

Reading Island Boat Ramp Improvement Project

Draft Environmental Assessment/Initial Study

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Contents

1.0	Introduction.....	1
1.1	Summary of Proposed Action	1
1.2	Background	2
1.3	Project Location	2
1.4	Purpose and Need.....	2
1.5	Decision to be Made.....	6
1.6	Land Use Plan Conformance.....	6
1.7	Relationship to Statutes, Regulations, Other NEPA Documents	6
1.8	Other Public Agencies Whose Approval May Be Required	7
1.9	Issues Identified for Analysis	7
1.10	Resources Considered for Analysis	8
2.0	Alternatives.....	16
2.1	Alternative 1 - Proposed Action.....	16
2.1.1	Boat Ramp and Boat Launch Area Improvements	16
2.1.2	Gravel Shoulder Improvements	16
2.1.3	Entrance Gate Replacement.....	18
2.1.4	ADA-Compliant Parking Spaces	19
2.1.5	Staging Area	19
2.1.6	Spoils Area and Spoils Area Access.....	19
2.1.7	Additional Excavation Area.....	22
2.1.8	Optional Gravel Overflow Parking Lot	22
2.1.9	Optional Restrooms	22
2.1.10	Maintenance Activities	24
2.1.11	Construction Schedule Considerations	24
2.1.12	Project Design Features	25
2.2	Alternative 2 – No Action	28
2.3	Alternatives Considered but not Analyzed in Detail.....	28
2.3.1	Car-Top Launch Area	28
3.0	Affected Environment and Environmental Consequences	29
3.1	Resource Issue 1. Air Quality / Greenhouse Gas Emissions	29
3.1.1	Affected Environment.....	29
3.1.2	Environmental Impacts	31
3.2	Resource Issue 2. Biological Resources - Fisheries.....	33
3.2.1	Affected Environment.....	33

3.2.2 Environmental Impacts	38
3.2.3 Mitigation Measures	41
3.3 Resource Issue 3. Biological Resources – Non-native, Invasive Plant Species.....	42
3.3.1 Affected Environment.....	42
3.3.2 Environmental Impacts	46
3.4 Resource Issue 4. Biological Resources - Wildlife and Wildlife Habitat.....	47
3.4.1 Affected Environment.....	47
3.4.2 Environmental Impacts	52
3.4.3 Mitigation Measures	56
3.5 Resource Issue 5. Biological Resources – Wetlands and Other Waters of the U.S and State	58
3.5.1 Affected Environment.....	58
3.5.2 Environmental Impacts	60
3.6 Resource Issue 6. Hydrology	60
3.6.1 Affected Environment.....	60
3.6.2 Environmental Impacts	60
3.7 Resource Issue 7. Water Quality.....	61
3.7.1 Affected Environment.....	61
3.7.2 Environmental Impacts	62
3.8 Resource Issue 8. Noise	62
3.8.1 Affected Environment.....	62
3.8.2 Environmental Impacts	63
3.9 Resource Issue 9. Recreation	64
3.9.1 Affected Environment.....	64
3.9.2 Environmental Impacts	64
3.10 Resource Issue 10. Construction and Recreation Traffic.....	65
3.10.1 Affected Environment.....	65
3.10.2 Environmental Impacts	66
<u>4.0 Consultation, Coordination and Public Participation</u>	<u>67</u>
4.1 Consultation and Coordination	67
4.1.1 National Historic Preservation Act – Section 106	67
4.1.2 Tribal Consultation	67
4.1.3 Federal Endangered Species Act – Section 7	67
4.1.3 California Endangered Species Act – Fish and Game Code Section 2080.1	67
4.2 Public Participation.....	68
<u>5.0 List of References</u>	<u>69</u>
<u>6.0 List of Preparers and Reviewers.....</u>	<u>73</u>

6.1 California Department of Water Resources.....	73
6.2 U.S. Bureau of Land Management	73
6.3 Western Shasta Resource Conservation District.....	74
7.0 Acronyms and Abbreviations	75

Figures

Figure 1. Vicinity map and general location of Reading Island.	4
Figure 2. Reading Island Boat Ramp Location.....	5
Figure 3. Map of Proposed Action Features.....	17
Figure 4. Proposed Parking Lot Improvements.....	21
Figure 5. Proposed Berm Excavation and Additional Excavation Area.....	23
Figure 6. Vegetation Types in Action Area.....	43
Figure 7. Elderberry Shrub Locations.....	55
Figure 8. Wetland Delineation Map	59

Tables

Table 1. Issues Identified for Analysis	8
Table 2. Resources Considered for Analysis.....	9
Table 3. SCAQMD Significance Thresholds for Ozone Precursors and PM ₁₀	30
Table 4. Special-Status Fish Species with Potential to Occur Within or in the Vicinity of the Proposed Action Area.....	34
Table 5. Invasive Plant Species Observed within the Reading Island Study Area.....	44
Table 6. Crosswalk of vegetation types and habitat types in the Reading Island Study Area.....	47
Table 7. Special-Status Wildlife Species with Moderate to High Potential to Occur in the Study Area....	50

List of Appendices

Appendix A	Biological Resources Evaluation for the Reading Island Boat Ramp Project
Appendix B	CalEEMod Model Assumptions, Methodology, and Results
Appendix C	Inventory and Calculation of Greenhouse Gas Emissions
Appendix D	Aquatic Resources Delineation for the Reading Island Boat Ramp Project
Appendix E	Mitigation Monitoring and Reporting Program

1.0 Introduction

This Environmental Assessment/Initial Study (EA/IS) for the proposed Reading Island Boat Ramp Improvement Project (proposed action) was prepared to meet the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The planning effort is led by North State Planning & Development Collective, California State University, Chico under award from the Wildlife Conservation Board to the University's non-profit auxiliary (Chico State Enterprises). The U.S. Bureau of Land Management (BLM) is the lead agency for NEPA and the Western Shasta Resource Conservation District (WSRCD) is the lead agency for CEQA.

Under NEPA, the purpose of this EA/IS is to determine whether the proposed action would result in significant effects on the environment, which would then require the preparation of an Environmental Impact Statement (EIS), or alternatively, whether the level of effects on the environment are such that a Finding of No Significant Impact (FONSI) can be supported by the federal lead agency. Similarly, under CEQA, the purpose of this EA/IS is to determine whether the proposed project would result in significant effects on the environment, which would require the preparation of an Environmental Impact Report (EIR), or alternatively, whether the level of effects on the environment are such that a Negative Declaration or a Mitigated Negative Declaration (MND) can be supported by the State lead agency.

This EA/IS is a site-specific analysis that describes the environmental resources in the proposed action area, analyzes the potential effects of the proposed action or no action alternative, and identifies measures to avoid or minimize effects. This EA/IS assists the BLM and WSRCD in project planning and ensuring compliance with the NEPA and CEQA, respectively, and in compliance with other laws and policies affecting the alternatives. It also provides regulatory agencies with information needed to issue their decisions on the proposed action. The term "Proposed Action", as used herein, is the same as the term "proposed project" under CEQA.

1.1 Summary of Proposed Action

The Reading Island Boat Ramp Improvement Project (proposed action) proposes to replace the original floating boat dock and improve access to an existing motorized boat ramp on Anderson Creek near its confluence with the Sacramento River. Accumulated in-stream material would be excavated to improve boat access. The ramp would be cleared of debris and sediment to create a 2-foot-wide shoulder on either side, increasing access and ease of use. Roadway shoulder improvements would allow for easier navigation on the entrance road. The development of Americans with Disabilities Act (ADA)-compliant parking is also proposed. The entry gate would be updated with an automated gate for programmed opening and closing. Portable toilets may also be placed adjacent to the proposed ADA-compliant parking spaces. Depending on recreation use levels, a potential gravel overflow parking lot and permanent vault toilets are proposed, if needed.

1.2 Background

Reading Island is administered by the BLM and provides public access and a group campground. In 1962 under Public Land Order (PLO) 2719, the project area was withdrawn for the protection of recreation values, and for the development, conservation, utilization and maintenance of their wildlife and fishery resources. Shasta County received a right-of-way (ROW) from the BLM in 1985 for an existing bridge and Adobe Road to access Reading Island (serialized as CACA 016975). The ROW is 60' in width and 103' in length, containing approximately 0.14 acre. The existing Reading Island boat ramp, constructed in 1966, is silted in. The floating boat dock that was attached to the boat ramp was damaged in the late 1990's and subsequently removed, and boating access has been further limited by the presence of invasive aquatic vegetation and sediment buildup in the boat launch area. In 2019, approximately 4,000 linear feet of a historic side channel were excavated upstream, which has improved the surface water connectivity of the Sacramento River with Anderson Creek to restore juvenile salmonid rearing habitat. The restored side channel increased flows by approximately 30 cfs and decreased temperatures in the portion of Anderson Creek where the boat ramp is located. This has resulted in a reduction of invasive aquatic vegetation and flushing of sediment, thus making boating access feasible again.

1.3 Project Location

The proposed action is located within what is commonly known as Reading Island in Shasta County, California. Reading Island is located on the Balls Ferry U.S. Geological Survey 7.5-minute quadrangle in Sections 3, 4, 9, and 10 of Township 29 North, Range 3 West (coordinates 40.389340°N, -122.197773°W). It is identified in the California Registered Historical Landmark No. 10, also known as Reading Adobe. This property is generally shown on Figures 1 and 2.

Reading Island is zoned by Shasta County as an “unclassified - interim mineral resource” district and is designated in the General Plan as “public land” (Shasta County 2024). Reading Island is bordered to the west by Anderson Creek, to the east by the Sacramento River (at river mile 274), and to the south by the confluence of Anderson Creek with the Sacramento River. To the north, adjacent land is designated as agricultural croplands. Surrounding land parcels are a combination of public lands, agricultural croplands, and grazing lands.

1.4 Purpose and Need

The purpose of the proposed action is to restore boating access at Reading Island by replacing the floating boat dock and improving access to the motorized boat ramp on Anderson Creek. The need for the proposed action derives from public interest in restoring boating access following restoration of the historic side channel, which reestablished an upstream connection between Anderson Creek and the Sacramento River. The restored side channel has resulted in a reduction of invasive aquatic vegetation and flushing of sediment, making boating access feasible again.

There is also a need to create designated ADA-compliant parking spaces, improve the entrance road shoulders, and provide temporary or permanent restroom facilities to accommodate public use associated with restored boating access. To minimize management costs for the boat ramp, there is a need for an automated gate at the entrance to Reading Island. Currently, local

landowners volunteer their time to open and shut the existing forestry gate. If left unattended, the site attracts illegal uses and non-permitted overnight camping which makes it an undesirable place to visit.

Figure 1. Vicinity map and general location of Reading Island.

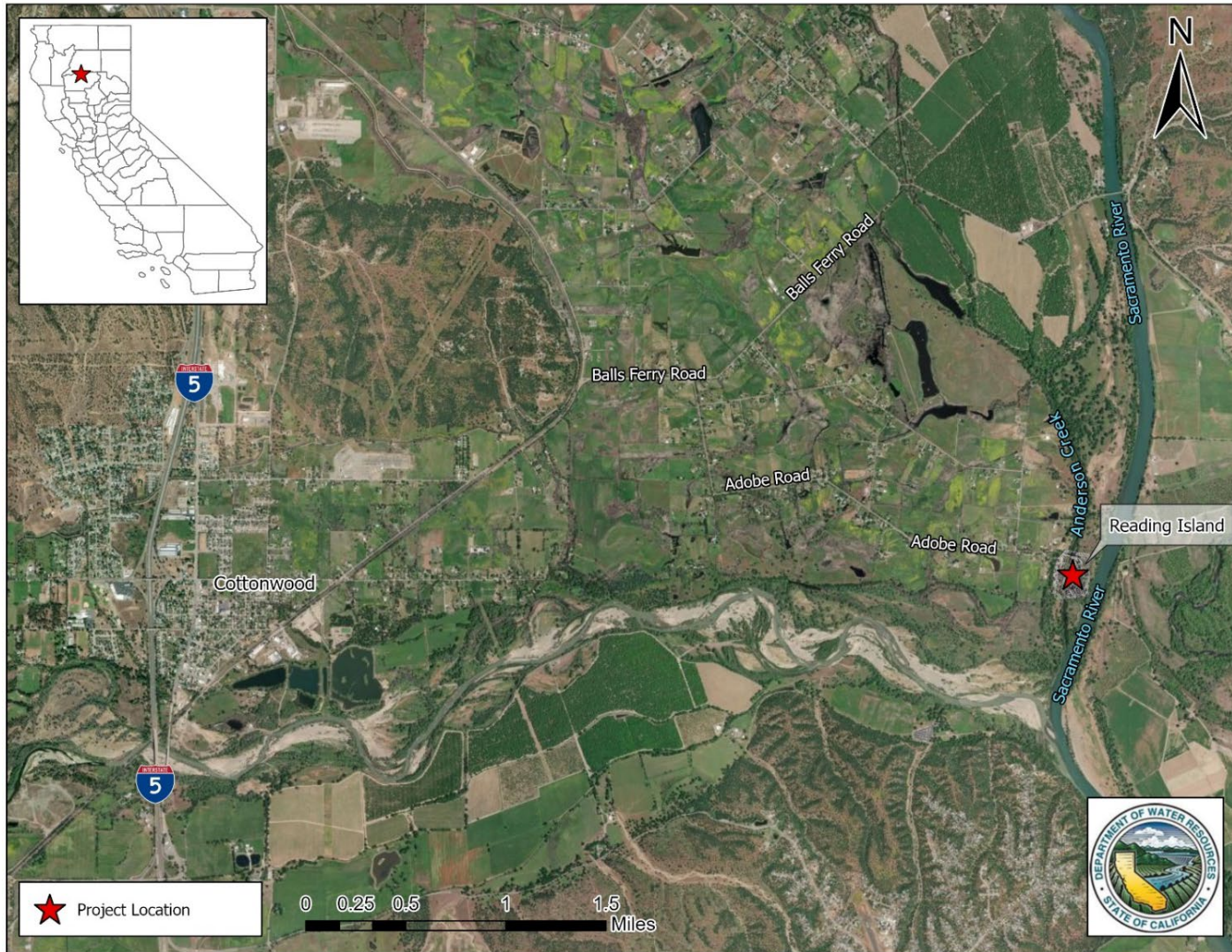


Figure 2. Reading Island Boat Ramp Location



1.5 Decision to be Made

This EA/IS has been prepared to analyze the potential direct, indirect, and cumulative impacts resulting from the proposed action. BLM intends to determine if a FONSI will be prepared after analysis and considering comments received during the EA/IS public review period, or if it is appropriate to proceed to prepare an EIS. Similarly, WSRCDC intends to determine if an MND or an EIR will be prepared. This EA/IS has also been prepared to analyze the effects of the No Action Alternative.

1.6 Land Use Plan Conformance

The proposed action is in conformance with the 1993 BLM Redding Resource Management Plan (RMP) and decision made for the Sacramento River Management Area - Bend Area (Bureau of Land Management 1993). Resource Condition Objectives applicable to the proposed action include “provide semi-primitive recreation opportunities,” “protect existing and improve degraded riparian vegetation to Class I and II,” “conserve archaeological resources,” “enhance anadromous fisheries,” and “maintain and improve, if feasible, scenic quality.” As noted on page 48 of the RMP, applicable Land Use Allocations for the Bend Area include, “vehicle use is limited to designated roads and trails,” and “manage as VRM Class II.”

1.7 Relationship to Statutes, Regulations, Other NEPA Documents

In addition to CEQA and NEPA, the proposed activities at the project site are subject to a variety of federal, State, and local statutes, regulations, policies, and other authorities. These include the Clean Water Act (CWA), Federal Endangered Species Act (ESA), California Endangered Species Act (CESA), California Fish and Game Code, National Historic Preservation Act (NHPA), and Shasta County Ordinances.

The Water Quality Act of 1987, as amended from the Federal Water Pollution Control Act (also known as the Clean Water Act [CWA]) of 1977 (33 U.S.C. 1251 et seq.) provides authority for restoration and maintenance of the chemical, physical, and biological integrity of the Nation's water at a level of quality which provides protection for fish, shellfish, wildlife, and recreational use. The proposed action may be subject to permitting, administered by the Central Valley Regional Water Quality Control Board as required by the CWA, including the CWA Section 401 Water Quality Certification, Construction General Stormwater Permit, and CWA Section 402 National Pollutant Discharge Elimination System (NPDES) Permit. Additionally, the proposed project may require a CWA Section 404 Permit, administered by the U.S. Army Corps of Engineers.

The BLM Policy Manual 6720.02 Aquatic Resource Management Objectives also provides program guidance which states: “The BLM’s overall objectives for aquatic resource management of public lands are to: A) ensure that the natural integrity of aquatic ecosystems is restored and managed in an ecologically sound manner, and B) ensure that the natural diversity of aquatic biota is maintained or restored as appropriate.”

In addition to meeting federal and State regulations and policies, the proposed project would obtain all necessary permits required by Shasta County prior to commencing construction. A separate BLM action is planned to overlay the existing asphalt on Adobe Road and in the

parking area. The environmental compliance review of the asphalt overlay project is documented in the “Redding Field Office Road, Trail, and Facilities Maintenance” Categorical Exclusion (U.S. Bureau of Land Management 2018).

1.8 Other Public Agencies Whose Approval May Be Required

Several federal, State, regional, and local agencies, as well as decision-making bodies, have jurisdiction over resources that may be affected by the proposed action, or have other permitting or regulatory authority over certain aspects of the proposed action. The agencies and decision-makers in this list will review the information contained in this EA/IS and will consider it in their decision-making process.

- United States Army Corps of Engineers.
- National Marine Fisheries Service.
- United States Fish and Wildlife Service.
- Central Valley Flood Protection Board.
- California Office of Historic Preservation.
- Central Valley Regional Water Quality Control Board.
- State Water Resources Control Board.
- Shasta County.

1.9 Issues Identified for Analysis

The Council on Environmental Quality regulations state that the BLM should focus on “issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1). An “issue” is a point of disagreement, debate, or dispute with the proposed action based on some anticipated environmental effect. Issues identified for analysis in this assessment include issues that could potentially be significantly affected by one of the proposed alternatives, where analysis is necessary to determine significance of impacts, or if analysis of an issue is necessary to make a reasoned choice between alternatives. The BLM and WSRCD interdisciplinary team identified resource concerns for the proposed action and alternatives through a preliminary review process and by soliciting scoping comments from the public (Table 1).

