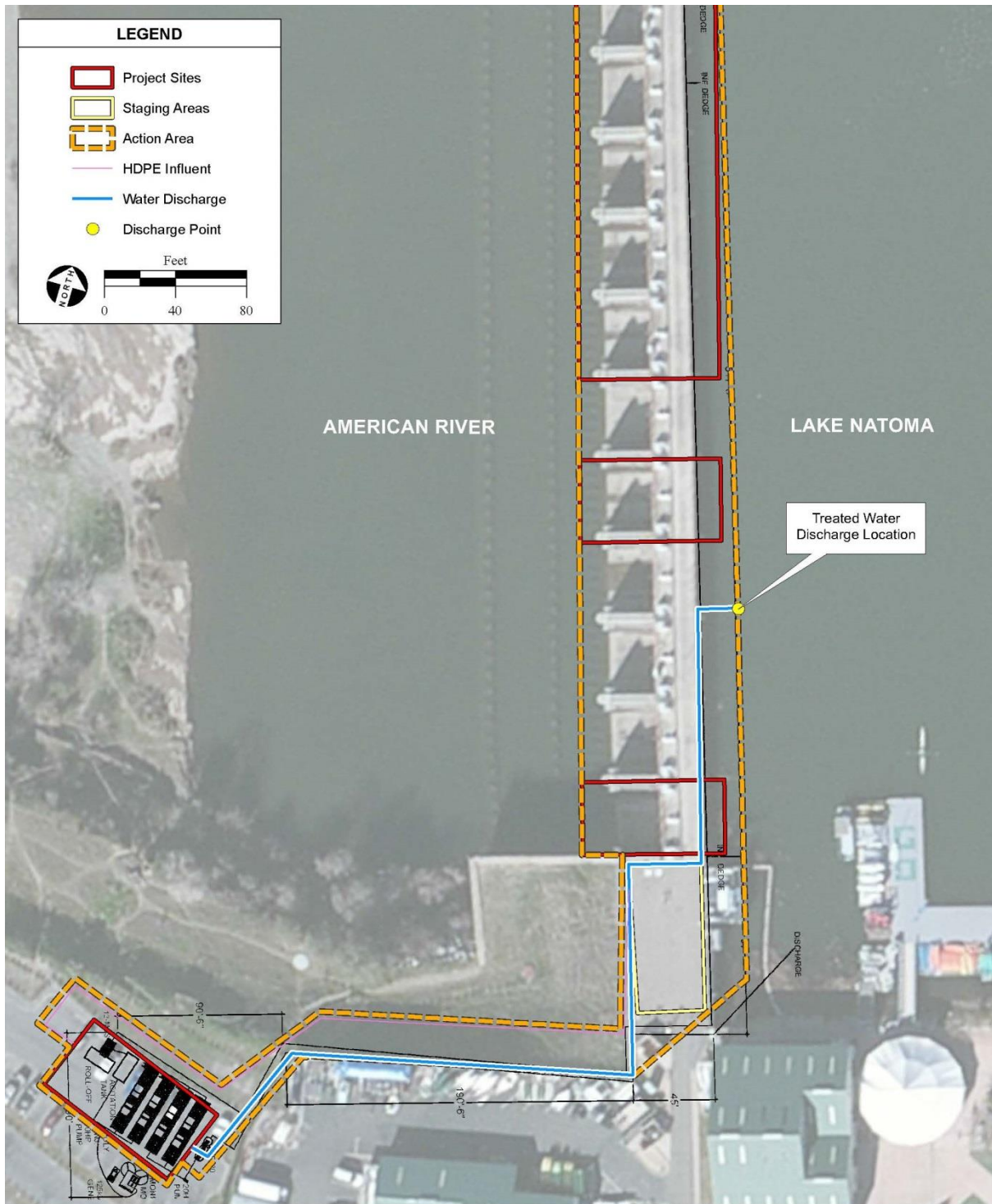
Using the access road across the dam, the Contractor would utilize a four-ton carry deck crane to lower and raise a four inch Digester Hydraulic Submersible Pump with agitator (or equivalent); equipped with a secondary containment device to prevent any spills. Prior to operating the dredge pump the topside crew would ensure the turbidity curtains are in place and then attach all suction hoses, discharge hoses and test the system. The submersible pump would supply the necessary flow through high density polyethylene (HDPE) piping across the dam to the first set of three settling tanks (pre-treatment tanks). No chemical treatment would be performed during this phase. Details regarding the treatment of the dredged materials are addressed below under Dredging Disposal.

In the event that the primary dredge pump cannot access the required dredge areas, the Contractor would utilize handheld dredge methods to capture remaining material. Prior to commencement of work, the 60 inch fish hatchery intake would be secured and LOTO (Lock Out/Tag Out) would be performed to prevent worker injury. Strain reliefs would be provided for all hoses to prevent stress on the fittings. All submerged fittings would be seized and wrapped with absorbent fabric to prevent any fluid from entering the water. An inline fitting would be installed to allow the diver-dredged spoils to travel to the treatment area. The diver would be responsible for indicating to the pump crew as to when to activate the pump. The diver would then maneuver the dredge head/suction hose into the material. The diver would direct the pump crew regarding when to deactivate the pump when checking elevation, removing debris from the dredge head, etc. The pump crew personnel would monitor the dredge pump frequently to prevent downtime. The diver would verify a 2:1 excavation slope angle in the areas that have been dredged.

Dredging Disposal

Prior to dredging operations, a water treatment system would be staged and assembled in the parking lot southwest from the dam (refer to **Figure 5**). Setting up in this portion of the parking lot would reduce impacts to recreationists utilizing the surrounding bike trails as the only other viable option would be to establish the treatment area within the northern staging area, northeast of the Dam. However, this option would require the use of the bike trail to access the treatment area requiring multiple truck trips per day along the bike trail impacting associated users. In addition, the parking lot is closer to the dredge area, reducing the risk of leakage along the pipeline conveyance route as well as the potential for clogging. The dredging and treatment would be scheduled when no events are scheduled at the CSUS Aquatic Center as to prevent any potential adverse impacts to its operations due to the use of the parking lot as the treatment area. It is anticipated that the dredging and treatment operations would require less than two weeks to complete.

Dredged material from each gate would be conveyed via high-density polyethylene (HDPE) pipe along the surface of the dam to a shaker system for primary solids removal. Separated solids would be deposited directly off the shaker unit to 10-cubic yard roll off containers. Republic Services, based in Rancho Cordova, CA would provide and transport the containers to and from the jobsite to the landfill. L & D Landfill located at 8635 Fruitridge Road, Sacramento CA would be the licensed landfill that would accept the solids. Dredging operations are anticipated to generate approximately 50 of the 10-cubic yard roll off containers worth of solid debris. Transportation to and from disposal sites would not cause



major disruption of public traffic and would comply with the Comprehensive Traffic Control Plan (CTCP) developed for the Proposed Action.

The water generated from the shaker system would be collected in an agitation tank below the shaker. Separated water would be dosed with Floc-Clear Bio-polymer and transferred to a series of five 20,000 gallon tanks to settle remaining solids. Settled water would be polished through a sand filter for the removal of any remaining suspended sediments to reduce turbidity. The effluent water would be conveyed back to the river at the discharge area located on the upstream of the dam (Lake Natoma) in accordance with all permitted requirements and would not be discharged into the river below Nimbus Dam (**refer to Figure 5**).

2.2.4 Bulkhead Storage Facility

A pre-fabricated building with steel framing, metal roof, wall panels, gutters and downspouts would be installed approximately 0.2 miles east of radial gate 18; adjacent to the American River Bike Trail (**Figures 3 and 6**). The facility would cover approximately 4,900 square feet with a minimum eave height of 16 feet and a peak height of approximately 24 feet. The facility would be installed atop a concrete slab, with approximately 1,400 square feet of over-pour to create a concrete pad and driveway curving around the northwestern corner of the facility. Site preparation for installation of the facility would include excavation for building foundation, access and entry door slab; site grading, and installation of a drainage system. A Drainage Plan would be developed by the contractor that would recommend appropriate slopes around the facility to provide adequate drainage. The facility would be constructed using similar materials and paint colors to match the existing CSUS Aquatic Center facilities. Additionally, the median between the Nimbus Dam Recreation Area access roadway and American River Bike Trail would be graded to allow installation of a concrete slab to facilitate transport between Nimbus Dam/Lake Natoma and the facility. Refer to Sheets 6 through 8 of **Appendix A** for additional details regarding the Bulkhead Storage Facility and related grading. Additionally, site preparation would result in the removal of four oak trees (8 to 10 inches in diameter at breast height [dbh]) and two pine trees (6 and 8 inches dbh). Security fencing would be installed around the facility with a minimum buffer of 21 feet maintained from the adjacent elderberry shrubs.

2.2.5 Handrail Repairs

The handrails along the Nimbus Dam walkway and access stairwells to each radial gate would be modified to bring into compliance with appropriate Occupational Safety and Health Administration (OSHA) requirements and Reclamation Safety and Health Standards (RSHS). When feasible, handrails would be removed and modification work would be conducted within the staging areas. Where modifications are made to the handrails, that portion would be coated using appropriate paint of matching color to encapsulate any lead-based paint that may have been used on the handrails (handrails coatings would be sampled at the same time the radial gates are sampled for lead content). In addition, toe-plates would be added to each handrail and the height would be modified to meet OSHA requirements and the RSHS. The same dimension pipe and style, including radius of curvatures, mounting



brackets, and chains would be utilized to ensure handrail modifications match the existing handrails to the maximum extent possible. All welding would be completed in accordance with American Welding Society's Structural Welding Code (D1.1 and D1.2) and would be inspected accordingly.

2.2.6 General Construction

Maintenance and construction activities associated with all phases of the Proposed Action would include sandblasting, dredging, grading, excavating, placement of backfill, and foundation development. Implementation of the Proposed Action would result in approximately 0.67 acres of temporary disturbance associated with material storage, dredging treatment, and construction activities within the three staging areas shown on **Figure 3** and 0.24 of permanent disturbance associated with clearing and grading for the development of the Bulkhead Storage Facility as shown on **Figure 6**. All staging areas would be returned to existing conditions after the completion of construction activities.

Schedule

Mobilization and staging for the construction/maintenance activities would begin in July 2015 of 2015, with the first radial gate maintenance activities to commence in August of 2015. Each gate would be completed one at a time according to the following schedule:

- Gates 10, 11, and 12: July to December 2015
- Gates 18, 14, and 9: April to December 2016
- Gates 8 and 7: April to September 2017
- Gate 6: September to December 2017
- Gates 5, 4, and 3: April to December 2018
- Gates 2 and 1: April to September 2019

Dredging activities would be completed prior to November 1, 2015 when water releases from Nimbus Dam are limited to discharge through the powerhouse. Concrete repairs would be conducted July through September 2015 and handrail repairs would be conducted November 2015 through September 2016. Construction of the bulkhead storage facility would commence in July of 2015 and would be completed March of 2016. Project completion is anticipated in October of 2019.

Construction activities associated with the Bulkhead Storage Facility and hauling operations would operate Monday through Friday between the hours of 8:00 A.M. and 5:00 P.M. Gate repair activities would be conducted Monday through Saturday when scheduled between the hours of 8:00 A.M. and 5:00 P.M. No construction activities would occur during any day where the CSUS Aquatic Center is hosting a scheduled event that could conflict with construction operations associated with the Proposed Action. Reclamation would coordinate with the CSUS Aquatic Center regarding the final schedule and the days that construction and maintenance activities would be prohibited due to potential conflicts with scheduled events. In addition, Reclamation would coordinate with State Parks to ensure construction and maintenance operations associated with the development of the Bulkhead Storage

Facility (including bulkhead launches at the boating ramp) do not interfere with ongoing improvement projects to Nimbus Flat facilities including accessibility upgrades.

Construction Staging and Parking

Prior to staging activities for the initial construction/repair activities to be conducted under the Proposed Action, the CTCP would be developed by the Contractor that addresses each stage of the project that would be implemented when operations are being conducted over the life of the project. The CTCP would ensure that temporary traffic control devices are installed to protect work and safety of personnel using project roadways, prevent accidents and damage or injury to passing traffic, and to warn motorists and bicyclists along the American River Bike Trail of the potential for having construction equipment within roadways or bike paths. A preliminary representation of the traffic control plan during construction of the Bulkhead Storage Facility is included in **Appendix F**. The traffic control plan includes the requirements to alert bicyclists and vehicles of the detour from the bike trail that traverses in front of the Bulkhead Storage Facility construction site to the Nimbus Flat Recreation Area access road. A painted stop would be installed at the edge of the bicycle detour adjacent to the access road both east and west of the construction site to prevent conflicts between motor vehicles and bicyclists. Type III barricades with detour signs would be installed to alert bicyclists of the detour. A temporary bicycle path detail would be demarcated on the access road. Awareness of the Proposed Action's activities would comply with the Traffic Control Plan that would be implemented by the Contractor, prior to the Proposed Action's activities.

