Infrastructure Project Application

Sites Reservoir Project

September 27, 2023

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1.0 Project Background and Status

The Sites Project Authority (Authority) submits this application in accordance with California Public Resources Code (PRC) Division 13, Chapter 7, commencing with Section 21189.80. Specifically, this application is to support the Governor of California (Governor) in certifying the Sites Reservoir Project (Sites Reservoir or Project) as an infrastructure project under PRC Section 21189.82(a)(4)(A), and specifically as a "water-related project" under PRC Section 21189.80(h)(1)(B)(i).

The Project provides an unprecedented opportunity to expand the toolbox of measures to help the State maintain a resilient water supply in the face of climate change, weather extremes, and water scarcity. The Project will also help reduce the secondary effects of our weather extremes that impact every sector of our state from food availability, to employment, to physical and mental health of our citizens. Sites Reservoir is a unique multi-benefit water storage project that provides a resilient and reliable supply of water for California's environment, communities, and farms during dry periods. The Project would capture and store water from the Sacramento River during high flows—after all other water rights and regulatory requirements are met— and make that water available to California's environment, communities, and farms when it's most needed – especially during times of drought. With a potential capacity of approximately 1.5 million acre-feet, Sites can store the excess stormwater without the need to dam any major river or block fish migration. California can and must utilize all tools in our collective and vast toolbox of measures to adjust and continue to prosper as people, for our businesses and especially for our rich and diverse ecosystems.

An overview of the Authority, the Project and its schedule are provided below. Chapter 2 provides an overview of PRC section requirement applicable to the Project followed by a description of how the Project complies with the requirement.

1.1 Sites Project Authority

The Authority, previously known as the Sites Joint Powers Authority, was formed as a California joint powers authority pursuant to state law on August 26, 2010. The mission of the Authority is to build and operate a climate-resilient, twenty-first-century water storage system to responsibly manage and deliver water, provide environmental benefits, and provide flood control and recreation benefits. The Authority would be responsible for all aspects of ownership and operations of the Project and Project facilities that are not currently owned by another entity (such as the Bureau of Reclamation [Reclamation] or the Glenn-Colusa Irrigation District [GCID]).

The Authority currently is composed of the following public entities located and operating in the Sacramento Valley—City of Sacramento/Sacramento County Water Agency (share a seat), Colusa County Water District, County of Colusa, County of Glenn, GCID, Placer County Water Agency/City of Roseville (share a seat), Reclamation District 108, Tehama-Colusa Canal Authority (TCCA), and Westside Water District. Reclamation and the California Department of Water Resources (DWR) are ex-officio, nonvoting members. Western Canal Water District and TC 4 Districts (Cortina, LaGrande, Davis and Dunnigan) are associate, nonvoting members.

Twenty-two public water agencies currently comprise the Authority's Reservoir Committee. Reservoir Committee members, also referred to as Storage Partners, would provide funding for the Project's construction and operations and would receive water supply benefits from the Project. Reclamation is a nonvoting member of the Reservoir Committee and is planning to provide funding for the Project and

receive water supply benefits dedicated to specific purposes such as environmental enhancement and wildlife refuges. DWR, which manages the State Water Project (SWP) on behalf of the State of California, is also a nonvoting member of the Reservoir Committee.

The State of California would provide Water Storage Investment Program (WSIP) funding through the California Water Commission (CWC) for the Project and receive ecosystem, recreation, and flood control benefits from the Project. It is anticipated that DWR would administer the benefit agreements on flood reduction and recreation and that the California Department of Fish and Wildlife (CDFW) would administer the benefit agreement for ecosystem improvements.

The Authority has worked extensively to address stakeholders' concerns about the Project. Substantial adjustments have been made to the Project facilities to utilize existing facilities to the greatest extent possible and eliminate the most environmentally damaging and least cost-effective facilities. The Authority has made substantial adjustments to the criteria under which the Project would divert water from the Sacramento River to make these criteria much more stringent, protective of aquatic resources, and based on recent and best available science. These adjustments were reflected in our 2021 Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) with additional adjustments included in our upcoming Final EIR/EIS (expected in October 2023). The Authority believes that the Project, as will be considered for approval by the Authority's Board in November, best balances the concerns of stakeholders while retaining the Project's economic feasibility.

1.2 Project Description

The Project would involve the construction, operation, and maintenance of an offstream surface water reservoir to provide direct and real benefits to instream flows, the Sacramento-San Joaquin Delta (Delta) ecosystem, and water supply reliability. The reservoir inundation area would be in rural, unincorporated areas of Glenn and Colusa Counties, and Project components would be located in Tehama, Glenn, Colusa, and Yolo counties. Figure 1 show the reservoir footprint, towns, and smaller creeks in the Project Area. A summary of the Project is provided below and a detailed description of the Project from the upcoming Final EIR/EIS is provided as Attachment A.

The Project would use existing infrastructure to divert unregulated and unappropriated flow from the Sacramento River at Red Bluff and Hamilton City and convey the water to a new offstream reservoir west of the community of Maxwell, California. New and existing facilities would move water into and out of the reservoir. Releases from Sites Reservoir would be used locally, be conveyed to the Yolo Bypass for ecosystem benefits, or ultimately return to the Sacramento River system via existing canals and a new pipeline located near Dunnigan. Water released from the reservoir would be used to benefit local, state, and federal water use needs, including public water agencies, anadromous fish species in the Sacramento River watershed, wildlife refuges and habitats, and the Yolo Bypass to help supply food for delta smelt (*Hypomesus transpacificus*). The Authority would own and operate all newly constructed Project facilities that are not already owned by another entity. There are currently 22 Storage Partners representing local and regional water delivery agencies that serve over 24.5 million people and over 500,000 acres of farmland that are paying for the Project and would receive the resulting water supply benefits. Figure 2 shows the service areas of Storage Partners in the Project. In addition, the State of California and Reclamation are also participating in the Project as Storage Partners.

Construction of the Sites Reservoir would necessitate construction of a bridge or bypass road to connect Maxwell with the community of Lodoga. Additional components would include development of new recreation facilities at the reservoir.

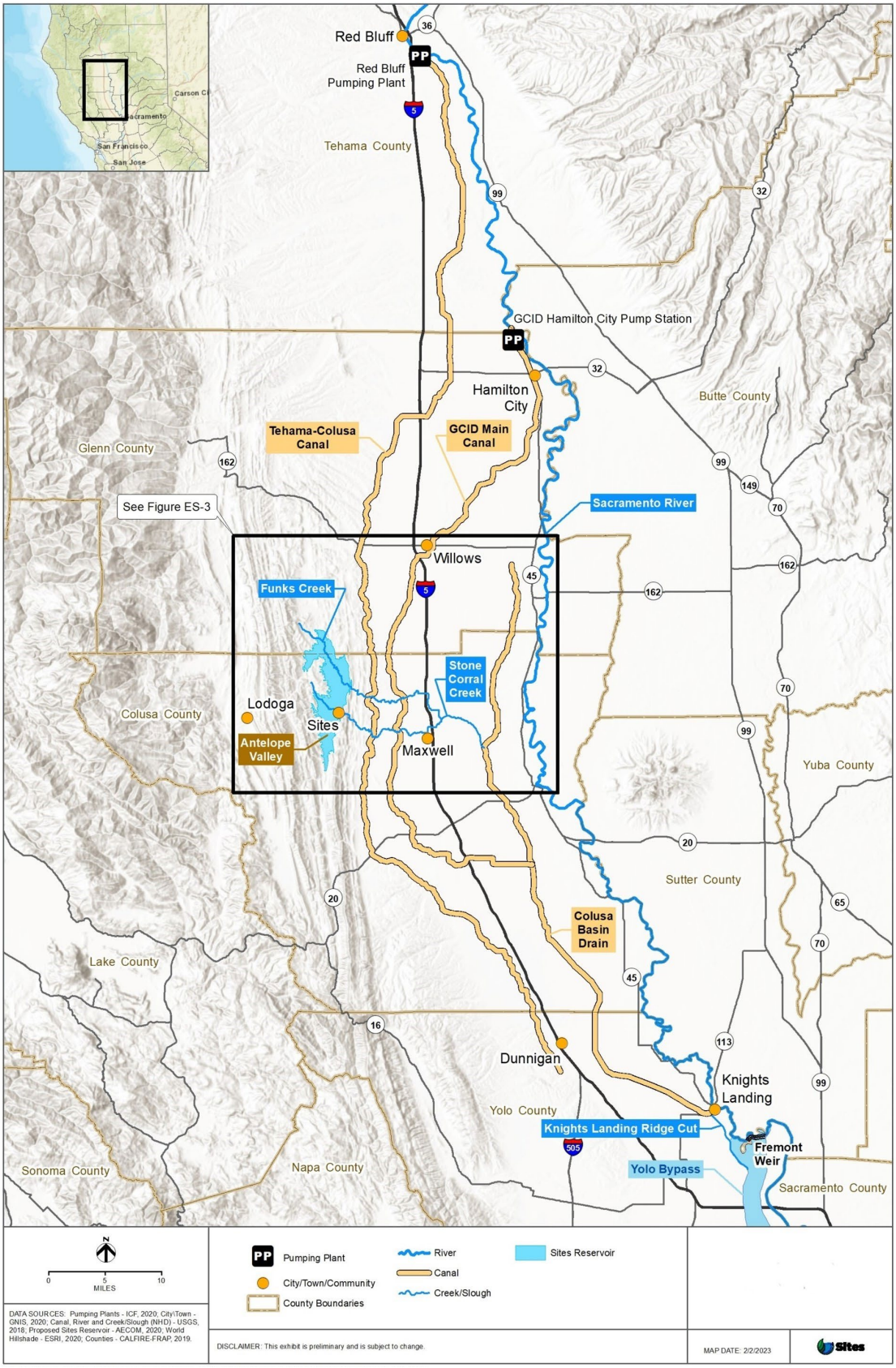

Figure 1. Project Vicinity Map

Figure 2. Sites Project Storage Partners Service Areas

Three action alternatives were analyzed in the 2021 RDEIR/SDEIS. These three alternatives have many common elements, including the use of existing infrastructure to divert unappropriated flow from the Sacramento River, the release of Sites Reservoir water back to the Sacramento River when needed, and the construction of two new recreation areas and a boat ramp. Table 1 provides an overview of the three action alternatives. Due to both the additional anadromous fish benefits of the Project and the increased availability of federal funding for infrastructure projects, Alternative 3 is the Authority's preferred alternative and is the proposed project under CEQA.

Table 1. Defining Characteristics of the Sites Reservoir Project Alternatives Considered in the 2021 RDEIR/SDEIS and Upcoming Final EIR/EIS

Project Element	Alternative 1	Alternative 2	Alternative 3 Authority Preferred Alternative
Sites Reservoir Size	1.5 MAF	1.3 MAF	Same as Alternative 1
Inundation Area	13,200 acres	12,600 acres	Same as Alternative 1
Dams (scaled to the size of the reservoir)	Golden Gate and Sites Dams; 7 saddle dams; 2 saddle dikes	Golden Gate and Sites Dams; 4 saddle dams; 3 saddle dikes	Same as Alternative 1
Route Connecting East and West Sides of Reservoir	Permanent bridge crossing the reservoir	Paved roadway along south side of reservoir	Same as Alternative 1
Regulating Reservoirs	Funks Reservoir TRR East	Funks Reservoir TRR West	Same as Alternative 1
Conveyance Releases	Releases 1,000 cfs into new Dunnigan Pipeline discharging into the CBD	Releases of up to 1,000 cfs into new Dunnigan Pipeline discharging into the Sacramento River with partial discharge into the CBD	Same as Alternative 1
Releases into Funks Creek and Stone Corral Creek	Specific flow criteria to maintain flows to protect downstream water right holders and ecological function	Same as Alternative 1	Same as Alternative 1
Reclamation Involvement	Two options: • Operational exchanges[1] only (Alternative 1A); or • Funding partner (up to 7% investment) with operational exchanges[1] (Alternative 1B)	Operational exchanges[1] only	Funding partner (up to 25% investment) with operational exchanges[1]
DWR Involvement	Operational Exchanges with Oroville and use of SWP facilities South-of-Delta	Same as Alternative 1 (volumes may vary, however)	Similar to Alternative 1 (volumes may vary, however)

Notes: CBD = Colusa Basin Drain; cfs = cubic feet per second; MAF = million acre-feet; SWP = State Water Project; TRR = Terminal Regulating Reservoir

[1] Operational exchanges could include within-year exchanges and real-time exchanges and assist in providing anadromous fish benefits in the upper Sacramento River.