Table 1. Issues Identified for Analysis

Issue Number	Issue	Resource Area
1	Effects of temporary construction-related emissions on air quality and GHG.	Air Quality and Greenhouse Gas Emissions
2	Effects of instream construction activities on special-status sturgeon, lamprey, and salmonids.	Biological Resources
3	Effects of ground disturbance on the spread of existing non-native, invasive plant species.	Biological Resources
4	Effects of temporary construction activities on special-status bird and bat species, western pond turtle, and valley elderberry longhorn beetle.	Biological Resources
5	Effects of boat ramp rehabilitation on riparian vegetation and wetlands.	Biological Resources
6	Effects of proposed facilities improvements on floodplain hydrology.	Hydrology and Water Quality
7	Effects of excavating material from the boat launch area on water quality in Anderson Creek and the mainstem Sacramento River.	Hydrology and Water Quality
8	Effects of temporary construction-related noise on sensitive receptors.	Noise
9	Effects of anticipated increased recreation use levels on existing recreation area and facilities.	Recreation
10	Effects of construction traffic and anticipated increased recreation traffic on transportation and sensitive receptors.	Transportation

1.10 Resources Considered for Analysis

The following resources were considered but eliminated from detailed analysis in Section 3 of this EA/IS because they were determined by the BLM under NEPA and WSRCD under CEQA not to be significant issues concerning the proposed action (Table 2).

Table 2. Resources Considered for Analysis

Reason	NEPA Resource	CEQA Resource	Rationale for Determination
NI	Areas of Critical Environmental Concern (ACEC)	NA	<p>The Bend ACEC was designated in the 1993 Redding RMP to protect its relevance and importance values of rare habitats, special status plants, threatened and endangered wildlife species, and important cultural sites from irreparable damage. The proposed action would rehabilitate existing recreational features and would not adversely affect the relevance and importance values that qualify the area as a designated ACEC. If the relevance and importance values of the ACEC become inadvertently impacted by the proposed action or new uses associated with the proposed action, protection measures would be made to protect the values.</p>
NI	Botany	Biological Resources	<p>A review of special-status plant species that could occur in the proposed action area resulted in two plant species with a moderate likelihood to occur. Focused plant surveys were conducted during the blooming period for these species. No special-status plant species were observed (Appendix A).</p>
NP	Cultural Resources	Cultural Resources	<p>No cultural resources have been identified within the action area. Sensitive resources are known to occur in close proximity to the action area but would not be affected by proposed actions, as designed. Potential for unanticipated discoveries is considered unlikely due to previous surface and sub-surface disturbances resulting from construction of the existing recreational facility and past flooding on Reading Island.</p> <p>The action area has been inventoried for cultural resources and relevant cultural resources inventory reports, literature, maps, and related documents have been reviewed. Tribal outreach and consultation have been performed and would continue throughout implementation of the proposed action, as appropriate. The results of the cultural resources inventory, analysis, and Tribal consultation are detailed in a restricted-access cultural resources inventory report prepared by and filed at the BLM Redding Field Office.</p>

Reason	NEPA Resource	CEQA Resource	Rationale for Determination
			The proposed action would not affect known properties listed, or eligible for listing, on the National Register of Historic Places and therefore does not require detailed analysis. All legal requirements have been satisfied under the NHPA via the 2019 California BLM State Protocol Agreement, Stipulation 7.1 (No Historic Properties Affected [U.S. Bureau of Land Management 2019b]).
NI	NA	Energy	Construction activities would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Construction would be short-term and would not conflict with or obstruct plans for renewable energy or energy efficiency.
NI	Environmental Justice	NA	The proposed action would not occur near, and would not affect, a large population center. The proposed action would not impose any hardships on minority or low-income communities and there would be no changes in agricultural communities or practices.
NP	Farmlands (Prime or Unique)	Agricultural Resources	Farmlands are not present on Reading Island. The proposed action would have no effect on nearby farmlands and would not convert such lands to non-agricultural uses.
NI	Fuels and Fire Management	Wildfire, Hazards and Hazardous Materials	Reading Island is in a federal responsibility area and is surrounded by local responsibility areas. It is not located within or immediately adjacent to a fire hazard severity zone (California Department of Forestry and Fire Protection 2024). The proposed vegetation removal to restore the width of the boat ramp would have little to no effect on fuel loading. The proposed spoils area would be seeded with native grass following completion of construction; no adverse effects to fuel loadings and no increased wildfire risk by the proposed action would occur. Construction best management practices would be implemented to avoid or minimize the risk of fire from the use of heavy equipment during construction.

Reason	NEPA Resource	CEQA Resource	Rationale for Determination
NP	Forestry Resources, Woodland, and Associated Resources and Products	Forestry Resources	There are no forest lands on Reading Island and no forestry or woodland materials would be used during implementation of the proposed action. The proposed action would not convert forest lands to non-forest uses.
NI	Human Health and Safety Concerns	Public Services, Hazards and Hazardous Materials	The proposed action does not include the construction of governmental facilities. Anticipated increased recreation use at the rehabilitated boat ramp is not anticipated to increase to a level that would interfere with an emergency response or evacuation plan or affect service ratios, response times, or other performance objectives for public services (including police and fire protection and emergency services) because of the limited capacity of the parking lot at Reading Island. Therefore, there would be no need for new or altered governmental facilities to maintain public services at Reading Island.
NI	Lands and Realty	Land Use and Planning	The proposed action would not physically divide an established community, affect the zoning or designation of Reading Island, or create uses inconsistent with the current zoning or designation during or following implementation of the proposed action. The proposed action is consistent with the guidance provided by the Redding RMP for maintenance of recreation facilities. The proposed action would not conflict with any land use plan. Right-of-ways (ROW) in the area include an access road held by Shasta County for the bridge and Adobe Road. Adjacent landowners and ROW holders would be notified of the proposed project. Coordination with ROW holders would occur prior to proposed road work and gate installation. There is also an existing withdrawal (PLO 2719) for the recreation site. The proposed activities would not interfere with the purpose of the withdrawal. No impacts to Lands and Realty are anticipated.

Reason	NEPA Resource	CEQA Resource	Rationale for Determination
NP	Lands with Wilderness Characteristics	NA	Reading Island does not meet the naturalness criterion or size criterion for wilderness characteristics.
NP	Livestock Grazing Management	NA	There are no existing grazing allotments on Reading Island.
NI	Minerals	Mineral Resources	There are no active or pending mining claims in the action area. There are no authorized notices or plans of operation under 43 CFR 3809. The proposed action would not result in the loss of availability of any mineral resources.
NP	Native American Traditional and Cultural Resources	Tribal Cultural Resources	The proposed action is located in the vicinity of areas with known Tribal and cultural resources. Project Design Features informed by consultation and coordination with Tribes will ensure proper consideration and protection of these values.
NI	Paleontological Resources	Geology and Soils	Ground-disturbing activities would consist of excavating vegetation and material that has accumulated in the boat launch area, minor grading for an optional overflow parking lot and road shoulder improvements, minor grading for ADA-compliant parking spaces and portable toilets, minor grading for widening of an existing access trail to the spoils area and spoiling excavated materials on the ground surface. These activities would not have the potential to affect paleontological resources. If vault toilets are installed, excavation approximately 4 feet deep would be required. Excavation would occur in relatively recent alluvial soils and would not be expected to adversely affect paleontological resources.
NP	NA	Population and Housing	The proposed action does not have the potential to induce population growth and would not displace existing people or housing.
NP	Sage Grouse Habitat	Biological Resources	Reading Island is located outside the range of the greater sage grouse; sage grouse habitat is not present.

Reason	NEPA Resource	CEQA Resource	Rationale for Determination
NI	Socioeconomics	NA	The proposed action could have a beneficial effect on a severely disadvantaged community and provide economic benefit to the community by increasing fishing use at this boat ramp.
NI	Soils	Geology and Soils	The proposed action area is comprised of Reiff fine sandy loam (RgA), which is typical of floodplains and alluvial fans and consists of a well-drained, very low runoff alluvium parent material (Natural Resource Conservation Service 2024). The proposed action would rehabilitate existing features and an associated small concrete walkway at the edge of the existing parking lot. These activities would not increase risk of loss, injury, or death related to rupture of an earthquake fault, seismic ground shaking, seismic-related ground failure, landslides, or unstable soils. If implemented, vault toilets would be self-contained and would not require the use of septic tanks or alternative wastewater disposal systems. The potential for soil erosion would be minimized in the proposed spoils area by implementing construction best management practices to stabilize soils and in the roadway shoulders and potential overflow parking area by placing gravel.
NI	NA	Transportation	The proposed action would improve the access road shoulders and would not increase road hazards, result in inadequate emergency service, or conflict with circulation plans. Anticipated increased recreation use levels in the proposed action area would not have the potential to increase vehicle miles traveled to a significant level because of the limited capacity of the parking lot and its proximity to Interstate 5 (less than six miles).

Reason	NEPA Resource	CEQA Resource	Rationale for Determination
NI	Visual Resources	Aesthetics	Reading Island is rated as a Class II visual resource inventory and has a moderate scenic quality rating (U.S. Bureau of Land Management 2024). The area is managed as Visual Resource Management (VRM) II. The proposed action would not adversely affect these ratings and would meet VRM II objectives. In addition, there are no public views of the proposed action area from the Sacramento River or nearby landowners. Recreationists could be present on Anderson Creek during the construction period, but construction activities would be short-term, and recreationists would only have fleeting views of the boat ramp area. The remainder of the proposed action area is not viewable from Anderson Creek. After completion of construction, the rehabilitated boat ramp area, parking lot, and access road shoulders would have a beneficial effect on aesthetics. The new automated gate would not differ substantially in appearance from the existing gate and would not introduce a new source of light or glare.
NI	Wastes, Hazardous or Solid	Hazards and Hazardous Materials; Utilities and Service Systems	Reading Island is not located near a school or airport and is not located on or near a hazardous site (California Department of Toxic Substances Control 2024; California State Water Resources Control Board 2024). The proposed action would not generate hazardous waste. Solid waste may be generated during entrance gate replacement; any solid waste would be disposed of properly at the nearest landfill and would not conflict with solid waste regulations. Construction best management practices would be implemented during the use of heavy equipment on site to avoid or minimize the risk of hazardous waste spills.
NP	Wild Horses and Burros	Biological Resources	There are no wild horses or burros on Reading Island.

Reason	NEPA Resource	CEQA Resource	Rationale for Determination
NP	Wild and Scenic Rivers	Aesthetics	Anderson Creek and the adjacent reach of the Sacramento River are not designated as a wild or scenic river. The adjacent reach of the Sacramento River was found to be eligible for inclusion in the Wild and Scenic River system with a tentative classification of “recreational” (U.S. Bureau of Land Management 2019a). The proposed action would not impact the free-flowing nature, water quality, or outstandingly remarkable values of the reach.
NP	Wilderness and Wilderness Study Areas	NA	Reading Island is not located in a designated wilderness area or wilderness study area.

Notes: NEPA = National Environmental Policy Act; CEQA = California Environmental Quality Act; NA = not applicable; NP = not present in the area impacted by the proposed or alternative actions; NI = present, but not affected to a degree that detailed analysis is required.

2.0 Alternatives

This chapter describes Alternative 1 (the proposed action) and Alternative 2 (the No Action alternative) as well as an alternative feature that was eliminated from detailed analysis in this EA/IS.

2.1 Alternative 1 - Proposed Action

Alternative 1 (referred to as the proposed action) is detailed in Figure 3 and includes the following features:

2.1.1 Boat Ramp and Boat Launch Area Improvements

2.1.1.1 Boat Ramp Improvements

The existing boat ramp's concrete surface would be entirely exposed by removing all accumulated debris and sediment along the top and edges of the ramp. An additional 2-foot-wide shoulder on either side of the ramp would be excavated and re-graded to meet the existing grade of the ramp. The area of disturbance would be approximately 0.01 acre and would require approximately 10 cubic yards (CY) of imported gravel (i.e., specifically crushed rock) to replace the approximately 10 CY of excavated material (i.e., soil, ground vegetation). Trees (diameter at breast height [DBH] of 8 to 13 inches), a split-trunk willow (DBH of 12 and 14 inches), and understory vegetation would need to be removed to allow for the additional 2-foot-wide shoulder. Trees appropriate for use as firewood would be cut to firewood size and made available to the public. The remaining excavated material would be disposed of in the proposed spoils area (described below).

2.1.1.2 Boat Launch Area Excavation

Approximately 500 CY of vegetation and other accumulated material would need to be excavated from Anderson Creek in the boat launch area, affecting an area approximately 0.16 acre in size. The launch area would be excavated down to the existing thalweg, creating at least 2.5 feet of depth at baseflow in the Sacramento River. During summer flows and peak demand, the depth would increase to 4-6 feet deep. Excavated material would be disposed of in the proposed spoils area (described below).

2.1.1.3 Floating Dock Replacement

The prefab dock and gangway would be delivered onsite via truck and crane. The 5' x 80' non-skid aluminum gangway would include 4' 6"-tall handrails. The 10' x 40' aluminum floating dock would be lifted up and over the existing piles in Anderson Creek using a crane to guide the dock in place. The existing piles allow the dock to rise and fall with changing flows in the creek and remain in place year-round. The existing 6.6-foot-wide concrete abutment on the boat ramp would be retrofitted appropriately to anchor the proposed gangway to the abutment.

2.1.2 Gravel Shoulder Improvements

A gravel shoulder (12 feet wide by 6 inches deep) is proposed along the west side of the entrance road and along the southeast edge of the parking lot. This activity would affect approximately 0.18 acre and would consist of removing any trees or vegetation within the 12-

Figure 3. Map of Proposed Action Features.



foot-wide swath, re-grading, and compacting for gravel placement. Vegetation removal for the proposed shoulder improvements would include a patch of trees of heaven (*Ailanthus altissima*) and several oak trees (DBH less than 6 inches). An approximate 30-foot-long by 16-foot-wide by 3.5-foot-high portion of an existing contiguous earthen berm would be excavated and approximately 30 CY of excavated material would be disposed of in the proposed spoils area (described below). Shoulder improvements would require approximately 142 CY of imported gravel. The improved shoulders would also double as additional parking during peak demand. Existing boulders would be placed along the outer edge of the gravel shoulder to prevent vehicle access to vegetated areas. Removed vegetation would be disposed of in the proposed spoils area (described below).

2.1.3 Entrance Gate Replacement

An automated barrier arm gate would be installed across the entrance to Reading Island at Adobe Road, just west of the bridge. The gate would consist of one arm mounted to a gate operator on the south side of the road or two arms mounted to gate operators on each side of the road and meeting in the middle. The gate arms would be programmed to open and close at predetermined times. Power would be supplied to the gate via a new circuit breaker (drop box) connected to the local utility grid or to a solar panel.

If a new circuit breaker is used it would be secured on a concrete pad approximately 3-foot-wide by 5-foot-long that would be surrounded by a gravel perimeter (1 foot wide on sides and back, 3 feet extending to edge of roadway), in compliance with local utility specifications. Total ground disturbance associated with the circuit breaker is approximately 7-foot-wide by 7-foot-long x 1-foot-deep (49 square feet or 0.001 acre). The circuit breaker pad would be constructed using approximately 0.3 CY of concrete. The gravel perimeter would require approximately 0.06 CY of imported gravel. The circuit breaker would be located a minimum of 7 feet from the road and would be placed within the previously disturbed County right-of-way south of Adobe Road, approximately 270 feet west of the gate.

The circuit breaker would require the installation of 1 or 2 power poles to connect to the existing local utility grid. A power pole would be installed immediately adjacent to the circuit breaker on the south side of the road and an additional power pole may be necessary on the north side of the road to connect to the existing local utility grid. Ground disturbance associated with each new power pole would be approximately 0.625 square feet, assuming a 30-inch-diameter bore hole.

If a solar panel is used, it would be installed 7 feet from the road within the County right-of-way on the north side of the road, approximately 50 feet east of the existing gate location. If the gate is moved, the solar panel could be located on either side of the road within the County right-of-way location (a minimum of 7 feet from the road). The solar panel would be installed in an open grassland area for maximum sun exposure. The solar panel would be mounted to a pole or set of poles with small concrete footings around the pole(s), resulting in minimal ground disturbance.

The gate may remain at the existing location or be relocated within the County right-of-way no more than 100 feet to the east to allow more room for the gate apparatus. If relocated, the gate operator(s) would be located a minimum of 7 feet from the road, or a shorter distance if approved

by Shasta County. The gate arm(s) would each require a concrete pad approximately 3-foot-wide x 5-foot-long x 1-foot-deep (15 square feet). The gate operators would connect to the circuit breaker by underground cable, requiring excavation of an approximate 1-foot-wide by 3-foot-deep temporary trench adjacent to the south edge of the road. After the cable is laid and connected, the trench would be backfilled and compacted. The length of the trench would equal the distance from the south gate operator to the new circuit breaker, as described above. If two gate operators are used, trenching would also occur beneath the road at the location of the gate to connect to the gate operator located on the north side of the road. Trenching beneath the road would also be required if a solar panel is installed.

A magnetic loop detector would be installed to the east of the gate on the exit side of the road to allow vehicles to exit Reading Island after the gate automatically closes at night. Installation of the magnetic loop detector would require cutting an approximate 2-foot x 3-foot hole in the asphalt. A cold patch would be used to repair the asphalt after installation.

2.1.4 ADA-Compliant Parking Spaces

One van-accessible parking space (12 feet wide x 18 feet long with a 8-foot-wide aisle on the passenger side) and an accessible passenger vehicle parking space (9 feet wide x 18 feet long) would be constructed on the edge of the existing parking lot (Figure 4). A concrete walkway would connect the two parking spaces and lead to a decomposed granite pad that would support portable restrooms, with the option to upgrade to a concrete pad and vault restrooms, as needed (refer to Section 2.1.9). The slope of the parking lot in the area of the proposed ADA-compliant parking spaces would meet ADA requirements of 2% or less in any direction.