Staging for the waterway and marine construction and radial gate maintenance would be conducted on the concrete pad adjacent to Gate 18 as well as at the open air storage area located to the northeast of the powerhouse on the north side of the American River as it abuts the Nimbus Dam (**Figure 3**). Both areas are fenced to prevent the public from accessing the site. Access to the southern staging area and for a majority of the equipment and materials for the northern staging area for the radial gate maintenance would be provided by Hazel Avenue with direct access via the CSUS Aquatic Center entrance and property. While a majority of the equipment for the northern staging area would be transported across Nimbus Dam, several of the larger pieces, such as a crane, would be delivered to the northern staging area using the northern bike trail via Main Avenue off of Sunset Avenue and Hazel Avenue. For installation of the bulkhead storage facility, staging would occur west of the proposed site on existing boat trailer parking area of the Nimbus Dam Recreation Area (**Figure 3**). The staging area for the Bulkhead Storage Facility would be accessed from Hazel Avenue via the Nimbus Flat Recreation Area access and parking lot. Refer to **Figure 7** for the access routes to all three staging areas. No trees would be removed for the staging areas. Except when conducting dredging operations, parking and appropriate signage for Contractor personnel would be provided at the southernmost row of existing parking for the CSUS Aquatic Center (**Figure 3**). During dredging and associated water treatment operations, construction employees would park in the adjacent spaces that would become unavailable to the general public due to the proximity to the treatment equipment. It is anticipated that 25 workers would represent the maximum number on-site at a given time, which would occur during concurrent construction of the Bulkhead Storage Facility and maintenance on radial gate from May

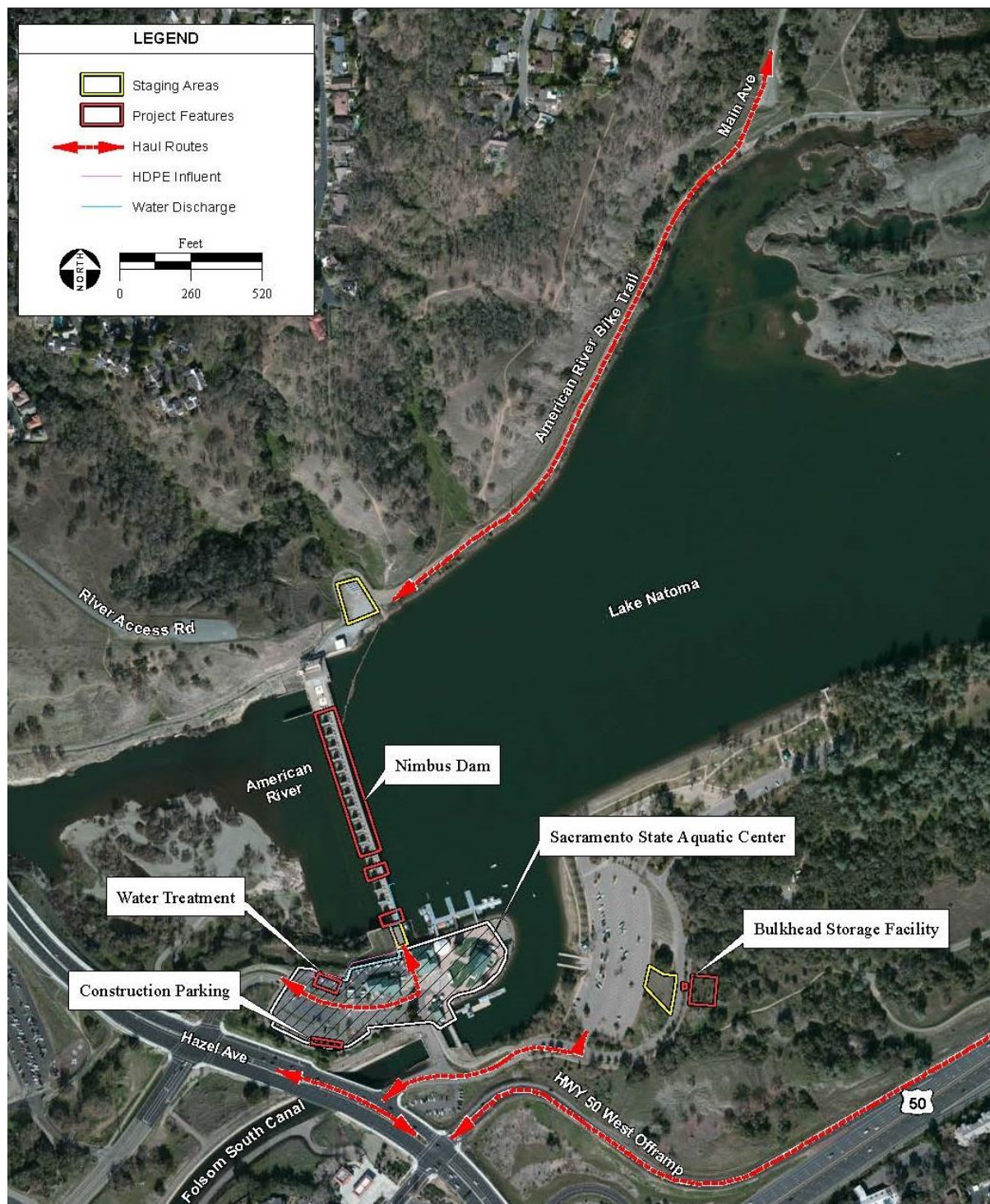


Figure 7 – Haul Routes

2015 through March 2016. Outside of the Bulkhead Storage Facility construction timeframe, it is anticipated that a maximum of 6 construction employee parking spaces would be required at the CSUS Aquatic Center's existing parking lot area. Auxiliary parking spaces for construction employees would be made available at the northern staging area to prevent conflicts with operations at the CSUS Aquatic Center.

Equipment

Energy efficient construction equipment would be utilized to the extent feasible. The following equipment may be utilized during construction of the project:

- | | |
|------------------------------------|-------------------------------------|
| ▪ Air compressor (sandblaster) | ▪ Concrete trucks, saws, and mixers |
| ▪ Excavators and Front-end loaders | ▪ Welding trucks |
| ▪ IC 80 Crane | ▪ Earth mover |
| ▪ Bulldozers | ▪ Water truck |
| ▪ Vacuum truck | ▪ Generator |
| ▪ Air Mover with HEPA filtration | ▪ Diesel dredge pump |

Environmental Commitments

The following environmental commitments would be implemented as a part of the Proposed Action in order to avoid and minimize adverse effects:

SAFETY

1. Signage shall be used surrounding the project site located within public areas (Bulkhead Storage Facility and associates staging area) for recreationalists and the public; the signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction. Signs with the following information would be erected along high visibility construction fencing surrounding the Bulkhead Storage Facility and associated staging area: "Caution! Construction Area. Hardhats Required Beyond This Point."
2. The CTCP shall include provisions for protecting users of the American River Bike Trail, including:
 - A detoured bike route that would temporarily reroute the bike trail west and east of the Proposed Bulkhead Storage Facility south of the trail onto the Nimbus Flat Access Road during construction hours (bike path would remain open during non-construction hours and weekends) within the duration of the construction activity period for the proposed Bulkhead Storage Facility (July 2015 to March 2016). The detoured bike route would include Type III barricades with a detour sign on each end of the trail preventing access near the proposed Bulkhead Storage Facility, and painted traffic control (i.e. "STOP") that would be painted at the junction of the detour onto the Nimbus Flat Access Road. Additional signs before the detour showing "Road Closed Ahead" and similar warning signs may be placed along the American River Bike Trail, as necessary.

- Temporary traffic controls, including warning signs and signal persons, would be situated east and west of the span of the American River Bike Trail from Main Avenue to the northern staging area during use of the trail to deliver equipment to the northern staging area. Warning signs and signal persons would be posted at such a distance as to provide adequate line of sight for any bicyclist utilizing the trail to reduce speed and stop, if necessary.

AIR QUALITY

1. Basic Air Quality Control Measures would be implemented by the Contractor at the project site, including, but not limited to, watering dirt roads and construction areas twice daily.
2. Speeds on the project site and unpaved roadways shall be reduced to less than five miles per hour.

RECREATION

1. Dredging and disposal activities and operations would be conducted in such a manner as to minimize disruption of activities at the CSUS Aquatic Center.

BIOLOGICAL RESOURCES

1. The following environmental commitments would reduce impacts to valley elderberry longhorn beetle (VELB) a federally-listed special status species.
 - The proposed action's activities include the construction of a Bulkhead Storage Facility that could potentially impact elderberry shrubs that could be habitat for the federally listed VELB. Surveys for elderberry shrubs were conducted on October 30 and November 13, 2014; and February 3 and February 17, 2015. The surveys resulted in the detection of three elderberry shrubs located within 100 feet of the activities proposed for the BSF construction and associated staging area. Consultation with the USFWS would be initiated and completed prior to any proposed activities associated with the construction of the BSF. The activities associated with the construction of the BSF would be implemented in accordance with ESA Section 7 consultation with the USFWS and their guidelines for avoidance of impacts. Fencing would be installed to ensure buffers are maintained and to protect all identified elderberry shrubs from direct impacts implemented consistent with the consultation guidelines of the USFWS.
 - All activities associated with the needed maintenance on and around the radial gates would not adversely impact federally listed VELB (refer to **Chapter 3.6**). There is one elderberry shrub located on the north side of the Proposed Action area across the existing bike trail that would be utilized for equipment access to the site. This shrub would not be impacted by the radial gate maintenance activities although it would be fenced and flagged to provide awareness for the equipment operators. All equipment and materials would be enclosed in the Nimbus Dam powerhouse gated area, across from the bike trail, and therefore there would be no expected impacts to the elderberry shrub and therefore there would be no effect to VELB due to the activities associated with the radial gates

repair and maintenance actions.

2. All activities associated with the needed maintenance on and around the radial gates would occur upstream of Nimbus Dam and within Lake Natoma and therefore would not be expected to impact Central Valley steelhead, critical habitat for Central Valley steelhead, and essential fish habitat for Pacific salmon. However, impact avoidance measures would be implemented to ensure that no impacts would occur:
 - All dredging activities would be conducted outside of the window for Central Valley steelhead spawning and incubation.
 - During dredging operations upstream of Gate 18, Reclamation would ensure workers exercise caution and care not to damage the adjacent fish structure, traveling water screen intake structure, trash rack panel, and associated equipment just to the left of the upstream bay. All damages shall immediately be reported to Reclamation and the appropriate state agency as applicable.
 - A Sediment Dredging and Disposal Plan would be implemented to ensure that no sediment would be discharged into the Lower American River.
3. The following mitigation measures are required to avoid impacts to nest sites for migratory birds and other birds of prey:
 - If any trees are anticipated for removal, they should be removed outside of the nesting season (between October 2 and January 31). If trees are anticipated for removal during the nesting season (February 2 to September 30), a qualified biologist shall conduct a preconstruction survey within ten days prior to their removal. If no birds are observed nesting within the trees anticipated for removal, then the biologist would document the results of the preconstruction survey in a letter to the USFWS and Reclamation within 30 days following the survey. If an active nest is observed within a tree anticipated for removal, then the biologist shall contact Reclamation by phone or email within one day following the survey. A 50-foot buffer shall be established around the tree until a biologist determines that the nest is no longer occupied. The biologist should consult with the USFWS if the 50-foot buffer is impractical.
 - A preconstruction survey shall be conducted by a qualified biologist for nesting migratory birds and other birds of prey within 14 days prior to commencement of construction activities that occur within the nesting season. The nesting season occurs from February 1 to October 1. The qualified biologist shall document the results of the preconstruction survey in a letter to the USFWS and Reclamation within 30 days following the survey. If no active nests are identified during the preconstruction survey, then no further mitigation is required.
 - If any active nests are identified during the preconstruction survey within the project site, an appropriate buffer based on the needs of the species observed (generally no less than a 50 foot buffer zone) should be established around the nests. The biologist would delineate the buffer zone with construction tape or pin flags to identify the buffer zone of the active nest and maintain the buffer zone

until the end of the breeding season or until the young have fledged whichever occurs first. Guidance from the USFWS would be requested for a reduced buffer zone if establishing a 50-foot buffer zone is impractical.

CULTURAL RESOURCES

1. In the event of an unanticipated archaeological discovery, the project would cease operations and a member of Reclamation's cultural resource staff would be contacted immediately. Reclamation's cultural resource staff would provide direction on how to proceed and conduct any necessary correspondence and mitigation.
2. In the unlikely event that human remains are uncovered during this undertaking, the project would cease immediately and Reclamation's cultural resource staff would be contacted. Reclamation's cultural resource staff would provide direction on how to proceed. If human remains are discovered on lands under the jurisdiction of Reclamation, they would be treated in accordance to the provisions of the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C 3001).

NOISE

1. Construction activities associated with the Bulkhead Storage and hauling would be limited to weekdays, excluding holidays, between the hours of 8 am and 5 pm. Hauling on streets would be limited to 9 am to 3 pm. These limitations are more stringent than the operational hours outlined in the Sacramento County Code Noise Ordinance.
2. Construction equipment would be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (i.e., mufflers, silencers, wraps, etc.); including shrouding or shielding all impact tools, and muffling or shielding all intake and exhaust ports on power equipment.

TRANSPORTATION AND CIRCULATION

1. Hauling of gravel outside of the American River Parkway would be limited to Monday through Friday, except holidays, from 9:00 am to 3:00 pm to avoid rush hours.

WATER RESOURCES

1. Dredging would be done in such a manner as to minimize turbidity.
2. Staging, storage, and re-fueling areas for machinery, equipment, and materials would be located only in the approved secured staging areas depicted on **Figure 3**. All vehicles and equipment driven or operated in the Proposed Action area would be checked and maintained daily to prevent leakage of materials that may be harmful to aquatic and riparian species. Night drip pans would be placed under any operating equipment. Fencing and barriers would be put in place to prevent public access to the worksite throughout the project duration.
3. Materials would not be permitted to be dumped at locations in Lake Natoma.

4. A comprehensive Water Pollution Prevention/ Storm Water Pollution Prevention Plan would be prepared and implemented by the Contractor, in accordance with applicable permits, to control discharges from the Proposed Action's activities into water resources.
5. During water work, turbidity would be monitored and construction curtailed if turbidity exceeds criteria established by the RWQCB in its Clean Water Act §401 Water Quality Certification.
6. All equipment would be steam-cleaned at the contractor's facility prior to working on-site within the water to remove contaminants that may enter the water and adjacent lands.
7. All Federal, State, and local laws and regulations would be followed regarding the use, production, transportation, storage, and disposition of any hazardous materials.
8. The Contractor would initiate any necessary emergency measures to protect health, safety, and the environment upon discovery of any event which may or does result in contamination or pollution of Federal lands, waters, or facilities.
 - Contractor would report the discovery and full details of the actions taken to Reclamation immediately, not to exceed 24 hours within the event. Reclamation would immediately notify the appropriate agencies, including but not limited to the United State Environmental Protection Agency (EPA), California Department of Fish and Wildlife (CDFW), and the RWQCB of the event and emergency measures taken to resolve the event.

Chapter 3 Affected Environment & Environmental Consequences

This chapter identifies the potentially affected environmental resources and the potential direct and indirect environmental consequences that could result from the Proposed Action and the No Action Alternative, and also the potential impacts and cumulative effects to the following resources:

- Air Quality and Greenhouse Gases
- Visual Resources
- Recreation
- Public Health and Safety
- Biological Resources
- Cultural Resources
- Noise
- Transportation and Circulation
- Water Resources

3.1 Resources Not Analyzed in Detail

Effects on several environmental resources were examined and found to be either minor or non-existent. Because of this, the following resources were eliminated from further discussion from in this EA: Geology, Seismicity, and Mineral Resources; Land Use, Population, and Housing; Agriculture Resources; Socioeconomics; Public Services, Service Systems, and Utilities; Indian Trust Assets; Indian Sacred Sites; and Environmental Justice. These resources and the reasons they were eliminated from further detailed analysis are discussed below.