Key Project facilities are shown in Figure 3 and 4 and include:

- Improvements to and use of the existing Red Bluff Pumping Plant (RBPP), existing Tehama-Colusa (TC) Canal, existing Hamilton City Pump Station, and existing GCID Main Canal for the diversion and conveyance of water from the Sacramento River.

- Construction of facilities to control the conveyance of water between Sites Reservoir, TC Canal, and GCID Main Canal. These facilities would include regulating reservoirs, pipelines, pumping generating plants, electrical substations, and maintenance buildings.

- Construction of two main dams, the Golden Gate Dam on Funks Creek and the Sites Dam on Stone Corral Creek. A series of saddle dams and saddle dikes along the northern and eastern rims of the reservoir to close off topographic saddles in the surrounding ridges.

- Construction of a new pipeline (the Dunnigan Pipeline) to convey water from the new reservoir to the Colusa Basin Drain and the Yolo Bypass or Sacramento River.

- Development of two primary recreation areas and a day-use boat ramp. The recreation areas would also require a network of new roads and upgrades to existing roads for maintenance and local access. These areas would provide multiple recreational amenities, including campsites, boat access, horse trails, hiking trails, and vista points.

- Construction of new paved and unpaved roads to provide construction and maintenance access to the new facilities, as well as public access to the recreation areas. Construction of a new bridge across the reservoir to provide local and regional access from Maxwell to/from Lodoga and locations to the west.

Key Project operations and maintenance elements include:

- **Water Operations** – The Project would provide water supply and water supply-related environmental benefits to the Storage Partners. Water would be diverted from the Sacramento River at the existing RBPP through the TC Canal into the existing Funks Reservoir and at the GCID Hamilton City Pump Station through the GCID Main Canal into a new Terminal Regulating Reservoir (TRR). From the existing Funks Reservoir and a new TRR, the water would be pumped into the new Sites Reservoir. Diversions could occur between September 1 and June 14, which corresponds with the period that the Sacramento River is not fully appropriated. Diversions would occur only when the diversion criteria are met. Water would be held in storage in the reservoir until requested for release by a Storage Partner. Water releases would generally be made from May to November but could occur at any time of the year depending on the Storage Partner's need and system conveyance capacity. Water would be released from Sites Reservoir back into a TRR or back into Funks Reservoir. Water released could be used along the GCID Main Canal, along the TC Canal, or conveyed to the new Dunnigan Pipeline and discharged to the Colusa Basin Drain and conveyed via the Sacramento River or the Yolo Bypass to a variety of locations in the Delta and south of the Delta. Operations would be coordinated with Reclamation and DWR to prevent conflicts with the Central Valley Project (CVP) and SWP. Exchanges of water may occur with the CVP to provide anadromous fish benefits in the upper Sacramento River through maintenance of the cold-water pool in Shasta Reservoir longer into the summer and fall, enhancement of spring pulse releases from Shasta Reservoir, and stability of flows in Sacramento River in the fall. Exchanges may also occur with the SWP.

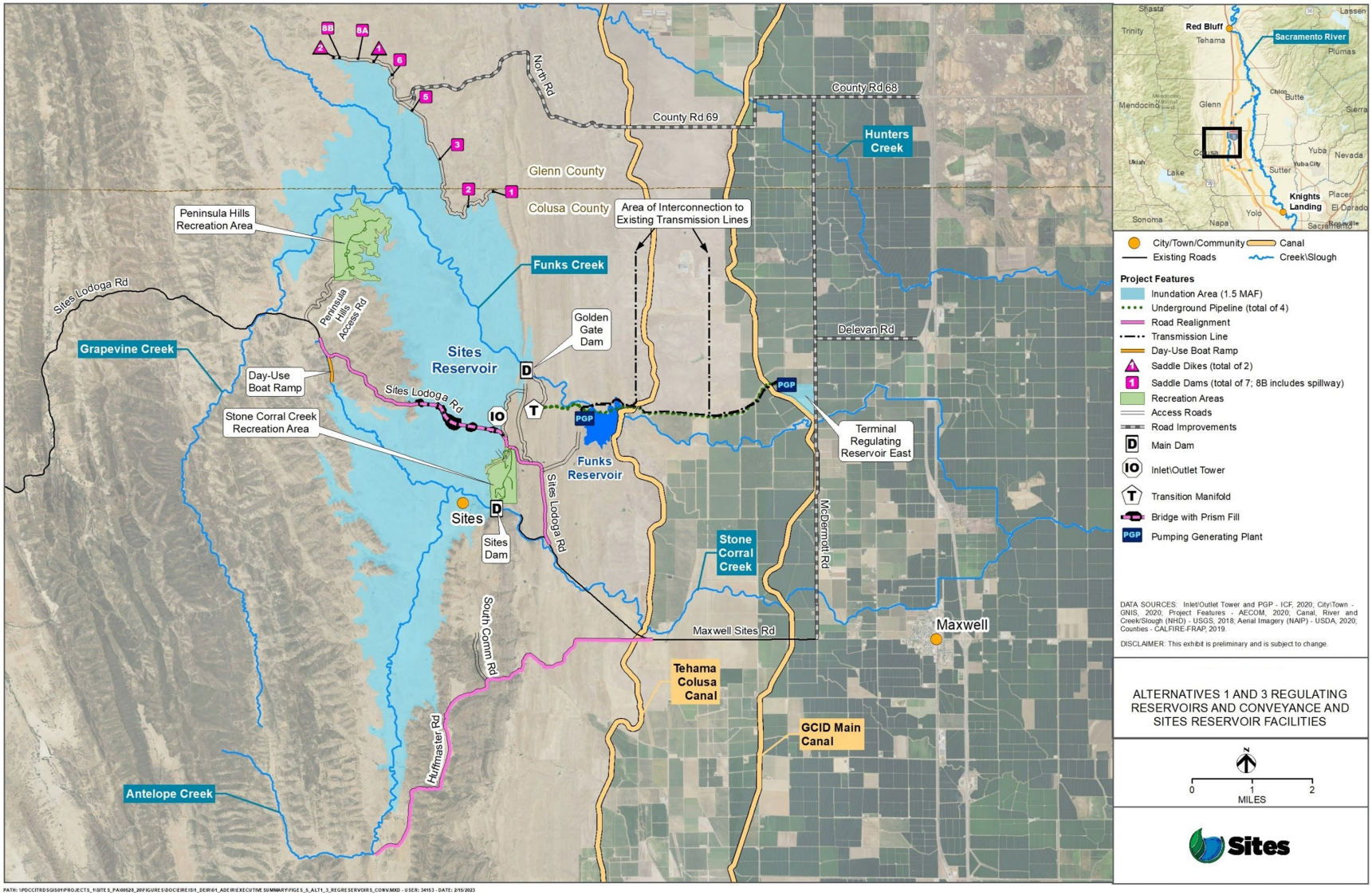

Figure 3. Sites Project, Reservoir-Related Facilities

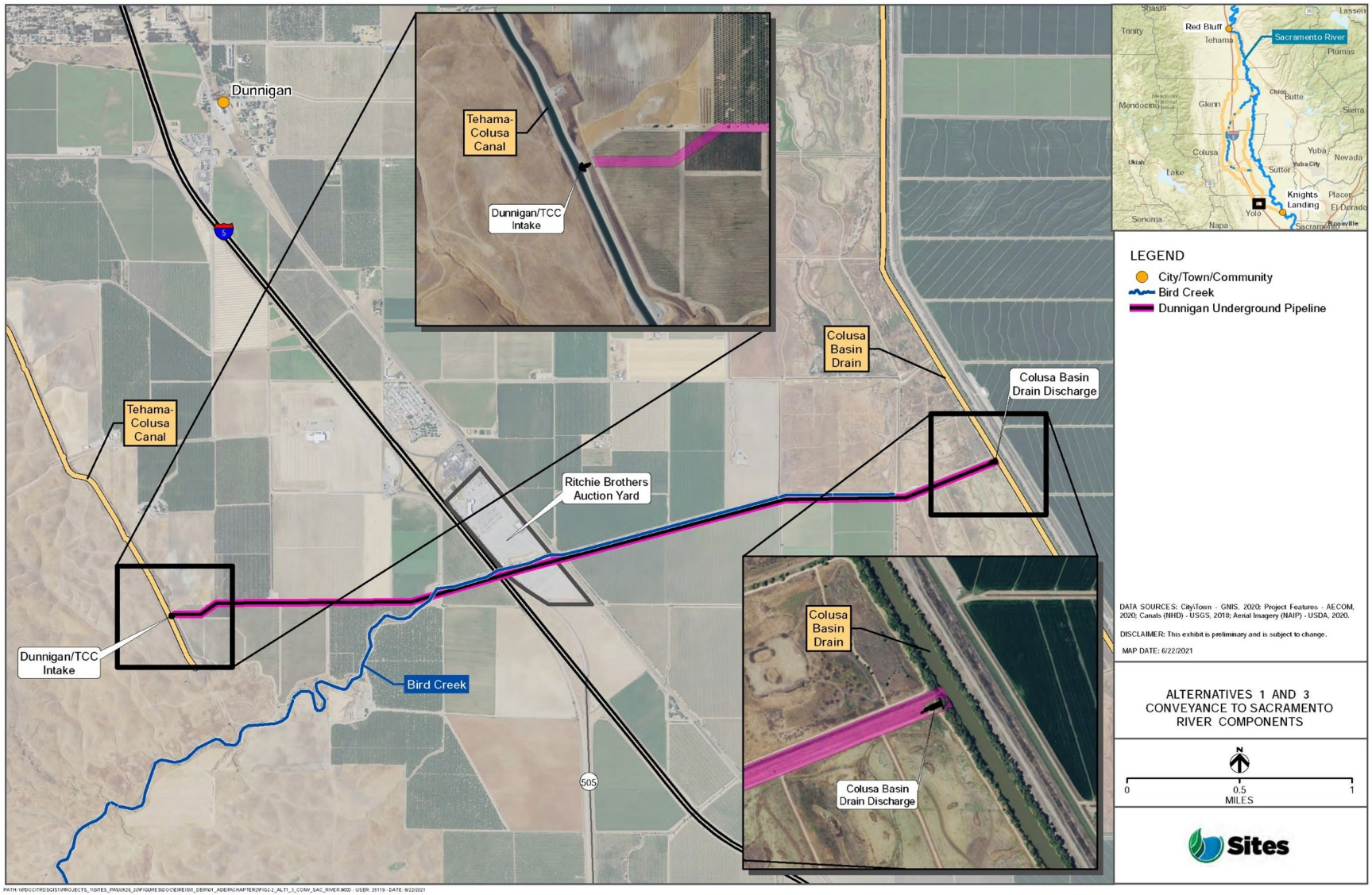

Figure 4. Sites Project, Facilities to Convey Water to the Sacramento River

- **Energy Generation and Energy Use** – The Project would need power to run facilities and pump water but would also generate incidental power when water is released from Sites Reservoir. The power needs for the Project beyond what could be generated by its operations would be purchased from market sources. The goal would be to purchase at least 60% from renewable, carbon-free sources from the start of operations to 2045, and to purchase 100% from renewable, carbon-free sources starting in 2045, if not sooner.

- **Facility Operations and Maintenance** – Operations and maintenance activities for all facilities, including recreation areas, would include debris removal, vegetation control, rodent control, erosion control and protection, routine inspections, painting, cleaning, repairs, and other routine tasks to maintain the facilities in accordance with design standards after construction and commissioning.

- **Best Management Practices, Management Plans, and Technical Studies** – Best management practices, management plans, and technical studies would be implemented as part of Project design, construction, and operation/maintenance.