An approximate 16-foot-wide by 30-foot-long by 3.5-foot-high portion of an existing contiguous earthen berm would be excavated to accommodate the new parking spaces and walkway, and approximately 30 CY of excavated material would be disposed of in the proposed spoils area (described below). These parking spaces would be constructed using approximately 10 CY of concrete. Total ground disturbance associated with these parking spaces would be approximately 0.015 acre. Vegetation removal would include two oak trees (DBH less than six inches) and one cottonwood tree (DBH of 12 inches).

Following completion of construction, boulders would be placed along the outer edge of the concrete walkway to prevent recreational vehicle access beyond the parking lot boundary.

2.1.5 Staging Area

The existing parking lot would be used to stage construction equipment and provide parking for construction vehicles. The spoils area (described below) may also be used for staging. Trees overhanging the parking lot may need to be trimmed for height clearance of heavy equipment and work area safety.

2.1.6 Spoils Area and Spoils Area Access

2.1.6.1 Spoils Area

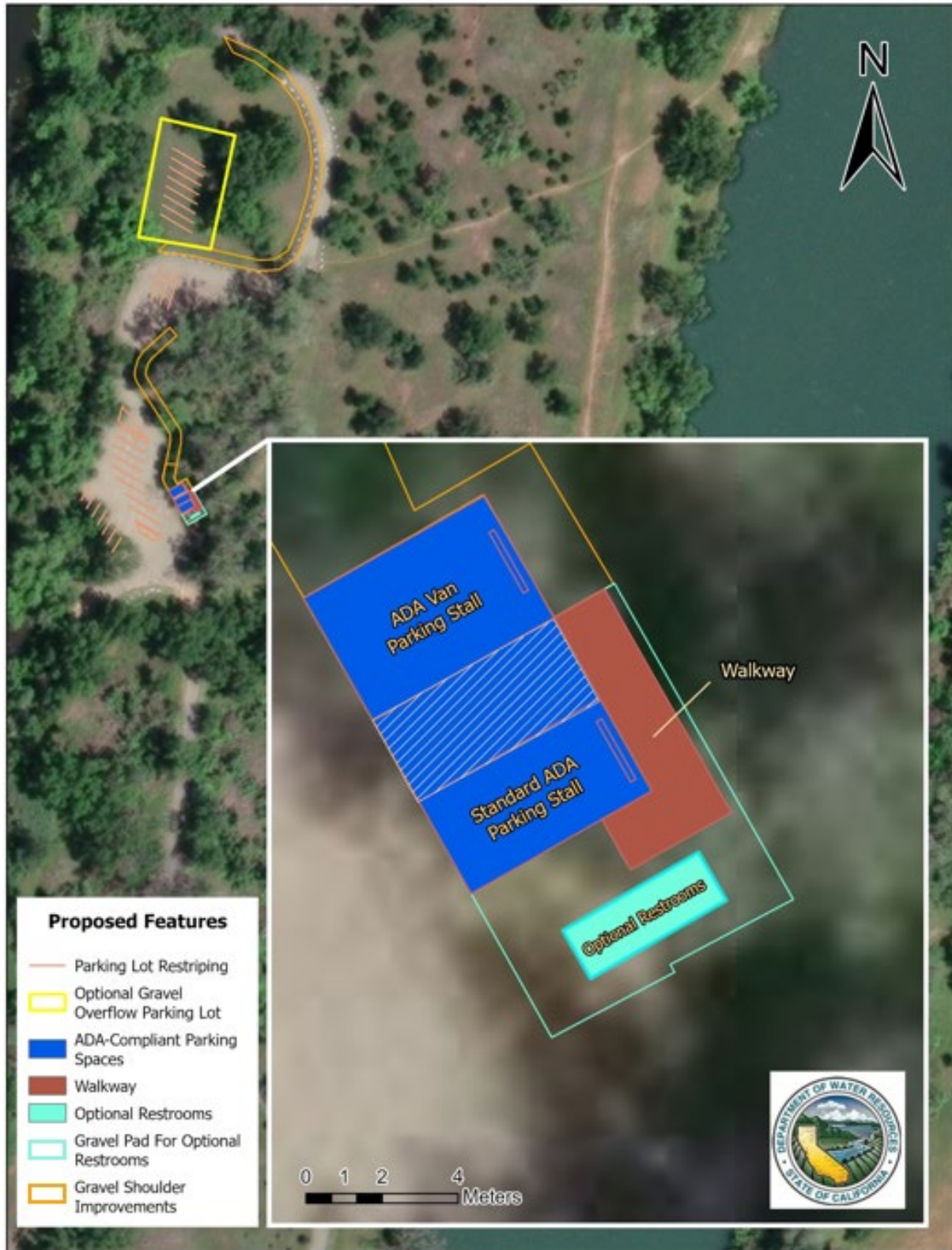
A previously disturbed area adjacent to and east of the existing parking lot is proposed for use as

a spoils area. This area consists predominantly of annual grassland. Approximately 0.3 acre would be used to spoil approximately 650 CY of material. The area disturbed by spoiling activities would be seeded with a mix of native grasses and forbs to control soil erosion.

2.1.6.2 Spoils Area Access

A temporary access route to the proposed spoils area would be created by excavating an approximate 15-foot-wide by 97-foot-long graded path to allow vehicle and heavy equipment access, resulting in ground disturbance of approximately 0.03 acre. In some segments of the route, earthen berms up to 5-foot-height would be excavated for a total of approximately 72 CY of material that would be placed in the Spoils Area. A few small trees (DBH less than six inches) bordering this access trail would be removed. Following completion of construction, the berm would be reestablished or boulders would be placed to prevent recreational vehicle access.

Figure 4. Proposed Parking Lot Improvements.



2.1.7 Additional Excavation Area

There are multiple existing earthen berms located between the existing parking lot and the proposed Spoils Area. This includes one contiguous berm that would be excavated to construct multiple project features (refer to Sections 2.1.2, 2.1.4, 2.1.6.2, and 2.1.9). While the ground disturbance and volume of excavated material would primarily occur within the footprint of those project features, there is an additional approximate 0.01-acre portion of the earthen berm that would be excavated outside of the footprint of those features and would result in approximately 30 CY of additional excavated material for disposal in the proposed Spoils Area (Figure 5).

2.1.8 Optional Gravel Overflow Parking Lot

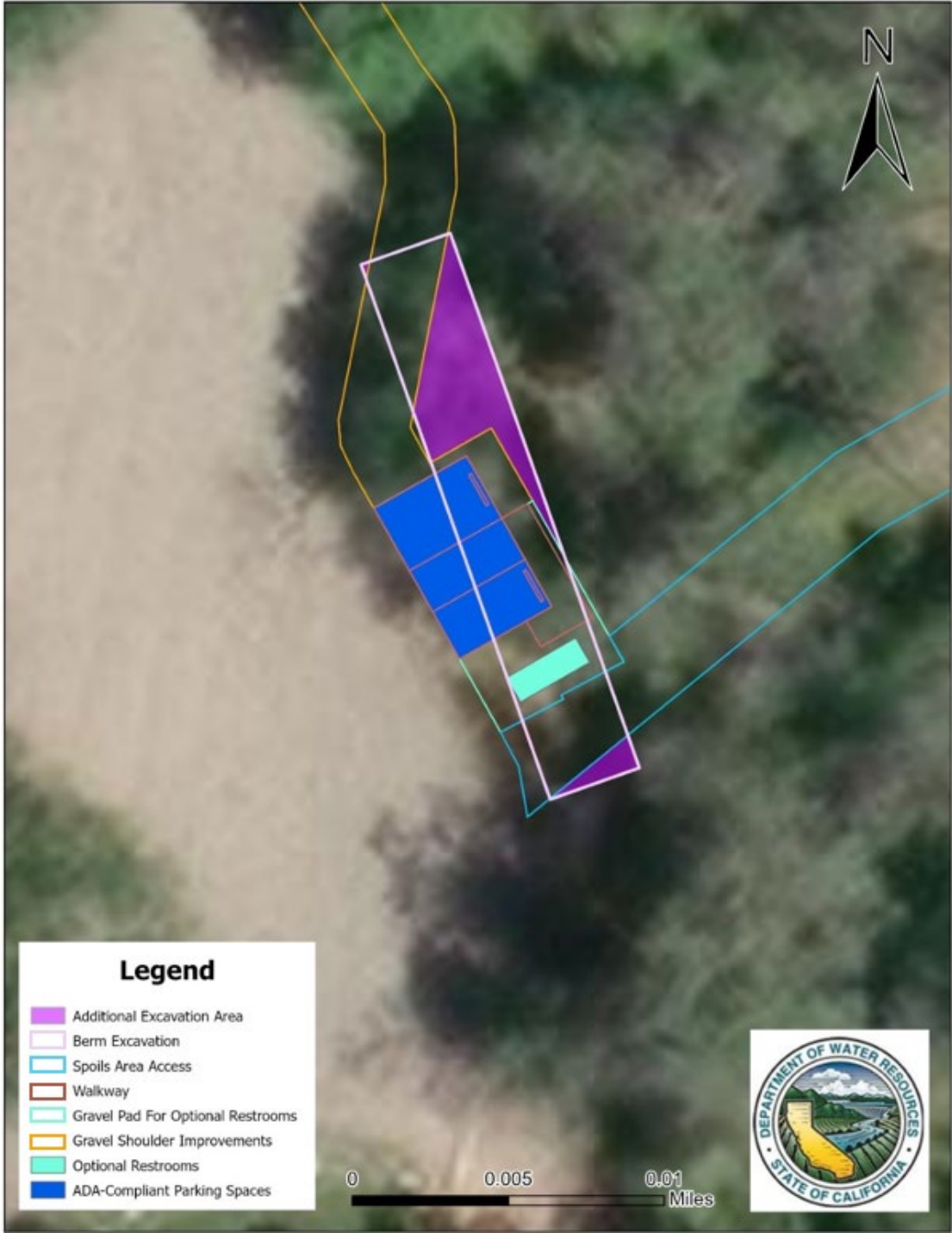
A gravel overflow parking area has been identified in the proposed action area that could accommodate an additional 8 truck and trailer parking spaces. It is a flat, previously disturbed 0.25-acre area with existing annual grassland ground cover. This overflow parking area would be graded to remove topsoil seed bank and then graveled 6 inches thick. The overflow parking lot would require approximately 200 CY of imported gravel. Because it is not yet known if this additional parking will be necessary, the overflow parking lot would not be constructed during initial project construction. If high user demand is observed after the boat ramp is rehabilitated and it is determined that additional parking spaces are needed, the overflow parking lot would be constructed. Monitoring would be conducted for up to three years to determine recreational use and demand for additional parking. If monitoring indicates that additional parking is not needed to meet recreational demand, the optional overflow parking lot would not be constructed and the area would become available for consideration of other uses authorized by the BLM.

2.1.9 Optional Restrooms

The concrete walkway constructed in association with the ADA-compliant parking spaces would connect to a pad consisting of approximately 6 CY of compacted imported decomposed granite, resulting in ground disturbance of approximately 0.01 acre (Figure 4). An approximate 16-foot-wide by 12-foot-long by 3.5-foot-high portion of an existing contiguous earthen berm would be excavated and approximately 15 CY of excavated material would be disposed of in the proposed spoils area (described below). That pad would be used to support two portable toilets that would be placed intermittently depending on recreation use levels and river conditions.

If high user demand is observed after the boat ramp is rehabilitated, a permanent restroom may be installed and the decomposed granite pad would be replaced with a concrete pad. The permanent restroom would consist of a precast concrete building with a single, fully accessible waterless toilet. The toilet would be equipped with a polyethylene lined concrete vault. Installation would require excavation to accommodate the approximately 6.5-foot-wide x 14.6-foot-length x 4.3-foot-deep vault. The maximum depth of excavation would be 4.5 to 5 feet. The building, which would be approximately 6.5-foot-wide x 14.6-foot-length x 9.5-feet tall, would be placed on top of the vault. The vent pipe would be 12.25 feet tall. The top of the vault and the floor of the building would be 4 to 6 inches above natural grade. The pathway leading to the entryway would be sloped for ADA accessibility.

Figure 5. Proposed Berm Excavation and Additional Excavation Area.



2.1.10 Maintenance Activities

Maintenance of the Reading Island Recreation Area, including maintenance of the parking lot and existing group campground facilities, as well as vegetation management, would continue to occur under BLM’s existing “Redding Field Office – Road, Trail, and Facilities Maintenance” Categorical Exclusion (U.S. Bureau of Land Management 2018). If the permanent restroom is constructed, related maintenance would also occur under this Categorical Exclusion.

Maintenance of the boat ramp and launch area is not anticipated to be required frequently because of the recent side channel improvements implemented upstream of the boat ramp. Improved flows that have already flushed sediment and aquatic vegetation from the channel of Anderson Creek and reduced water temperatures are anticipated to maintain the boat launch excavation area and minimize the growth of aquatic vegetation.

If, over time, maintenance of the boat launch area is needed to maintain 2.5 feet of depth at Sacramento River baseflow, maintenance activities would be similar to those described for boat launch area improvements (refer to Section 2.1.1, “Boat Ramp and Boat Launch Area Improvements”). Vegetation or other accumulated material would be excavated down to the existing thalweg. Excavated material would be disposed of in the proposed spoils area (refer to Section 2.1.6, “Spoils Area”) and stabilized by seeding. The existing earthen berm or large boulders would temporarily need to be removed for access to the spoils area. A crane may be needed to temporarily lift the boat dock out of the excavation area. The Reading Island Recreation Area would be closed for the duration of boat launch area maintenance. The duration of maintenance activities would be dependent on the amount of accumulated vegetation or material to be removed.

2.1.11 Construction Schedule Considerations

Construction would take approximately three to four weeks to complete, assuming elements of the project description are implemented at the same time. Implementation funds may be pursued as soon as NEPA and CEQA compliance are complete; ideally, construction would begin in 2025 and would be completed prior to the scheduled parking lot maintenance described below as a separate action.

Overlay of the existing asphalt on the access road and existing parking lot is currently planned for 2025 under a separate BLM routine maintenance action. Once the overlay is complete, parking lot striping will be configured to accommodate the following parking spaces (Figure 4):

- 8 truck and trailer spaces (10 feet x 40 feet)
- 13 passenger vehicle spaces (9 feet x 20 feet)
 - 9 spaces on asphalt concrete
 - 4 spaces on gravel
- 1 van-accessible space (10 feet wide x 20 feet long with a 10-foot aisle on the passenger side) and 1 accessible passenger vehicle space (10 feet wide x 20 feet long).

2.1.12 Project Design Features

The following avoidance and minimization measures, plans, and construction best management practices (BMPs) were incorporated into the proposed action as design features, and design refinements were made accordingly, to avoid or minimize potential adverse effects to the environment during construction.

Air Quality

Dust Prevention and Control

AQ-1: The construction contractor shall implement fugitive dust prevention and control measures, which may include the following:

- All ground-disturbing operations shall be suspended when winds exceed 20 miles per hour (mph), or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
- Traffic and equipment speeds on all unpaved surfaces shall be reduced to 15 mph or less, and unnecessary vehicle traffic shall be reduced by restricting access.
- Measures shall be implemented to reduce or eliminate carryout and trackout of fugitive dust or soil on construction vehicles, such as sweeping and picking up any trackout on adjacent public streets as needed.

Equipment Exhaust Minimization

AQ-2: The construction contractor shall implement construction equipment exhaust minimization measures, which may include the following:

- All construction equipment shall be maintained in proper tune according to manufacturer's specifications.
- To the extent practicable, the use of diesel construction equipment meeting current California Air Resources Board (CARB) certification standards for off-road heavy-duty diesel engines shall be maximized.
- Unnecessary vehicle idling shall be restricted to five minutes or less.
- Visible emissions from stationary diesel-powered equipment shall not exceed 40-percent opacity for more than three minutes in any one hour.

Biological Resources

Botany and Invasive Species

VEG-1: Native plant materials (e.g. seed) may be used on site after operations have been completed.

WEED-1: As feasible, weed infestations will be inventoried and areas will be prioritized for treatment and/or avoidance as necessary, particularly in operating areas and in areas along access routes. When possible, high-risk sites will be pre-treated for weed establishment and spread before the implementation of individual projects.

WEED-2: Where available, the contractor shall use weed-free gravel and fill dirt for road work.

Introduction and spread of weeds caused by moving weed-infested sand, gravel, borrow, and fill material will be avoided. One year after implementation of the proposed action, BLM will monitor for the introduction of weeds, especially *Dittrichia graveolens*, in the action area where gravel was used.

WEED-3: To prevent weed germination and establishment, native vegetation will be retained to the maximum extent practicable in and around individual project activity areas and soil disturbance will be kept to a minimum while still meeting project objectives.

WEED-4: Equipment will be cleaned or pressure washed before entering public lands, prior to engaging in individual project activities, before transport to new work areas, and before leaving the project site if operating in areas infested with weeds to remove mud, dirt, and plant parts.

WEED-5: To avoid the importation or spread of invasive weeds or non-native invasive plant species, all tools, equipment and materials required for project implementation will be washed prior to transport to the project site.

Wildlife Resources

BIO-1: Native vegetation disturbance and removal shall be minimized to the greatest extent possible. Riparian vegetation along the streambank where excavation is proposed should be protected where feasible.

Cultural Resources

CR-1: All field personnel working on the project shall receive cultural resources sensitivity training prior to start of operations to ensure project design features intended to protect cultural resources are understood.

CR-2: At the request of the BLM archaeologist, project actions will be monitored by authorized cultural resources monitor(s).

CR-3: Post-Review Discoveries - If previously unidentified archaeological resources are encountered during operations all work must cease within 150 feet of the discovery and the BLM must be notified immediately. Examples of archaeological resources include but are not limited to: Native American flaked stone projectile points and tools, ground, battered or pecked stone implements; bottles, cans, ceramic, metal, and other materials that could date to 50 years or older; distinct or sudden occurrence of dark soils containing artifacts, bone, and/or shell remains; stacked or intentionally-placed rock features and excavated pits, trenches, and ditches; human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined at 43 CFR 10.2). A field examination by a professional archaeologist may be required and further steps for resource protection will be implemented, including mitigation and consultation with the Native American Indian community, consistent with the Native American Graves Protection and Repatriation Act procedures and other applicable laws and regulations. Work may proceed on other parts of the project site while compliance mitigation for archaeological or Tribal resources

is being carried out.

CR-4: The BLM archaeologist must be notified prior to any change in treatment or project design and all follow-up, maintenance, or re-entry actions to assure protection measures remain sufficient and are properly implemented.