Geology, Seismicity, and Mineral Resources

The project site is not located in any fault zone on the Alquist–Priolo Earthquake Faulting Zoning Map issued by the California Department of Conservation, Division of Mines and Geology. No active faults or splays were identified on-site or in the project vicinity that could expose people or structures to hazards associated with fault rupture (DOC, 2014).

The project would not result in impacts to significant geological features as the work would be located in previously disturbed areas (Nimbus Dam and the American River Bike Trail) nor prevent the extraction of mineral resources of importance as there are no such resources within the work or staging areas of the Proposed Action.

Land Use, Population, and Housing

The Proposed Action sites are located in land use areas designated for recreation and natural preserve by the Sacramento County General Plan (County, 2015). The Folsom

Lake State Recreation Area (FLSRA)/Folsom Powerhouse State Historic Park (FPSHP) General Plan and Resources Management Plan (GP/RMP) (CDPR and USBR, 2007). Implementation of the Proposed Action and alternatives would result in continued use of the project area for recreational and natural preserve land uses. The construction of the Bulkhead Storage Facility, under the Proposed Action, is compliant with the associated State and local plans above.

No residential or commercial land uses are located at the proposed sites. With implementation of the Proposed Action, no new housing would be developed, and no existing housing or people would be displaced. Therefore, no impacts to existing or planned land uses would result from the implementation of the Proposed Action and alternative.

Agricultural Resources

Implementation of the Proposed Action would result in continued recreational and natural preserve land uses in the project area. No agricultural uses exist in the project vicinity. Therefore, no impacts to existing or planned agricultural resources would result from the implementation of the Proposed Action and alternative.

Socioeconomics

The Proposed Action would have a minor effect on regional economics through construction expenditures; however, operation and maintenance do not result in any increased expenditures relating to the regional economy. The Proposed Action and alternative would not result in impacts to socioeconomics.

Public Services, Service Systems, and Utilities

Implementation of the Proposed Action would result in minor construction but would not result in an increased need for public service, service systems, nor utilities. Accordingly, no impact to these resources would occur and no new public service, service system, nor utility would be required to be constructed and no corresponding impacts from such construction would result from the implementation of the Proposed Action and alternative.

Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property or rights held in trust by the United States for Indian Tribes or individual Indians. Indian reservations, Rancherias, and Public Domain Allotments are common ITAs in California. The Proposed Action does not have a potential to affect ITAs.

Indian Sacred Sites

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site. Reclamation met

with local Tribal representatives and the Proposed Action does not have a potential to affect Indian Sacred Sites.

Environmental Justice

Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. Since there would be no impact to any populations, there would be no adverse human health or environmental effects to minority or low-income populations as a result of the Proposed Action.

3.2 Air Quality and Climate Change

Regulatory Setting

The Federal Clean Air Act (CAA) was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. Basic components of the CAA and its amendments include national ambient air quality standards (NAAQS) for criteria air pollutants (CAPs) and state implementation plans (SIPs). CAPs are pollutants for which ambient air quality standards have been established, below which the air is considered healthy to breathe. The United States Environmental Protection Agency (USEPA) is the federal agency responsible for identifying CAPs, establishing NAAQS, and approving and overseeing state air programs as they relate to the CAA.

The USEPA has identified six CAPs, including ozone (O₃) and its precursors of reactive organic gases (ROGs) (or volatile organic compounds [VOCs]) and nitrogen oxides, carbon monoxide (CO), sulfur dioxide (SO₂), oxides of nitrogen (NO_x), particulate matter (PM) less than 10 microns in diameter (PM₁₀), particulate matter less than 2.5 microns in diameter (PM_{2.5}), and lead (Pb) that are used as indicators of regional air quality. Regulation of air pollution is achieved through the NAAQS and emission limits for individual sources of air pollutants. For some of the CAP, the USEPA has identified air quality standards expressed in more than one averaging time in order to address the typical exposures found in the environment. For example, carbon dioxide is expressed as an eight- and one-hour averaging time under the NAAQS. The NAAQS for the CAPs are presented in **Table 1**.

Federal General Conformity

Under the General Conformity Rule of the CAA (Section 176), recently updated in 2010, the lead agency with respect to a federal action is required to demonstrate that a proposed federal action conforms to the applicable SIP(s) before the action is taken. There are two phases to a demonstration of general conformity:

- 1) The Conformity Review process, which entails an initial review of the federal action to assess whether a full conformity determination is necessary, and
- 2) The Conformity Determination process, which requires that a proposed federal action be demonstrated to conform to the applicable SIP(s).

TABLE 1
NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutants		NAAQS	
		ppm	µg/m ³
Ozone	1 hour	-	-
	8 hours	0.075	147
Carbon Monoxide	1 hours	35	-
	8 hour	9	-
Nitrogen Dioxide	Annual average	0.053	100
	1 hour	0.1	-
Sulfur Dioxide	Annual average	0.30	-
	24 hours	0.14	-
PM ₁₀	24 hours	-	150
PM _{2.5}	Annual arithmetic mean	-	12
	24 hours	-	35
Lead	Rolling – Month Average	-	-
	Quarterly Average	-	1.5
Note 1-hour NO ₂ standard was implemented in January 2011. PM ₁₀ = particulate matter 10 microns in size; PM _{2.5} = particulate matter 2.5 microns in size. Source: CARB, 2013.			

The Conformity Review requires the lead agency to first determine what CAPs the applicable air basin or region is a nonattainment or maintenance area for, then to compare estimated emissions of those CAPs from the federal action to the established general conformity *de minimis* threshold(s). If the emission estimate(s) from step one is below the applicable *de minimis* threshold(s), then a General Conformity Determination is not required under the CAA (40 CFR Part 93). If emission estimates are equal to or greater than *de minimis* levels, the lead agency must conduct a General Conformity Determination. The CAA was enacted for the purposes of protecting and enhancing air quality.

Federal Hazardous Air Pollutant Program

Title III of the CAA requires the USEPA to promulgate National Emissions Standards for Hazardous Air Pollutants (NESHAPs). The NESHAPs may differ between regional sources and area sources of hazardous air pollutants (HAPs).

In addition to standards for stationary sources of HAPs, the CAA also requires the USEPA to promulgate vehicle or fuel standards to include reasonable controls for toxic emissions, addressing at a minimum benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 of the CAA requires the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further

reduce mobile-source emissions. NESHAP regulations are also commonly used to ensure the emission of HAPs (such as asbestos) are reduced or eliminated during construction through a permitting process.

Climate Change

No significance thresholds have been established by the CEQ, USEPA, or any other federal agency for climate change and GHG emissions. However, in February 2010, the Council for Environmental Quality (CEQ) Chair released a memorandum titled *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*. The memorandum provides guidance on how project-related GHG emission should be analyzed in NEPA documents. The Draft Guidance provides that a NEPA climate change analysis shall provide quantification and mitigation to reduce GHG emissions. The guidance also provides that 25,000 metric tons of GHG emissions per year may be a helpful guideline to assist lead agencies in making informed decisions on climate change impacts resulting from a project subject to NEPA. Accordingly, the 25,000 metric tons reporting guideline of the EPA is utilized for the purposes of this analysis to assess the potential for the Proposed Project to significantly impact climate change. On December 24, 2014 the CEQ released a Revised Draft Guidance on Consideration of GHG Emissions and the Effects of Climate Change in NEPA Reviews. The revised draft was published in the Federal Register on December 24, 2014 and provided no significant changes with regards to methodology and significance criteria over the original draft.

Affected Environment

The project site is located within the Sacramento Valley Air Basin (SVAB) which is managed by the Sacramento Metropolitan Air Quality Management District, California Air Resources Board, and the USEPA. SVAB has reached NAAQS attainment status for all CAPs except for ozone and, PM_{2.5}, and PM₁₀.

As a result, the emissions of most concern are ozone (which includes precursors such as ROG/VOC and NO_x), PM₁₀, and PM_{2.5}. **Table 2** below presents the federal attainment status and *de minimis* threshold for general conformity for the CAPs of most concern in the SVAB.

Environmental Consequences

No Action Alternative

Under the No Action Alternative, no construction or operational-related CAPs or HAPs emissions would occur because the project would not be constructed. The existing air quality condition would remain the same, but no additional impacts would occur.

TABLE 2
SVAB ATTAINMENT STATUS AND *DE MINIMIS* LEVELS FOR FEDERAL CONFORMITY DETERMINATIONS

Pollutants	Attainment Status ^a	Federal <i>De Minimis</i> Threshold (tons/year) ^c
VOC (as ozone precursor)	Nonattainment (severe-15)	25
NOx (as ozone precursor)	Nonattainment (severe-15)	25
PM _{2.5}	Nonattainment (24-hour)	100
PM ₁₀	Attainment (24-hour) ^b	100

^a Source: SMAQMD, 2014.
^b Federal Register No. 2013-23245. Effective October 28, 2013, the EPA approved the redesignation of the area of Sacramento from a nonattainment area to an attainment area for the 24-hr PM₁₀ NAAQS.
^c 40 CFR 93.153

Proposed Action

Project-related construction emissions of ozone precursors and particulate matter would vary from day-to-day and by activity, depending on the timing, intensity of construction, and wind speed and direction. Generally, air quality impacts from proposed construction activities would be localized in nature and decrease with distance. Ground disturbing activities would result in the temporary emissions of fugitive dust and vehicle combustion pollutants during the following activities:

- Earthwork (site preparation for building and dredging, trenching, and compacting);
- Sandblasting, concrete work, and architectural coating; and
- Construction equipment and haul truck engine emissions.

Project-related construction emissions were estimated using the 2010 California Emissions Estimator Model (CalEEMod) construction equipment emission factors, load factor, and horsepower rating for the equipment listed in **Chapter 2.2.6**. Project-related yearly emissions were calculated using the most intense construction schedule (2015-2016; which includes construction activities related to radial gate maintenance, dredging, handrail installation, and construction of the bulkhead storage facility) and 2015 construction equipment emission factors. Using 2015 construction equipment emission factors for all construction years provides a conservative estimate of project-related construction emissions since the CalEEMod assumes emissions factors for subsequent years are reduced through improved technological advances and regulatory restrictions. The highest (worst-case) annual emissions attributable to the Proposed Action are presented in **Table 3** below. Construction emission calculations and equipment lists are provided as **Appendix G**.

As shown in **Table 3**, construction of the proposed federal action has been estimated to emit less than the *de minimis* levels for ozone precursors (NO_x and ROG/VOC) and PM_{2.5}; therefore, in accordance with 40 CFR Part 93, a federal General Conformity Determination

is not required. The estimated emissions for PM_{2.5} were modeled without the inclusion of dust suppression measures; however, such measures are routinely implemented to reduce dust emissions regardless of the total emissions of the project. A list of environmental commitments included in the Proposed Action is presented in **Chapter 2.2.6**. Accordingly, implementation of these environmental commitments would reduce dust and associated particulate matter to minimal levels. These measures include:

- Water exposed areas twice daily; and
- Reduce speeds on project site and unpaved roadways to less than 15 miles per hour.

TABLE 3
ESTIMATED PROJECT EMISSIONS WITHOUT MITIGATION

Pollutant	Construction (tons/year)
ROG/VOC	0.36
NO _x	3.23
PM _{2.5}	0.16
Carbon dioxide equivalents	1.022

Source: **Appendix G**

Additionally, operation of the Proposed Action would not constitute a major emissions source and would not result in the release of HAPs. For example, construction of the Proposed Action does not involve demolition of structures that may contain asbestos containing building materials. Furthermore, excavation activities for the building pad of the Bulkhead Storage Facility would not result in disturbing geological features known to contain naturally-occurring asbestos (NOA) (CGS, 2006). Therefore, construction activities associated with the Proposed Action would not result in the release of asbestos fibers.

Cumulative Impacts

In accordance with the CAA, a federal action that emits CAPs below the *de minimis* thresholds would not prohibit the implementation of an applicable SIP. Since a SIP is, by nature, a cumulative planning document taking into consideration past, present, and future actions by establishing emissions thresholds and control mechanisms, implementation of the Proposed Action would not result in an adverse impact to the cumulative air quality environment.

Climate Change

The Council on Environmental Quality (CEQ) recently provided guidance on integrating analysis of GHGs in NEPA documents. As directed by the CEQ Guidance, this EA considers whether project emissions have individual or cumulative effects on climate change. Given the global nature of climate change impacts, individual project impacts are most appropriately addressed in terms of the incremental contribution to a global cumulative impact. This approach is consistent with the view articulated by the *Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report* (IPCC, 2007).

Greenhouse gas (GHG) emissions were estimated using CalEEMod using the same methodology described above under the Proposed Action. During the peak construction phase, implementation of the Proposed Action would result in the emissions of approximately 1,022 tpy of CO₂. For the purposes of this analysis, the draft quantification and assessment threshold of 25,000 metric tons per year of CO₂ emissions as recommended by CEQ is utilized to determine if the Proposed Action would be considered a major source emitter of GHG to the environment, and thereby result in an adverse impact associated with climate change. Since the amount of GHGs emitted from the Proposed Project is well below 25,000 metric tons/year, a report is not required to be submitted to the USEPA and California Air Resources Board.

3.3 Visual Resources

The National Environmental Policy Act (NEPA) of 1969, as amended, requires that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. 4331[b][2]).

Affected Environment

The Proposed Action area is located approximately 0.25 miles east of the Hazel Avenue crossing of the American River on Reclamation lands within the FLSRA. The project area includes Nimbus Dam, Lake Natoma and the American River; the latter are sources of public recreation. While Nimbus Dam is visible from Hazel Avenue, there are limited residential view sheds of the project area; none of which are adjacent to Nimbus Dam itself (refer to **Photo 1** and **Photo 2**). Those living in housing on the bluffs above the American River have a limited view of Nimbus Dam. The GP/RMP identifies the most significant scenic resources within the area as the dramatic and high quality panoramic views including the Lake Overlook above Nimbus Dam (refer to **Photo 3**). The GP/RMP also identifies the distinctive landscape features in the FLSRA as scenic resources including the Lake Natoma Bluffs between Negro Bar and Mississippi Bar and the heavily vegetated shoreline of Lake Natoma. The project area is located downstream past Negro Bar and Mississippi Bar and the vegetation surrounding the project area, in particular the location of the proposed Bulkhead Storage Facility, was installed and is maintained to create visual buffers between Lake Natoma; the California State University, Sacramento Aquatic Center (CSUS Aquatic Center); and the Nimbus Flat parking lot. South of the project area consists of U.S. Route 50 (US-50) and associated right of ways. There are no protected view sheds from the stretch of US-50 south of the project area.