1.3 Project Status and Schedule

The Authority continues to make progress in the planning, permitting, engineering, land acquisition, construction, and financing components of the Project. A summary of the Project schedule is provided in Figure 5. Key progress on Project activities is summarized below.

- **Environmental Planning** – Environmental planning efforts are well underway. The Authority as the California Environmental Quality Act (CEQA) lead agency, working closely with Reclamation as the National Environmental Policy Act (NEPA) lead agency, released a joint Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) in November 2021. The comment period closed in January 2022. Since that time, the Authority and Reclamation have worked on addressing comments, preparing revised modeling with more stringent water diversion criteria, and reflecting updates and revisions in the Final EIR/EIS. The Authority and Reclamation anticipate releasing the Final EIR/EIS in October 2023. The Authority Board is currently expected to consider certification of the Final EIR/EIS and whether to adopt the Project at its November 17, 2023 meeting.

- **Permitting and Water Rights** – The Authority continues to make progress on all Project permits and the Project's water right application. The Authority recently submitted its Revised Construction Incidental Take Permit application to CDFW and anticipates submitting its Operations Incidental Take Permit application to CDFW in October 2023. The Authority submitted its water right application to the State Water Resources Control Board (State Water Board) in May 2022 along with supplemental materials in January 2023. The State Water Board recently noticed the Authority's application and the protest period closed on August 31, 2023. Fifteen protests were received on the application and the Authority is continuing efforts to work with protestants. Reclamation is the lead agency for the Project's Federal Endangered Species Act compliance and expects to initiate consultation later this calendar year. The Authority is also preparing its Clean Water Act Section 404 and 401 permit applications and expects to submit those to the U.S. Army Corps of Engineers and the State Water Board, respectively, later this calendar year. Overall key permitting activities are underway with most key permits expected to be received in calendar year 2024. Federal Endangered Species Act compliance is expected to be

completed in two steps, with the first completed in early 2024 and the second step completed in early 2025.

- **Engineering** – The Authority has completed feasibility level Project design activities. Geotechnical activities are underway to collect additional information to inform more detailed designs, with activities prioritized to those facilities on the Project schedule critical path. The current focus is generally on the construction access roads, dams, and associated material borrow areas. Roadway realignments and the bridge over the reservoir to ensure continued transportation route from the community of Maxwell to the community of Lodoga and areas to the west are also a high priority. Thirty percent level of design of Project facilities is underway and is being informed by on-going geotechnical field investigations.

- **Land Acquisition** – The Authority has entered into several Temporary Rights of Entry with private and public landowners for access to Project locations for the geotechnical activities. At this juncture no fee title acquisitions have been executed. These would be initiated upon the Storage Partners providing their final funding commitment sometime in 2025. Some early acquisitions may occur if available from a willing seller and dependent on providing an overall schedule benefit. There are about 30 individual landowners that retain fee title to the properties in the inundation area. The Authority conducts regular outreach with all affected landowners to maintain open lines of communication, provide updates on Project schedule and Project facility siting, and receive their feedback on Project activities.

- **Construction and Commissioning** – Currently, construction is anticipated to begin in early-2026 with roads and dam facilities comprising the initial construction efforts as these facilities have either the longest construction period (dams) or are necessary to access the dam locations and safely route local traffic around the construction locations. Construction of remaining facilities would have staggered start dates throughout the construction period. Construction and commissioning are expected to be completed in 2032 with the Project beginning full operations in 2033.

- **Financing** – Although not shown on the schedule, a substantial amount of effort is currently underway to establish Project financing. In March 2022, the Authority was invited by the U.S. Environmental Protection Agency (USEPA) to apply for what would be the largest Water Infrastructure Finance and Innovation Act (WIFIA) loan ever awarded by the USEPA. In March 2023, the Authority submitted its WIFIA application for an up to $2.6 billion loan for the Project and in June 2023, USEPA accepted the Authority's application. The Authority is currently working with USEPA on the terms and conditions of a Master Loan Agreement and anticipates the USEPA deciding on the loan in mid-2024. At its July 24, 2018, meeting, the CWC conditionally determined that the Sites Project was eligible for $816,377,686 in funding under Proposition 1 for ecosystem, flood control and recreation public benefits, subject to the Project completing the remaining legal requirements for funding. At its meeting on March 16, 2022, the CWC adjusted the maximum conditional eligibility determination for the Sites Project to $875,396,369. The Authority continues to work with CDFW, DWR, and the CWC to complete the necessary requirements and the final funding agreement in early 2025. In addition to these sources of funding, Reclamation has also expressed its interest in being an investor in the Project. Consistent with the requirements of the Water Infrastructure Improvements for the Nation Act, in December 2020, Reclamation completed and transmitted to Congress a final feasibility report for the Project. This final feasibility report notified Congress of the Secretary of the Interior's determination of feasibility for the Project. Currently, the Authority anticipates

completing all these financing efforts in late 2024/early 2025 in anticipation of construction commencing in early-2026. Further, the Authority is working with the 22 Storage Partners to complete the Benefits and Obligations Contract to secure revenues to repay any debt and to secure funding for ongoing operating, maintenance and replacement costs.

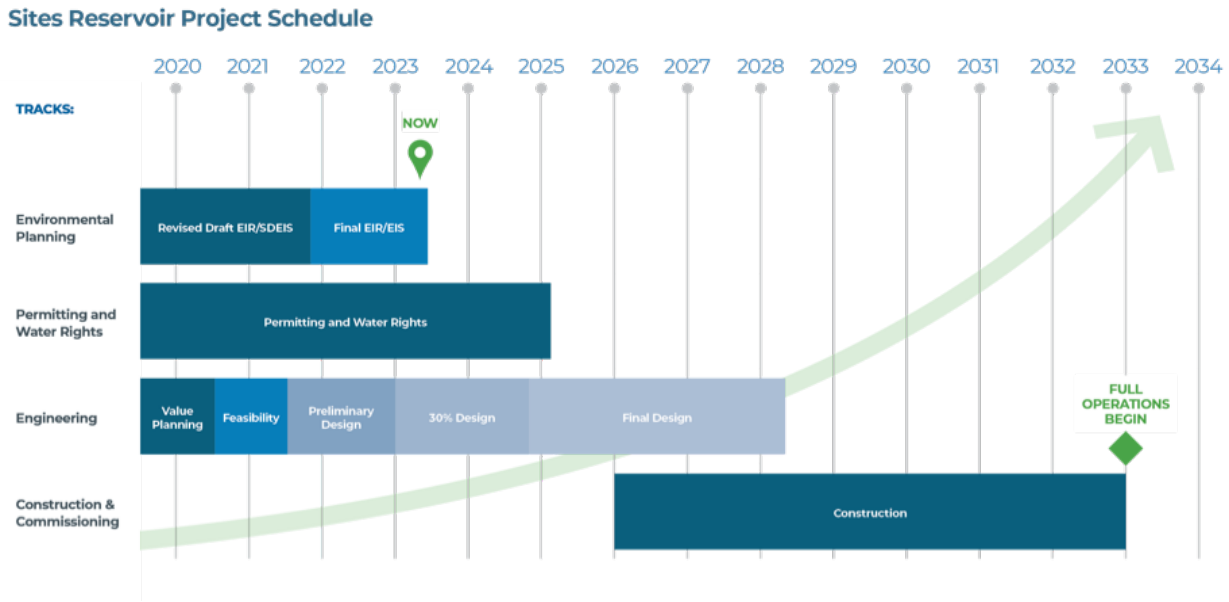

Figure 5. Project Schedule

2.0 Consistency with Statutory Requirements for Streamlining Under SB 149

This chapter summarizes each applicable section of the California Public Resources Code (PRC) as amended by Senate Bill 149, and describes how the Project complies with the requirements in the section. Additional supporting information is provided in attachments, as warranted.

2.1 Water-Related Project

PRC Section 21189.81(e)(4) defines the term "infrastructure project" to include a "water-related project." PRC section 21189.81(h)(1)(B)(i) defines a "water-related project" to include a "water storage project funded by the California Water Commission pursuant to Chapter 8 (commencing with Section 79750) of Division 26.7 of the Water Code."

The Sites Project qualifies as a "water-related project" under PRC Sections 21189.81(e)(4) & (h)(1)(B)(i). Chapter 8 of Division 26.7 of the Water Code, which was enacted by Proposition 1 and is part of the Water Quality, Supply, and Infrastructure Improvement Act of 2014, is administered by the CWC through WSIP. The CWC conducted an extensive and rigorous selection process that was open to the public from 2015 to 2018 to select water supply infrastructure projects that met the eligibility criteria and provided public benefits, such as flood control, ecosystem improvement, water quality improvement, emergency response, and recreation benefits. The selection process culminated in July 2018 when the CWC issuing maximum eligibility determinations for eight potential projects, including the Sites Reservoir Project, that would boost California water storage capacity by 4.3 million acre-feet.

At its July 24, 2018, meeting, the CWC conditionally determined that the Sites Project was eligible for $816,377,686 in funding under Proposition 1 for its flood control, ecosystem improvement, and recreation public benefits, subject to the Project completing the remaining legal requirements for funding. The CWC also approved up to $40,818,884 in early funding for the Sites Project and the Authority and CWC entered into an Early Funding agreement in June 2019. To date, early funding is approximately 95% spent.

The Authority has worked diligently towards completion of the requirements of Proposition 1 and associated regulations to receive its final WSIP funding award. In November 2021, the Authority completed the 2021 RDEIR/SDEIS pursuant to CEQA, provided a letter of commitment for 75% non-public costs share, and completed a feasibility study for the Project. Based on these milestones, at its meeting on December 15, 2021, the CWC determined the Project feasible. With this determination, the Project continues to be eligible for WSIP funding.

At its meeting on March 16, 2022, the CWC adjusted the maximum conditional eligibility determination for the Sites Project to $875,396,369. The Authority continues to work diligently towards completion of the legal requirements necessary for a final award hearing. The current schedule for the final award hearing is Spring 2025.

See Attachment B for key correspondence for the CWC to the Authority relative to the Project's WSIP funding.

2.2 Minimize Diversions Except During Times of Surplus and Prioritize the Discharge of Water for Ecological Benefits

PRC Section 21189.81(h)(1)(B)(ii) states that the project applicant for a water-related project "shall demonstrate that the project will minimize the intake or diversion of water except during times of surplus water and prioritizes the discharge of water for ecological benefits or to mitigate an emergency, including, but not limited to, dam repair, levee repair, wetland restoration, marshland restoration, or habitat preservation, or other public benefits described in Section 79753 of the Water Code."

The Authority is minimizing the Project's diversion of water except during times of surplus through its protective diversion criteria and proposed terms in its water right application submitted to the State Water Board. In addition, the Authority is prioritizing the discharge of water for ecological benefits through its beneficiary pays principle reflected in the Authority Board of Director's (Board) adopted Principles for the Storage, Delivery and Sale of Sites Reservoir Project Water (Storage Principles). The Project meets the requirements of this PRC section as described below.

2.2.1 Minimize Diversions Except During Times of Surplus

The Project includes several conditions that limit diversions of water to occur during times of surplus. These conditions include the following:

- Project diversions would only occur during the season that the Sacramento River is not fully appropriated (September 1 through June 14 of the following year).
- Flows in the Sacramento River exceed the following minimum diversion criteria for the protection of ecological health of aquatic resources including listed salmonids in the Sacramento River and Delta.
    - Bend Bridge Pulse Protection Criteria – Protection of all qualified precipitation-generated pulse events (i.e., peaks in river flow rather than scheduled operational events) from October to May based on predicted hydrology and monitoring to protect outmigration of juvenile salmonids. A qualified precipitation-generated pulse event is determined based on forecasted flows, and pulse protection may cease after 7 days or earlier if flows at Bend Bridge exceed 29,000 cubic feet per second (cfs) and Project diversions subtracted from Bend Bridge flows continue to be at least 25,000 cfs.
    - Minimum Bypass Flows in the Sacramento River at Wilkins Slough – Minimum bypass flows in the Sacramento River at Wilkins Slough is 10,700 cfs from October 1 to June 14; 5,000 cfs in September (no diversions to Sites Reservoir from June 15 to August 31). This criterion is based on recent science and provides protection for a number of aquatic resources in the Sacramento River and Delta.