Hydrology and Water Quality

WQ-1: The contractor shall prepare a stormwater pollution prevention plan (SWPPP) or Water Quality Control Program (WQCP), as appropriate, and receive approval from the lead agency prior to the start of construction. The BMPs specified by the SWPPP or WQCP shall be implemented to monitor, minimize, and prevent construction dirt, debris, stormwater runoff, and miscellaneous by-products from entering Anderson Creek.

WQ-2: The contractor shall prepare and implement a spill prevention and control plan prior to construction, which will contain measures to avoid or minimize potential chemical contamination within Anderson Creek, the Sacramento River, and its floodplain. The plan may include the following construction BMPs:

- All personnel involved in use of hazardous materials shall be trained in emergency response, spill control, and notification.
- Contractors shall have oil-absorbent and spill-containment materials on site when mechanical equipment is in operation within 100 feet of the stream and shall adhere to all required State and federal standards. If a spill occurs, no additional work shall commence in-channel until (1) the mechanical equipment is inspected by the contractor and the leak has been repaired, (2) the spill has been contained, and (3) the appropriate agencies have been contacted and have evaluated the impacts of the spill.
- Staging, storage, and refueling of vehicles and equipment shall take place outside the stream channel. Any equipment that may leak shall be stored over impermeable surfaces, if available, and drip pans (or other type of impermeable containment measure) will be placed under parked machinery and checked and replaced when necessary, to prevent drips and leaks from entering the environment.
- Machinery that enters the stream during work shall be steam cleaned, inspected daily, and properly maintained to avoid water quality contamination from the release of grease, oil, petroleum products, or other hazardous materials.
- Every reasonable precaution will be exercised to protect streams and other waters from pollution with fuels, oils, and other harmful materials. Safer alternative products (such as biodegradable hydraulic fluids) will be used where feasible.
- The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into the stream.
- Any fuel stored within the proposed action area shall be stored outside the channel in a double-walled contained vessel surrounded by a berm appropriately sized for the volume.
- Spill containment kits shall be on site at all times.

Noise

Noise-1: The contractor shall implement BMPs to minimize construction-related noise, including the following:

- All construction equipment shall be equipped with the manufacturer's specified noise-muffling devices that are properly operated and maintained.
- All construction equipment shall be stored in a designated staging area during the construction phase to eliminate daily heavy-duty truck trips on local roadways.
- Speed limits shall be established and enforced for construction vehicle traffic on Adobe Road to minimize traffic noise.

2.2 Alternative 2 – No Action

NEPA and CEQA require analysis of the No Action Alternative to provide a baseline for comparison to the proposed action; it also demonstrates the impacts of not satisfying the proponent's purpose of the proposal. At the discretion of agencies, the No Action Alternative could be selected.

Under the No Action Alternative, the Reading Island boat ramp would remain silted in, the floating dock would not be replaced, the parking lot would not have designated accessible parking spaces or restrooms, and BLM would continue to rely on volunteers to open and close the access gate daily.

2.3 Alternatives Considered but not Analyzed in Detail

2.3.1 Car-Top Launch Area

The creation of a graded area approximately 10 feet wide by 80 feet long was considered adjacent to the existing boat ramp as a car-top launch for kayaks and canoes. Approximately 50 cubic yards of material would have been removed to create a flat area with gentle side slopes for ease of launching during summer flows. A permeable ground stabilization cover was recommended for the exposed soil. This alternative was removed from further consideration because grading would have resulted in the loss of riparian wetlands and riparian habitat. In addition, it was determined the car-top launch area would require frequent maintenance to keep the surrounding understory vegetation from encroaching, which would conflict with BLM's need to reduce maintenance responsibilities.

3.0 Affected Environment and Environmental Consequences

This chapter describes the affected environment, which includes the condition and trend of issue-related elements of the human environment that may be impacted by implementing the proposed action. This section also describes the environmental consequences to each issue-related resource. It describes past and ongoing actions that contribute to present conditions, and provides a baseline for analyzing direct, indirect, and cumulative effects.

Direct effects are those caused by the proposed action and occurring at the same time and place. Indirect effects are those caused by the proposed action but occurring later or in a different location. Cumulative effects result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions and reasonably foreseeable trends. The cumulative effects analysis includes other BLM actions, other federal actions, and non-federal (including private) actions. Reasonably foreseeable future actions are those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends. Reasonably foreseeable trends have the potential to change the present condition of a given resource.

CEQA Guidelines Appendix G was used as the basis for assessing the significance of potential environmental impacts, taking into account the whole of the action as required by CEQA. Agency standards, regulatory requirements, and professional judgment were also used, where appropriate. For the purposes of NEPA, the context and intensity of the significance of potential project effects was taken into consideration.

Per CEQA guidelines, mitigation measures are provided to reduce potentially significant impacts to less-than-significant levels, where applicable. A summary of mitigation measures is included in Appendix E, “Mitigation Monitoring and Reporting Program”.

3.1 Resource Issue 1. Air Quality / Greenhouse Gas Emissions

3.1.1 Affected Environment

3.1.1.1 Criteria Pollutants

The U.S. Environmental Protection Agency (EPA) and CARB have established ambient air quality standards, known as National and California ambient air quality standards (NAAQS and CAAQS) for “criteria pollutants,” pursuant to the federal Clean Air Act of 1970 and the California Clean Air Act, respectively. State standards tend to be more stringent than national standards. These standards were established to protect human health and environmental values such as plant and animal life. The criteria pollutants are ozone, carbon monoxide, nitrogen oxides, particulate matter (PM_{2.5} and PM₁₀), sulfur oxides, and lead (California Air Resources Board 2024a; U.S. Environmental Protection Agency 2024a).

Ambient air quality standards in the project area and vicinity are monitored and regulated by the Shasta County Air Quality Management District (SCAQMD). Shasta County is unclassified or in attainment for all criteria pollutant NAAQS (U.S. Environmental Protection Agency 2024b). Shasta County is designated by the State as nonattainment (has not met the CAAQS) for ozone

and its precursors and is unclassified or in attainment for the remaining criteria pollutant CAAQS (California Air Resources Board 2024b).

The SCAQMD has established thresholds of significance for ozone precursors and PM₁₀. Ozone is a respiratory irritant that can cause serious health problems. It is created when heat and sunlight trigger chemical reactions between nitrogen oxides (NO_x) and reactive organic gases (ROG). Vehicle emissions from Interstate 5 (I-5) and rural roads, as well as from agricultural equipment, are the primary contributor of these ozone precursors within the vicinity of the proposed action area. PM₁₀ refers to particulate matter less than 10 microns in aerodynamic diameter. Particulate matter consists of fine particles suspended in the air. The primary contributors of PM₁₀ within the vicinity of the proposed action area are wind-blown dust from dirt roads and agricultural activities, open burning of burn piles, and vehicle emissions. Diesel particulate matter is a component of inadequately filtered diesel exhaust and considered to be a toxic air contaminant.

Table 3 presents the local SCAQMD thresholds of significance for ozone precursors and PM₁₀. (Shasta County 2024).

Table 3. SCAQMD Significance Thresholds for Ozone Precursors and PM₁₀

Pollutant (Ozone Precursor)	SCAQMD Level A Threshold¹	SCAQMD Level B Threshold²
Reactive Organic Gases/Volatile Organic Compounds (ROG)	25 lbs. per day	137 lbs. per day
Nitrogen Oxide (NO _x)	25 lbs. per day	137 lbs. per day
Particulate Matter (PM ₁₀)	80 lbs. per day	137 lbs. per day

¹Standard SCAQMD mitigation measures and best available mitigation measures are applied to projects that exceed Level A thresholds.

²Standard SCAQMD mitigation measures, best available mitigation measures, and special best available mitigation measures are applied to projects that exceed Level B thresholds.

SCAQMD = Shasta County Air Quality Management District

Established under the Clean Air Act (section 176(c)(4)), the General Conformity rule plays an important role in helping states and tribes improve air quality in those areas that do not meet NAAQS (i.e., nonattainment). Under the General Conformity rule, federal agencies must work with State, tribal, and local governments in a nonattainment or maintenance area to ensure that federal actions conform to the air quality plans established in the applicable State or tribal implementation plan. Because Shasta County is in attainment or unclassified for all NAAQS, the General Conformity rule does not apply.

3.1.1.2 Greenhouse Gases

State Law (Health and Safety Code §38505g) defines greenhouse gases (GHGs) to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and hexafluoride. Because GHGs persist and mix in the atmosphere, emissions anywhere in the world can affect the climate everywhere in the world. GHG emissions are typically reported in terms of carbon

dioxide equivalents (CO₂e), which is a conversion of all GHGs to an equivalent basis considering their global warming potential compared to CO₂.

Assembly Bill 32, which identifies GHG emissions reduction goals, established 25,000 metric tons per year of CO₂e as the threshold for mandatory emissions reporting for stationary sources. A threshold was not established for temporary construction emissions. The Council on Environmental Quality established the same threshold, below which a quantitative GHG analysis is not warranted.

Baseline conditions within the proposed action area include GHG emissions from I-5 and surrounding rural roads. Current farming and ranching operations add to the proposed action area's background GHG levels.

3.1.1.3 Sensitive Receptors

A sensitive receptor is a location where human populations (particularly children, seniors, or sick persons) are present and where there is a reasonable expectation of continuous human exposure to air pollutants of concern. Examples of sensitive receptors include residences, hospitals, child-care facilities, and schools. The project area is rural in nature and not heavily populated.

There are approximately 60 rural residences along the entire length (2.5 miles) of Adobe Road. No other sensitive receptors are present in the vicinity of the proposed action area. Proposed activities associated with the existing entrance gate are located adjacent to the eastern-most residence along Adobe Road. The nearest residence is 750 feet from the proposed construction activities on Reading Island.

3.1.2 Environmental Impacts

3.1.2.1 Environmental Impacts—Proposed Action

Air Quality

Construction-related air pollutant emissions were modeled using the CalEEMod model (California Air Pollution Control Officers Association 2022). Estimates of equipment and use were calculated and entered into the model. Model assumptions and results are presented in Appendix B.

Construction activities have the potential to temporarily affect ambient air quality by generating criteria pollutant emissions during operation of construction vehicles and equipment, and during transport of construction material to the proposed action area. Potential construction-related emissions include PM₁₀ and ozone precursors. Fugitive dust emissions from ground-disturbing activities could also contribute to increases in PM₁₀ emissions. Diesel-powered construction equipment can generate diesel particulate matter and can generate emissions that produce what many people consider to be objectionable odors.

Increases of ozone precursors could be potentially significant because Shasta County is in nonattainment for ozone by State standards. Construction-related increases of PM₁₀ and diesel particulate matter could also be significant if emissions exceed the Shasta County emissions

standards, which are 25 and 80 pounds per day (lbs/day), respectively, under the Level A threshold and 137 lbs/day under the Level B threshold. Based on modeling results, the maximum construction-related air pollutant emissions for the ozone precursors ROG and NO_x would be 3.13 and 24.69 lbs/day, respectively. These emission levels are below the established SCAQMD Level A thresholds for these pollutants. Modeling results indicate that maximum emissions of PM₁₀ exhaust would be 1 lb/day and emissions of PM₁₀ dust would be 10 lbs/day. Total PM₁₀ would therefore be well below the established SCAQMD Level A threshold for this pollutant. Implementation of the minimization measures included in AQ-1 and AQ-2, which incorporate the applicable standard and best available mitigation measures developed by SCAQMD (refer to Section 2.1.12, “Project Design Features and Construction Best Management Practices”), would reduce these construction-related emission levels.

In addition, the duration of construction would be temporary and would occur a minimum of approximately 750 feet from the nearest receptor, with the exception of proposed activities associated with the entrance gate. Reading Island would be closed to the public during construction, so recreationists would not be present. Given the short duration of construction and the distance to sensitive receptors, equipment and vehicle emissions would not expose sensitive receptors to substantial pollutant concentrations and would not significantly affect a substantial number of people, resulting in a less-than-significant impact.

After construction is complete, recreation traffic and associated criteria pollutant emissions along Adobe Road may increase as a result of the improved boat ramp and facilities. Use of the boat ramp is anticipated to be similar to use levels before the boat ramp was destroyed, as the number of vehicles would be limited by the size of the parking lot. Emissions from vehicles accessing the boat ramp area are, therefore, not anticipated to generate substantial pollutant concentrations and would not affect a substantial number of people, resulting in a less than significant impact.

If future maintenance of the boat ramp and boat launch area is needed, maintenance activities would be similar to those described for boat launch area improvements (refer to Section 2.1.1, “Boat Ramp and Boat Launch Area Improvements”). Emissions from these activities would be a fraction of the total emissions calculated for the entire project and would be well below the Level A thresholds for criteria pollutants. Impacts of boat ramp and boat launch maintenance on air quality would be less than significant.

Greenhouse Gases

The model input for the air quality analysis was also used for GHG emissions analysis. Appendix C, “Greenhouse Gas Emissions Inventory Worksheet,” shows the methods and assumptions used during analysis.

Total construction-related emissions are estimated to be 32.5 metric tons of CO₂e; averaged over the useful life of the proposed action, average annual total GHG emissions would be much lower and would be well below the established 25,000 metric tons per year of CO₂e. This negligible contribution of GHG emissions would not conflict with a greenhouse gas emissions reduction plan or generate emissions at a level that would have a significant effect on the environment. Thus, construction activities would have a less-than-significant impact on greenhouse gases.

If future maintenance of the boat ramp and boat launch area is needed, maintenance activities would be similar to those described for boat launch area improvements (refer to Section 2.1.1, “Boat Ramp and Boat Launch Area Improvements”). GHG emissions from these activities would be a fraction of the total emissions calculated for the entire project. Impacts of boat ramp and boat launch maintenance on GHG emissions would be less than significant.

Implementation of the minimization measures included in AQ-1 and AQ-2 (refer to Section 2.1.12, “Project Design Features and Construction Best Management Practices”) and in Appendix B would further reduce construction- and maintenance-related GHG emission levels. Potential impacts would be less than significant.

3.1.2.2 Environmental Impacts—No Action

Under the No Action Alternative, the boat ramp and facilities would not be improved and the related construction activities would not occur. Criteria pollutant and GHG emissions would remain consistent with existing emissions from nearby residences, vehicles, agricultural operations, and recreation use.

3.1.2.3 Cumulative Effects

The planned parking lot refurbishment at Reading Island would not occur simultaneously with implementation of the proposed action. Construction-related GHG emissions resulting from implementation of the proposed action would be short-term and would contribute a negligible amount to existing GHG emission levels. This negligible contribution is not anticipated to be cumulatively considerable.

3.2 Resource Issue 2. Biological Resources - Fisheries

3.2.1 Affected Environment

The proposed action area is located along Anderson Creek, approximately 0.3 mile upstream of the confluence with the Sacramento River near River Mile 273.7. In 2019, an historic side channel was restored upstream of the proposed action area, connecting the Sacramento River to Anderson Creek to provide salmonid spawning and rearing habitat. Between January to October 2021, monthly snorkel index surveys within the restored side channel counted a total of 859 juvenile salmonids, including 68 endangered Sacramento River winter-run Chinook (Sacramento River Forum. 2021). The aquatic habitats within and adjacent to the proposed action area consist primarily of pool and glide habitat types dominated by fine sediment substrates. Riparian vegetation is found along both banks, except where the existing concrete boat ramp enters the stream and where smaller rock revetment was placed along the bank to protect the abutments of the bridge used to access Reading Island. Fish use in Anderson Creek has not been well documented, however several native and non-native fish species have the potential to be present within Anderson Creek during all or a portion of the year. This section of stream provides suitable habitat for multiple life stages of many fish species, including juvenile rearing habitat and an upstream and downstream migratory corridor for adult and juvenile anadromous fish species, as well as other species.

3.2.1.1 *Special-status Fish Species*

A list of special-status fish species with the potential to occur within Anderson Creek and the reach of the Sacramento River adjacent to the proposed action area was compiled in part by a query of CDFW’s California Natural Diversity Database (CNDDDB [California Department of Fish and Wildlife 2024]) for fish species within nine U.S. Geological Survey (USGS) quadrangles surrounding the proposed action area and by querying the Information Planning and Consultation (IPaC) tool (IPaC; U.S. Fish and Wildlife Service 2024). Additional fish species known to occur in the vicinity but not listed in the CNDDDB and IPaC query results were also included. The list was evaluated and special-status fish species with a moderate to high likelihood of occurrence was compiled from these sources (Table 4).

Table 4. Special-Status Fish Species with Potential to Occur Within or in the Vicinity of the Proposed Action Area

Common Name (<i>Scientific Name</i>)	Federal Status	State Status	Habitat	Likelihood of Occurrence within the Action Area
North American green sturgeon – Southern DPS (<i>Acipenser medirostris</i>)	T	NA	Found in the mainstem of the Sacramento River. Adults typically migrate into the Sacramento River in late February with spawning occurring between March and July. Spawning takes place in cool, deep, fast-moving freshwater with large cobble substrate.	High. The proposed action area is within the reach of the Sacramento River that provides habitat for this species.
White sturgeon (<i>Acipenser transmontanus</i>)	NA	CT	Found in the mainstem of the Sacramento River. Spawning occurs between February and June in swift flowing freshwater over coarse substrates.	High. The proposed action area is within the reach of the Sacramento River that provides habitat for this species.

Common Name (Scientific Name)	Federal Status	State Status	Habitat	Likelihood of Occurrence within the Action Area
Pacific lamprey (<i>Entosphenus tridentatus</i>)	NA	SSC	Adults typically migrate upstream between March and July in gravel-bottomed streams in low gradient riffle habitat. Larvae (ammocoetes) drift downstream to areas of low velocity and fine substrates and are relatively immobile in the stream substrate for the next three to seven years.	High. Proximity to known populations and availability of potentially suitable habitat. Fine sediment within the proposed action area provides potential habitat for the ammocoete life stage.
River lamprey (<i>Lampetra ayresii</i>)	NA	SSC	Adults spawn from February to May in gravelly riffles in river tributary streams. Ammocoetes use silty backwaters and eddies.	Moderate. Fine sediment within the proposed action area provides potential habitat for the ammocoete life stage.
Hardhead (<i>Mylopharodon conocephalus</i>)	NA	SSC	In the Sacramento River, found in the mainstem and tributaries up to 5,000 feet in elevation in sections of large, warm, streams, with deep pools and slow water velocity. Usually absent where exotic centrarchids predominate. Most spawning occurs April through June.	High. Prefer warmer waters that Anderson Creek may seasonally provide, some flow is also preferred. Found with Sacramento pikeminnow and Sacramento suckers.