Sacramento County (County) has authority over land uses adjacent to Lake Natoma and the American River Parkway under the 1985 American River Parkway Plan. The County applies, as part of its zoning code, the Parkway Corridor Combining Zone within the parkway to ensure land use compatibility and to reduce visual intrusion on natural amenities (Reclamation, 2011).



Photo 1:
View northwest from
Nimbus Dam
(Facing Hazel
Avenue).



Photo 2:
View north of the
northern bank of the
American River from
Nimbus Dam.

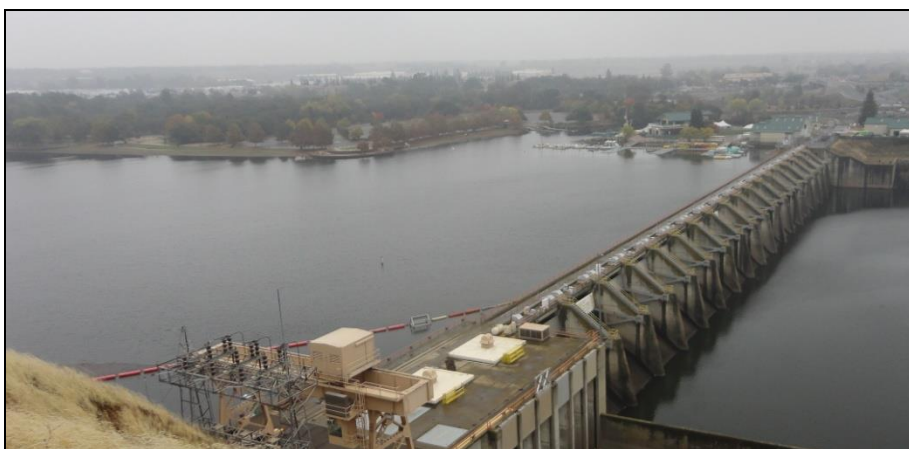


Photo 3:
View southwest from
Nimbus Dam
Overlook of the
project area.

Environmental Consequences

No Action

The No Action Alternative would consist of Reclamation not moving forward with the radial gate maintenance and installation of the Bulkhead Storage Facility. No change to Nimbus Dam or additional facilities associated with Nimbus Dam would be made.

Proposed Action

The Proposed Action would have temporary short-term impacts on visual resources during construction. Construction equipment and project-related materials would be visible at the staging areas shown on **Figure 3**. The appearance of Nimbus Dam would not be altered subsequent to project construction. The Proposed Action would not change the visual character of the action area as it would remain a dam facility and recreational area subsequent to project-related construction. The proposed area for the Bulkhead Storage Facility is shielded by view sheds from the northern bank of the American River by CSUS Aquatic Center facilities along with oak and pine trees (Refer to **Photo 4**). As shown on **Photo 5**, the proposed Bulkhead Storage Facility would be visible from the American River Bike Trail and along a portion of the Nimbus Flat State Park (Nimbus Flat) access road. However, construction of the Bulkhead Storage Facility would be of short-term duration (approximately 10 months). As discussed in **Chapter 2.2.4**, the completed Bulkhead Storage Facility would be an approximate 4,900 square-foot pre-fabricated building 16 to 24 feet in height and would be constructed using similar materials and paint colors to match the existing CSUS Aquatic Center facilities. Therefore, the Bulkhead Storage Facility would appear as a continuation of the adjacent CSUS Aquatic Center complex and would not adversely impact the aesthetic experience of visitors to the surrounding area. In addition, the removal of 6 trees (four oak trees and two pine trees), brush, and shrubs within the 0.24 acres footprint of the Bulkhead Storage Facility would not alter the aesthetics of the American River Parkway due to the abundance of trees surrounding the proposed facility site (refer to **Photo 5**). The Proposed Action area would be returned to pre-construction conditions at the conclusion of the Proposed Actions activities. Impacts to visual resources would be considered temporary and minimal.



Photo 4:
View southeast from Nimbus Dam of Sacramento State Aquatic Center and Nimbus Dam Recreational Area parking lot.



Photo 5:
View east from
Staging Area in
Nimbus Flat towards
the Nimbus Flat
Access Road,
American River Bike
Trail and proposed
Bulkhead Storage
Facility project site,
respectively.

Cumulative Impacts

The potential for the proposed Bulkhead Storage Facility to have cumulative visual impacts along the American River Bike Trail is minimal due to the lack of planned projects within the viewshed and the development limitations and restrictions throughout the American River Bike Trail. As stated above, the aesthetic and visual impact from the Bulkhead Storage Facility would be minimal since the facility would be designed to resemble the existing CSUS Aquatic Center. No other components of the Proposed Action would have cumulative impacts on visual resources in the vicinity of the project. The Proposed Action would not result in a cumulatively considerable degradation to the aesthetic resources or character of the Proposed Action area.

3.4 Recreation

Affected Environment

The Proposed Action area is located on Reclamation land within the American River Parkway between lands administered by the County and the California Department of Parks and Recreation (State Parks) (**Figure 2**).

Reclamation's Lake Natoma area is managed under the FLSRA/Folsom Powerhouse State Historic Park GP/RMP. The immediate vicinity of Nimbus Dam includes the CSUS Aquatic Center and Nimbus Flat. The CSUS Aquatic Center operates under a cooperative agreement between CSUS, the University Union of CSUS, and State Parks (County, 2008).

Recreational opportunities near Nimbus Dam includes wildlife watching, cycling, jogging, and educational opportunities at nature areas, as well as access for angling and boating on the river (Kiene, 2014).

Lake Natoma and the CSUS Aquatic Center

As an afterbay to Folsom Dam, recreational opportunities on Lake Natoma are similar to those on adjacent Folsom Lake. On Lake Natoma, aquatic activities account for about half

of all recreation visits. The sheltered waters – combined with a 5 mph speed limit for motorized watercraft provide opportunities for paddling, rowing, and fishing (CDPR and USBR, 2007).

The CSUS Aquatic Center adjoins Nimbus dam less than 100 feet to the southeast and includes several water-based recreational activities; further serving as a regional boating instruction safety center as part of a program funded by the California Division of Boating and Waterways (CDBW). The CSUS Aquatic Center is open year-around, with the peak operation season occurring during May through September with daily operating hours of 8:00 a.m. to 8:00 p.m. (CSUS, 2014). The CSUS Aquatic Center offers boating classes (power and sail), waterski and wakeboarding, and a rowing program. The rowing program includes several rowing clubs that utilize the CSUS Aquatic Center for access and for mooring. Several races at Lake Natoma are scheduled between February and May 2015, including the NCAA Rowing Championship (CSUS, 2014).

Nimbus Flat State Park

Nimbus Flat is located within the FLSRA of the Gold Fields District of the California State Park System. There were 1,264,168 total paid day uses within the FLSRA during the 2012/2013 fiscal year (Cal Parks, 2014). No specific attendance is available for Nimbus Flat. Nimbus Flat is located southeast of Nimbus Dam (< 0.25 mile) adjacent to the CSUS Aquatic Center and includes two small beaches (approximately 1,700 feet), landscaped picnic areas, low docks for launching small watercraft, and restrooms (CDPR and USBR, 2007). The fee to access Nimbus Flat as administered by the State Parks is 10 dollars per vehicle (CDPR, 2015). Nimbus Flat includes approximately 150 vehicle parking spaces and approximately 80 spaces of combined vehicle and trailer capacity.

American River Parkway

The project area is partially located within the American River Parkway, which includes the American River Bike Trail. The portions of the project within the American River Parkway are presented in **Figure 8**. Recreational opportunities include bicycle, pedestrian, and equestrian/hiking trails (County, 2008). The Bulkhead Storage Facility would be constructed on the east side of the American River Bike Trail, a 32-mile trail that includes walkers, hikers, equestrians, bicyclists, and mountain bikers. Currently, there are 46 miles of pedestrian/equestrian trails within the FLSRA, 20 miles of multiuse trails, 16 miles of Class I trails, 9 miles of mountain bike/pedestrian trails, and 3 miles of pedestrian-only trails.

Designated use of the trail adjacent to the project site is for bicyclists and pedestrians. A system of trails encircles Lake Natoma that link to the American River Parkway below Nimbus Dam to Folsom Lake. The American River Bike Trail is located along the south side of the lake beginning at Nimbus Flat and reconnects with the American River Parkway just past Willow Creek Recreation area, approximately 1.94 miles north of Nimbus Dam. The Jedediah Smith Memorial Bicycle Trail is located on the north end of Lake Natoma and is located between Discovery Park and Beal's Point on Folsom Lake (County, 2008).



Figure 8 – American River Parkway Impacts

Lower American River (Fishing)

The Lower American River is open to fishing year-round from Nimbus Dam to the Hazel Avenue Bridge in accordance with Title 14 CCR, Section 7.50(b)(5)(A). Boating is not allowed within 1,000 feet of dam (State Parks Superintendent's Water Safety Order 690-004-2010). The Lower American River below the dam attracts anglers for salmon, steelhead, and resident rainbow trout. Opportunities draw anglers to the area for both warm and coldwater game fish depending on the water supplied upriver of Nimbus Dam (CDPR & USBR, 2007).

Environmental Consequences

No Action

The No Action Alternative would consist of Reclamation not moving forward with the radial gate maintenance and installation of the Bulkhead Storage Facility. The lead-based paint would continue to pose a threat to water quality and biological resources and the potential for failure of the radial gates would remain unchanged. Recreational opportunities and uses around Nimbus Dam and on Lake Natoma and the Lower American River would continue similar to existing recreational activity under this alternative.

Proposed Action

Implementation of the Proposed Action would include short-term construction activities at Nimbus Dam and proposed Bulkhead Storage Facility, including the use of staging areas as shown on **Figure 3**. As discussed in **Chapter 2.2.6**, construction activities would occur between July and December of 2015 and between April and September/December of 2016 through 2019. Staging for the waterway and marine construction and radial gate maintenance would be conducted at the open air storage area located to the northeast of the powerhouse on the north side of the American River as it abuts Nimbus Dam south of the dam within the gated entrance way from the CSUS Aquatic Center (**Figure 3**). Warnings would be painted on the downstream faces of gates 2, 8 and 14. The warning light assemblies would be temporarily disconnected as needed during repair/maintenance activities and reconnected at these gates.

Traffic signs for pedestrians and for vehicles would be placed at the intersection of Hazel and Gold River Boulevards to alert pedestrian, bicyclists, and motorist of increased vehicle activity. Construction vehicle activity would mainly occur before and after midday hours to Nimbus Flat, presumably the busiest, to avoid causing a significant increase in traffic. The contractor is required to address the traffic issue regarding access to the work site, bicycle safety and access, and vehicle access to the CSUS Aquatic Center and Gold River Boulevard through the completion of a CTCP submitted to Reclamation prior to the start of construction. The CTCP would prevent conflicts between traffic and pedestrian users of the transportation network and construction activities associated with the Proposed Action.

Lake Natoma and the CSUS Aquatic Center

Recreational activity on Lake Natoma associated with the CSUS Aquatic Center would experience short-term impacts during the project construction periods discussed above. As discussed in **Chapter 2.2.3**, project construction associated with the Proposed Project would

be specific to the dam site, staging areas, and proposed Bulkhead Storage Facility (**Figure 3**) and the Contractor would coordinate with CSUS Aquatic Center staff to minimize conflicts between construction activities and CSUS Aquatic Center events (refer to **Chapter 2.2.6**). Temporary use of the boat ramp to transport the bulkhead assembly to and from the Bulkhead Storage Facility could conflict with ongoing operations at the CSUS Aquatic Center. However, the contractor would ensure through consultation with CSUS Aquatic Center staff that the boat ramp would be utilized to move the bulkhead assembly outside of event times and in such a manner as to reduce the potential for conflicts to a minimal level. Construction would take place during normal working hours, and no work would occur on weekends. Noise emission from construction activities is expected to be less than the federal noise threshold of 75 dBA, Leq. Noise impacts are discussed in **Chapter 3.11**. Potential Traffic and Transportation impacts are discussed in **Chapter 3.12**, and would include the implementation of a CTCP. In addition, with proposed contingency parking at the northern staging area and required ongoing coordination efforts with the CSUS Aquatic Center (refer to **Chapter 2.2.6**), impacts to recreational users at Lake Natoma and the CSUS Aquatic Center would be considered temporary and minimal.

Nimbus Flat State Park

As shown on **Figure 3**, the staging area for the Bulkhead Storage Facility would be located on existing overflow parking within Nimbus Flat. The staging area would not result in a significant loss of access or parking spaces at Nimbus Flat. Parking for contractor personnel would be provided at the southernmost row of existing parking for the CSUS Aquatic Center (**Figure 3**). A CTCP would be implemented by the contractor prior to the start of construction to minimize disturbance to park visitors. Construction of the bulkhead storage facility would commence in July of 2015 and would be completed March of 2016 and would not impact the visitor areas of the State Park. The available use of Nimbus Flat would not be reduced during the implementation of the Proposed Action. The Environmental Commitments discussed in **Chapter 2.2.6** would minimize the potential impacts associated with noise and air quality to visitors at Nimbus Flat. Therefore, impacts to recreational users at Nimbus Flat would be considered temporary and minimal and implementation of the Proposed Action is not anticipated to greatly reduce the number of visitors to the State Park.

American River Bike Trail

Staging areas located north of the Nimbus Dam and adjacent to the proposed Bulkhead Storage Facility would result in construction equipment crossing the American River Bike Trail. Both staging areas would be fenced to prevent public access. Access to the northern staging area for the radial gate maintenance would require equipment to traverse the American River Bike Trail beginning at the terminus of Main Avenue and ending at the staging area. The staging area for the installation of the Bulkhead Storage Facility would be located north of the bike trail and Nimbus Flat access roadway on existing boat trailer overflow parking (**Figures 3 and 7**). The Proposed Action would include a CTCP that would ensure that temporary traffic control devices are installed to protect personnel using project roadways, prevent accidents and damage or injury to passing traffic, and to warn bicyclist of the potential for having construction equipment within bike paths. The implementation of the environmental commitments presented in **Chapter 2.2.6**, as part of

the CTCP, would include a temporary bike detour away from the proposed Bulkhead Storage Facility during construction hours and would provide for traffic controls along the American River Bike Trail northeast of Nimbus Dam when equipment deliveries to the northern staging area require such access. With implementation of the CTCP and associated environmental commitments, impacts to recreational users of the American River Bike Trail would be minimized.