- The Delta is in "excess[1]" conditions as determined by the Reclamation and DWR under the Coordinated Operations Agreement[2] and would remain in excess conditions during diversions.

- Senior downstream water rights, the CVP and SWP, and other more senior flow priorities have been satisfied.

- Flows are available for diversion above flows needed to meet all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time that diversion occurs.

- There is available capacity to divert and convey water to Sites Reservoir, above the capacity needed for deliveries to existing users.

These conditions will be reflected in the Project's upcoming Final EIR/EIS. These are also either included directly as components of the Project's water right application to the State Water Board, where appropriate, or are foundational components of the Project and the Project description in the water right application to the State Water Board. As they are foundational to the Project, they are included in the modeling and analysis of impacts in the Project's CEQA document and water right application (the Water Availability Analysis in particular). Changing these foundational components of the Project would trigger additional consideration under CEQA.

In addition to these diversion and operational criteria that form the Project, the Authority has included several conditions in its water right application to minimize diversions except during times of excess and protect ecological health of the Sacramento River and Delta ecosystem. These include the following:

- **Sites Project-Specific Terms** – These proposed terms are specific to the Sites Project and were included in the Authority's May 11, 2022, water right application or in the Authority's January 6, 2023, supplemental application materials. As identified in the Authority's letter dated January 6, 2023, to the State Water Board, the Authority is requesting these terms be included in its water right permit to proactively address concerns and protect environmental resources:

    - **Funks and Stone Corral Creeks Flows** – This term includes a requirement for the Authority to prepare a Technical Studies Plan to collect information on Funks and Stone Corral creeks to ensure the Project will comply with Fish and Game Code 5937[3]. The plan is to be prepared in conjunction with CDFW, U.S. Fish and Wildlife Service, and Colusa County. The term then requires the Authority to implement the study plan. Within 5 years of issuance of the water right permit, the term requires that the Authority develop an operations plan for releases into the two creeks. This operations

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[1] In the Coordinated Operations Agreement, excess water conditions are defined as periods when it is agreed by Reclamation and DWR that releases from reservoirs upstream of the Delta plus unregulated flow exceeds Sacramento Valley inbasin uses plus water being exported by Reclamation and DWR in the Delta.

[2] The full title of the document is the *Agreement Between the United States of America and the State of California for Coordinated Operations of the Central Valley Project and State Water Project*. Available here: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Files/Coordinated-Agreement-between-Reclamation-and-DWR_a_y20.pdf

[3] Fish and Game Code 5937 states: "The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam."

plan is to be developed in conjunction with the same agencies and would be approved by the Deputy Director for Water Rights at the State Water Board. Collectively this term allows for the collaborative collection of data on Funks and Stone Corral creeks to form the basis of a future operations plan for these two creeks along with the collaborate development of this operations plan.

- **Minimum Flow Requirement and Pulse Protection** – This term would require that the Authority's diversion of water into Sites Reservoir comply with the California Endangered Species Act, including any conditions of approval in any Incidental Take Permit issued by CDFW relative to the Authority's water operations.

- **Trinity River Term** – This term would prohibit the Sites Project from diverting water that originates from the Trinity River into storage in Sites Reservoir. This term would also prohibit the Sites Project diversion to storage from negatively impacting the Trinity River obligations of Reclamation. Overall, this term provides firm protections that the Project would not impact Trinity River resources.

- **Standard Terms** – The Authority included several standard permit terms in its water right application. Standard terms are terms developed by the State Water Board staff that are the same (standard) for all applicable water right permits[4]. The Authority understands that additional standard and mandatory terms are likely to be included in its water right permit, and chose to include these in its application to proactively address concerns and protect environmental resources:

  - **Term 90, Reduction of Diversion Season** – This term identifies that water may not be available for diversion during portions or the diversion season. The season of diversion may be reduced or eliminated.

  - **Term 91, Inbasin Entitlements** – This term identifies that no diversion is authorized when satisfaction of inbasin entitlements requires supplemental releases by the CVP and SWP.

  - **Term 96, Reserved Jurisdiction for Bay-Delta Plan Amendments** – This term recognizes that the State Water Board is in the process of amending the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) to establish new and modified Delta tributary inflow and cold water habitat and Delta outflow objectives and reserves jurisdiction to the State Water Board to amend Sites water right to establish a new and modified Bay-Delta Plan.

2.2.2 Prioritize the Discharge of Water for Ecological and Other Public Benefits

As described in Section 2.1 above, the Project includes storage space and Sites water for ecological benefits through State investment under Proposition 1 and WSIP. The Project was also awarded funds to deliver public benefits of flood control which occurs as a result of impounding two ephemeral streams and recreation which is part of the Project facilities. The Authority will enter into a public benefit

[4] Summaries of the standard terms are provided here. Full text of the standard terms can be found on the State Water Board's website here: https://www.waterboards.ca.gov/waterrights/water_issues/programs/permits/.

contract with DWR to ensure these public benefits are delivered as part of the Project and in return for WSIP funds contributed.

To ensure that each Storage Partner has the ability to manage their own storage space and prioritize their use of Sites water, the Authority Board adopted the Storage Principles[5]. The Storage Principles identify that all Storage Partners, including the State of California and Reclamation, have discretion over release of water from their Storage Allocation. The Storage Principles also identify a process to work through any release conflicts to meet the water demands of Storage Partners including the water demands to serve the public benefits for the Project under Proposition 1. This demonstrates a public benefit priority commensurate to the public investment, which is consistent with foundational principle under Proposition 1 that benefits accrue to those who pay for the benefit.

In addition to the Storage Principles, the Authority will be obligated to enter into a binding contract to ensure achievement of the ecological benefits of the Project funded by the State as part of the Proposition 1 requirements. The contact, termed the Public Benefits Contract, is currently in development between the Authority and CDFW. The execution of this contract is a condition precedent to the Funding Agreement with the CWC and the Authority receiving a final award of funds under Proposition 1.

The federal investment in the Project by Reclamation has been identified to include ecological public benefits of improving water management for anadromous fish species and delivery of water to wildlife refuges and ecological areas. Reclamation's use of its storage space and associated Sites water is at Reclamation's discretion and will follow the foundational principle under Proposition 1 that benefits accrue to those who pay for the benefit. These benefits are mentioned here because they were identified by Reclamation in their feasibility report to Congress in December 2020 and their feasibility addendum transmitted to the Office of Management and Budget in December 2022.

2.3 Public Works

PRC section 21189.81(h)(2) states that water-related projects "are public works for the purposes of Section 1720 of the Labor Code and shall comply with the applicable provisions of Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 of the Labor Code."

The Sites Project is a public works project for purposes of Section 1720 of the Labor Code and the Authority will comply with the applicable provisions of Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 of the Labor Code.

2.4 Court Costs

PRC section 21189.82(a)(4)(B)(i) states that project applicant must agree "to pay the costs of the trial court and the court of appeal in hearing and deciding any case challenging a lead agency's action on a certified project under this division, including payment of the costs for the appointment of a special master if deemed appropriate by the court, in a form and manner as provided in the rule of court adopted by the Judicial Council under Section 21189.85."

[5] The Storage Principles can be found on the Authority's website here: https://sitesproject.org/wp-content/uploads/2021/04/02-01-Storage-Policy.pdf.

At its meeting on July 21, 2023, the Authority's Board of Directors voted unanimously to commit to pay these costs[6], should they occur.

2.5 Cost of the Record of Proceedings

PRC Section 21189.82(a)(4)(B)(ii) states that project applicant must agree "to pay the costs of preparing the record of proceedings for the project concurrent with the review and consideration of the project under this division, in a form and manner specified by the lead agency for the project."

At its meeting on July 21, 2023, meeting, the Authority's Board of Directors voted unanimously to commit to pay these costs[7] and authorized the services necessary to complete this work on the timeline required for compliance to achieve the certification.

2.6 Record of Proceedings Provisions

PRC Section 21189.82(a)(4)(B)(iii) states that for a project for which environmental review has commenced, the applicant must demonstrate "that the record of proceedings is being prepared in accordance with Section 21189.86."

The environmental review for the Sites Reservoir Project has commenced and the Authority is working to ensure compliance with the provisions of Section 21189.86 as expeditiously as possible.

The Authority has sought to advance the Project since its formation in August 2010. In August 2017, the Authority and Reclamation jointly issued a Draft Environmental Impact Report/Environmental Impact Statement (2017 Draft EIR/EIS)[8] for the Project pursuant to their respective lead agency obligations under CEQA and NEPA. In November 2021, the Authority and Reclamation issued a RDEIR/SDEIS[9] as a complete revision of the 2017 Draft EIR/EIS to reflect changes to the Project that occurred since the issuance of the 2017 Draft EIR/EIS. The Authority and Reclamation are currently preparing the Final EIR/EIS for the Project and expect to release this document in the coming months.

As the environmental review for the Project has commenced, the Authority has carefully reviewed the requirements in Senate Bill 149 and PRC Section 21189.86 and is working to gather the complete record of proceedings and make the record available on its website as quickly as possible. For any new record of proceeding materials from the effective date of the legislation, the Authority will comply with PRC Section 21189.86. For documents occurring prior to the date of the legislation, the Authority is compiling the record of proceedings and making the record available on its website as quickly as possible but no later than by the date of the Governor's certification. All references cited in the 2017 Draft EIR/EIS and 2021 RDEIR/SDEIS, that are not protected by copyright restrictions, have been available in an electronic format by contacting the Authority directly.

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[6] The staff report for this item can be found on the Authority's website here: https://sitesproject.org/wp-content/uploads/2023/07/02-02-SB149.pdf.

[7] The staff report for this item can be found on the Authority's website here: https://sitesproject.org/wp-content/uploads/2023/07/02-02-SB149.pdf.

[8] The 2017 Draft EIR/EIS, public meeting information, and outreach materials can be found on the Authority's website here: https://sitesproject.org/environmental-review/.

[9] The RDEIR/SDEIS, public meeting information, outreach materials and all public comments on the document can be found on the Authority's website here: https://sitesproject.org/environmental-review/.

The Authority has exceeded minimum requirements for public agencies to make its records and materials available to the public. All Board meetings, Board workshops, and workgroup and committee meetings are public meetings and all materials are made available to the public on the website in advance of the meetings per the Brown Act requirements.

Table 2 summarizes the Authority's efforts to gather the record of proceedings and make this record available on its website.