Common Name (<i>Scientific Name</i>)	Federal Status	State Status	Habitat	Likelihood of Occurrence within the Action Area
Steelhead – California Central Valley DPS (<i>Oncorhynchus mykiss</i> ssp. <i>Irideus</i>)	T	NA	Adults migrate upstream into tributaries from October through February and spawn December through April. Preferred spawning habitat is in cool to cold perennial streams with high dissolved oxygen levels and fast flowing water. Juveniles typically out-migrate in the spring and early summer as one-year-old fish.	High. The proposed action area is within the reach of the Sacramento River that provides habitat for this species.
Chinook salmon – Central Valley spring-run (<i>Oncorhynchus tshawytscha</i>)	T	T	Adults typically migrate upstream into Sacramento tributaries from August through October to spawn in cool, clear, well-oxygenated water. Juveniles out-migrate soon after emergence as young-of-the-year (February-June) or remain in fresh water and out-migrate as yearlings (October-March).	High. The proposed action area is within the reach of the Sacramento River that provides habitat for this species.
Chinook salmon – Central Valley fall and late fall-run (<i>Oncorhynchus tshawytscha</i>)	NA	SSC	Adults typically migrate upstream into Sacramento River tributaries from October through February to spawn in cool, clear, well-oxygenated water. Juveniles typically rear and migrate out of tributaries by mid-June.	High. The proposed action area is within the reach of the Sacramento River that provides habitat for this species.

Common Name (Scientific Name)	Federal Status	State Status	Habitat	Likelihood of Occurrence within the Action Area
Chinook salmon – Sacramento River winter-run (<i>Oncorhynchus tshawytscha</i>)	E	E	Adults migrate upstream during winter/spring and spawn in Battle Creek and the mainstem Sacramento River (near Redding) from April through August. Juveniles begin moving downstream as early as mid-July through March.	High. The proposed action area is within the reach of the Sacramento River that provides habitat for this species.

Notes: E = endangered; T = threatened.; SSC = California Species of Special Concern; CT = Candidate Threatened; NA = not applicable

Sources: California Department of Fish and Wildlife 2023; United States Fish and Wildlife Service 2024; Moyle 2002.

3.2.2.2 Critical Habitat

The federal Endangered Species Act defines critical habitat as a specific geographic area that contains features essential for the conservation of a federally threatened or endangered species and that may require special management and protection. The proposed action area is located within designated critical habitat for Central Valley spring-run Chinook salmon Evolutionary Significant Unit (ESU [*Oncorhynchus tshawytscha*]), which includes the lower reach of Anderson Creek downstream of the Adobe Road bridge crossing. The reach of the Sacramento River adjacent and downstream of the proposed action area has been designated as critical habitat for Sacramento River winter-run Chinook salmon ESU (*Oncorhynchus tshawytscha*), California Central Valley distinct population segment (DPS) steelhead (*Oncorhynchus mykiss*), and the southern DPS of North American green sturgeon (*Acipenser medirostris*).

3.2.2 Environmental Impacts

3.2.2.1 Environmental Impacts—Proposed Action

Effects of the proposed action would be limited to fish in Anderson Creek and the reach of the Sacramento River downstream of the confluence with Anderson Creek. Four threatened or endangered fish species and one candidate threatened fish species have the potential to occur within or downstream of the proposed action area, including Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, North American green sturgeon Southern DPS, white sturgeon (*Acipenser transmontanus*), and Central Valley DPS steelhead. The proposed action area and this reach of the Sacramento River also provide potential habitat for four State species of special concern: Pacific lamprey (*Entosphenus tridentatus*), river lamprey (*Lampetra ayresii*), hardhead (*Mylopharodon conocephalus*), and fall- and late fall-run Chinook salmon (*Oncorhynchus tshawytscha*).

Direct Harm

Proposed construction activities within Anderson Creek cannot be timed to avoid all life stages of special-status fish species because of the year-round presence of at least one life stage. Proposed construction activities within Anderson Creek (i.e., dredging and placement of floating dock) have the potential to directly displace, injure, or kill both adult and juvenile fish, including anadromous salmonids and sturgeon. An excavator will likely have to access Anderson Creek at the boat ramp to remove the accumulated material. Haul trucks may also be required to access the stream to transport the accumulated material from the boat ramp area. Adult fish would likely move out of the area before and immediately after equipment begins work in the water, and the existing glide and pool habitats upstream and downstream of the boat ramp would provide habitat for displaced adults. For these reasons, activities within the stream are not anticipated to injure or kill special-status adult fish species.

The potential for direct injury or death would be higher for juvenile fish and lamprey because they are less mobile than adults and the proposed action area has the potential to provide habitat for juvenile lamprey and downstream migrating juvenile salmonids and sturgeon. Proposed excavation and associated equipment access within the stream could have the potential to injure or kill juvenile lamprey and fish, which would result in a potentially significant impact.

Mitigation Measure Fish-1 includes measures to minimize the risk of direct injury or death to adult and juvenile fish species, including salmonids and sturgeon. Implementation of **Mitigation**

Measure Fish-1 would reduce these potential short-term impacts to less than significant.

Indirect Harm

Proposed excavation activities along the bank and within Anderson Creek would cause temporary increases in turbidity and suspended sediment during construction. This increase in turbidity and suspended sediment potentially could affect spawning habitat or feeding or holding behavior of special-status fish species within or downstream of the proposed action area.

The proposed action area does not provide potential spawning habitat for anadromous salmonids or sturgeon. Suspended sediment from proposed construction activities may settle on downstream potential spawning habitat in Anderson Creek and the Sacramento River. To protect the least mobile fish life stage, the proposed in-water work window included in **Mitigation Measure Fish-1** would be restricted to take place outside the time of year when incubating salmonid or sturgeon eggs and larvae are likely to be present. Embryos and salmon alevins are particularly susceptible to impacts from increased turbidity during their incubation. A high percentage of fines within the channel substrate can result in reduced oxygen levels within salmon redds, which could result in the smothering of eggs or preventing young from emerging. Increases in turbidity could also temporarily affect adult and juvenile fish species holding and rearing downstream of the project area. Increases in turbidity could temporarily disrupt juvenile behavior or cause juveniles to be temporarily displaced from their habitat, decreasing their foraging efficiency, and increasing their vulnerability to predation. Juvenile and adult anadromous fish need clear water to see their prey, which consists primarily of aquatic insects and other macroinvertebrates. These aquatic insects and other macroinvertebrates feed on suspended organic particles, making it essential to have balance between water clarity and turbidity caused by suspended organic particles (Madej 2004). In addition, elevated suspended sediment can also damage gill tissue, causing asphyxiation in both juveniles and adult fish. It is anticipated that adult and most juvenile salmonids and sturgeon would avoid sediment plumes generated by proposed activities within the stream and downstream river; however, some juvenile salmonids and sturgeon may be using stream bottom substrate and bank areas as cover and, therefore, would be more vulnerable to increases in suspended sediment. Implementing the erosion and sediment control measures included in WQ-1 (refer to Section 2.1.12, "Project Design Features and Construction Best Management Practices") would minimize this impact. Construction activities would also comply with the sediment control measures and water quality monitoring required pursuant to a federal Clean Water Act Section 401 certification issued by the Central Valley Regional Water Quality Control Board (CVRWQCB). Therefore, potential impacts to fish species, especially during incubation and juvenile life stages, from temporary construction-related increases in turbidity would be minimized to less than significant.

Proposed construction activities would require the use of power equipment and heavy equipment to work within and immediately adjacent to Anderson Creek. This need creates a risk of hazardous materials (such as fuel, lubricants, or hydraulic fluids) accidentally leaking or spilling into the stream. A hazardous leak or spill could have deleterious effects on all life stages of fish species and their habitat and would be potentially significant. Incubating fry would be at the greatest risk, whereas juvenile and adult fish exhibit a greater level of mobility and greater ability to avoid potentially hazardous materials. But construction activities within and adjacent to Anderson Creek would take place during the established work window, which is outside the

spawning and incubation period for special-status salmonid and sturgeon species. In addition, the risk of accidental leaks or spills of hazardous materials would be minimized by implementing measures included in WQ-2 (refer to, “Project Design Features and Construction Best Management Practices”). Therefore, potential impacts to fish species from hazardous material entering the stream would be minimized to less than significant.

Fish Passage

The restored side channel upstream of the boat ramp was constructed to provide rearing habitat for listed salmonids. The lower reach of Anderson Creek, including the action area may be used by upstream migrating fish to access the side channel and by downstream migrating fish to return to the Sacramento River. Adult anadromous fish species migrate upstream to spawn and have been documented in the side channel. Juvenile anadromous fish species migrate downstream through the action area on their way to the estuary or ocean. Proposed temporary in-water work activities have the potential to deter movement of fish or other aquatic species through the action area. Turbidity control measures or exclusion nets would not span the entire width of stream and in-water work would not exceed 12 hours per day to allow movement through the action area. Implementation of **Mitigation Measure Fish-2** would minimize potential impacts to fish passage to less than significant.

Habitat Modification

Fine sediment has accumulated over time at the boat ramp area and aquatic vegetation has restricted flows within the channel resulting in increased water temperatures and marginal habitat for juvenile salmonids. The restored side channel upstream has contributed to increased flows and lower water temperatures through the lower reach of Anderson Creek. The proposed removal of fine sediment, riparian vegetation, and aquatic vegetation at the boat ramp may result in temporary short-term impacts to fish habitat. But impacts to riparian vegetation at the boat ramp would be minimized to the greatest extent possible. Additionally, the removal of accumulated material and non-native invasive aquatic vegetation may further improve overall flows, increase depth, reduce water temperatures, and improve water quality within this reach of Anderson Creek. Therefore, potential adverse impacts to fish habitat from implementation of the proposed action would be less than significant.

3.2.2.2 *Environmental Impacts—No Action*

Under the No Action Alternative, the boat launch area would remain silted in. Vegetation along the edges of the bank and the associated fish communities would not be disturbed by construction.

3.2.2.3 *Cumulative Effects*

There is at least one known side channel restoration project currently in the planning or design phase that may be constructed along the Sacramento River (near the confluence of Battle Creek) and along Battle Creek within 5 miles of the proposed action area. The purpose of these proposed side channel projects is primarily to provide rearing habitat for listed salmonids. Implementation of these planned side channel restoration projects would require excavation, which has the potential to result in temporary increases of sediment into the Sacramento River. It is unknown whether these side channel projects would be constructed at the same time as the proposed boat

launch area excavation. However, the potential increased turbidity from these other projects would be short-term and would be regulated by water quality standards established during permitting for those projects. Therefore, even if nearby side channel projects are implemented at the same time as the proposed action, it is anticipated that cumulatively considerable effects to fish species would not occur.

3.2.3 Mitigation Measures

Mitigation Measure Fish-1: Implement Measures to Minimize Injury or Mortality to Adult or Juvenile Fish Species.

To minimize injury or mortality to adult or juvenile fish species, the contractor shall implement the following measures:

- A qualified fisheries biologist shall be on site to monitor in-water construction activities.
- In-water construction activities shall be minimized to the greatest extent possible and shall be restricted to an in-water work window of December 1 through December 31, unless the CDFW and National Oceanic and Atmospheric Administration (NOAA) Fisheries specify a different in-water work window for Anderson Creek.
- Prior to beginning work, CDFW staff shall be consulted to determine appropriate avoidance measures to be implemented to avoid impact to listed salmonids based on current site and flow conditions. Avoidance measures may include seining and/or the placement of block nets to isolate the work area and prevent listed salmonids being present. CDFW staff will be onsite during the implementation of these in-water avoidance measures.
- Prior to beginning work within Anderson Creek, the excavator bucket shall be operated to “tap” the surface of the water, or where safe, a qualified biologist shall wade ahead of the equipment to scare fish away from the work area.
- Operation of the excavator bucket within the stream shall be conducted slowly and deliberately to allow fish time to seek refuge outside the work area.
- Consultation shall be completed with CDFW and NOAA Fisheries for potential impacts to listed salmonids and green sturgeon. CDFW and NOAA Fisheries recommended measures shall be implemented as part of the proposed project.
- If water is drafted from Anderson Creek or the Sacramento River for construction purposes, water pump intakes shall be screened in compliance with CDFW and NOAA Fisheries salmonid-screening specifications.

Mitigation Measure Fish-2: Implement Measures to Minimize Potential to Interfere with Movement of Migratory Fish Species

In-water work shall only occur up to 12 hours per day to allow a 12-hour window for fish to migrate through the work area. If turbidity curtains, block nets, or seines are used, they will be installed in a way to not inhibit fish migration through the project area.

3.3 Resource Issue 3. Biological Resources – Non-native, Invasive Plant Species

3.3.1 Affected Environment

The environmental study limit (study area) for vegetation includes a 49.5-acre islanded area bordered by Anderson Creek to the west, the Sacramento River to the east, and the confluence of the two waterways to the south. The northern boundary is the parcel boundary for BLM land.

3.3.1.1 Vegetation Types

Vegetation types present in the study area were mapped and ground-truthed during Fall 2022 and Spring 2023 (Figure 6; Appendix A). The study area supports four distinct vegetation types: annual grassland (22.8 acres), valley oak woodland (13.3 acres), mixed riparian forest (6.3 acres) and Fremont cottonwood (1.4 acres). Non-vegetated areas associated with the access roads, parking lot, and boat ramp were incorporated into the acreage of adjacent vegetation. The majority of the grassland habitat occurs in one large open patch in the upper half of the study area, while the remaining few acres exist in three smaller areas within valley oak woodlands. The valley oak woodlands create a continuous corridor through most of the study area, other than two small groves located at the northern end of the study area. Boundaries along Anderson Creek and the Sacramento River support fragmented mixed riparian forest and scrub, and a stand of Fremont cottonwoods is located along the east side and extending north of the parking lot. Non-native species are present in each vegetation community.

3.3.1.2 Description of Vegetation Types

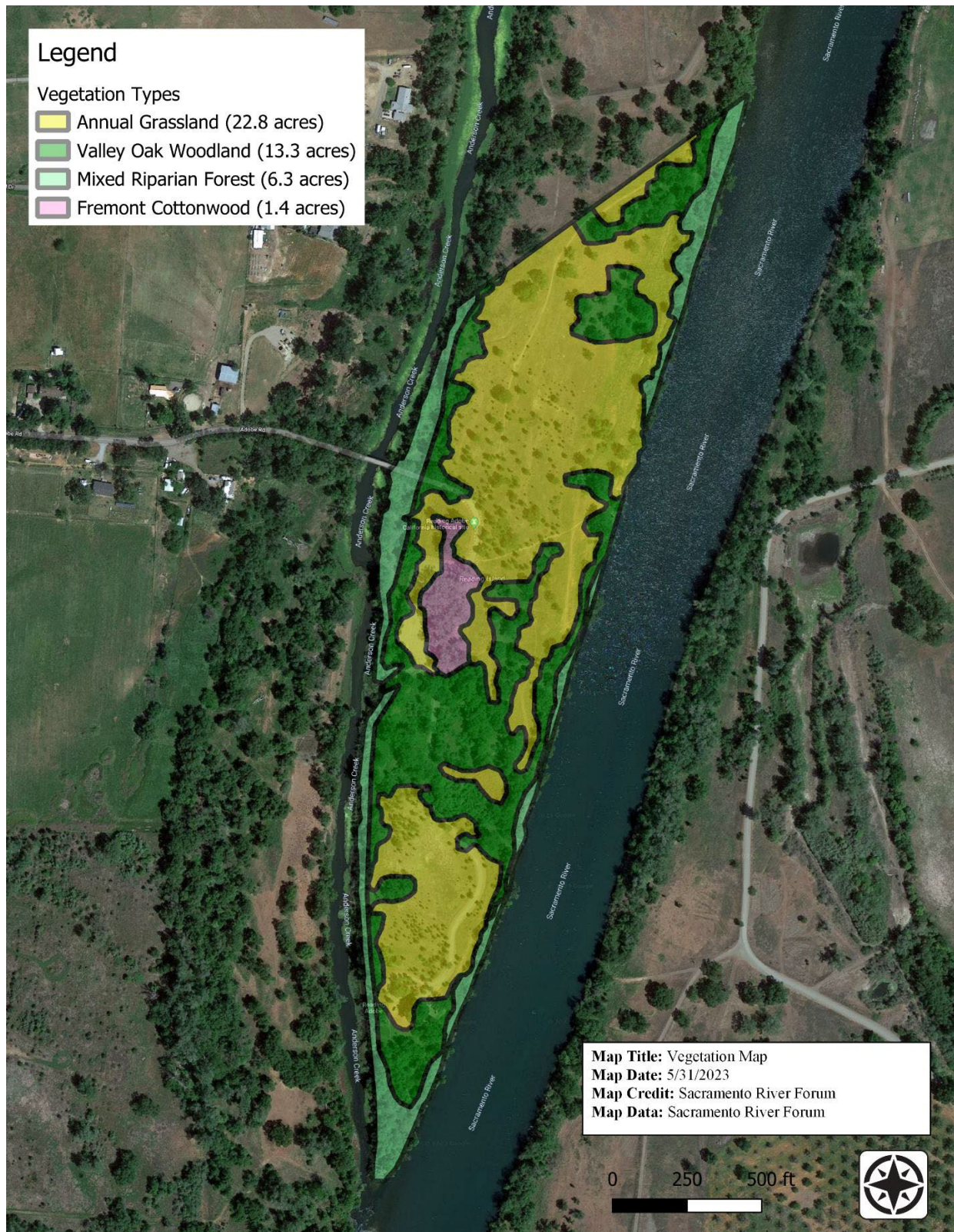
Annual grassland includes a variety of annual grasses including ripgut brome (*Bromus diandrus*), bulbous bluegrass (*Poa bulbosa*) with wild oat (*Avena fatua*), slender wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), wall barley (*Hordeum murinum*). Common forbs in the grasslands are yellow star-thistle (*Centaurea solstitialis*), rose clover (*Trifolium hirtum*), Wright's buckwheat (*Eriogonum wrightii*), California brickellbush (*Brickellia californica*), and Oregon goldenaster (*Heterotheca oregona*), sky lupine (*Lupinus nanus*), Q-tips (*Micropus californicus*), and flaccid cryptantha (*Cryptantha flaccida*).