Lower American River (Fishing)

Short-term construction activities located at Nimbus Dam include the dredging of sediment within Lake Natoma adjacent to the radial gates in accordance with a Dredging and Sediment Plan. All dredging activities would take place immediately adjacent to the dam and therefore construction activities would not impact fishing within Lake Natoma. Anglers fishing within the Lower American River beneath the dam would be exposed to noise during construction activities conducted on the dam during the months of specified construction activity discussed in **Chapter 2.2.6**. Impacts to fishing below the dam would be minimized by the Environmental Commitments discussed in **Chapter 2.2.6** to reduce noise and potential water quality degradation that could diminish the quality of fishing along the Lower American River. Therefore, impacts to fishing would be considered temporary and minimal.

Cumulative Impacts

Because the Proposed Action would not result in land use conflicts with the surrounding recreational land uses, the Proposed Action would not have cumulative impacts to recreational facilities and the need to build new facilities that would have the potential to adversely impact environment resources. Implementation of the Proposed Action would not inhibit recreationalists' access to the CSUS Aquatic Center, Nimbus Flat, the American River Bike Trail/Jedediah Memorial Bike Trail, or the American River.

3.5 Public Health and Safety

Comprehensive Environmental Response, Compensation, and Liability Act

The primary federal laws regulating hazard wastes/materials are the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA is to ensure sites that have records of hazardous materials release, storage, and generation and are considered a threat to human health and the environment, are cleaned up to a level that is considered safe. RCRA provides "cradle to grave" regulations that ensure hazardous wastes are handled, transported, and disposed according to state, federal, and local laws. These "cradle to grave" regulations provide hazardous material generators a system of tracking hazardous material use, storage, and transportation for RCRA compliance.

Affected Environment

Public health and safety includes all aspects of the health and safety of users of the project area, including workers and recreationalists, as well as physical, chemical, and biological hazards to these users. The region of influence for public health and safety is considered as the general project area.

Physical Hazards

Existing physical hazards within the project area include the risk of flooding at Nimbus Shoals, wild land fire, boating hazards, and crime that is common to all public facilities such as vandalism and vehicle break-ins.

Chemical and Biological Hazards

The project would include the removal of hazardous materials. Hazardous materials and waste include the use, storage, transport, and disposal of hazardous materials and waste, the management of hazardous materials and waste, and the cleanup of contaminated sites. The region of influence for hazardous materials and waste is the project area and surrounding areas where contamination or hazardous materials management could affect the project area.

Hazardous materials and waste within the project area include oil, fuel, and other hazardous substances, such as antifreeze, which may leak from vehicles accessing Nimbus Flat State Park. As discussed in **Chapter 2.2.2**, the existing coatings on the radial gates contain lead and may contain other heavy metals. Paint samples of the Nimbus Dam spillway gate metalwork were collected on June 8, 2004. A stainless-steel chisel was used to scrape the upper gray layer and orange primer layer from the structure to bare metal. Three samples were collected at the upstream face of one of the spillway gates. The results indicate that the pigment layer and primer layer of the paint utilized on the radial gates contains high concentrations of lead. The paint also contained identifiable concentrations of chromium, zinc, and arsenic. In addition, the existing orange-pigmented coatings on the handrail along the dam and power plant decks are highly suspected to contain lead.

Solid waste, primarily trash left by recreationists of the American River Parkway within the project area, collects on Nimbus Flat. Anglers in the project area have deposited a significant volume of lead sinkers on the apron of the Nimbus Dam power plant outfall and in the Lower American River. The segment of the Lower American River that includes the project area was listed as an impaired water body, as defined in Section 303(d) of the Clean Water Act (CWA) in 2010. Three pollutants were listed: Mercury, Polychlorinated Biphenyls (PCBs), and an unknown toxicity (USEPA, 2014b).

The Office of the State Fire Marshal (OSFM) provides support of fire safety by regulating buildings in which people live, congregate, or are confined; by controlling substances and products which may, in and of themselves or by misuse, cause injuries, death and destruction by fire; as well as promulgating regulations and training (OSFM, 2012).

Environmental Consequences

No Action

The No Action Alternative would consist of Reclamation not moving forward with the radial gate maintenance and installation of the bulkhead storage facility. The lead-based paint would continue to pose a threat to water quality and biological resources and the potential for failure of the radial gates would remain unchanged.

Proposed Action

The Proposed Action would include construction work at Nimbus Dam in addition to the construction of the proposed Bulkhead Storage Facility as discussed in **Chapter 2.2**. All construction activities would comply with applicable federal, state, county, and municipal laws, ordinances and regulations. Project-related construction would follow containment protocols discussed in **Chapter 2.2.5**, which would minimize the potential for direct interactions between the public and the construction areas along with the potential for the release of hazardous substances thereby minimizing the potential to cause harm to the public. Signage would be installed surrounding the public areas of the project site (Bulkhead Storage Facility and associated staging area) for recreationalists and the public. The signs would be clearly readable from a distance of 20 feet, and would be maintained for the duration of construction. Signs with the following information would be posted on all erected high visibility construction fencing surrounding the Bulkhead Storage Facility site and associated staging area barricaded the public from access to construction sites. The signs would state: “Caution! Construction Area. Hardhats Required Beyond This Point.” The project contractor would initiate any necessary emergency measures to protect health, safety, and the environment upon discovery of any event which may or does result in contamination or pollution of Federal lands, waters, or facilities. Construction personnel would report the discovery and full details of the actions taken to Reclamation within 24 hours of the event. Reclamation would immediately notify the CDFW and the RWQCB of the event and emergency measures taken to resolve the event.

Implementation of the CTCP and environmental commitments presented in **Chapter 2.2.6** would ensure the safety and protection of visitors accessing Nimbus Flat, and the CSUS Aquatic Center via project roadways and bike trails; specifically, to prevent accidents and damage or injury to visitors from passing traffic, and to warn motorists and bicyclists of the potential for having construction equipment within roadways or bike paths. Therefore, impacts to public health and safety would be considered temporary and minimal.

Cumulative Impacts

Development of the project in combination with other similar projects has the potential to increase the risk for accidental release of hazardous materials. Each individual project would require an evaluation as to potential hazardous materials risks and threat to public safety including risks associated with transportation/use/disposal of hazardous materials, accidental release of hazardous materials into the environment, hazards to sensitive receptors (including schools), and listed hazardous materials sites that could affect environmental conditions along roadway alignments. Each related project would be required to follow local, state, and federal laws pertaining to hazards and hazardous materials. Through compliance with these laws, cumulative projects would minimize future cumulative impacts. Therefore, through full compliance with local, state, and federal laws pertaining to hazardous materials, impacts associated with hazards and hazardous materials would not be cumulatively considerable, and no mitigation is required.

3.6 Biological Resources

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) implement the federal Endangered Species Act (FESA). Under FESA, threatened and endangered species on the federal list and their habitats (50 CFR Subsection 17.11, 17.12) are protected from “take” (i.e., activities that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) as well as any attempt to engage in any such conduct, unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are rendered to the lead federal agency. Pursuant to the requirements of FESA, an agency reviewing a Proposed Project within its jurisdiction must determine whether any federally listed species may be present within the project site and vicinity and determine whether the Proposed Project would have an adverse impact upon such species. Under FESA, habitat loss is considered to be an impact to the species most specifically loss of designated critical habitat. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 U.S.C. Section 1536[3], [4]).

Under FESA, critical habitat may be designated by the Secretary of the Interior for any listed species. The term "critical habitat" for a threatened or endangered species refers to the following: specific areas within the geographical range of the species at the time it is listed that contain suitable habitat for the species, which may require special management considerations or protection; and specific areas outside the geographical range of the species at the time it is listed that contain suitable habitat for the species and is determined to be essential for the conservation of the species. Under Section 7 of FESA, all federal agencies (including the USFWS and the National Marine Fisheries Service [NMFS]) are required to ensure that any action they authorize, fund, or carry out would not likely jeopardize the continued existence of a listed species or modify their critical habitat.

Migratory Bird Treaty Act

Most bird species, (especially those that are breeding, migrating, or of limited distribution) are protected under federal and/or state regulations. Under the Migratory Bird Treaty Act of 1918 (16 U.S.C. Subsection 703-712), migratory bird species, their nests, and their eggs are protected from injury or death, as well as any project-related disturbances during the nesting cycle. As such, project-related disturbances must be reduced or eliminated during the nesting cycle.

The MBTA implements various treaties and conventions between the United States and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the MBTA provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the

MBTA, the Secretary of the Interior may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg would be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

Bald and Golden Eagle Protection Act

The Bald Eagle Protection Act was originally enacted in 1940 to protect bald eagles and was later amended to include golden eagles (16 U.S.C. Subsection 668-669). This Bald Eagle Protection Act prohibits the taking or possession of, and commerce in, bald and golden eagles, parts, feathers, nests, or eggs with limited exceptions. The definition of take includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. Bald eagles may not be taken for any purpose unless a permit is issued prior to the taking. Activities which can be authorized by permit are: scientific collecting/research, exhibition, tribal religious, depredation, falconry, and the taking of inactive golden eagle nests, which interfere with resource development or recovery operations. The statute imposes criminal and civil sanctions as well as an enhanced penalty provision for subsequent offenses.

Wetlands and Waters of the U.S.

The U.S. Army Corps of Engineers (USACE) has primary federal responsibility for administering regulations that concern Waters of the U.S. (including wetlands), under Section 404 of the CWA. Section 404 of the CWA regulates the discharge of dredged or fill material into waters of the U.S. The USACE requires that a permit be obtained if a project proposes the placement of structures within, over, or under navigable waters and/or discharging dredged or fill material into waters below the ordinary high water mark (OHWM). The USACE has established a series of nationwide permits (NWP) that authorize certain activities in waters of the U.S.

Waters of the U.S. are defined as: All waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; and impoundments of these waters, tributaries of these waters, or wetlands adjacent to these waters (Section 404 of the CWA; 33 CFR Part 328). The limit of USACE jurisdiction for non-tidal waters (including non-tidal perennial and intermittent watercourses and tributaries to such watercourses) in the absence of adjacent wetlands is defined by the OHWM. The OHWM is defined as: *The line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas* (Section 404 of the CWA; 33 CFR Part 328).

Wetlands are defined as: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances

do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Section 404 of the CWA; 33 CFR Part 328).

In addition, a Section 401 Water Quality Certification Process was established to comply with CWA Sections 301, 302, 303, 306, and 307 and is regulated by the Regional Water Quality Control Board (RWQCB). Anyone that proposes to conduct a project that may result in a discharge to U.S. surface waters and/or “waters of the state” including wetlands (all types) year round and seasonal streams, lakes and all other surface waters would require a federal permit. At a minimum, any beneficial uses lost must be replaced by a mitigation project of at least equal function, value, and area. Waste Discharge Requirements Permits are required pursuant to California Water Code Section 13260 for any persons discharging or proposing to discharge waste, including dredge/fill, that could affect the quality of the waters of the state.

Affected Environment

The Proposed Action Area is located at Nimbus Dam and includes some limited impacts to both shores of Lake Natoma above the dam. The surrounding area of the Proposed Action includes the Lower American River downstream of the Nimbus Dam. The Lower American River flows downstream from the Nimbus Dam to its confluence with the Sacramento River. The proposed construction area would be limited to the waters upstream of Nimbus Dam, staging areas, and the Bulkhead Storage Facility site (**Figure 3**). Vegetation communities identified within the Proposed Action Area included Annual Grassland/Ruderal Areas, Riparian Woodland, Oak Woodland, Open Water, and Riverine.

Habitats

Annual Grassland/Ruderal Areas

Annual grassland and ruderal areas occupy the open areas around the parking lots and American River Bicycle Trail within the Proposed Action. Plant species common within this community include wild oats (*Avena spp*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), redstem filaree (*Erodium botrys*), tarplant (*Hemizonia fitchii*), Bermuda grass (*Cynodon dactylon*), annual fescue (*Vulpia myuros*), hedge parsley (*Torilis arvensis*), and Italian thistle (*Carduus pycnocephalus*).

Riparian Woodland

Riparian woodland/scrub is the dominant habitat type on the low terrace downstream of Nimbus Dam along the Lower American River. The woodland is dominated by an open overstory of Fremont cottonwood (*Populus fremontii*). Other trees in this habitat type include black willow (*Salix gooddingii*), Oregon ash (*Fraxinus latifolia*), white alder (*Alnus rhombifolia*), sycamore (*Platanus racemosa*), interior live oak s (*Quercus wislizenii*), and blue oak (*Q. douglasii*). Typical understory species include mule fat (*Baccharis salicifolia*), Himalayan blackberry (*Rubus discolor*), poison oak (*Toxicodendron diversilobum*), dutchman’s pipe (*Aristolochia californica*), coyote bush (*Baccharis pilularis*), and elderberry (*Sambucus spp.*).

Oak Woodland

Oak woodland is present at a slightly higher elevation above or adjacent to Nimbus Dam and the surrounding Proposed Action Area. The overstory of the oak woodland is dominated by interior live oak, blue oak and valley oak (*Quercus lobata*). Elderberry shrubs are scattered throughout this habitat type. The grassy understory is composed of species characteristic of the annual grassland type described above.

Open Water – Lake Natoma

Lake Natoma is a regulatory reservoir (forebay) on the American River approximately 6.8 miles downstream from Folsom Dam. Fish species present in Lake Natoma include rainbow trout (*Oncorhynchus mykiss*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), crappie (*Pomoxis* spp.), channel catfish (*Ictalurus punctatus*), and bullhead (*Ameiurus* spp.). An invasive aquatic plant, Brazilian waterweed (*Egeria densa*), has been observed growing adjacent to Nimbus Dam.

Riverine – Lower American River

Although no project-related activities are proposed or anticipated downstream of Nimbus Dam in the Lower American River, there is a potential for project-related activities to impact the Lower American River downstream of Nimbus Dam though only in the event of a failure of the containment systems. The containment systems would be operated according to the requirements in all associated permits that would be obtained from the applicable regulatory agencies for the implementation of the Proposed Action. Even though the Proposed Action would not impact waters downstream of Nimbus Dam in the Lower American River a discussion of species that would be present in the Lower American River during the Proposed Action activities are discussed below.

The Lower American River supports spawning and rearing habitat for the federally threatened Central Valley steelhead (*Oncorhynchus mykiss*), and designated critical habitat for Central Valley steelhead. The American River downstream of Nimbus Dam is also considered essential fish habitat for Central Valley fall/late-fall run Chinook salmon (*Oncorhynchus tshawytscha*).