Table 2. Status of Project's CEQA Record of Proceedings

PRC Section 21189.86 Requirement	Authority's Current Efforts to Achieve Compliance
21189.86. Notwithstanding any other law, the preparation and certification of the record of proceedings for an infrastructure project shall be performed in the following manner:	
(a) The lead agency for the project shall prepare the record of proceedings under this division concurrently with the administrative process.	While the Authority's EIR process began in 2017 with issuance of a Notice of Preparation for the Project, the Authority is working expeditiously to gather the complete record of proceedings and make the record available on its website as quickly as possible.
(b) All documents and other materials placed in the record of proceedings shall be posted on, and be downloadable from, an internet website maintained by the lead agency commencing with the date of the release of the draft environmental impact report.	The Authority will comply with respect to any new documents from the effective date of the legislation. For documents occurring prior to the date of the legislation, the Authority is compiling the record of proceedings and will make these documents available in an electronic format on its website by the date of the Governor's certification.
(c) The lead agency shall make available to the public in a readily accessible electronic format the draft environmental impact report and all other documents submitted to, or relied on by, the lead agency in preparing the draft environmental impact report.	The 2017 Draft EIR/EIS and 2021 RDEIR/SDEIS are currently available on the Authority's website. All materials relied upon in these documents, that are not protected by copyright restrictions, are available in an electronic format by contacting the Authority. All comments on the 2021 RDEIR/SDEIS are available on the Authority's website. The Authority will make all other documents submitted to or relied upon in the preparation of the EIR available in an electric format on its website by the date of the Governor's certification.
(d) Any document prepared by the lead agency or submitted by the applicant after the date of the release of the draft environmental impact report that is a part of the record of proceedings shall be made available to the public in a readily accessible electronic format within five days after the document is released or received by the lead agency.	The Authority will comply with respect to any new documents from the effective date of the legislation. For documents occurring prior to the date of the legislation, the Authority will make these documents available in an electronic format on its website by the date of the Governor's certification.
(e) The lead agency shall encourage written comments on the project to be submitted in a readily accessible electronic format, and shall make any comment available to the public in a readily accessible electronic format within five days of its receipt.	All comments on the Project have been available in an electronic format by contacting the Authority. Comment letters and meeting transcripts for comments on the 2021 RDEIR/SDEIS are available on the Authority's website. The Authority will make comments on the 2017 Draft EIR/EIS available in an

PRC Section 21189.86 Requirement	Authority's Current Efforts to Achieve Compliance
	electronic format on its website by the date of the Governor's certification. The Authority will comply with respect to any comments received after the effective date of the legislation.
(f) Within seven days after the receipt of any comment that is not in an electronic format, the lead agency shall convert that comment into a readily accessible electronic format and make it available to the public in that format.	For previous comments, see response to item (e) above. The Authority will comply with respect to any comments received after the effective date of the legislation.
(g) Notwithstanding subdivisions (b) to (f), inclusive, documents submitted to or relied on by the lead agency that were not prepared specifically for the project and are copyright protected are not required to be made readily accessible in an electronic format. For those copyright-protected documents, the lead agency shall make an index of these documents available in an electronic format no later than the date of the release of the draft environmental impact report, or within five days if the document is received or relied on by the lead agency after the release of the draft environmental impact report. The index shall specify the libraries or lead agency offices in which hardcopies of the copyrighted materials are available for public review.	All materials relied upon in the 2017 Draft EIR/EIS and 2021 RDEIR/SDEIS that are protected by copyright restrictions are available for review at the Authority office. The Authority is working to prepare the required index and make the index available on its website by the date of the Governor's certification. The Authority will comply with respect to any new documents from the effective date of the legislation.
(h) The lead agency shall certify the final record of proceedings within five days of its approval of the project.	If the Authority Board votes in the affirmative to approve the Project, then the Board will also be prepared to certify the record within five days of its approval.
(i) Any dispute arising from the record of proceedings shall be resolved by the superior court. Unless the superior court directs otherwise, a party disputing the content of the record of proceedings shall file a motion to augment the record of proceedings at the time it files its initial brief.	Noted.
(j) The contents of the record of proceedings shall be as set forth in subdivision (e) of Section 21167.6.	Noted.
(k) The applicant shall pay the costs of preparing the record of proceedings for the project concurrent with review and consideration of the project under this division, in a form and manner specified by the lead agency for the project. The cost of preparing the record of proceedings for the project shall not be recoverable from the plaintiff or petitioner before, during, or after any litigation.	At its meeting on July 21, 2023, the Authority's Board of Directors voted unanimously to agree to pay these costs.

2.7 Minimization of Greenhouse Gas Emissions

PRC Section 21189.82(a)(4)(C) states that the Governor may certify a project as a water-related project for purposes of this chapter only if the Governor finds that greenhouse gas emissions resulting from the project will be mitigated to the extent feasible.

The Authority's mission is to build and operate a climate-resilient, 21st Century water storage system to responsibly manage and deliver water, improve the environment, and provide flood control and recreational benefits. Consistent with its mission, the Authority set a high bar for itself in its RDEIR/SDEIS by selecting a net-zero threshold of significance for greenhouse gas (GHG) emissions. With this high bar, the RDEIR/SDEIS identified the impacts from the Project's generation of GHG emissions during construction and operations as less than significant with mitigation. The GHG mitigation provides a worst-case estimate of the Project's annual GHG mitigation needs and a step-by-step program to measure and mitigate the actual GHG emissions during both construction and operations through the development and implementation of a GHG Reduction Plan to reduce GHG emissions to net-zero. No substantial changes have been made to the mitigation measure between the issuance of the RDEIR/SDEIS and the upcoming Final EIR/EIS. However, two provisions have been added to the mitigation measure. The first requires the Authority Board to formally adopt the completed GHG Reduction Plan and make it publicly available on its website prior to its adoption. The second requires the Authority to seek opportunities to implement GHG reduction measures in environmental justice communities (as identified in the Final EIR/EIS[10]) in and near the Project site and report on the effort and outcomes in the annual reporting required in the measure. The complete mitigation measure from the upcoming Final EIR/EIS is included as Attachment C.

The Authority and Reclamation analyzed the Project's potential GHG emissions during construction and operations in the 2021 RDEIR/SDEIS[11], including a calculation of GHG emissions from construction and operations. The 2021 RDEIR/SDEIS found the Projects generation of GHG emissions to have the potential to have a significant impact on the environment. To reduce this impact to less than significant, the 2021 RDEIR/SDEIS includes a mitigation measure that requires the development and implementation of a GHG Reduction Plan to reduce Project emissions from onsite and offsite sources to achieve net-zero Project emissions.

The mitigation measure requires that the Authority retain a qualified consultant to develop the GHG Reduction Plan to reduce GHG emissions to net-zero. The mitigation measure specifically calls for the GHG Reduction Plan to address GHG emissions from construction and operations on a continual basis, requiring advance planning and implementation of GHG emissions throughout the life of the Project. The Authority will thus need to proactively assess upcoming construction and operations activity and implement early investment in GHG reduction efforts prior to construction and operations to ensure that the emissions are being mitigated prior to the activity occurring.

The mitigation measure requires an updated emissions analysis to be performed using approved emissions models and methods available at the time of the analysis. The construction component and each operational increment in the GHG Reduction Plan will identify GHG reduction measures that will be

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[10] See Section 2.8 below for a discussion of environmental justice communities in and near the Project site.

[11] See Chapter 21, Greenhouse Gas Emissions of the RDEIR/SDEIS, available on the Authority's website here: https://sitesproject.org/revised-draft-environmental-impact-report-supplemental-draft-environmental-impact-statement/.

implemented during the period to achieve the net zero performance standard. GHG reduction measures must be verifiable and feasible to implement, and the plan will identify the entity responsible for implementing each measure. Several possible GHG reduction strategies are identified in the mitigation measure and additional strategies may be identified in the development of the GHG Reduction Plan. Table 3 provides a summary of the possible GHG reduction strategies identified in the mitigation measure.

Table 3. Summary of Possible GHG Reduction Strategies Identified in the Mitigation Measure and To Be Considered in the GHG Reduction Plan

Likelihood of Selection	Locality	Possible GHG Reduction Strategies[1]
Preconstruction and Construction Considerations		
High; All of these measures will be considered in the GHG Reduction Plan and are highly likely to be implemented; Some measures may be implemented to the extent feasible based on the remote Project location and unique Project characteristics	Project Site	• Use electric equipment and vehicles instead of diesel-powered vehicles to the extent possible • Use vehicles that use alternative fuels, such as compressed natural gas, liquified natural gas, propane, or biodiesel to the extent possible • Consider Project characteristics to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible • Ensure that all economically feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power • When generators must be used, consider use of alternative fuels, such as propane or solar • Minimize idling time by requiring that equipment be shut down after 3 minutes when not in use • Maintain all construction equipment in proper working condition and perform all preventive maintenance • Implement a tire inflation program on each jobsite to ensure that equipment tires are correctly inflated • Develop a Project-specific ride share program to encourage carpools and shuttle vans • Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant • Use SmartWay26 certified trucks for material deliveries to Project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling • Develop a Project-specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste • During all activities, diesel-fueled portable equipment with maximum power greater than 25 horsepower shall be registered under the CARB's Statewide Portable Equipment Registration Program

Likelihood of Selection	Locality	Possible GHG Reduction Strategies[1]
Preconstruction, Construction and Operations Considerations		
High All of these measures will be considered in the GHG Reduction Plan and are highly likely to be implemented	Offsite; Vicinity of the Project Site, Sac Valley Air Basin	• Increase the proportion of renewable energy purchases for the Project's electricity needs (construction and operations) to the highest amount that is feasible • Participate in or directly sponsor emissions-reducing projects, such as the following ○ Replace diesel school buses with electric buses ○ Plant trees in local communities ○ Provide support to local businesses or homeowners to install solar photovoltaic systems, other renewable energy projects, or energy efficiency improvements ○ Work with local communities to implement transportation-related emissions-reducing projects, which can include sponsoring bike- or car-share programs, providing support to public transit systems, or contributing to infrastructure and streetscape improvements for pedestrians and bicycles
High Purchase of carbon credits will be considered in the GHG Reduction Plan after all other feasible measures are implemented	Offsite; Sac Valley Air Basin, State, and United States	For all emissions that cannot otherwise be reduced through onsite or offsite measures, carbon credits would be required • Purchase carbon credits from a voluntary GHG credit provider that has an established protocol that requires projects generating GHG credits to demonstrate that the reduction of GHG emissions is real, permanent, quantifiable, verified, enforceable, and additional (per the definition in California Health & Saf. Code §§ 38562(d)(1) and (2)) Identify carbon credits in geographies closest to the Project first and only go to larger geographies (i.e., California, United States) if adequate credits cannot be found in closer geographies or the procurement of such credits would create an undue financial burden

1. Possible GHG reduction strategies are examples strategies to be considered in the development of the GHG Reduction Plan. Some strategies may be implemented to the extent feasible. Improving technology may also increase the use of certain strategies over the construction and operations period.

As part of implementation of the mitigation measure, the Authority is to prioritize strategies to reduce emissions in the following order (1) onsite measures for construction or operations, (2) offsite measures, and (3) carbon credits. The order of priority for the location of selected measures is as follows (1) within the Project footprint, (2) within communities in the vicinity of the Project site, (3) in the Sacramento Valley Air Basin, (4) in the state of California, and (5) in the United States. The Authority will seek opportunities to implement GHG reduction measures in environmental justice communities (as identified in the Final EIR/EIS) in and near the Project site and report on the effort and outcomes in the annual reporting required in the measure. The mitigation measure also includes required monitoring, reporting and enforcement requirements for implementation of the GHG Reduction Plan. These requirements include the approval of the GHG Reduction Plan by the Authority Board along with making the GHG Reduction Plan and annual compliance reports publicly available online on the Authority's website.

Based on comments received on the RDEIR/SDEIS, minor changes have been made to the GHG analysis and mitigation measure to make corrections and improvements in the Final EIR/EIS. The Final EIR/EIS is expected to maintain the less than significant impact with mitigation determination and mitigation measure requiring net zero emissions through development and implementation of the GHG Reduction Plan.

2.8 Disadvantaged Communities

PRC Section 21189.82(c)(1) states that an applicant for certification of an infrastructure project under this chapter must avoid or minimize significant environmental impacts in any disadvantaged community.

PRC Section 21189.82(c)(2) states that if measures are required pursuant to this division to mitigate significant environmental impacts in a disadvantaged community, mitigate those impacts consistent with this division, including Section 21002. Mitigation measures required under this subdivision shall be undertaken in, and directly benefit, the affected community.

PRC Section 21189.82(c)(3) indicates that if measures are required to mitigate significant impacts in a disadvantaged community, then the applicant must enter into a binding and enforceable agreement to comply with this subdivision in its application to the Governor and to the lead agency prior to the agency's certification of the environmental impact report for the project.

The Project would result in significant impacts in disadvantaged communities both within the Project Area and within the regional area. Mitigation measures have been included in the 2021 RDEIR/SDEIS and in the upcoming Final EIR/EIS to reduce the impacts to the maximum extent feasible. In some cases, these impacts can be reduced to less than significant. In some cases, and due to uncertainty of the effectiveness of the mitigation, impacts will remain significant and unavoidable. In all cases, the mitigation is being undertaken in a way that directly benefits the affected community. In the event that the Authority certifies the EIR and decides to move forward with Project approval, the Authority is committed to implementing the mitigation measures in the upcoming Final EIR/EIS and will make a binding commitment to do so as part of its adoption of the Project's Mitigation Monitoring and Reporting Plan.