Valley oak woodland is dominated by large Valley oaks (*Quercus lobata*) often with elderberry (*Sambucus mexicana*) in the shrub layer. The understory of this habitat is similar to annual grassland with the addition of coffeeberry (*Frangula californica*), fragrant sumac (*Rhus aromatica*), poison oak (*Toxicodendron diversilobum*), and California goldenrod (*Solidago velutina* ssp. *californica*).

Mixed riparian forest is characterized by trees including Fremont cottonwood (*Populus fremontii*), Oregon ash (*Fraxinus latifolia*), and tree of heaven. The understory includes robust species such as scouring horsetail (*Equisetum arvense*), Santa Barbara sedge (*Carex barbarae*), and Himalayan blackberry (*Rubus americanus*).

Fremont cottonwood stands include understory species such as young Valley oak, elderberry, Himalayan blackberry, and various annual grasses and forbs.

Figure 6. Vegetation Types in Action Area



3.3.1.4 Non-Native Invasive Species

Invasive plant species have the potential to compete with the natural communities present in the study area. Table 5 lists the non-native plant species observed during field surveys in the study area and indicates the degree of invasiveness for each species (California Invasive Plant Council 2024).

Table 5. Invasive Plant Species Observed within the Reading Island Study Area

Scientific Name (Common Name)	CAL-IPC Inventory Rating	CDFA Noxious Weed?	Ecological Threats
<i>Ailanthus altissima</i> (tree of heaven)	M	X	Large colonies displace native riparian trees
<i>Avena barbata</i> (slender wild oat)	M	NA	Displaces native perennial grasses.
<i>Avena fatua</i> (wild oat)	M	NA	Replaces native perennial grasses
<i>Brassica nigra</i> (black mustard)	M	NA	Grows profusely and produces allelopathic chemicals that prevent germination of native plants
<i>Bromus diandrus</i> (ripgut brome)	M	NA	Displaces native grasses
<i>Bromus hordeaceus</i> (soft chess)	L	NA	Displaces native grasses
<i>Carduus pycnocephalus</i> (Italian thistle)	M	X	Creates monocultures that reduce native seedling recruitment and survival
<i>Centaurea solstitialis</i> (yellow star-thistle)	H	X	Rapid spread; displaces all riparian vegetation.
<i>Conium maculatum</i> (poison-hemlock)	M	NA	Forms dense patches that displace native vegetation in riparian areas.
<i>Cynodon dactylon</i> (Bermuda-grass)	M	NA	Fast growing; outcompetes native species, particularly in riparian areas
<i>Cynosurus echinatus</i> (hedgehog dogtail)	M	NA	Produces monocultures and leaves persistent thatch, suppressing the growth of native species
<i>Cyperus esculentus</i> (yellow nutsedge)	NA	X	Outcompetes native species; uses long rhizomes to hoard nutrients

Scientific Name (Common Name)	CAL-IPC Inventory Rating	CDFR Noxious Weed?	Ecological Threats
<i>Hirschfeldia incana</i> (shortpod mustard)	M	NA	Suppresses native vegetation through rapid growth and shading
<i>Hordeum murinum</i> (wall barley)	M	NA	Outcompetes native perennials by growing in bare areas and prohibiting their establishment
<i>Hypericum perforatum</i> (common St. John's-wort)	L	X	Large colonies can displace riparian vegetation in openings.
<i>Iris pseudacorus</i> (yellow water iris)	L	NA	Rapidly spreads; Outcompetes other wetland plants and creates impenetrable thickets
<i>Lepidium latifolium</i> (broad-leaved pepper-grass)	H	X	Large colonies can displace riparian vegetation in openings.
<i>Limnobium laevigatum</i> (Amazon frogbit)	NA	X	Invasive in waterways, impacting aquatic wildlife and vegetation
<i>Ludwigia peploides</i> spp. <i>montevidensis</i> (Montevideo waterweed)	H	NA	Dense mats can clog waterways, alternative aquatic ecosystems.
<i>Marrubium vulgare</i> (horehound)	L	NA	Potential to have negative impact on native plant populations in disturbed grasslands, scrub, and riparian areas.
<i>Mentha pulegium</i> (pennyroyal)	M	NA	Displaces native species in wetland environments
<i>Phytolacca americana</i> var. <i>americana</i> (American pokeweed)	L	NA	Invades disturbed areas
<i>Plantago lanceolata</i> (English plantain)	L	NA	Disrupts native plant communities
<i>Robinia pseudoacacia</i> (black locust)	L	NA	Displaces native vegetation
<i>Rubus armeniacus</i> (Himalayan blackberry)	H	NA	Large colonies displace native riparian trees and shrubs.
<i>Rumex crispus</i> (curly dock)	L	NA	Outcompetes native species

Scientific Name (Common Name)	CAL-IPC Inventory Rating	CDFAs Noxious Weed?	Ecological Threats
<i>Sesbania punicea</i> (scarlet sesbane)	H	X	Large colonies displace native riparian trees and shrubs.
<i>Sorghum halepense</i> (Johnson grass)	NA	X	Outcompetes native grasses
<i>Torilis arvensis</i> (common hedge parsley)	M	NA	Disrupts native plant growth
<i>Tribulus terrestris</i> (puncture vine)	L	X	Infests native grasslands
<i>Trifolium hirtum</i> (rose clover)	L	NA	Outcompetes indigenous clover and native grasses

Notes:

California Invasive Plant Council Inventory (Cal-IPC):

H = High: Invasive species with most severe wildland ecological impacts, widespread.

M = Moderate: Invasive species with substantial wildland impacts; local to widespread.

L = Limited: Invasive species with minor wildland ecological impacts; limited distribution, though may be locally problematic.

California Department of Food and Agriculture (CDFAs):

X = Listed as a CDFAs noxious weed; NA = Not listed as a CDFAs noxious weed.

Source: California Invasive Plant Council 2024.

3.3.2 Environmental Impacts

3.3.2.1 Environmental Impacts—Proposed Action

Implementation of the proposed action would require the use of heavy equipment. Transportation of construction vehicles and equipment into the proposed action area could transfer invasive plant materials in and around the proposed action area if vehicles and equipment are not cleaned prior to entering the proposed action area. In addition, ground-disturbing activities associated with the proposed action could inadvertently spread the existing invasive plant species, several of which have a high degree of invasiveness or are considered noxious weeds. Shoulder widening with imported gravel, as well as revegetation efforts in disturbed areas, could also introduce new sources of invasive plant species if control measures are not in place. Introducing new invasive plant species or increasing the spread of existing invasive plant species during construction has the potential to displace large areas of natural communities. However, implementation of the weed control measures included in VEG-1 and WEED-1 through WEED-5 (refer to Section 2.1.12, “Project Design Features and Construction Best Management Practices”) would avoid or minimize this risk. Therefore, potential impacts to native plant species within associated vegetation communities from the introduction or spread of invasive plant species would be less than significant.

3.3.2.2 Environmental Impacts—No Action

Under the no action alternative, boat ramp and facilities improvements would not occur. The risk of spreading existing invasive vegetation would remain the same and would mainly be related to

recreational and historic uses.

3.3.2.3 Cumulative Effects

There are no other proposed activities at Reading Island that would result in ground disturbance, and the proposed action includes removal of a non-native tree of heaven stand. No cumulative effect would occur.

3.4 Resource Issue 4. Biological Resources - Wildlife and Wildlife Habitat

3.4.1 Affected Environment

The study area for wildlife and wildlife habitats is the same as described for non-native, invasive plant species.

3.4.1.2 Wildlife Habitats

Wildlife habitats differ from vegetation communities in that they focus on the value of the vegetation to wildlife rather than on the plant species composition. Table 6 provides a crosswalk for the vegetation types discussed in Section 3.3.1.1, “Vegetation Types” and the habitat types identified within the study area. Habitat types were identified within the study area based on the California Wildlife Habitat Relationships classification system and are described below (Mayer and Laudenslayer 1988).

Table 6. Crosswalk of vegetation types and habitat types in the Reading Island Study Area.

Project Area Vegetation Community	Common Plant Species	California Wildlife Habitat Relationships System Classification
Annual Grassland	Variety of annual grasses including ripgut brome (<i>Bromus diandrus</i>), bulbous bluegrass (<i>Poa bulbosa</i>) with wild oat (<i>Avena fatua</i>), slender wild oat (<i>Avena barbata</i>), soft chess (<i>Bromus hordeaceus</i>), wall barley (<i>Hordeum murinum</i>). Common forbs in annual grassland are yellow star-thistle (<i>Centaurea solstitialis</i>), rose clover (<i>Trifolium hirtum</i>), Wright’s buckwheat (<i>Eriogonum wrightii</i>), California brickellbush (<i>Brickellia californica</i>), and Oregon goldenaster (<i>Heterotheca oregona</i>), sky lupine (<i>Lupinus nanus</i>), Q-tips (<i>Micropus californicus</i>), and flaccid cryptantha (<i>Cryptantha flaccida</i>).	Annual Grassland

Project Area Vegetation Community	Common Plant Species	California Wildlife Habitat Relationships System Classification
Valley Oak Woodland	Dominated by large Valley oaks (<i>Quercus lobata</i>) often with elderberry (<i>Sambucus cerulea</i>) in the shrub layer. The understory of this habitat is similar to annual grassland with the addition of coffeeberry (<i>Frangula californica</i>), fragrant sumac (<i>Rhus aromatica</i>), poison oak (<i>Toxicodendron diversilobum</i>), and California goldenrod (<i>Solidago velutina</i> ssp. <i>californica</i>).	Valley Oak Woodland
Mixed Riparian Forest	Includes a variety of dominant species such as Fremont cottonwood (<i>Populus fremontii</i>), Oregon ash (<i>Fraxinus latifolia</i>), and tree of heaven (<i>Ailanthus altissima</i>). The understory includes robust species such as scouring horsetail (<i>Equisetum arvense</i>), Santa Barbara sedge (<i>Carex barbarae</i>), and Himalayan blackberry (<i>Rubus americanus</i>)	Valley Foothill Riparian
Fremont Cottonwood	Dominated by Fremont cottonwood (<i>Populus fremontii</i>).	Valley Foothill Riparian
NA	NA; intermittently or continually running water	Riverine
NA	NA; Non-vegetated areas, including pavement	Barren

Note: NA = not applicable

Annual Grassland

Annual grassland is composed primarily of non-native annual grasses and forbs. Vernal pools can occur within this habitat type when depressions are underlain by an impervious soil layer (Mayer and Laudenslayer 1988). However, no vernal pools, swales, or similar ephemeral aquatic habitats were found within the study area during surveys. Common wildlife species associated with annual grassland habitat include the black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), California vole (*Microtus californicus*), American badger (*Taxidea taxus*), western kingbird (*Tyrannus verticalis*), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), American kestrel (*Falco sparverius*),

turkey vulture (*Cathartes aura*), and northern harrier (*Circus cyaneus*).

Valley Oak Woodland

Valley oak woodland varies from open savannas to nearly closed canopy forest. The dominant overstory species are oaks (*Quercus lobata*, *Q. douglasii*, and *Q. wislizeni*), with an understory component often consisting of elderberry, poison oak, and annual grasses. This habitat is best developed on valley bottoms with deep alluvial soils and where a permanent underground water source is available to deep-rooted trees. Valley oak woodlands provide food and cover for a variety of wildlife species including the acorn woodpecker (*Melanerpes formicivorus*), oak titmouse (*Baeolophus inornatus*), Lewis' woodpecker (*Melanerpes lewis*), and western gray squirrel.

Valley Foothill Riparian

Valley foothill riparian consists of mature forest of cottonwood, Valley oak, and sycamore (*Platanus racemosa*), with an understory of white alder (*Alnus rhombifolia*), willow (*Salix* spp.), Oregon ash, elderberry, poison oak, and grapevine (*Vitis californica*). This habitat is associated with the high water table and alluvial soils of stream corridors and floodplains. Valley foothill riparian habitat is designated as a sensitive habitat because of its declining trend and high value to wildlife and hydrologic function. Valley foothill riparian habitat provides food, water, cover, and reproductive areas for a wide variety of California wildlife species, including 50 species of reptiles and amphibians, 55 mammals, and 147 birds (Mayer and Laudenslayer 1988). Valley foothill riparian habitat also provides migration and dispersal corridors for many wildlife species. This habitat provides nesting habitat for neotropical migratory birds and provides nesting and nursery habitat for heron and egret rookeries. Numerous wildlife species are dependent upon riparian habitat, including the red-shouldered hawk (*Buteo lineatus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), ring-tailed cat (*Bassariscus astutus*), yellow-breasted chat (*Icteria virens*), and American mink (*Mustela vison*).

Riverine

The structure of riverine habitat (stream and river habitat) consists of open water (greater than 2 feet in depth), submerged areas near the shore, and banks with less than 10-percent canopy cover (Mayer and Laudenslayer 1988). Waterfowl use open water areas for resting. Osprey (*Pandion haliaetus*), double-crested cormorants (*Phalacrocorax auritus*), gulls, and terns forage in open water areas. Shorebirds and wading birds, including herons, egrets, and sandpipers, forage along the submerged zone near the shore. Insectivorous species, including swallows and phoebes, forage over riverine habitat. Banks associated with rivers can provide cover or nesting substrate for bank swallows (*Riparia riparia*) and belted kingfishers (*Megaceryle alcyon*), and the common muskrat (*Ondatra zibethicus*), river otter (*Lutra canadensis*), and American beaver (*Castor canadensis*). Riverine habitat occurs within the project vicinity in Anderson Creek and the Sacramento River; shallow areas are vegetated with species including sandbar willow (*Salix exigua*), reed canarygrass (*Phalaris arundinaceae*), Montevidea waterweed (*Ludwigia peploides* ssp. *Montevidensis*), and Amazon frogbit (*Limnobium laevigatum*).

Barren

Barren habitat in the study area includes paved roads, parking areas, and the boat ramp. The barren habitat type is defined by the absence of vegetation and includes areas with less than two percent herbaceous cover and less than ten percent tree cover (Mayer and Laudenslayer 1988). Common wildlife species associated with barren habitats include killdeer (*Charadrius vociferus*), gulls, terns, and the western fence lizard.

3.4.1.3 Special-Status Wildlife Species

A list of special-status wildlife species with the potential to occur within the study area was generated in part by querying the CNDDDB (California Department of Fish and Wildlife 2024) for wildlife species within nine USGS quadrangles around the area and querying the IPaC tool (U.S. Fish and Wildlife Service 2024). Additional species known to be in the vicinity but not listed in the CNDDDB query results were also included. Field surveys were also conducted on October 7 and November 4, 2022. Special-status wildlife species include those federally or State-listed as endangered, threatened, or candidate; federally listed as Bird Species of Conservation Concern; State-listed as species of special concern or fully protected species; listed as a BLM sensitive species; or ranked by the California Native Plant Society as a rare plant according to the April 2024 Special Animals List (California Department of Fish and Wildlife 2024). The combined results of these species lists are presented in Table 4 of the “Biological Resources Evaluation for the Reading Island Boat Ramp Project” (Appendix A). Species with a moderate to high potential for occurrence in the study area are listed in Table 7 and described below.

Table 7. Special-Status Wildlife Species with Moderate to High Potential to Occur in the Study Area

Common Name (<i>Scientific Name</i>)	Federal Status	State Status	Associated Habitat	Likelihood of Occurrence within the Study Area
Birds				
Bald eagle (<i>Haliaeetus leucocephalus</i>)	ESA: Delisted BLM: S	CESA: Endangered CDFW: FP	Large bodies of water or flowing streams with abundant fish and riparian trees for perching and nesting. Breeds February through July, with peak activity from March to June.	High. Proximity to known nests and availability of suitable habitat. A large nest was documented in 1988 approximately 0.2 mile east of the site. Two other nests are within 4 miles of the study area.
Bank Swallow (<i>Riparia riparia</i>)	BLM: S	CESA: Threatened	Colonial nester on vertical streambanks with friable soils. Breeds from early May through July, with peak activity from mid-May to mid-June.	Moderate. Nearby breeding colonies, foraging habitat available. Two colonies have been documented on the river within one mile of the study area.

Common Name (Scientific Name)	Federal Status	State Status	Associated Habitat	Likelihood of Occurrence within the Study Area
Burrowing owl (<i>Athene cunicularia</i>)	USFWS: BCC BLM: S	CDFW: SSC	Prefers grasslands, pastures, agricultural fields, and road embankments. Breeding occurs from March through August, with peak activity in April and May.	Moderate. Suitable habitat available. Two known populations within 8 miles in the Dales Lake area.
Tricolored blackbird (<i>Agelaius tricolor</i>)	USFWS: BCC BLM: S	CESA: Threatened CDFW: SSC	Breeds near fresh water in dense emergent vegetation and forages in grassland, cropland, and seasonally flooded areas.	Moderate. Nearby breeding colonies. Foraging habitat available in study area.
Mammals				
Pallid bat (<i>Antrozous pallidus</i>)	BLM: S	CDFW: SSC	Open, dry habitats, including grasslands, shrublands, and woodlands, with roost sites like caves, mines, and hollow trees and buildings.	Moderate. Roosting and foraging habitat available. Two recent observations within 11 miles of the study area.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	BLM: S	CDFW: SSC	Mesic habitats where it feeds on insects from foliage. Maternity roots are found in caves, tunnels, mines, and buildings in relatively warm sites.	Moderate. Roosting and foraging habitat available. A single specimen was observed 1.4 miles SE of the site in 1926.
Western red bat (<i>Lasiurus frantzii</i>)	NA	CDFW: SSC	Roosts are primarily in trees often in edge habitats adjacent to streams, fields, or urban areas. Foraging is typically along habitat mosaics near roost trees and open areas.	High. Foraging and roosting habitat and nearby populations. Two known observations within 10 miles of the study area.
Reptiles				

Common Name (<i>Scientific Name</i>)	Federal Status	State Status	Associated Habitat	Likelihood of Occurrence within the Study Area
Western pond turtle (<i>Actinemys marmorata</i>)	ESA: Proposed Threatened BLM: S	CDFW: SSC	Nest on gentle slopes in compact soil upland from aquatic habitats. Overwinter in upland areas, or in aquatic environments.	High. Proximity to known populations and availability of potentially suitable habitat. Observed in Anderson Creek.
Invertebrates				
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	ESA: Threatened	NA	Require elderberry shrubs for larval development.	High. Found in the Survey area; availability of suitable habitat. Galleries and exit holes observed in shrub stems in 1998 in the Survey Area.