Wildlife species observed within the Proposed Action Area were limited to bird species such as Canada goose (*Branta canadensis*), common goldeneye (*Bucephala clangula*), Western scrub-jay (*Aphelocoma californica*), California towhee (*Meolzone crissalis*), California gull (*Larus californicus*), house sparrow (*Passer domesticus*), pied-billed grebe (*Podilymbus podiceps*), and black phoebe (*Sayornis nigricans*). The Lower American River is also used by many common mammals, reptiles, and amphibians (Reclamation 2011).

Special Status Species

Information was obtained for the Proposed Action area from the following sources:

- USFWS list of federally-listed special-status species with the potential to occur on or be affected by projects on the “Folsom, CA” quadrangle (USFWS 2015);
- California Natural Diversity Database (CNDDDB) list of special-status species known to occur within the “Folsom, CA” quadrangle and the surrounding eight quadrangles (Buffalo Creek, Carmichael, Citrus Heights, Clarksville, Folsom SE, Pilot Hill, Rocklin, and Roseville) (CDFW 2014) and;
- California Native Plant Society (CNPS) list of special-status species known to occur within the “Folsom, CA” quadrangle and the surrounding eight quadrangles (CNPS 2014)

For the purposes of this assessment, special-status has been defined to include those species that are:

- Listed as endangered or threatened under the FESA (or formally proposed for, or candidates for, listing)

All federally listed special-status species with the potential to occur within the Proposed Action Area or be affected by the Proposed Action are presented in **Table 4**. The table includes federal status, critical habitat designation, habitat requirements, and rationale for potential to occur or not occur within the Proposed Action Area.

TABLE 4
FEDERALLY LISTED SPECIES POTENTIALLY OCCURRING IN THE FOLSOM USGS 7.5-MINUTE QUADRANGLE

Species	Federal Status	Critical Habitat	Habitat Requirements	Potential to Occur within the Action Area
Invertebrates				
Valley elderberry longhorn beetle (<i>Desmoceris californicus dimorphus</i>)	FT	No	Elderberry shrubs	Yes - Suitable habitat (elderberry shrubs) are present within the proposed action area.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT	No	Vernal pools and seasonal wetlands	No – No vernal pool habitat occurs within the proposed action area.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE	No	Vernal pools and seasonal wetlands	No – No vernal pool habitat occurs within the proposed action area.
Conservancy fairy shrimp (<i>Branchinecta conservatio</i>)	FE	No	Vernal pools and seasonal wetlands	No – No vernal pool habitat occurs within the proposed action area.
Fish				
Central Valley steelhead	FT	Yes	Adults live and forage in	No – The American River

Species	Federal Status	Critical Habitat	Habitat Requirements	Potential to Occur within the Action Area
DPS (<i>Oncorhynchus mykiss</i>)*		(down-stream of Nimbus Dam)	ocean; returning to spawn in freshwater; typically in farthest accessible reaches of rivers and streams within the Sacramento and San Joaquin River basins; requires suitable spawning gravels and cool summer water temperatures for juvenile rearing.	downstream of Nimbus Dam provides spawning and rearing habitat for this species. There is no suitable habitat located within the area proposed for implementation of the Proposed Action's activities.
Sacramento River Winter-run ESU Chinook salmon (<i>Oncorhynchus tshawytscha</i>)*	FE	No	Adults live and forage in ocean; returning to spawn in habitat with cool summer water temperatures for adult holding and maturation, spawning, and juvenile rearing; suitable spawning gravels; present spawning distribution limited to the Sacramento River between Keswick Dam and the Red Bluff Diversion Dam.	No -The proposed action area is outside of the known distribution of this species.
Central Valley Spring-run ESU Chinook salmon (<i>Oncorhynchus tshawytscha</i>)*	FT	No	Adults live and forage in ocean; returning to spawn in freshwater habitats in large creeks and rivers with cool summer water temperatures for adult holding and maturation, spawning, and juvenile rearing; suitable spawning gravels; present distribution mostly limited to the Feather River, Butte Creek, and Battle Creek.	No -The proposed action area is outside of the known distribution of this species.
Amphibians				
California tiger salamander (<i>Ambystoma californiense</i>)	FT	No	Breeding: vernal pools, wetlands, stock ponds. Upland: adjacent grassland or oak woodland; needs	No - No CNDDB occurrences within the Folsom, CA 7.5 min USGS quad; suitable habitat not present within the proposed Action Area

Species	Federal Status	Critical Habitat	Habitat Requirements	Potential to Occur within the Action Area
			underground refuge (e.g., ground squirrel and gopher burrows).	
California red-legged frog (<i>Rana aurora draytonii</i>)	FT	No	Found in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation; elevation range from sea level to 1,600 meters.	No - No CNDDDB occurrences within the Folsom, CA 7.5 min USGS quad; suitable habitat not present within the proposed Action Area. .
Giant Garter Snake (<i>Thamnophis gigas</i>)	FT	No	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches.	No – No CNDDDB occurrences within the Folsom, CA 7.5 min USGS quad; suitable habitat not present within in the proposed Action Area.
Plants				
Sacramento Orcutt grass (<i>Orcuttia viscid</i>)	FE	No	Vernal pools	No – habitat does not occur within the Action Area
FE = Federally Endangered; FT = Federally threatened; * Recovery Plan managed by NMFS				

Environmental Consequences

No Action

The No Action Alternative would consist of Reclamation not moving forward with the radial gate maintenance and installation of the bulkhead storage facility. The lead-based paint would continue to pose a threat to water quality and biological resources and the potential for failure of the radial gates would remain unchanged.

Proposed Action

Under the Proposed Action, maintenance activities would be implemented on the Nimbus Dam radial gates and a bulkhead storage facility would be constructed. The federally listed VELB is located within the Proposed Action area. Potential impacts to the species are discussed below. Even though the Proposed Action would not impact waters downstream of Nimbus Dam in the Lower American River a discussion of federally listed fish species and associated habitat that would be present in the Lower American River during the Proposed Action activities are also discussed below.

Central Valley Steelhead (Oncorhynchus mykiss) Distinct Population Segment (DPS)

Federal Status – Threatened

The Central Valley steelhead distinct population segment (DPS) was originally listed as threatened on March 19, 1998 (60 FR 13347) and again on January 5, 2006 (71 FR 834). The range of this DPS includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries. The range includes portions of Amador, Alameda, Butte, Calaveras, Contra Costa, Colusa, Glenn, Mariposa, Merced, Nevada, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tuolumne, Yolo, and Yuba counties (CDFW, 2014b).

Adult Central Valley steelhead begin their migration from the ocean in the late fall through early winter and typically arrive at their spawning grounds between December and April, spawning shortly after arrival. Unlike other Pacific Coast salmonid species, not all Central Valley steelhead die after spawning, and some individuals may spawn two or more times (Moyle, 2002). Spawning takes place in relatively shallow water, typically in glide and shallow run habitat at depths ranging from 20 to 99 cm (8 to 39 inches). Preferred spawning substrate is gravel ranging from 0.3 to 10 cm (0.12 to 3.9 inches) in diameter. The optimum temperature for egg development is 9 to 11 °C (48 to 52 °F). After emergence, fry seek shallow edge water habitat for several months after which they disperse into suitable mid-channel habitat. Optimum juvenile growth and survival occurs at temperatures ranging from 13 to 17 °C (55 to 64 °F) with dissolved oxygen (DO) levels greater than 9 milligrams per liter (mg/L). Juveniles remain in the freshwater environment for one to two years where they forage mainly on aquatic invertebrates prior to migrating to the Pacific Ocean. They typically spend one to three years in near shore saltwater habitat foraging on crustaceans, small fish, and squid before reaching maturity and returning to their natal streams to spawn (Moyle, 2002; McEwan and Jackson, 1996).

Table 5 presents the life history of Central Valley steelhead within the Lower American River. Adult peak migration occurs from December through March, spawning occurs from December through April, and incubation and emergence peaks from January through May. Juvenile rearing occurs throughout the year.

TABLE 5
CENTRAL VALLEY STEELHEAD LIFE STAGE USE BY MONTH, LOWER AMERICAN RIVER

Life Stage	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Adult Migration	X	X	X	x							x	X
Spawning	X	X	X	X								X
Incubation/Emergence	X	X	X	X	X	x						x
Juvenile Rearing	X	X	X	X	X	X	X	X	X	X	X	X
Juvenile Emigration		X	X	X	X	x					x	x
X – Peak Occurrence; x – Life Stage Present Source: McEwan and Jackson 1996, SWRI 2001, Hannon and Deason 2005												

Central Valley Steelhead Critical Habitat

Critical habitat for the Central Valley steelhead was designated on September 2, 2005 (70 Federal Register 52488 – 52627). Critical habitat for Central Valley steelhead consists of

estuarine waters of San Francisco Bay, the Sacramento-San Joaquin Delta, the Sacramento and San Joaquin rivers, and all tributaries to the Sacramento and San Joaquin river systems downstream of impassable barriers in the following counties: Tehama, Butte, Glenn, Shasta, Yolo, Sacramento, Solano, Yuba, Sutter, Placer, Calaveras, San Joaquin, Stanislaus, Tuolumne, Merced, Alameda, Contra Costa. The Lower American River is designated as critical habitat for Central Valley steelhead. No EFH has been designated for Central Valley steelhead at this time. Critical habitat for Central Valley steelhead contains the following primary constituent elements (PCEs):

- (1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development;
- (2) Freshwater rearing sites with:
 - (i) Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;
 - (ii) Water quality and forage supporting juvenile development; and
 - (iii) Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
- (3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
- (4) Estuarine areas free of obstruction and excessive predation with:
 - (i) Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater;
 - (ii) Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and
 - (iii) Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

Potential Effects on Central Valley Steelhead and Central Valley Steelhead Critical Habitat

Suitable spawning and rearing habitat for Central Valley steelhead occurs downstream of the Proposed Action Area in the Lower American River. Although the construction activities associated with the Proposed Action does not involve work within the Lower American River below the dam, construction activities within Lake Natoma have the potential to adversely affect Central Valley steelhead spawning, rearing, and migration within the Action Area though only if the containment requirements of the project fail. Water releases from the immediate work area into the Lower American River downstream of Nimbus dam would not occur during dredging or radial gate maintenance activities. Ongoing water releases from the Nimbus Dam will continue to occur through the power house on the north end of the dam which is not within the designated dredging area.

Waterway and Marine Construction

Waterway and marine construction activities within Lake Natoma could result in accidental discharge of sediment-laden water from Lake Natoma into the Lower American River though only if the containment requirements of the project fail. Accidental discharge of sediment-laden water into the Lower American River could potentially result in injury or mortality to Central Valley steelhead eggs or incubating fry or affect its critical habitat. However, implementation of the prescribed containment activities, which are part of the Proposed Action as noted in the description, when combined with the following avoidance measures would result in no adverse impacts to Central Valley steelhead and its critical habitat:

1. Waterway and marine construction activities shall not be conducted prior to May 15 and would end by October 15 of each year. This work window is outside of the spawning period and outside of the peak incubation and emergence period of Central Valley steelhead.
2. A bulkhead assembly would be installed in each bay corresponding to the gate to be repaired and then moved from bay to bay as each gate is completed. Water leaking through the bulkhead would be pumped back into Lake Natoma.
3. A Stormwater Pollution Prevention Plan (SWPPP) utilizing best management practices (BMPs) shall be implemented to minimize the potential for terrestrially-generated sediment or other pollutants to enter aquatic habitat (Lake Natoma).
4. All equipment re-fueling and maintenance shall occur in an approved staging area and an agency-approved spill prevention plan would be implemented by the contractor.

Radial Gate Maintenance

Construction activities associated with the radial gate maintenance could result in accidental discharge of sediment-laden water from Lake Natoma into the Lower American River. Sandblasting of paint or protective coating from the radial gates could result in heavy metals or other contaminants entering the Lower American River resulting in injury or mortality to Central Valley steelhead eggs or incubating fry or affect its critical habitat. However, implementation of the below avoidance measures would result in no adverse impacts to Central Valley steelhead and its critical habitat:

1. A contractor-supplied Containment System Plan and a Lead and Heavy Metals Work Plan shall be implemented to minimize the potential for paint chips and/or dust to enter the American River above or below the dam. Detailed descriptions of the plans are provided in **Chapter 2.2.2** and **Appendix C**.
2. A Stormwater Pollution Prevention Plan (SWPPP) utilizing best management practices (BMPs) shall be implemented to minimize the potential for terrestrially-generated sediment or other pollutants to enter aquatic habitat (Lake Natoma).
3. All equipment re-fueling and maintenance shall occur in an approved staging area and an agency-approved spill prevention plan would be implemented by the contractor.

Sediment Dredging

Construction activities associated with sediment dredging could result in accidental discharge of sediment-laden water from Lake Natoma into the Lower American River resulting in injury or mortality to Central Valley steelhead eggs or incubating fry and its critical habitat. However, implementation of the below avoidance measures would result in no adverse impacts to Central Valley steelhead and its critical habitat:

1. Sediment dredging shall not be conducted prior to May 15 and would end by October 15 of each year. This work window is outside of the spawning period and outside of the peak incubation and emergence period of Central Valley steelhead.
2. A turbidity curtain shall be installed around the bulkhead prior to the initiation of dredging activities. The turbidity curtain would minimize mobilization and transport of fine sediments in the event there is leakage from the bulkheads. If necessary, turbidity monitoring would be conducted outside of the turbidity curtain to ensure that turbidity does not exceed background levels within Lake Natoma. A detailed description of the Dredging and Disposal of Sediment Plan is provided in **Chapter 2.2.3** above and in **Appendix E**.
3. Dredged sediment and influent water would be pumped into a series of settling tanks staged in the parking lot southwest of the dam. After the initial settling process, influent water would be treated and filtered as described in the Dredging and Disposal of Sediment Plan prior to being discharged back into Lake Natoma released (see **Chapter 2.2.3** and **Appendix E**).
4. Water releases from Nimbus Dam into the Lower American River shall be restricted to flow through the powerhouse at the north end Nimbus Dam during dredging activities, thereby minimizing the potential that any suspended sediment resulting from dredging activities that is not contained by the above avoidance measures would be discharged into the Lower American River.
5. A Stormwater Pollution Prevention Plan (SWPPP) utilizing best management practices (BMPs) shall be implemented to minimize the potential for terrestrially generated sediments or other pollutants to enter aquatic habitat (Lake Natoma).
6. All equipment re-fueling and maintenance shall occur in an approved staging area and an agency-approved spill prevention plan would implemented by the contractor.