Through its 2020 Strategic Plan[12], the Authority identified the value of respect for local communities. As part of this value, the Authority recognizes the significant contributions that the local Sacramento Valley landowners and communities have made and will make to the Project and identifies that the Authority will be a respectful, supportive partner and good neighbor throughout the Project. To this end, the Authority established a Local Community Working Group in the fall of 2022. The group represents a broad cross-section of local governmental organizations, business organization, and community associations in the Colusa, Glenn and Yolo counties area and provides a forum for efficient, effective, and meaningful local community engagement in the development of the Project. Through the discussions with the Local Community Working Group, the Authority is exploring ways to both avoid and minimize its effects to the local community and ways the Project can benefit the local community, including through a variety of mechanisms such as improved local services and utilities, workforce and career development, and joint community enhancement efforts. To date, the Local Community Working Group has met five times and, by the end of 2023, expects to provide recommendations to the Authority Board that identify policy actions that may be taken to bring desired outcomes from the Project to the local community.

The Project also has the potential to result in benefits in disadvantaged communities due to a more secure water supply, especially in future drought year conditions. The twenty-two public water agencies

[12] The Authority's 2020 Strategic Plan is available on the Authority's website here: https://sitesproject.org/wp-content/uploads/2019/11/02-02-Final-Strategic-Plan.pdf

that currently comprise the Authority's Reservoir Committee provide wholesale or retail water service in a number of disadvantaged communities located in the Bay Area, San Joaquin Valley, and Southern California. A more secure water supply provides benefits to these communities in water reliability and resiliency into the future and buffers the many direct and indirect economic and social impacts of droughts – from meeting basic household water needs to reduction in farmworker employment and economic impacts in agricultural support businesses due land fallowing during droughts. While these benefits are more difficult to see and quantify, a reliable and resilient water supply provides stability and protection to some of our most vulnerable populations reducing stressors that can lead to other health and societal challenges. In addition, the ecosystem water supply benefits from the State's Proposition 1 benefits would be partially utilized to supply water to federal wildlife refuges, state wildlife areas, and other wetland areas, primarily in the San Joaquin Valley – many of which are within or in close proximity to disadvantaged communities. These areas provide outdoor recreation and employment opportunities in disadvantaged communities.

This section examines the Project's potential significant environmental impacts in any disadvantaged community in the following two areas: within the Project Area, defined here as the Project footprint; and second, within the regional area, such as within the air basin or in waterways downstream of the Project footprint[13]. In the event that the Authority certifies the EIR and decides to move forward with Project approval, the Authority is committed to implementing the mitigation measures in the upcoming Final EIR/EIS and making a binding commitment to do so is also discussed below.

2.8.1 Significant Environmental Impacts in Disadvantaged Communities Within the Project Area

There is one disadvantaged community, portions of the City of Willows, in the Project Area as defined by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code designations. The Colusa, Glenn, Tehama and Yolo counties general plans were reviewed and there are no disadvantaged unincorporated communities as defined by Section 65302.10 of the Government Code identified in these general plans that also are in the Project Area[14].

Project facilities proposed in or near the City of Willows include improvements to existing siphons on the GCID Main Canal along with canal bank and canal road improvements along the GCID Main Canal in and near Willows. These improvements would mostly occur within the existing GCID Main Canal footprint, with temporary staging areas occurring on adjacent agricultural lands and previously disturbed areas.

In and of themselves, the improvements to the GCID Main Canal that are part of the Project do not result in significant environmental impacts. However, because these improvements are being considered in the context of the overall Project, the RDEIR/SDEIS and upcoming Final EIR/EIS identify

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[13] Although not a requirement of the PRC or of CEQA, the Project's 2021 RDEIR/SDEIS and upcoming Final EIR/EIS includes an evaluation of the Project's environmental justice consequences under NEPA. According to the U.S. Environmental Protection Agency, environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Under NEPA, implementation of the Project would result in disproportionately high and adverse air quality and visual effects to minority and low-income environmental justice populations in the Maxwell, Stonyford and Dunnigan areas.

[14] As identified below, the Yolo County General Plan identifies two disadvantaged communities, Yolo and Knights Landing. These two communities are not located within the Project Area. The Colusa, Glenn, and Tehama county general plans do not identify any disadvantaged communities.

possible significant environmental impacts of the Project, including these improvements, to some resource areas. These resource areas and the impact determinations are summarized in Table 4 below. Additional significant air quality and greenhouse gas emission impacts that would occur in the regional area and state-wide, respectively, would also occur in this disadvantaged community (see discussion in Section 2.8.2 below).

Table 4. Summary of Significant Impacts in Disadvantaged Communities within the Project Area

Resource Area	Impact Summary	Summary of Mitigation	Impact After Mitigation
Vegetation and Wetland Resources	Potential impacts to candidate, sensitive, special-status species; loss or removal of riparian habitat or other sensitive natural community; adverse effect on state or federally protected wetland; conflict with local policies	Conduct appropriately timed surveys; establish activity exclusion zones; compensate for permanent impacts; avoid and minimize disturbance on wetland and non-wetland waters; compensate for temporary and permanent impacts on protected wetlands and non-wetland waters	Less than significant[1]
Wildlife Resources	Adverse impacts on wildlife species identified as candidate, sensitive, or special-status; conflict with local policies	Assess habitat suitability and conduct appropriately timed surveys; avoid and minimize disturbance; compensate for permanent impacts	Less than significant for all species[2]
Additional significant air quality and greenhouse gas emission impacts that would occur in the regional area and state-wide, respectively, would also occur in this disadvantaged community (see discussion in Section 2.8.2 and Table 5 below).			

1. The 2021 RDEIR/SDEIS and upcoming Final EIR/EIS identify the potential for significant and unavoidable impacts to oak savanna communities and upland riparian due to the length of time that would be required for newly planted trees to reach mature size and fully replace the habitat functions. However, the single oak tree and two trees mapped as upland riparian in the buffer area of the GCID canal improvements area can be avoided during construction. Therefore significant and unavoidable impacts would not occur to these resources as a result of the GCID canal improvements.
2. The 2021 RDEIR/SDEIS and upcoming Final EIR/EIS identify the potential for significant and unavoidable impacts to golden eagle. However, no golden eagle habitat has been identified in the GCID canal improvements area and thus, significant and unavoidable impacts to golden eagle would not occur as a result of the GCID canal improvements.

The Project would occur on lands traditionally or culturally affiliated with five California Native American Tribes. The Project Area is currently in private and public ownership (local, state, and federal) and no lands owned by tribes occur within the Project Area. However, lands beyond current reservation boundaries can hold resources important to tribes. The 2021 RDEIR/SDEIS and upcoming Final EIR/EIS identifies significant and unavoidable impacts due to construction and operations of the Project on tribal cultural resources. These impacts to tribal cultural resources would not occur in a disadvantaged community and thus, do not meet the criteria in Section 21189.82(c)(1). However, they are discussed here as the impacts occur to tribal communities, whose lands are recognized as disadvantaged communities by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code designations.

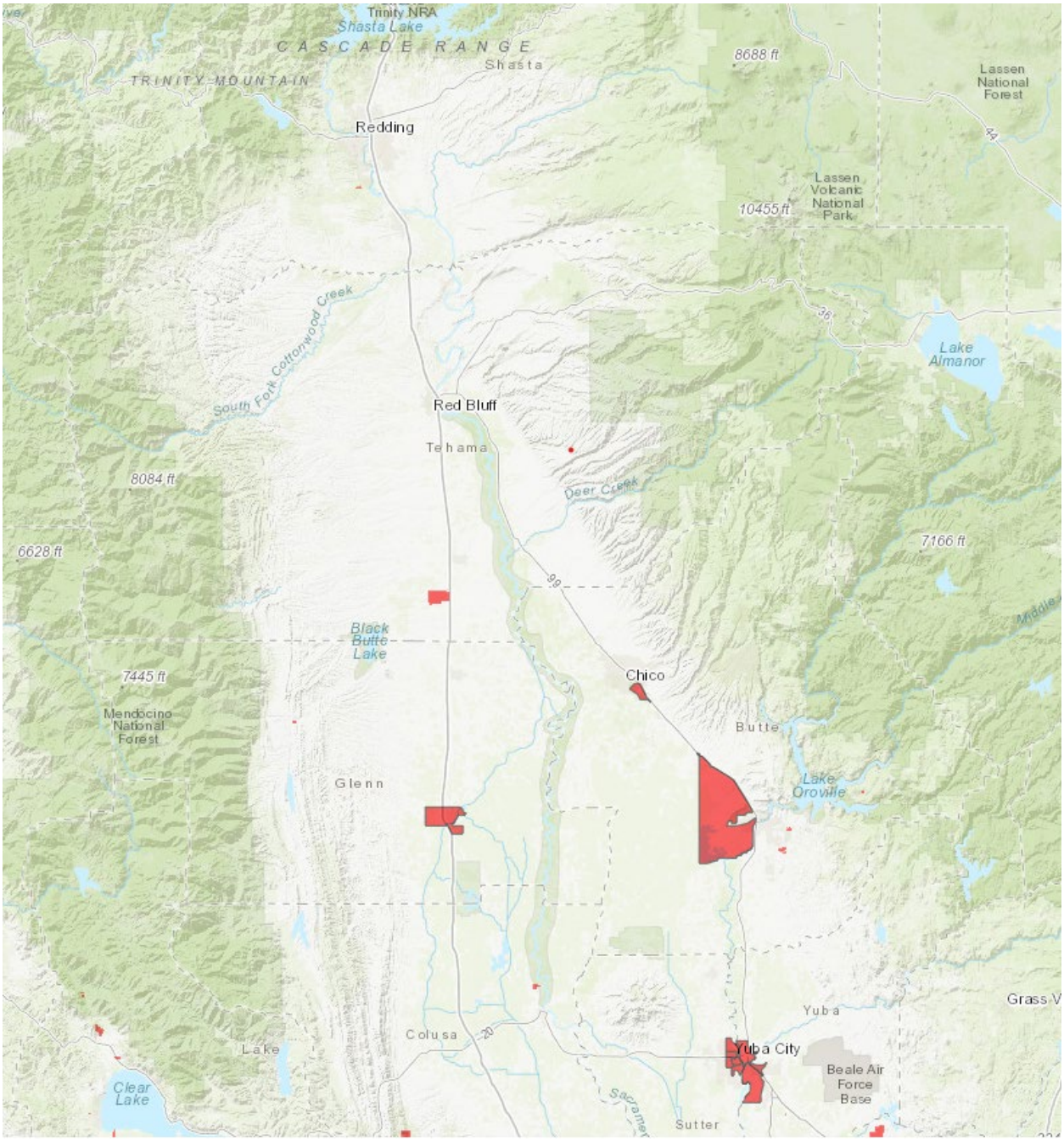
The 2021 RDEIR/SDEIS and upcoming Final EIR/EIS identifies significant and unavoidable impacts due to construction and operations of the Project on tribal cultural resources. The 2021 RDEIR/SDEIS and upcoming Final EIR/EIS includes nine mitigation measures to address these impacts. Mitigation

measures include the following to be implemented the extent feasible: implementing all of the mitigation measures recommended in PRC Section 21084.3 to avoid damaging tribal cultural resources, treating resources with culturally appropriate dignity, and protecting resources with permanent conservation easements; tribal monitoring during all ground-disturbing activities; identifying, avoiding, and protecting archeological resources; developing and implementing treatment plans with tribal input for those resources that cannot be avoided; implementing agreed-upon protocols for the treatment of unanticipated human remains and cultural items; and, developing and implementing a cemetery relocation plan. As part of the Project, the Authority would waive all claims to ownership of tribal cultural items, including ceremonial items and archeological items on the Authority's property and instead provide these items to the appropriate Tribe. Implementation of the mitigation measures would be undertaken with the involvement and participation of the Tribes with traditional or cultural affiliation with the Project Area. Implementation of these mitigation measures could reduce some, but not all, impacts of construction and operation to a less-than-significant level. Because, ultimately, tribal cultural resources would be permanently destroyed by inundation of the reservoir or construction of other facilities, the impact would remain significant and unavoidable. The Authority is committed to working with the Tribes with traditional or cultural affiliation with the Project area throughout the life of the Project to better understand and respectfully incorporate the Tribes from their perspectives.