Notes: BCC = birds of conservation concern, BLM = Bureau of Land Management, CDFW = California Department of Fish and Wildlife, CESA = California Endangered Species Act, ESA = federal Endangered Species Act, S = sensitive, SSC = species of special concern

3.4.2 Environmental Impacts

3.4.2.1 Environmental Impacts—Proposed Action

Birds

Special-status bird species, including the tricolored blackbird (*Agelaius tricolor*), burrowing owl (*Athene cunicularia*), bald eagle (*Haliaeetus leucocephalus*), and bank swallow, may nest or forage within or in the vicinity of the study area. Other nesting birds protected under the Migratory Bird Treaty Act (MBTA) and Fish and Game Code (FGC) 3503 and 3503.5 may also nest or forage within or in the vicinity of the study area. No active nests were identified during surveys, but pre-existing raptor and migratory bird nests were identified nearby.

The nesting season typically extends from January 1 through August 31 for migratory birds and other birds of prey. The proposed construction and vegetation removal window is outside of the bird nesting season and would avoid impacts to nesting birds. If for any reason activities were implemented during the nesting season, nesting special-status bird species could be adversely affected, resulting in a potentially significant impact. However, implementation of the pre-construction nesting surveys and avoidance measures included in **Mitigation Measure WILD-1** would avoid or minimize impacts to nesting birds and reduce potential impacts to less-than-significant levels.

Implementation of the proposed action would require construction activities in foraging habitat for bird species but is not anticipated to adversely affect these species. Construction disturbance would be temporary, and there are alternative sources of foraging habitat available within the project vicinity. Additionally, vegetation removal and trimming would be minimized to the

extent feasible as part of BIO-1 and would not adversely affect the function of nor substantially reduce the size of vegetation communities present.

Therefore, impacts to special-status nesting and foraging bird species and species protected under the MBTA and FGC would be less than significant.

Bats

Foraging and roosting habitat are present in the study area for special-status bat species, including the pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western red bat (*Lasiurus frantzii*). The proposed action would not adversely modify the availability of suitable foraging habitat for bats. Because construction activities would not occur at night, sensitive foraging bats are unlikely to be encountered during work hours and can easily avoid the work area if work extends past dusk. Therefore, temporary construction-related impacts to foraging bats would be less than significant.

Approximately three trees greater than 10 inches DBH would be removed that may provide suitable roosting habitat for the western red bat. If trees that are used for roosting habitat are removed during the bat maternity or hibernacula season, impacts would be potentially significant. Implementation of the pre-construction surveys and two-step tree removal method described in **Mitigation Measure WILD-2** would reduce these potential temporary construction-related impacts to roosting special-status bat species to less-than-significant levels.

Western Pond Turtle

The western pond turtle (*Actinemys marmorata*) is known to populate the vicinity of the study area and is highly likely to occur within the study area because of the availability of suitable habitat that Anderson Creek and the Sacramento River provide. Proposed activities within slow-moving or ponded aquatic areas could interfere with western pond turtle movement or result in direct harm, resulting in a potentially significant impact. Implementation of precautionary measures outlined in **Mitigation Measure FISH-1** (requiring the operation of heavy equipment and excavation in the stream channel to be conducted slowly and deliberately, and the water surface to be tapped prior to entering to alert fish and other aquatic species to equipment operation and allow them to move out of the area) would minimize the risk of direct harm. Implementation of **Mitigation Measure WILD-3** (requiring that activities cease if turtles are in the work area and do not resume until the turtles have left the area) would further reduce the risk of direct harm for turtles within aquatic or upland habitat within the proposed action area. Potential temporary construction-related impacts to the western pond turtle would be less than significant.

Turtles typically nest in upland areas anywhere from 10 to 1,300 feet from aquatic habitats, with an average linear distance of approximately 170 feet from water, from May through July (Davison and Alvarez 2020; United State Fish and Wildlife Service 2023). The proposed action is scheduled to occur in late fall/early winter, outside of the turtle nesting season, and would therefore have no impact on nesting activity.

Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetles (*Desmocerus californicus dimorphus*), which require elderberry shrubs for larval development, are highly likely to occur in the study area because of the presence of suitable habitat and documented occurrences onsite. There are numerous blue elderberry shrubs within the study area, typically found in the Valley oak understory. These shrubs were mapped within and adjacent to proposed construction disturbance areas (Figure 7), and any shrubs with stems greater than one inch in diameter at ground level were assumed to be suitable habitat for the valley elderberry longhorn beetle. The construction disturbance area and associated spoil area and access roads were designed to avoid elderberry shrubs. No elderberry shrub removal or trimming would occur. However, proposed construction activities and use of access and haul roads located immediately adjacent to elderberry shrubs could adversely impact the valley elderberry longhorn beetle by generating dust. Implementation of **Mitigation Measure WILD-4** and the dust prevention and control measures included in AIR-1 would minimize this impact. Therefore, potential temporary construction-related impacts to the valley elderberry longhorn beetle would be less than significant.

Figure 7. Elderberry Shrub Locations



3.4.2.2 Environmental Impacts—No Action

Under the No Action Alternative, construction-related tree removal and ground disturbance would not occur. BLM would continue to implement vegetation maintenance, which could include vegetation trimming and the removal of invasive plant species, including tree of heaven.

3.4.2.3 Cumulative Effects

Existing vegetation maintenance activities at Reading Island occur intermittently and are conducted to maintain public areas and control non-native plant species. The proposed action is consistent with these activities, would be short-term, and would have a minimal effect on foraging birds, would not result in habitat loss that would be cumulatively considerable for roosting bats, and would not generate a cumulatively considerable amount of dust. If future boat launch area maintenance is required, the same avoidance and minimization measures would be implemented for the protection of western pond turtles; effects on this species would not be cumulatively considerable.

3.4.3 Mitigation Measures

Mitigation Measure Fish–1: Implement Measures to Minimize Injury or Mortality to Adult or Juvenile Fish Species.

Refer to Section 3.2.3, “Mitigation Measures”, for the full text of this measure.

Mitigation Measure WILD-1: Conduct Pre-Project Bird Nest Surveys and Implement Protection Measures

The action area contains suitable nesting habitat for a multitude of species protected under the Migratory Bird Treaty Act of 1918. The regional nesting season for raptors protected under the act with the potential to occur within the action area is from January 1 through August 31; for non-raptors, nesting season in the region occurs from approximately April through August 15. Project activities that are likely to cause disturbance to nesting birds would require the following design features if the activities were implemented during the nesting season:

- *Pre-project surveys:* Project activities conducted during the nesting season would require surveys to determine the presence of active nests within or adjacent to proposed activities, no more than 7 days prior to commencing work. Surveys would be conducted by a qualified biologist.
- *Implementation of Avoidance Measures:* Where nests are found, a buffer of 250 feet should be established around the nest and maintained until birds have fledged or breeding activities have ceased. If it is determined that a smaller buffer would be sufficient to prevent impacts to nesting birds, buffer size may be adjusted by a qualified biologist, in coordination with the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS). The buffer would be monitored by a biological observer until project work has ceased, or the nest is no longer active. Any incidental take of a migratory bird would be reported to CDFW and/or USFWS, as appropriate.

Mitigation Measure WILD-2: Implement Avoidance Work Window and Pre-Construction Bat Surveys Prior to Removal of Trees that Provide Suitable Roosting Habitat

Removal of trees that provide suitable bat roosting (such as trees with deep bark crevices, snags, or holes) shall be conducted between August 31 and October 30, or earlier than October 30 if evening temperatures fall below 45 degrees Fahrenheit or more than half inch of rainfall occurs within 24 hours during the month of October. If removal of trees that provide suitable roosting habitat for bats is necessary, a qualified biologist shall conduct preconstruction surveys for the presence of individuals within 24 hours prior to the start of construction. If roosting bats are discovered, the following measures shall be implemented:

- A qualified biologist shall monitor removal and trimming of trees that provide suitable bat roosting habitat.
- Tree removal and trimming shall occur over two consecutive days.
 - Day 1:
 - Remove limbs and branches in the afternoon using chainsaws only. Limbs with cavities, crevices, or deep bark fissures shall be avoided, and only branches or limbs without those features shall be removed.
 - Day 2:
 - The entire tree shall be removed.
 - Prior to tree removal and trimming, each tree shall be shaken gently and several minutes shall pass before felling trees or limbs to allow bats time to arouse and leave the tree.
 - The biologist shall search downed vegetation for dead or injured bat species and report any dead or injured special-status bat species to CDFW.

Mitigation Measure WILD-3: Conduct Searches for Western Pond Turtle Each Day Before and During Construction Activities

Turtle searches shall be conducted each day prior to the start of construction. Searches shall include the area under and around construction equipment, as well as the planned work area for the day. If western pond turtles are encountered within the work area, work activity in the immediate vicinity will cease until any turtles have left the work area on their own or a CDFW-approved biologist moves the individual(s) out of harm's way.

Mitigation Measure WILD-4: Implement Measures for Valley Elderberry Longhorn Beetle

Protection measures shall be implemented around elderberry shrubs with stems greater than 1-inch diameter at ground level (U.S. Fish and Wildlife Service 2017), including the following:

- No elderberry shrubs will be removed and as much as feasible, all activities adjacent to elderberry shrubs will be conducted outside the flight season of the valley elderberry longhorn beetle (March through July).
- Elderberry shrubs within and immediately adjacent to the project area will be temporarily fenced, as needed, with guidance from the designated biologist and designated as biologically sensitive areas.
- A qualified biologist will monitor the work area to assure that all avoidance and

- minimization measures are implemented.
- Herbicide will not be used within the dripline of the elderberry shrub. Insecticides will not be used within 98 feet of an elderberry shrub. All chemicals will be applied using a backpack sprayer or similar direct application method.
- Mechanical weed removal within the dripline of the elderberry shrub will be limited to the season when adults are not active (August through February) and will avoid damaging the elderberry.
- Placement of excavated material shall occur in approved construction spoil area(s) more than 20 feet from the dripline of elderberry shrubs.
- Construction personnel shall ensure that dust control measures are implemented in the vicinity of any elderberry shrub within 100 feet of construction activities.

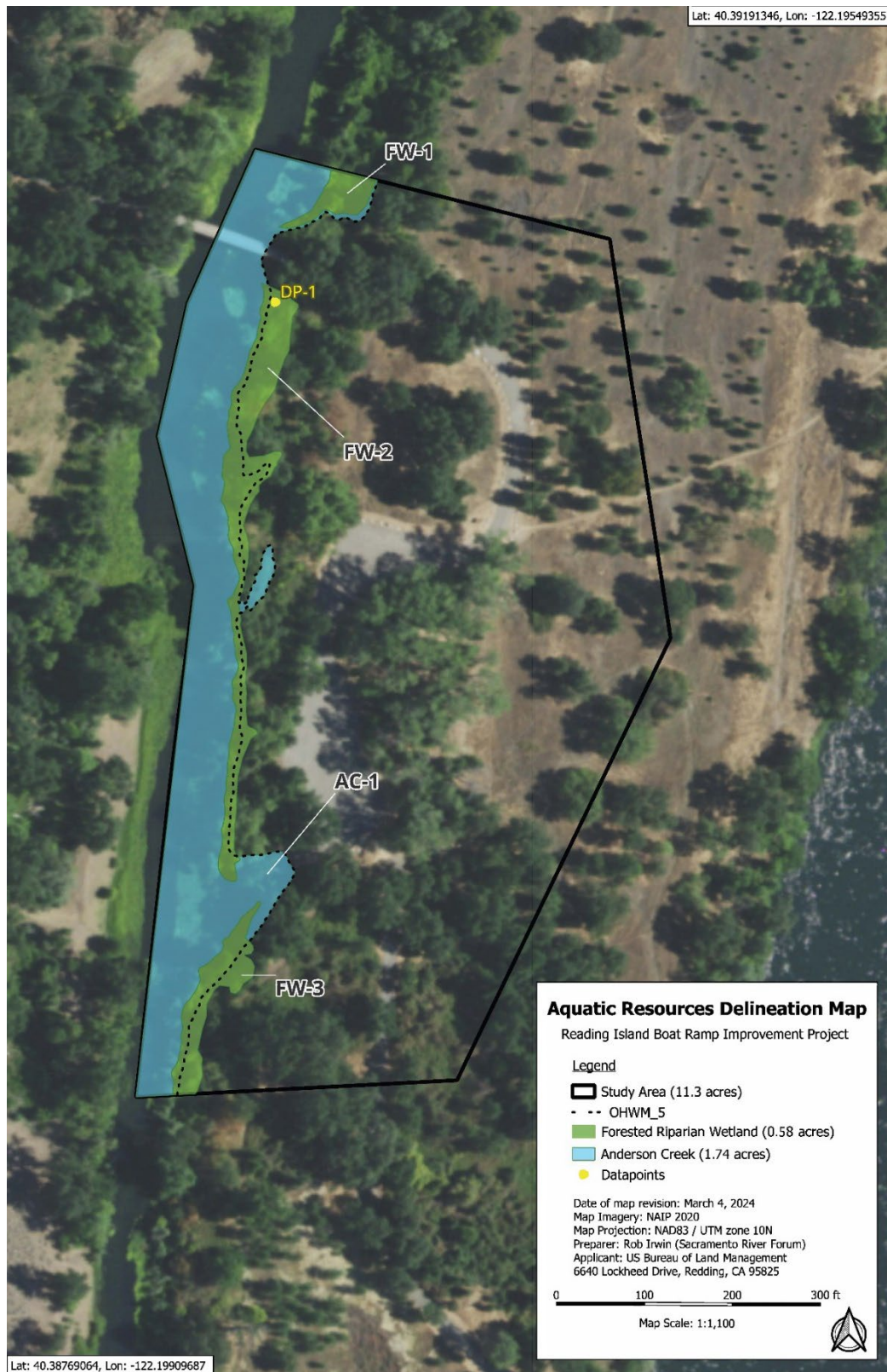
3.5 Resource Issue 5. Biological Resources – Wetlands and Other Waters of the U.S and State

3.5.1 Affected Environment

The Sacramento River Forum prepared an aquatic resources delineation on February 2024 to delineate both waters of the U.S. and State that exist within the proposed action area (Appendix D). The study area included Reading Island and a portion of Anderson Creek for a total area of 11.3 acres (Figure 8). The western edge of the study area is the centerline of Anderson Creek, extending approximately 100 feet upstream of the Adobe Road bridge, and the southern end terminates about 100 feet downstream of the existing boat ramp. Methods followed the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (U.S. Army Corps of Engineers 2008). The wetland indicator status for plants followed the Arid West 2016 Regional Wetland Plant List (Lichvar et al. 2016).

Potentially jurisdictional wetlands and other waters of the U.S. and State within the study area were identified, quantified, and mapped. Aquatic resources within the study area include palustrine and riverine environments. Delineated palustrine environments consist of a forested riparian wetland found along the bank of Anderson Creek, and delineated riverine environments consist of a perennial stream (Anderson Creek). A total of 0.58 acre of potentially jurisdictional wetlands (forested riparian wetland) and 1.74 acres (1,230 linear feet) of perennial stream (Anderson Creek) were identified within the study area (Figure 8). These delineated jurisdictional wetland and perennial stream habitats are considered both potential waters of the U.S. and State.

Figure 8. Wetland Delineation Map



3.5.2 Environmental Impacts

3.5.2.1 Environmental Impacts—Proposed Action

Activities associated with the proposed excavation of the boat ramp launch area and installation of the boat dock would result in temporary impacts to both perennial stream and forested riparian wetland habitats. Vegetation removal and trimming along the boat ramp would result in additional temporary impacts to forested riparian wetland habitat. Proposed activities are anticipated to result in impacts to approximately 0.2 acre of perennial stream channel and less than 0.1 acre of jurisdictional riparian wetland habitat. These temporary impacts to the perennial stream channel would be negligible and would restore that portion of the stream channel by removing non-native invasive aquatic vegetation and the substrate that it needs to establish itself. The minimal impacts to riparian and wetland habitat would be similar to existing vegetation maintenance activities. In addition, BIO-1 and water quality measures included in WQ-1 and WQ-2 (refer to Section 2.1.12, “Project Design Features and Construction Best Management Practices”) would further minimize potential impacts to perennial stream and riparian wetland habitats. Impacts would be less than significant.

3.5.2.2 Environmental Impacts—No Action

Under the no action alternative, BLM would continue to conduct vegetation maintenance, including the trimming of riparian vegetation. The boat ramp would remain silted in, and no excavation would occur in Anderson Creek.

3.5.2.3 Cumulative Effects

Vegetation management as part of routine maintenance activities are the only known activities that could affect riparian wetlands at Reading Island. This activity would not occur at the same time as the proposed action, would be short-term in nature, and would occur on an intermittent basis. These activities combined with the proposed action would not result in a cumulatively considerable effect.

3.6 Resource Issue 6. Hydrology

3.6.1 Affected Environment

Hydrology in Anderson Creek is affected by Sacramento River flows via approximately 11,500 linear feet of a restored side channel extending approximately 1.3 miles upstream of the Reading Island Boat Ramp, with the side channel inlet located approximately at river mile (RM) 275. Flows in the upper Sacramento River (Shasta Dam to RM 243) are controlled by the releases from Shasta and Keswick Dams and vary by season and year. Generally, surface water elevations increase on the Sacramento River during summer to meet water delivery and environmental quality demands, and peak flows occur during flood events.

3.6.2 Environmental Impacts

3.6.2.2 Environmental Impacts—Proposed Action

The proposed action includes negligible expansion of the existing parking lot with the construction of two ADA-compliant parking spaces and a walkway. An additional small concrete

footprint may be constructed if a permanent restroom is installed. The additions of these impervious surfaces at the existing or proposed ADA-compliant grade of less than 2% would not have the potential to alter the existing drainage pattern in a manner that would result in substantial erosion or siltation or increase the rate or amount of surface runoff. Impacts of the new parking spaces, walkway, and potential restroom pad to hydrology would, therefore, be less than significant.