Potential Effects to Central Valley Fall/Late-Fall run Chinook Salmon(Oncorhynchus tshawytscha) Essential Fish Habitat (EFH)

The Action Area is upstream of designated EFH for Central Valley fall/late-fall run Chinook salmon. Suitable spawning and rearing habitat for Central Valley fall/late-fall run Chinook salmon occur downstream of the Action Area in the Lower American River. Construction activities have the potential to adversely affect Central Valley fall/late-fall run Chinook salmon spawning, rearing, and migration within the Action Area. Similar to the discussion

presented for Central Valley steelhead in the above section, construction of the project components would not affect Central Valley fall/late-fall run Chinook salmon and designated EFH for Central Valley fall/late-fall run Chinook salmon within the Lower American River. However, the avoidance measures proposed for Central Valley steelhead and its critical habitat would provide the same level of protection to EFH for Central Valley fall/late-fall run Chinook salmon. Therefore, it is anticipated that implementation of the above avoidance measures for the Proposed Action's activities would not adversely affect essential fish habitat for Central Valley fall/late fall run Chinook salmon.

Valley Elderberry Longhorn Beetle

Federal Status – Threatened

The valley elderberry longhorn beetle (VELB), (*Desmocerus californicus dimorphus*), was listed as threatened and critical habitat was designated for the species on August 8, 1980 (Federal Register 45: 52803-52807). Elderberry shrubs are obligate hosts for VELB larvae. Elderberry shrubs are often associated with cottonwood (*Populus* sp.), willow, ash (*Fraxinus* sp.), oak (*Quercus* sp.) and walnut (*Juglans* sp.) species common to the riparian forests and adjacent uplands in the Central Valley and foothills the elderberry inhabits (Barr 1991). The VELB's range has been reduced and greatly fragmented due to a loss of elderberry inhabited communities, most especially riparian habitat loss. Habitat loss has resulted from conversion to agricultural land, residential and commercial development, levee maintenance, and pesticide drift where aerial application or fogging of crops occurs near riparian habitats (USFWS 1999 and Barr 1991).

Adult VELB feed on elderberry foliage and may be observed from March through early June. During this time, the adults mate within the canopy and females lay eggs, either singularly or in small clusters, in bark crevices or at the junction of stem/trunk or leaf petiole/stem of live elderberry shrubs (Barr 1991). After the eggs hatch, the first instar larvae burrow into the host elderberry stems to feed on pith for one to two years. Prior to pupation, the larva chews outward from the center of the stem through the bark to construct an emergence hole. After the larvae plugs the newly constructed emergence hole with shavings and frass, it returns to the center of the stem and constructs a chamber where it pupates. Metamorphosis to the adult phase occurs in early to late spring, with emergence typically occurring from mid-March through June (USFWS 2006). Elderberry stems with emergence holes indicate current and/or previous VELB presence. VELB utilize stems greater than one inch diameter and produce circular to oval emergent holes approximately 0.25 inch in diameter. The majority of exit holes are observed within four feet above the shrub crown (Barr 1991).

Potential Impacts to VELB

The USFWS Conservation Guidelines state that no adverse effects to VELB are expected when project activities occur at least 100 feet from elderberry shrubs with stems measuring at least one inch diameter at ground level. Analytical Environmental Services biologists performed an elderberry stem count and VELB survey within suitable habitat in the Proposed Action disturbance areas on February 17, 2015 (**Figure 6**). The survey was conducted in accordance with USFWS (1999) and focused on identifying, mapping and

classifying all elderberry stems with emphasis on those measuring greater than 1 inch at ground height and documenting the presence or absence of VELB emergence/exit holes.

The Proposed Action Area contains two staging areas and the Bulkhead Storage Facility construction area that are located within 100 feet of elderberry shrubs. Therefore, the Proposed Action has the potential to affect VELB. In areas where construction is proposed within 100-feet of elderberry shrubs, the encroachment must be approved by the USFWS and a minimum setback of 20 feet from the driplines of the elderberry shrubs must be maintained (USFWS 1999).

Two elderberry shrubs are located within 100 feet of the proposed Bulkhead Storage Facility construction area on the south site of the Action Area (**Figure 6**). Shrub 1 is located 21 feet south of the proposed Bulkhead Storage Facility construction area. Shrub 1 consisted of five live stems from one to three inches in diameter. No VELB exit holes were observed on Shrub 1. Shrub 2 is located 21 feet north of proposed Bulkhead Storage Facility construction area. Shrub 2 was in poor condition at the time of the February 17, 2015 site visit, and consisted of one live stem slightly greater than one inch in diameter with minimal new growth; and one dead stem with one possible old VELB exit hole. No VELB exit holes were observed on the live stem. Shrub 3 is located 28 feet from the staging area (overflow parking lot) for the Nimbus Dam Recreation Area, although it is currently protected from possible vehicular damage by boulders and large woody debris between the American River Bike Trail and the overflow parking area. One elderberry shrub is located within 100 feet of the staging area on the northern site of the Proposed Action Area. This shrub is separated from the proposed staging area by the American River Parkway bike trail. In addition, the proposed staging area is currently fenced off from the American River Parkway, which provides protection from potential impacts associated with staging activities. Even though the Proposed Action's activities would not directly impact any shrubs, some activities would be within a 100 feet of the shrubs and therefore the federally listed species may be indirectly impacted according to the USFWS guidelines for VELB.

A Biological Assessment has been prepared to initiate a Section 7 Consultation under the ESA with the USFWS. The Biological Assessment provides avoidance measures to reduce potential impacts to VELB to the “*may affect, but is not likely to adversely affect*” level, including no temporary or permanent loss of habitat. Concurrence from the USFWS would be obtained prior to project implementation. All proposed activities would be in compliance with ESA. Avoidance measures recommended by the USFWS would be implemented to avoid adverse impacts to the federally listed species. Therefore, the Proposed Action would not adversely impact the VELB.

Bird Species Protected Under the Migratory Bird Treaty Act

Implementation of the Environmental Commitments presented in **Chapter 2.2.6** would prevent adverse impacts to bird species protected under the Migratory Bird Treaty Act during construction of the Bulkhead Storage Facility.

Cumulative Impacts

One recently completed federal project has been implemented within the Action Area. The

Lower American River Salmonid Gravel Augmentation and Side-Channel Establishment Program – Nimbus Basin was completed in the summer of 2014. This project would result in long term beneficial impacts to Central Valley Steelhead and its designated critical habitat and to Central Valley fall/late-fall run Chinook salmon EFH. In addition, the BOR will continue to manage water releases from Nimbus Dam under the conditions of the previously issued Biological Opinion covering Central Valley steelhead, critical habitat for Central Valley steelhead, and EFH for Central Valley fall/late fall run Chinook salmon. No other cumulative projects in the vicinity of the Action Area are anticipated at this time. There is no open space available for development within the vicinity of the Action Area, as the immediate vicinity is already developed as Reclamation managed land primarily the Sacramento State Aquatic Center or the American River Parkway. Future residential development may occur outside of this radius, but would be outside of the geographic range that would be cumulatively considerable with the Proposed Project. Any future development in these areas would be required to mitigate impacts to biological resources based on the FESA, the California Environmental Quality Act (CEQA), the California Endangered Species Act, and the federal Clean Water Act. No significant cumulative effects are reasonably anticipated to occur.

3.7 Cultural Resources

The determination of the affected cultural environment and associated analysis of the potential effects of the Proposed Project on resources listed or eligible for listing on the National Registry of Historic Places (NRHP) was accomplished through a combination of background research and an archaeological field survey by an archaeologist who meets the Secretary of the Interior's Qualifications for Archaeology and by preparation of a Finding of Effect by an architectural historian who meets the Secretary of the Interior's Qualifications for Architectural History. Due to the sensitive nature of the documents and materials assessed during the cultural assessment, these materials and subsequent analysis are included in a confidential Cultural Resources Study. While not made available to the general public, the Cultural Resources Study has been submitted to the State Historic Preservation Officer (SHPO) for review and approval to meet Reclamation's local consultation requirements under Section 106 of the National Historic Preservation Act (NHPA).

Affected Environment

The project area was originally part of the Rancho Rio de los Americanos Mexican land grant – 35,500 acres granted to William Leidsdorff and purchased by Joseph L. Folsom in 1848 after Leidsdorff's death. This grant extended from the eastern border of John Sutter's New Helvetia settlement (east of Sacramento) along the south bank of the American River to the western edge of present-day Folsom. However, no specific built resources were identified on the 1859 Rancho Rio De los Americanos map, the 1871 GLO Plat map, the 1904 soil survey, or the 1914 or 1954 quadrangle maps, with the exception of Nimbus Dam on the 1954 map.

A search of recorded historic sites noted that no previously-documented cultural resources were situated directly within the area of potential effect (APE) for the Proposed Project but 12 sites have been identified within ½-mile. Nimbus Dam itself was not identified in the

results of the record search, but has been nominated to the NRHP by Reclamation. The record search also identified 17 previous cultural resource surveys within the ½-mile radius, including one which encompassed the Bulkhead Storage Building and staging area.

The project area is set on gold dredger tailings that have been leveled and graded. A truncated trench fragment within the tailings was identified south of the footprint for the Bulkhead Storage Facility during the archaeological survey; background research did not identify any other resources within the APE.

Environmental Consequences

No Action

The No Action Alternative would consist of Reclamation not moving forward with the radial gate maintenance and installation of the bulkhead storage facility. No impacts to cultural resource would result from Reclamation taking no action.

Proposed Action

The APE includes the Dam itself and footprints for equipment and construction staging, as well as for a pre-fabricated storage building. The Dam has been found eligible for listing on the NRHP but the Cultural Resources Study for the Proposed Project has determined that project construction would not adversely affect any of the qualities that render it eligible.

The archaeological survey for the staging and Bulkhead Storage Facility portions of the APE failed to identify any historic properties (i.e. resources eligible or potentially eligible for the NRHP). The APE in these areas consists of leveled and graded tailings deposits related to a historical gold mining site. These tailings do not meet the eligibility criteria of the NHPA: events that have made a significant contribution to the broad patterns of history (gold mining). The tailings have been leveled, and the short trench section is both outside of the Bulkhead Storage Facility APE and truncated at both ends, with no evidence connecting it to specific mining activities and no other associated evidence of mining.

As a result of the records search and field studies, no cultural resources were identified within the APE and the Proposed Project would not adversely affect any of the qualities that render Nimbus Dam eligible for inclusion on the NRHP. Provided that all ground-disturbing work is confined to the APE as it is currently defined a finding of No Historic Properties Affected is recommended for the Proposed Action. Reclamation is currently seeking concurrence from SHPO with this finding.

In the unlikely event that cultural resources or human remains are identified during the implementation of this project there may be additional considerations pursuant to Section 106 of the NHPA. If inadvertent discoveries of cultural resources or human remains occur during project implementation of the avoidance and conservation measures presented in **Chapter 2.2.6**, which include temporary work stoppages and assessment by Reclamation cultural resources staff immediately upon such discoveries. Reclamation would follow the procedures at 36 C.F.R. §800.13 for post-review discoveries, as applicable.

Cumulative Impacts

Cumulative effects to historic properties typically occur when sites that contain cultural features or artifacts are disturbed by development. As these historic properties are destroyed or displaced, important information is lost and connections to past events, people and culture is diminished. As discussed previously, no significant historic properties were identified within or adjacent to the project site. In addition, the records search and archival research indicates that historic and cultural resources in the area have been thoroughly documented. However, the Proposed Project may impact previously unknown archaeological resources, as resources may be buried with no surface manifestation. Significant cumulative impacts to unknown historic properties could occur if sites continued to be lost, damaged, or destroyed without appropriate recordation or data recovery. Environmental Commitments have been specified in **Chapter 2.2.6** in accordance with Federal regulations, reducing potential cumulatively considerable adverse impacts to a minimal level.

3.8 Noise

The Federal Highway Administration, 2006 Construction Noise Handbook provides the following noise thresholds for noise sensitive locations such as residences, 78 dBA, Leq or baseline plus 5 dBA, Leq (whichever is louder) between 7 am to 6 pm; baseline plus 5 dBA, Leq between 6 pm to 10 pm; and baseline plus 5 dBA, Leq (if baseline is greater than 70 dBA, Leq) or Baseline plus 3 dBA, Leq (if baseline is less than 70 dBA, Leq) between 10 pm to 7 am. For this analysis the above thresholds of significance would be used.

Affected Environment

Nimbus Dam and CSUS Aquatic Center activities generate noise levels during large events, such as rowing competitions and holiday weekends, and traffic noise from Hazel Boulevard or I-50. The nearest sensitive noise receptors are residences located approximately 1,100 feet or approximately 0.25 miles north of where construction activities would occur and approximately 130 feet in elevation above the project site.

Noise would be generated from the operation of the heavy construction equipment identified in **Chapter 2.2.6**. It is not anticipated that impact equipment (pile drivers, compactors, etc.) would be used during the project. Noise levels from non-impact construction equipment may be as great as 90 decibels.

Environmental Consequences

No Action

If the Proposed Action is not approved then no radial gate maintenance or storage building would be constructed. The daily activities surrounding the operation of Nimbus Dam would continue and would not change the ambient noise in the vicinity of the project site.

Proposed Action

Stationary point sources of noise, including stationary mobile sources, such as operational construction equipment and idling construction vehicles, attenuate (lessen) at a rate of six to

nine dBA, Leq per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and natural noise barriers, either vegetative or manufactured). Construction noise would be generated from the equipment identified in **Chapter 2.2.6**, which has the potential to produce a maximum noise level of 90 dBA, Leq. Noise level in the direction of noise sensitive receptors would attenuate at nine dBA, Leq given the natural noise barrier (cliffs on the north side of the project site). Given the distance to the nearest sensitive noise receptor (1,100 feet) noise levels at the nearest sensitive noise receptor would be approximate 52 dBA, Leq. Construction would take place during normal working hours (8:00 a.m. to 5:00 p.m.), and no work would occur on weekends; therefore, noise from construction would be less than the federal noise threshold of 75 dBA, Leq. Implementation of the environmental commitments presented in **Chapter 2.2.6** would further reduce impacts related to construction noise. Operation of the Proposed Action would not result in an increase in noise emissions, as the only new noise would be transfer to and from the Bulkhead Storage Facility during the infrequent events where the bulkheads are used on the dam.

Cumulative Impacts

The Proposed Project would not place a noise source in the vicinity of noise sensitive receptors or substantially increase traffic on nearby roadways. Therefore, the Proposed Project would not contribute to adverse cumulative impacts associated with the ambient noise level.