2.8.2 Significant Environmental Impacts in Disadvantaged Communities in the Regional Area

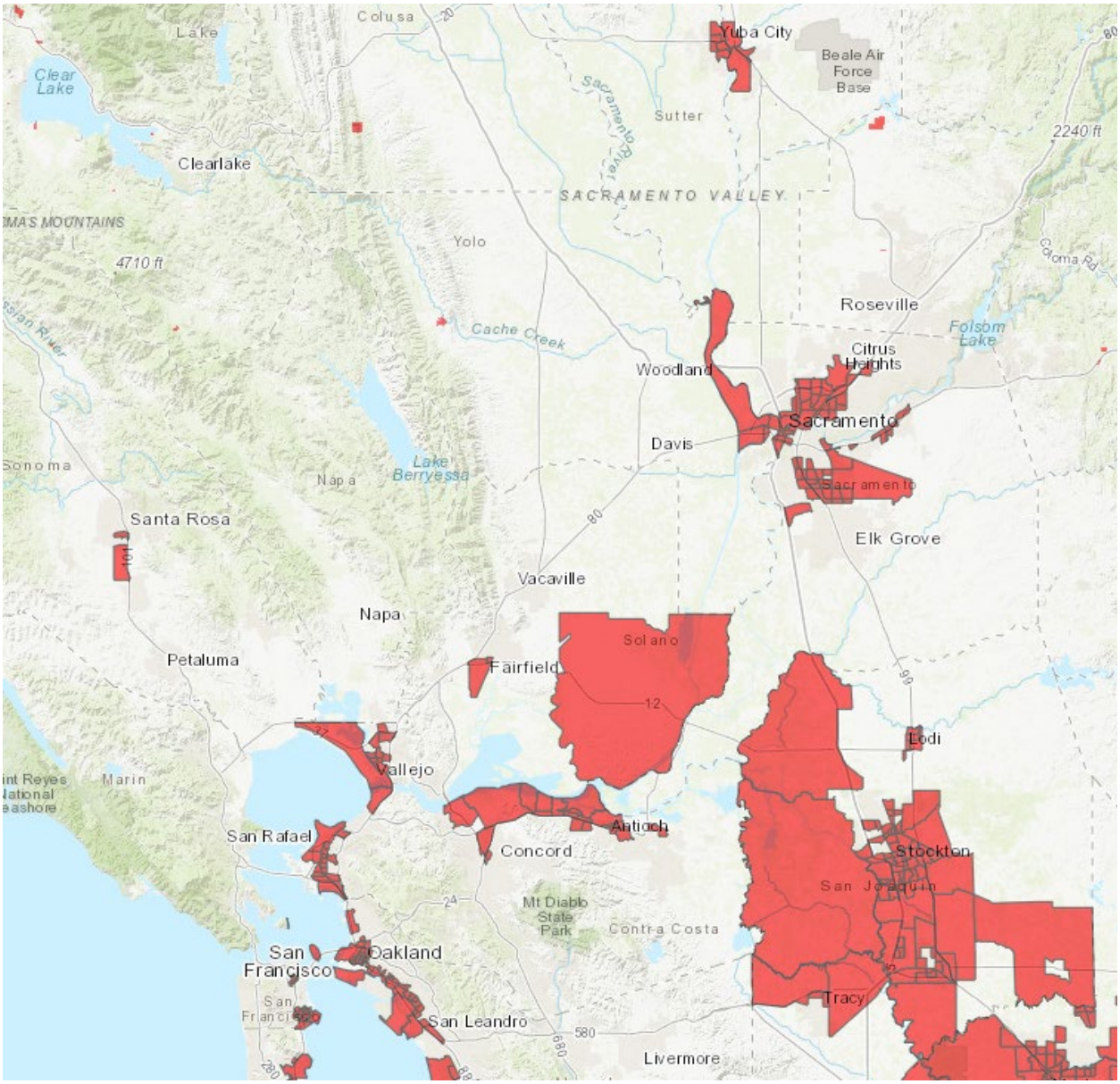
There are numerous disadvantaged communities in the Sacramento Valley and Delta as defined by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code designations (see Figure 6 and 7). The Butte, Contra Costa, Colusa, Glenn, Placer, Sacramento, San Joaquin, Shasta, Solano, Sutter, Tehama, Yuba and Yolo counties general plans were reviewed to determine if there were disadvantaged unincorporated community pursuant to Section 65302.10 of the Government Code. There were no disadvantaged communities identified in the general plans of Colusa, Glenn, Placer, San Joaquin, Shasta, Solano, Sutter, Tehama, and Yuba counites. The Butte County general plan identifies three, Thermalito, South Oroville, and Palermo. The Contra Costa County general plan identifies three, Tara Hills, Vine Hill, and Mountain View. The Sacramento County general plan identifies four, North Highland, West Arden-Arcade, South Sacramento, and North Vineyard. The Yolo County general plan identifies two, Yolo and Knights Landing.

Table 5 provides a summary of the significant environmental impacts in disadvantaged communities in the regional area. Additional detail on the impacts identified in Table 5 is provided following the table. For all of these impacts, the Authority will implement mitigation measures to the extent feasible based on the capability of the measure being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.



Source: California Environmental Protection Agency, https://calepa.ca.gov/envjustice/ghginvest/

Figure 6. Disadvantaged Communities in the Sacramento Valley Area as Defined by the California Environmental Protection Agency Pursuant to Section 39711 of the Health and Safety Code Designations



Source: California Environmental Protection Agency, https://calepa.ca.gov/envjustice/ghginvest/
Shows the Delta region broadly, not limited to the legal Delta. Includes portions of the southern Sacramento Valley to overlap with Figure 6.

Figure 7. Disadvantaged Communities in the Delta Area as Defined by the California Environmental Protection Agency Pursuant to Section 39711 of the Health and Safety Code Designations

Table 5. Summary of Significant Impacts in Disadvantaged Communities within the Regional Area

Resource Area	Impact Area	Impact Summary	Summary of Mitigation	Location of Mitigation Implementation	Impact After Mitigation
Air Quality, Cumulatively Considerable Net Increase of Any Criteria Pollutant, Construction	Sacramento Valley Air Basin	Construction would result in an exceedance of the applicable thresholds for Colusa County Air Pollution Control District and Glenn County Air Pollution Control District for nitrogen oxides (NOx) and particulates 10 microns in diameter or less (PM10) for multiple years, and Yolo-Solano Air Quality Management District threshold for PM10 for multiple years	Construction contractors use zero emission or near-zero emission technology for construction vehicles and equipment to the maximum extent feasible. Authority will seek to mitigate remaining NOx and PM10 emissions through offsets to the maximum extent feasible with a priority for reductions within the communities in close proximity to the Project	Air emissions are regional pollutants. Construction emissions would first be reduced and avoided at the source. Remaining emissions that cannot be reduced or avoided would be offset in the Sacramento Valley Air Basin, which includes a number of disadvantaged communities	Significant and unavoidable
Air Quality, Cumulatively Considerable Net Increase of Any Criteria Pollutant, Operations	Communities in Colusa and Glenn Counties	During operations, recreational use of the reservoir would result in emissions from boat engines, resulting in a cumulatively considerable net increase in reactive organic gas (ROG) emissions	Develop and implement a boat emissions minimization plan to reduce ROG emissions from boats. Authority will seek to mitigate remaining ROG emissions through offsets to the maximum extent feasible with a priority for reductions within the communities in close proximity to the Reservoir	Air emissions are regional pollutants. Boat emissions would first be reduced and avoided at the source. Remaining emissions that cannot be reduced or avoided would be offset in Colusa and Glenn counties. These counites include a few disadvantaged communities	Significant and unavoidable

Resource Area	Impact Area	Impact Summary	Summary of Mitigation	Location of Mitigation Implementation	Impact After Mitigation
Aquatic Resources, Operations Effects on Delta Smelt	Yolo Bypass and north Delta	Operations could cause low dissolved oxygen and higher temperatures in the Yolo Bypass as a result of redirection of some of the Colusa Basin Drain water into the Yolo Bypass. Due to uncertainty, this impact is determined significant	Measure dissolved oxygen and water temperature before and during releases into the Yolo Bypass. If measurements indicate detrimental conditions for delta smelt, then (1) consider actions to improve dissolved oxygen and water temperature and (2) cease Project flows into the Yolo Bypass if and until conditions improve	Flow and water quality monitoring actions would occur in the Yolo Bypass and north Delta, portions of which are designated as disadvantaged communities	Less than significant with mitigation
Aquatic Resources, Operations Effects on Longfin Smelt	Delta / Suisun Marsh	Operations could result in the potential for small negative flow-related effects (differences in Delta outflow) to longfin smelt abundance, albeit with uncertainty given the variability of longfin smelt abundance index estimates and relative changes from the Project	Tidal habitat restoration to expand the diversity, quantity, and quality of longfin smelt rearing and refuge habitat consistent with recent tidal habitat mitigation required for outflow impacts on the species	Tidal habitat restoration would occur in the Delta/Suisun Marsh, portions of which are designated as disadvantaged communities	Less than significant with mitigation
Greenhouse Gas Emissions	State-wide, United States	Construction and operations emissions would generate substantial emissions of GHGs that constitute a net increase in emissions and thus do not meet the Project's carbon-neutral threshold. The net increase in emissions could also conflict with the State's plans to reduce GHG emissions	Authority would develop and implement a GHG Reduction Plan that would reduce the Project's GHG emissions to net zero	GHG emissions are state-wide and nationwide pollutants. Mitigation would be implemented in the following priority (1) within the Project footprint, (2) within communities in the vicinity of the Project site, (3) in the Sacramento Valley Air Basin, (4) in the state of California, and (5) in the United States. With the exception of the Project footprint, all of the other areas include disadvantaged communities	Less than significant with mitigation

Resource Area	Impact Area	Impact Summary	Summary of Mitigation	Location of Mitigation Implementation	Impact After Mitigation
Water Quality, Methylmercury	Colusa Basin Drain and North Delta	Initially filling the reservoir and during reservoir operations, in Dry and Critical Water Years, reservoir releases may cause measurable long-term degradation of water quality causing increases in aqueous and fish tissue methylmercury concentrations, and exceedances of the methylmercury fish tissue objectives more frequently and/or by greater magnitudes	Implement a number of actions as part of the Reservoir Management Plan to minimize reservoir methylmercury production	Within Sites Reservoir. Mitigating reservoir methylmercury production downstream of the reservoir is not feasible. However, reduction at the source benefits disadvantaged communities in and near the Colusa Basin Drain and north Delta by reducing methylmercury production, and thus, elevated methylmercury in water released from the Reservoir	Significant and unavoidable
Water Quality, Metals and Pesticides	Yolo Bypass	Operations could cause elevated concentrations of some metals and pesticides in the Yolo Bypass as a result of redirection of some of the Colusa Basin Drain water from the Sacramento River to the Yolo Bypass	Evaluate metal and pesticide concentrations to ensure net benefits for aquatic communities. If concentrations increase to a level that could be detrimental, then flows into the Yolo Bypass from the Project would cease	Flow and water quality monitoring actions would occur in the Yolo Bypass, portions of which are designated as disadvantaged communities	Less than significant with mitigation

- Air Quality, Impact AQ-1, Construction: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard during construction, or conflict with or obstruct implementation of the applicable air quality plan

    - Disadvantaged Community Location: Disadvantaged communities in the Sacramento Valley Air Basin (SVAB), which includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, Yuba counties, along with portions of Placer and Solano counties

    - Summary of Significant Impact: Construction would result in an exceedance of the applicable thresholds for Colusa County Air Pollution Control District (CCAPCD) and Glenn County Air Pollution Control District (GCAPCD) for nitrogen oxides (NOx) and particulates 10 microns in diameter or less (PM10) for multiple years. Additionally, construction would result in an exceedance of the applicable Yolo-Solano Air Quality Management District (YSAQMD) threshold for PM10 for multiple years. Best Management Practices that are part of the Project would reduce these emissions, but impacts are expected to contribute to a significant level of regional NOx and particulate matter pollution in the SVAB.