The new dock and gangway would be installed to restore the dock and gangway that historically existed at the boat ramp. The floating dock would be placed over the existing piles to allow the dock to rise and fall with changing flows in the creek and remain in place year-round. The gangway would be anchored to the existing boat ramp abutment and would also rise and fall with changing flows in the creek. Because of their location and ability to rise and fall with changing flows, and because facilities maintenance would include regular inspection and removal of any racked debris, the dock and gangway would not alter the existing drainage pattern of the site and would not impede or redirect flood flows. Impacts of the boat ramp and gangway to hydrology would, therefore, be less than significant.

If constructed, the permanent restroom would be similar to the existing restroom located at the group camping site and would be designed to withstand flood events. The permanent structure would have the potential to redirect flood flows around it, but not in a manner that would result in substantial erosion, siltation, or flooding. Impacts of the potential permanent restroom to hydrology would, therefore, be less than significant.

3.6.2.2 Environmental Impacts—No Action

Under the no action alternative, no new impervious surfaces or permanent structures would be installed at Reading Island and no changes in existing hydrology would occur.

3.6.2.3 Cumulative Effects

The effects of installing new impervious surfaces and a potential permanent restroom would be negligible on existing hydrology. No other improvements are proposed at Reading Island, so no cumulative effects would occur.

3.7 Resource Issue 7. Water Quality

3.7.1 Affected Environment

Water quality in Anderson Creek is affected by Sacramento River flows via the restored side channel just upstream of the Reading Island Boat Ramp. Sacramento River water quality upstream of Reading Island is influenced by rainwater and snowmelt releases from Shasta and Keswick Dams, and human activities including historic mining, agricultural, and municipal and industrial land use. Turbidity is greatest in the Sacramento River during high flow events. Anderson Creek water quality is also potentially affected by runoff from adjacent agricultural and industrial lands that border the creek for its entire length.

3.7.2 Environmental Impacts

3.7.2.2 Environmental Impacts—Proposed Action

Proposed excavation of the boat launch area may result in temporary discharges from incidental fallback of sediment and other contaminants, potentially resulting in the temporary, indirect degradation of Anderson Creek water quality. Construction equipment used to excavate material from Anderson Creek, restore the width of the boat ramp, transport excavated material would require the use of gasoline or diesel fuel and engine oil, which could contaminate runoff entering Anderson Creek. Discharge of sediment or hazardous materials into Anderson Creek could violate water quality standards. However, implementation of a SWPPP or WQCP included in WQ-1 and implementation of a spill prevention and control plan in WQ-2 (refer to Section 2.1.12, “Project Design Features and Construction Best Management Practices”) would avoid or minimize these impacts to water quality. Adherence to the requirements of a general construction National Pollutant and Discharge Elimination System permit from the CVRWQCB and applicable water quality certification permits pursuant to Section 401 of the Clean Water Act to prevent water quality pollutants (such as silt, sediment, hazardous materials, and construction-related fluids from entering receiving waters) would further minimize impacts. Because of these efforts, the proposed action would not violate water quality standards, degrade surface water quality, or conflict with or obstruct implementation of a water quality control plan. Therefore, the anticipated impacts would be less than significant.

3.7.2.2 Environmental Impacts—No Action

Under the no action alternative, regular maintenance activities would continue but no activities would occur within Anderson Creek.

3.7.2.3 Cumulative Effects

Temporary water quality effects associated with the proposed action would be short-term and would not be cumulatively considerable.

3.8 Resource Issue 8. Noise

3.8.1 Affected Environment

Noise impacts are typically described as the effect on noise-sensitive land uses that are located within hearing range of a noise-producing activity. These noise-sensitive land uses are referred to as sensitive receptors and include residences, schools, hospitals, child-care facilities, and other similar land uses where noise could affect health or safety. A sensitive receptor’s response to noise can vary depending on existing background (ambient) noises and the intensity, duration, frequency, and timing of the noise. In general, the more a noise exceeds the existing ambient noise level, intensity, duration, or frequency, the less acceptable the new noise will be, as judged by the exposed receptor.

The primary existing sources of noise in the vicinity of Reading Island include occasional vehicle traffic on Adobe Road, agricultural operations, boating on the Sacramento River, and noises commonly associated with a rural residential area.

Sensitive receptors in the vicinity of Reading Island include residences along Adobe Road. There are approximately 15 residences within one mile of the proposed action area.

3.8.2 Environmental Impacts

3.8.2.2 Environmental Impacts—Proposed Action

Shasta County does not have a noise ordinance but regulates construction hours through conditions of approval for local permits. The Noise Element of the Shasta County General Plan recommends an hourly noise level performance standard of 55 dB from 7:00 am to 10:00 pm, and a standard of 50 dB from 10:00 pm to 7:00 am, as measured 100 feet from a residence in rural areas. However, this performance standard applies to new (long-term) projects; a performance standard is not provided for construction noise (Shasta County 2004). The EPA noise level standards recommend that the noise level averaged over a 24-hour period should not exceed 70 decibels (dB).

Modifications to the entrance gate and work associated with connection to the existing power poles or solar panel would occur adjacent to two residences. Proposed modifications would require trenching and concrete-pouring activities, and large equipment may be required to install the new service poles. Distance would not attenuate construction noise, but this activity would occur during day-time hours, would be short-term in nature, and would not exceed the 24-hour noise level standards recommended by the EPA. The installation of a solar panel would require minimal ground disturbance and would not be generate excessive noise.

Anticipated heavy equipment required for implementation of the remaining elements of the proposed action each have construction-related noise emission values of 85 dB (U.S. Department of Transportation 2006). Boat ramp excavation would occur approximately 850 feet from the nearest residence. Shoulder improvements, including grading activities and gravel placement, would occur approximately 750 feet from the nearest residence. The remaining proposed activities would occur at a similar or further distance.

Noise levels are attenuated with every doubling of distance from the source. At a distance of 750 feet from the 85 dB source, outdoor noise levels would be reduced to approximately 61 dB (WKC Group 2024). This attenuation would result in noise levels well below the EPA noise standard because construction would only occur during daytime hours; when averaged over 24 hours, noise levels would be substantially lower. Noise levels would be further attenuated by numerous large oak trees that exist between the construction areas and the residences and would be lower indoors. Construction noise levels would be temporary, short-term, and would not exceed federal or local noise standards. Effects of construction noise on sensitive receptors would not be substantial and would result in a less than significant impact. After construction is complete, recreation traffic along Adobe Road may increase as a result of the improved boat ramp and facilities. Noise levels from vehicles accessing the boat ramp area are not anticipated to increase substantially above existing conditions and would result in a less than significant impact.

3.8.2.2 Environmental Impacts—No Action

Under the no action alternative, no construction would occur at Reading Island. Existing facilities would remain in the same condition, and recreation use levels and associated traffic would not be expected to increase.

3.8.2.3 Cumulative Effects

Construction noise would be short-term and would not be cumulatively considerable when combined with existing local noise sources because of the distance of the proposed action from those noise sources and the distance from the nearest sensitive receptors.

3.9 Resource Issue 9. Recreation

3.9.1 Affected Environment

Reading Island is situated between Anderson Creek and the Sacramento River and consists of approximately 49.5 acres extending south to the confluence with Anderson Creek and the Sacramento River. The property is owned and managed by BLM and provides public access for hiking, fishing, camping, and small watercraft access to Anderson Creek. The property includes a boat ramp located on the east bank of Anderson Creek and a group campground, trails, and restroom near the confluence of Anderson Creek and the Sacramento River.

The existing boat ramp was constructed in 1966 providing boat access to Anderson Creek and the Sacramento River. The boat ramp consisted of a concrete ramp, piles, floating dock, and parking area. In the late 1990's the floating boat dock that was attached to the boat ramp was damaged and removed, and boating access was further restricted by the presence of invasive aquatic vegetation across Anderson Creek and sediment accumulation within Anderson Creek and the boat launch area. Vegetation along the boat ramp has not been maintained and is encroaching on the boat ramp. In 2019, a historic side channel connecting flows from the Sacramento River to Anderson Creek was excavated upstream of the boat ramp increasing flows to Anderson Creek. Increased flows have resulted in a reduction of invasive aquatic vegetation and flushing of sediment, subsequently improving the potential for restored boat access to the boat ramp, especially for motorized boats.

As a result of the existing condition of the property and the much-needed improvements, Reading Island does not receive many visitors other than local use. The primary current use of the property includes day use of the hiking trail that leads from the boat launch parking area to the confluence with the Sacramento River, and occasional fishing along the shore of Anderson Creek and the Sacramento River. The group campground is available for use under a special use permit from BLM but is not often used.

3.9.2 Environmental Impacts

3.9.2.1 Environmental Impacts – Proposed Action

Under the proposed action, improvements would enhance recreational opportunities at Reading Island and improved compliance with ADA accessibility requirements. There are other existing boat ramps along the Sacramento River in the vicinity of Reading Island, including a private boat

ramp located approximately 1.6 miles downstream and a primitive boat launch area approximately 3.3 miles downstream. However, the closest public developed boat ramps are located approximately 2.3 miles upstream and 16.3 miles downstream. The rehabilitation of the boat ramp would provide an additional public developed boat access point to this reach of the Sacramento River.

Proposed improvements of the boat ramp, associated parking area, and access road (i.e. entrance gate, gravel shoulders) and the addition of restrooms would require the property to be temporarily closed during construction, resulting in a minor, short-term and temporary impact to recreation. Because existing use of Reading Island is low, this temporary closure is not expected to result in the displacement of recreationists to a level that would cause other recreational facilities to experience physical deterioration from overuse. Following completion of the temporary construction period, the recreational improvements would result in long-term beneficial impacts to recreational opportunities at Reading Island. Proposed improvements described above were designed to accommodate the anticipated increased use in response to those improvements. Therefore, overall impacts to recreation would be less than significant.

3.9.2.2 Environmental Impacts – No Action

Under the No Action Alternative, the boat ramp and associated parking area and access road would continue to deteriorate and result in a negative impact to recreation.

3.9.2.3 Cumulative Effects

The proposed action would result in an overall benefit to recreation.

3.10 Resource Issue 10. Construction and Recreation Traffic

3.10.1 Affected Environment

Interstate-5 (I-5) is the only major transportation route in the vicinity and is located approximately 5 miles west of the proposed action area. Balls Ferry Road is a major arterial that connects to I-5 via 4th Street in the town of Cottonwood. Balls Ferry Road extends approximately 9 miles along the east side of I-5 from the town of Cottonwood to the town of Anderson, which is also used to access the Balls Ferry Fishing Access and Boat Ramp, located on the Sacramento River approximately 2.3 miles upstream of Reading Island. Traffic from both Cottonwood and Anderson utilize Balls Ferry Road to access Adobe Road, a local road that is used to access Reading Island.

Adobe Road is a two-lane rural residential road which extends approximately 2.5 miles from Balls Ferry Road and terminates at Reading Island. Existing traffic along Adobe Road is limited and associated with local residences, agricultural activities, and recreation use at Reading Island. The roads in the vicinity of the proposed action area are commonly used by large farm equipment and heavy-duty vehicles for agricultural operations with no bicycle or pedestrian facilities such as crosswalks or designated bicycle lanes.

The section of Balls Ferry Road that connects to Adobe Road is identified within Region 20 of the Shasta Regional Transportation Authority's 2006 Southern Region Transportation Planning

Study and Traffic Impact Fee Program (Shasta County. 2006). The purpose of that study was to identify transportation improvement needs based on future traffic volume forecasts from development within the County's southern region. The closest roadway improvements identified within Region 20 are located on the westside of I-5, approximately 6 miles from the proposed action area.

3.10.2 Environmental Impacts

3.10.2.1 Environmental Impacts – Proposed Action

Construction-related travel to and from the proposed action area would result in temporary increases in traffic on Balls Ferry Road and Adobe Road, with the increases attributed to heavy-duty trucks and equipment transport at the start and end of construction (refer to Appendix B and Appendix C). Construction equipment and materials would be mobilized to the site prior to construction and off-site upon completion, which may require temporary traffic control on Adobe Road; however, no road closures are anticipated. Temporary increases in traffic during construction would be minimal.

Completion of the proposed improvements at Reading Island, including the proposed additional parking spaces, would likely result in increased use at Reading Island. Proposed improvements are not anticipated to impact traffic on Balls Ferry Road but could increase the number of vehicles traveling on Adobe Road to access Reading Island. However, the impacts on transportation and traffic would be minor because the number of vehicles would be limited by the size of the parking lot and the new programmed entrance gate. Traffic from vehicles accessing Reading Island is not anticipated to increase substantially above existing conditions and would result in a less than significant impact.

3.10.2.2 Environmental Impacts – No Action

Under the No Action Alternative, recreation facility improvements would not occur so no temporary or permanent increase in recreation traffic on Adobe Road would be expected to occur.

3.10.2.3 Cumulative Effects

Construction-related traffic would be greatest at the start and end of construction. It is possible that other projects implemented at the same time may also use Balls Ferry Road or Adobe Road, but the addition of the small number of vehicles associated with implementation of the proposed action would be temporary and would not result in a cumulatively considerable effect on traffic.

Traffic associated with increased recreation use levels at Reading Island would increase traffic along Adobe Road. However, the increase would be limited by the number of parking spaces available. Because of this limitation, a cumulatively considerable effect would not occur.

4.0 Consultation, Coordination and Public Participation

This chapter describes consultation, coordination, and public participation that occurred during the project planning process.

4.1 Consultation and Coordination

4.1.1 National Historic Preservation Act – Section 106

Section 106 of the NHPA requires federal agencies to consult with the State Historic Preservation Office (SHPO) when an action has the potential to affect historic properties. The proposed action would not affect known properties listed, or eligible for listing, on the National Register of Historic Places. SHPO consultation would be satisfied under the 2019 California BLM State Protocol Agreement, Stipulation 7.1 (U.S. Bureau of Land Management 2019b).

4.1.2 Tribal Consultation

Assembly Bill (AB) 52 coordination is required when a tribe has requested that a CEQA lead agency consult with them for a specific geographic area. WSRCDC has not received notification requests pursuant to AB 52 that include the action area; therefore, AB 52 coordination is not required.

In compliance with Section 106 of the NHPA, project notification letters were sent to the following Tribes and groups on December 04, 2023: Cachil Dehe Band of Wintun, Grindstone Indian Rancheria, Paskenta Band of Nomlaki Indians, Pit River Tribe, Redding Rancheria, Round Valley Reservation, Winnemem Wintu Tribe, and the Wintu Tribe of Northern California and Toyon Center. The letters included information about the proposed action and invitations to consult and/or provide input about the proposed action and its potential to affect Native American Tribal and cultural values. The BLM further coordinated with the Redding Rancheria on June 20, 2024, and with the Paskenta Band of Nomlaki Indians on multiple dates in 2023 and 2024. Consultation between the BLM and these Tribes is ongoing and will continue through implementation of the proposed action, as appropriate, to ensure proper consideration and protection of Tribal and cultural values.

4.1.3 Federal Endangered Species Act – Section 7

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. BLM prepared a draft Biological Assessment and will initiate consultation with NOAA Fisheries to evaluate potential impacts on North American green sturgeon southern DPS, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and Central Valley DPS steelhead and their designated critical habitat.

4.1.3 California Endangered Species Act – Fish and Game Code Section 2080.1

If a species is listed as endangered or threatened under the federal ESA and listed as endangered, threatened, or candidate under CESA, Fish and Game Code section 2080.1 allows an applicant

who has obtained a federal incidental take statement (ESA Section 7 consultation) to request that the Director of CDFW find the federally authorize take consistent with CESA and issue a Consistency Determination. The Sacramento River winter-run and Central Valley spring-run Chinook salmon are both considered State and federal listed species. Following comments received from CDFW as part of the administrative draft EA/IS review, a meeting with CDFW staff took place to discuss potential impacts to these two species. CDFW-recommended measures were included as part of the proposed action to avoid take of State-listed salmonids. Therefore, take of a State-listed species is not anticipated and a CESA Consistency Determination will not be necessary.

4.2 Public Participation

A fact sheet and public scoping letter for the proposed action was posted to BLM's eplanning website for a 30-day public participation period that ended October 16, 2023 (U.S. Bureau of Land Management 2023). The public was invited to submit comments that expressed support or opposition of the proposed action, described how they used the area now and how they might use it in the future when improved, and/or identified specific elements they would like to see included in the proposed action. BLM received six comments in support of the proposed action, two comments in support of the proposed action but expressing concerns, two comments in opposition of the proposed action, and two comments expressing concerns. Concerns were related to the potential for increased fire risk, vandalism and other illegal activities, future deterioration of the facilities, increased traffic and wildlife collisions along Adobe Road, increased nighttime activities, and potential damage to property along Adobe Road. Concern was also expressed about appropriate environmental protections during construction and during public use. Coordination with landowners along Adobe Road is ongoing to discuss and resolve concerns, where feasible.

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7.0 Acronyms and Abbreviations

AB	Assesmbly Bill
ACEC	Areas of Critical Environmental Concern
ADA	Americans with Disabilities Act
BLM	U.S. Bureau of Land Management
BMP	best management practice
CAAQS	California ambient air quality standards
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESQC	California Endangered Species
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CO ₂ e	carbon dioxide equivalents
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CY	cubic yards
DBH	diameter at breast height
DPS	distinct population segment
EA/IS	Environmental Assessment/Initial Study
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ESA	Federal Endangered Species Act
ESU	Evolutionary Significant Unit
FGC	Fish and Game Code
FONSI	finding of no significant impact
GHG	greenhouse gas
I-5	Interstate 5
IPaC	Information Planning and Consultation tool
lbs/day	pounds per day

MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
NAAQS	National ambient air quality standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
OHWM	ordinary high water mark
PLO	Public Land Order
PM ₁₀	particulate matter less than 10 microns in aerodynamic diameter
proposed action	Reading Island Boat Ramp Improvement Project (proposed action)
RMP	Redding Resource Management Plan
ROG	reactive organic gases
ROW	right-of-way
SCAQMD	Shasta County Air Quality Management District
SHPO	State Historic Preservation Office
SWPPP	stormwater pollution prevention plan
USFWS	United States Fish and Wildlife Service
VRM	visual resource management
WSRCD	Western Shasta Resource Conservation District