3.9 Transportation and Circulation

Affected Environment

Access to the project site is from Hazel Boulevard in Gold River. Hazel Boulevard is a north-south six lane major arterial roadway with direct access to Interstate 50 (I-50) approximately 0.4 miles south of the project site. Gold River Boulevard is an east/west four lane major collector which begins at Hazel Boulevard and terminates at Sunrise Boulevard. There is a stop light at Hazel Boulevard and Gold River Boulevard where the American River bike trail crosses Hazel Boulevard. All vehicles and bicycles must stop at the Hazel Boulevard stop light. Access to the project site, Nimbus Dam, and the CSUS Aquatic Center is a two lane roadway terminating at the CSUS Aquatic Center park area.

The American River Bike Trail is a Class I facility which extends from the Cities of Folsom to Davis. The Bike Trail is located south of the Aquatic Center and crosses the access roadway west of the parking lot. The Bike Trail has access to the American River below the Nimbus Dam and crosses Hazel Boulevard at Gold River Boulevard.

Visitors to the Nimbus Dam and CSUS Aquatic Center include fishermen, boaters, rowing teams, bicyclist, and day tourist. The numbers of visitors to the Nimbus Dam and CSUS Aquatic Center varies greatly depending on the event. Regional access to the project site would be from I-50.

Environmental Consequences

No Action

If the Proposed Action is not approved then no radial gate maintenance or storage building would be constructed. The daily activities surrounding the operation of Nimbus Dam would continue and would not change transportation and circulation.

Proposed Action

Under the Proposed Action, there would be a temporary increase in construction-related traffic due to workers and material deliveries to the site. It is anticipated that there would be 8-10 construction vehicles during the construction period and 1 material delivery per day. Traffic signs for pedestrians and for vehicles would be placed at the intersection of Hazel and Gold River Boulevards to alert pedestrian, bicyclists, and motorists of increased vehicle activity. Construction vehicle activity would mainly occur during off peak hours and would not cause a significant increase in traffic. The contractor is required to address the traffic issue regarding access to the work site, bicycle safety and access, and vehicle access to the CSUS Aquatic Center and Gold River Boulevard through the completion of CTCP submitted to Reclamation prior to the start of construction. Furthermore, as discussed in **Chapter 2.0**, the Contractor would coordinate with CSUS Aquatic Center staff to reduce conflicts between construction activities and CSUS Aquatic Center events and the contractor would provide auxiliary parking for construction personnel within the northern staging area to ensure CSUS Aquatic Center events would have the maximum number of parking spaces available for patrons. Implementation of the CTCP with the inclusion of the provisions presented as environmental commitments presented in **Chapter 2.2.6** would decrease any temporary impacts to traffic associated with the Proposed Action activities to undetectable levels and would not cause permanent adverse impacts to transportation or circulation.

Cumulative Impacts

With the development of the traffic control plan; concurrent construction of the Proposed Project and the continued operation of the CSUS Aquatic Center and American River Bike Trail would have minimal cumulative impact on transportation in the vicinity of the project site. No projects are currently planned within the project vicinity. Therefore, operation of the Proposed Action would not result in a cumulatively considerable increase in traffic on roadways in the vicinity of the project site; therefore, a minimal impact would occur.

3.10 Water Resources

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. § 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality on federal lands. The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Important sections of the Act are as follows:

- Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity, which may result in a discharge to waters of the United States to obtain certification from the state that the discharge would comply with other provisions of the Act. There are no waivers for Water Quality Certifications in the State of California, and the Water Quality Certification serves as both a

certification of a federal permit, under Section 401 of the Clean Water Act, as well as a Waste Discharge Requirement under the Porter-Cologne Water Quality Control Act. Additionally, under Section 401 of the Clean Water Act, the State of California can review and approve or deny all federal permits that may result in a discharge to waters of the State, including wetlands.

- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and is discussed in detail below.
- Section 404 establishes permit programs for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the United States Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (USEPA).

Anti-degradation Policy

The anti-degradation policy of the CWA is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Federal Emergency Management Agency

The project area is included within the National Flood Insurance Program (NFIP), a Federal program administered by the Federal Emergency Management Agency (FEMA). Participating areas in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 adopted a desired level of protection that would protect developments from floodwater damage associated with an Intermediate Regional Flood (IRF), a flood which is defined as having an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year.

Affected Environment

Surface Water

The project area is located within the American River watershed that encompasses approximately 2,100 square miles northeast of Sacramento. The American River watershed includes three sub-basins: North Fork, South Fork and the Lower Fork. The project area is located within the Lower Fork.

The 100-year flow in the American River as recognized by FEMA is 180,000 cubic feet

second (cfs), but has been amended to 145,000 cfs by the Sacramento Area Flood Control Agency and Reclamation (County of Sacramento DERA, 2006).

Surface Water Quality

Under Section 303(d) of the Clean Water Act, states, territories, and authorized Indian tribes are required to develop lists of impaired waters. Impaired waters are defined as “waters that are too polluted or otherwise degraded to meet the water quality standards set by states, territories, or authorized tribes.” The law further requires that these jurisdictions establish priority rankings for waters on the lists and develop a total maximum daily load (TMDL) for these waters. A TMDL is a calculation of the maximum amount of pollutant that a water body can receive and still safely meet water quality standards (USEPA, 2014a).

The most recently adopted 303(d) impaired water list from 2010 identifies the Lower American River as being impaired for Mercury, Polychlorinated Biphenyls (PCBs), and an unknown toxicity (USEPA, 2014b). The Nimbus Fish Hatchery located immediately downstream from Nimbus Dam is permitted to discharge to the Lower American River under a National Pollutant Discharge Elimination System (NPDES) permit (CAG135001).

Groundwater Resources

The project area is located within the Sacramento Valley groundwater basin and straddles two groundwater sub-basins: the North American and South American groundwater sub-basins that cover approximately 599,000 acres (DWR, 2003). The Aerojet Superfund site has contaminated groundwater over several square miles which includes the project area (USEPA, 2014c). The groundwater in the project area exhibits an average total dissolved solid in the South American basin of 221 milligrams/liter (mg/l) and in the North American basin of 300 mg/l. Contaminants, including trichloroethylene (TCE), perchlorate, and n-nitrosodimethylamine, have been detected in groundwater in the vicinity of the project site.

Environmental Consequences

No Action

The No Action Alternative would consist of Reclamation not moving forward with the radial gate maintenance and installation of the bulkhead storage facility. The lead-based paint would continue to pose a threat to water quality and biological resources and the potential for failure of the radial gates would remain unchanged.

Proposed Action

The Proposed Action would include dredging of sediment materials upstream of each gate, sandblasting existing radial gates as discussed in **Chapter 2.2.2**, that would include the removal of high concentrations of lead and heavy metals. Dredging is not expected to be necessary at each of the 10 gates being repaired (Gates 1 through 6, 10 through 12, and 14), due to very small quantities of sediment anticipated to be present in the apron immediately upstream of these gates. Due to the known lead levels within the radial gate coatings, lead

and heavy metal release minimization measures would be completed prior to the commencement of repair/maintenance activities.

Mercury could be mobilized from the disturbance of sediment upstream of the gates; however, no sediment would be released downstream of Nimbus dam following the procedures presented in **Chapter 2.2.5**. All sediment would be removed in accordance with the detailed Sediment Dredging and Disposal Plan (**Appendix E**) relating to the dredging and sediment removal process in conformance with requirements of the USACE Section 404 permit, RWQCB Section 401 permit, and any other necessary permits. The project would include BMPs for dredging activities, including the use of turbidity curtains as discussed in **Chapter 2.2.3** that would minimize impacts to water resources. Construction-related environmental commitments discussed in **Chapter 2.2.6** would further limit potential impacts to water quality; including (but not limited to) all vehicles and equipment driven or operated in the Proposed Action area would be checked and maintained daily to prevent leakage of materials that may be harmful to aquatic and riparian species, the project contractor would provide a comprehensive Water Pollution Prevention/ Storm Water Pollution Prevention Plan to control all discharges from the project during water work, turbidity would be monitored and construction curtailed if turbidity exceeds criteria established by the RWQCB in its CWA 401 Water Quality Certification, and all Federal, State, and local laws and regulations would be followed regarding the use, production, transportation, storage, and disposition of any hazardous materials that might compromise established water quality standards.

This Proposed Action would include the implementation of environmental commitments during all water resource disturbance activities. Groundwater would not be encountered during construction, nor would the project deplete groundwater supplies or interfere with groundwater recharge. The Proposed Action would be limited to Nimbus Dam, and water quality impacts, including an increase in turbidity, would not be expected due to the confinement of the operations to the upstream portion of the dam and use of turbidity curtains to prevent releases of dredged materials into the adjacent waterways. The impacts of the Proposed Action on special status fish species is discussed in detail in **Chapter 3.6**. Construction-related environmental commitments would prevent impacts to water quality at the proposed Bulkhead Storage Facility, staging areas, and Nimbus Dam. The drainage pattern of the American River would not be altered, nor would the Proposed Action contribute to significant additional surface runoff. Therefore, the Proposed Action would have no adverse effects to water resources.

Cumulative Impacts

As discussed above, the Proposed Action includes project features which reduce potential impacts associated with water quality. With the implementation of project features detailed in **Chapter 2.0**, the Proposed Action's contribution to cumulative impacts related to water quality and hydrology would not be cumulatively considerable. Compliance with Federal and State stormwater pollution prevention requirements would prevent off-site development, in combination with the Proposed Action, from causing cumulatively significant stormwater related and water quality impacts.

Chapter 4 Consultation and Coordination

This chapter presents the agencies and parties that were consulted during development of the document, the applicable Federal, State, and local requirements the project would comply with, and the distribution list.

4.1 Public Review Period

This EA has been made available for a two-week review period. Additional analysis would be conducted if substantive comments identify impacts that were not previously analyzed or considered. Reclamation may then issue a Finding of No Significant Impact (FONSI), or require an Environmental Impact Statement be prepared.

4.2 Fish and Wildlife Coordination Act (16 U.S.C. § 661 et seq.)

The amendments to the Fish and Wildlife Coordination Act (FWCA) enacted in 1946 requires Reclamation to conduct consultation with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources. The Proposed Action does not involve federal water development projects; therefore, the FWCA does not apply.

4.3 Endangered Species Act (16 U.S.C. § 1531 et seq.)

Section 7 of the Endangered Species Act requires Federal agencies to ensure that discretionary federal actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of the critical habitat of these species. The Proposed Action has the potential to affect the VELB and migratory birds and birds of prey through temporary construction activities within potential habitat. However, with the implementation of the environmental commitments presented in **Chapter 2.2.6**, adverse affects to VELB and migratory birds and birds of prey would be avoided. Concurrence from the USFWS would be obtained prior to the commencement of construction activities.

The contractor would initiate any necessary emergency measures to protect health, safety, and the environment upon discovery of any event which may or does result in contamination or pollution of Federal lands, waters, or facilities. The contractor is required to report the discovery and full details of the actions taken to Reclamation within 24 hours of the event. Reclamation would immediately notify USFWS, CDFW, and the RWQCB of the event and emergency measures taken to resolve the event.

4.4 National Historic Preservation Act (16 U.S.C. § 470 et seq.)

Section 106 of the NHPA requires Federal agencies to take into account the effects of their

undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places. The process for implementing Section 106 of the NHPA is found at 36 CFR Part 800. Pursuant to 36 CFR § 800.4(d)(1), Reclamation is requesting concurrence from the California State Historic Preservation Officer (SHPO) on a finding of no historic properties affected for the Proposed Action. Concurrence from the SHPO would be obtained prior to the commencement of construction activities.

4.5 Indian Trust Assets

The Proposed Action would not affect ITAs because there are none located in the Proposed Project area.

4.6 Executive Order 13007 – Indian Sacred Sites

Executive Order 13007 requires Federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. It also requires agencies to develop procedures for reasonable notification of proposed actions or land management policies that may restrict access to or ceremonial use of, or adversely affect, sacred sites. At this time, no Indian sacred sites have been identified. In addition, the Proposed Action would not impede access to or ceremonial use of Indian sacred sites. If sites are identified in the future, Reclamation would comply with Executive Order 13007.

4.7 Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.)

The MBTA is discussed in detail in **Chapter 3.6**. The Proposed Action has the potential to affect birds protected by the MBTA. However, with the implementation of environmental commitments presented in **Chapter 2.2.6**, adverse affects to birds protected by the MBTA would be avoided. The Proposed Action would be in compliance with the MBTA.

4.8 Executive Order 11988 – Floodplain Management and Executive Order 11990 – Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting floodplains, and similarly, Executive Order 11990 places similar requirements for actions in wetlands. The Proposed Action would not adversely affect floodplains or wetlands as the purpose and need of the Proposed Action includes maintenance to flood control facilities and the development of the storage facility would not impede floodplain planning efforts.

4.9 Clean Air Act (42 U.S.C. § 7506 (C))

Section 176 of the CAA requires that any entity of the Federal government that engages in, supports, or in any way provided 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 CAA (42 U.S.C. § 7401 (a)) before the action is otherwise approved. In this context, conformity means that such federal actions must be

consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards. Each federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements would, in fact conform to the applicable SIP before the action is taken. The Proposed Project would emit less than the *de minimis* levels for ozone precursors and particulate matter and a conformity determination is not required.

4.10 Clean Water Act (16 U.S.C. § 703 et seq.)

Section 401

Section 401 of the Clean Water Act (CWA) (33 U.S.C. § 1311) prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under sections 402 and 404 of the CWA (33 U.S.C. § 1342 and 1344). If new structures (e.g., treatment plants) are proposed, that would discharge effluent into navigable waters, relevant permits under the CWA would be required for the project applicant(s). Section 401 requires any applicant for an individual U. S. Army Corps of Engineers dredge and fill discharge permit to first obtain certification from the state that the activity associated with dredging or filling would comply with applicable state effluent and water quality standards. This certification must be approved or waived prior to the issuance of a permit for dredging and filling.

Section 404

Section 404 of the CWA authorizes the USACE to issue permits to regulate the discharge of "dredged or fill materials into waters of the United States" (33 U.S.C. § 1344).

Temporary construction activities below the ordinary high water mark of Lake Natoma and the American River would require obtaining a Section 404 permit from the USACE and a Section 401 Water Quality Certification from the RWQCB. Adherence to the conditions of these approvals would minimize the potential for impacts to Lake Natoma and the American River.

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