    - Mitigation Included in the RDEIR/SDEIS and Expected in the Upcoming Final EIR/EIS: Two mitigation measures have been included to address this impact. First the Authority will require that construction contractors use zero emission or near-zero emission technology for construction vehicles and equipment to the maximum extent feasible. The use of such technology would reduce exhaust-related emissions from construction; however, the commercial availability of future electric equipment and vehicles is unknown. Second, the Authority will seek to mitigate remaining NOx and PM10 emissions through offsets to the maximum extent feasible with a priority for reductions within the communities in close proximity to the Project area because the Authority's first priority for implementing this mitigation would be to reduce emissions and improve public health in those nearby communities.

    - Mitigation Undertaken in, and Directly Benefiting, the Affected Disadvantaged Community: Air emissions are regional pollutants and mitigating emissions anywhere in the basin, benefits the entire basin, including those disadvantaged communities with the basin. The mitigation measures include reduction of emissions at the source through zero emission or near-zero emission technology. This reduction benefits the entire SVAB by reducing emissions before they occur. The mitigation measures also include the purchase of offsets within the SVAB (with a priority for areas closer to the Project Area). Implementing offsets throughout the SVAB, which includes a number of disadvantaged communities, directly benefits these communities through additional funding sources for the implementation of actions to reduce localized and regional NOx and PM10 emissions.

    - Impact with Implementation of Mitigation: Significant and Unavoidable. While emissions would be reduced with the use of zero emissions or near-zero emissions technology for construction vehicles and equipment, the commercial availability of future electric equipment and vehicles, especially heavy-duty off-road construction equipment is unknown. In addition, the CCAPCD and GCAPCD do not currently have an offset program and obtaining enough offsets through other programs in the SVAB is uncertain. Both mitigation measures would be implemented to the

extent feasible; however, given the uncertainties, it may not be possible to sufficiently reduce and offset construction emissions.

- Air Quality, Impact AQ-2, Operations: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard during operation, or conflict with or obstruct implementation of the applicable air quality plan

    - Disadvantaged Community Location: Disadvantaged communities in Colusa and Glenn Counties

    - Summary of Significant Impact: During operations, recreational use of the reservoir would result in emissions from boat engines, resulting in a cumulatively considerable net increase in reactive organic gas (ROG) emissions in the CCAPCD and GCAPCD. Improvements in boat engine technology and use of alternative fuels and electric boats in the future may reduce this impact, but the certainty and timing of these improvements is unknown at this time.

    - Mitigation Included in the RDEIR/SDEIS and Expected in the Upcoming Final EIR/EIS: The Authority will develop and implement a boat emissions minimization plan to reduce ROG emissions from boats. As part of the Plan, the Authority will encourage users to minimize emissions from their boats and encourage/incentivize the use of low-emitting or electric boats. Second, the Authority will seek to mitigate remaining ROG emissions through offsets to the maximum extent feasible with a priority for reductions within the communities in close proximity to the Reservoir.

    - Mitigation Undertaken in, and Directly Benefiting, the Affected Disadvantaged Community: As discussed above, air emissions are regional pollutants. Mitigating emissions anywhere in the CCAPCD and GCAPCD, benefits the entire CCAPCD and GCAPCD, including those disadvantaged communities with the district boundaries. The mitigation measures include reduction of ROG emissions at the source. This reduction benefits all areas within the CCAPCD and GCAPCD by reducing emissions before they occur. The mitigation measures also include the purchase of offsets within the CCAPCD and GCAPCD (with a priority for areas closer to the Reservoir). Implementing offsets within the CCAPCD and GCAPCD, which include a few disadvantaged communities, directly benefits these communities through additional funding sources for the implementation of actions to reduce localized and regional ROG emissions.

    - Impact with Implementation of Mitigation: Significant and Unavoidable. While emissions would be reduced with changes in boat engine technology and changes in behaviors (such as reduced idling times), the timing and extent to reduce ROG emissions is uncertain. In addition, the CCAPCD and GCAPCD do not currently have an offset program and obtaining enough offsets through other programs in the SVAB is uncertain. Both mitigation measures would be implemented to the extent feasible; however, given the uncertainties, it may not be possible to sufficiently reduce and offset boat emissions.

- Aquatic Resources, Impact FISH-8: Operations Effects on Delta Smelt

    - Disadvantaged Community Location: Disadvantaged communities in the Yolo Bypass (Yolo and Solano counites, bordering Sacramento County) and Delta (includes portions of Contra Costa, Sacramento, San Joaquin, Solano, and Yolo counties)

- Summary of Significant Impact: Operations could cause low dissolved oxygen and higher temperatures in the Yolo Bypass as a result of redirection of some of the Colusa Basin Drain water into the Yolo Bypass. Due to uncertainty, this impact is determined significant.

- Mitigation Included in the RDEIR/SDEIS and Expected in the Upcoming Final EIR/EIS: The effect of the Project on dissolved oxygen and temperatures in the Yolo Bypass due to increased inflow from the Colusa Basin Drain is uncertain. The Authority will measure dissolved oxygen and water temperature in locations in the Colusa Basin Drain and Yolo Bypass from June to October, before and during releases into the Yolo Bypass. In working with CDFW and others, if measurements indicate detrimental conditions for delta smelt, then the Authority will (1) consider actions to improve dissolved oxygen and water temperature and (2) cease Project flows into the Yolo Bypass if and until conditions improve.

- Mitigation Undertaken in, and Directly Benefiting, the Affected Disadvantaged Community: Flow and water quality monitoring actions would occur in the Yolo Bypass and north Delta, portions of which are designated as disadvantaged communities. This data provides valuable benefits to the communities in better understanding water quality challenges and trends in the Yolo Bypass and north Delta.

- Impact with Implementation of Mitigation: Less Than Significant with Mitigation. Project flows into the Yolo Bypass would cease if needed to avoid significant impacts.

- Aquatic Resources, Impact FISH-9: Operations Effects on Longfin Smelt

  - Disadvantaged Community Location: Disadvantaged communities in the Delta / Suisun Marsh (Solano County)

  - Summary of Significant Impact: Operations could result in the potential for small negative flow-related effects (differences in Delta outflow) to longfin smelt abundance, albeit with uncertainty given the variability of longfin smelt abundance index estimates and relative changes from the Project.

  - Mitigation Included in the RDEIR/SDEIS and Expected in the Upcoming Final EIR/EIS: Tidal habitat restoration to expand the diversity, quantity, and quality of longfin smelt rearing and refuge habitat consistent with recent tidal habitat mitigation required for outflow impacts on the species. The mitigation would consist of 5.1 to 9.7 acres of tidal wetland habitat restoration, depending on the Project alternative, within the Delta/Suisun Marsh and will be completed prior to commencement of Project operations.

  - Mitigation Undertaken in, and Directly Benefiting, the Affected Disadvantaged Community: Tidal habitat restoration would occur in the Delta/Suisun Marsh, which includes a number of disadvantaged communities. Habitat restoration actions provide short and long-term land restoration and management job opportunities. Depending on land management actions, restored tidal habitat could also provide recreational areas and opportunities.

  - Impact with Implementation of Mitigation: Less Than Significant with Mitigation. Tidal habitat restoration would expand the diversity, quantity, and quality of longfin smelt rearing and refuge habitat.

- Greenhouse Gas Emissions, Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases

    - Disadvantaged Community Location: Disadvantaged communities State-wide and in the entire United States[15]

    - Summary of Significant Impact: Construction and operations emissions would generate substantial emissions of GHGs that constitute a net increase in emissions and thus do not meet the Project's carbon-neutral threshold. The net increase in emissions could also conflict with the State's plans to reduce GHG emissions, resulting in a potentially significant impact with respect to the Project conflicting with plans or policies adopted for the purpose of reducing GHG emissions.

    - Mitigation Included in the RDEIR/SDEIS and Expected in the Upcoming Final EIR/EIS: The Authority would develop and implement a GHG Reduction Plan that would reduce the Project's GHG emissions to net zero. The GHG Reduction Plan requirements and possible GHG reduction strategies identified in the mitigation measure are discussed in detail in Section 2.7 above.

    - Mitigation Undertaken in, and Directly Benefiting, the Affected Disadvantaged Community: GHG emissions are state-wide and nationwide pollutants. The mitigation measure includes reduction of emissions at the source through a number of possible methods. This reduction benefits disadvantaged communities in all geographics (regional, state, and nation) through the avoidance of emissions before they occur. The mitigation measure also includes the participation in or directly sponsorship of emissions-reducing and carbon-sequestering projects within the vicinity of the Project site and in the SVAB. Implementing emissions-reducing and carbon-sequestering projects in the vicinity of the Project site and throughout the SVAB, which includes a number of disadvantaged communities, directly benefits these communities through additional funding sources for the implementation of actions to reduce localized and regional air emissions. Lastly, the mitigation measure also includes the purchase of carbon credits in the SVAB, in the State and throughout the United States. GHG emissions are not confined by air district or state boundaries. The purchase of carbon credits for all emissions that cannot otherwise be reduced through onsite or offsite measures allows the state and the nation to otherwise continue to meet GHG reduction goals, continuing to work to address the factors that contribute to climate change.

    - Impact with Implementation of Mitigation: Less than Significant. With implementation of mitigation, there would be no net increase in GHG emissions. Because there is no net increase in GHG emissions, the Project would not conflict with any of the State's plans to reduce GHG emissions.

- Water Quality, Methylmercury, Impact WQ-1 and WQ-2: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during initial filling and operations

[15] GHG emissions are also a global atmospheric challenge as climate change is the result of the individual contributions of countless past, present, and future sources throughout the world. This discussion is limited to the United States in its extent as the implementation of the mitigation measure is limited to the United States.

- Disadvantaged Community Location: Knights Landing (Yolo County) and disadvantaged communities in the north Delta

- Summary of Significant Impact: During initial reservoir filling and during operations, reservoir releases may cause measurable long-term degradation of water quality downstream in the Colusa Basin Drain (during initial filling only) and north Delta (during initial filling and in long-term operations) by causing increases in aqueous and fish tissue methylmercury concentrations, relative to existing conditions, in Dry and Critical Water Years, and causing exceedances of the methylmercury total maximum daily load fish tissue objectives to occur more frequently and/or by greater magnitudes during these years.

- Mitigation Included in the RDEIR/SDEIS and Expected in the Upcoming Final EIR/EIS: The Authority will implement a number of actions as part of the Reservoir Management Plan to minimize reservoir methylmercury production. These actions would include[16]: (1) removing vegetation in the inundation area prior to initial reservoir filling; and (2) monitoring and management of reservoir water chemistry according to methods proven feasible and effective at reducing mercury methylation by pilot tests undertaken in other mercury-impaired reservoirs. In addition, the Authority will coordinate with the Central Valley Regional Water Quality Control Board to implement mercury/methylmercury control or reduction measures pursuant to the mercury total maximum daily load and implementation program for reservoirs, once adopted. These actions are recommended actions for new reservoirs as part of the Statewide Mercury Control Program for Reservoirs, as identified in the State Water Board's *Draft Staff Report for Scientific Peer Review for the Amendment to the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Mercury Reservoir Provisions – Mercury TMDL and Implementation Program for Reservoirs*[17].

- Mitigation Undertaken in, and Directly Benefiting, the Affected Disadvantaged Community: Mitigating reservoir methylmercury production downstream of the reservoir, in the disadvantaged communities affected, is not feasible. However, the Authority will implement a number of actions as part of the Reservoir Management Plan to minimize reservoir methylmercury production, thus, reducing methylmercury production at the source. This reduction benefits Knights Landing and north Delta by reducing reservoir methylmercury production before it occurs.

- Impact with Implementation of Mitigation: Significant and Unavoidable. Potential to reduce impacts exists based on current research, however, the effectiveness to reduce such that there would be no substantial measurable increase in aqueous and fish tissue methylmercury concentrations is not known at this time. There are ongoing advances in science in this area; however, these advances indicate that what are successful mercury management actions in some reservoirs, do not work the same in other reservoirs. Although the science continues to advance and evolve, due to the uncertainty of being able to determine and implement

[16] Note, additional actions are included in Mitigation Measure WQ-1.1 relative to managing the average methylmercury concentrations in Sites Reservoir so that fish in the reservoir do not exceed the sport fish objective. The components of the mitigation measure included here are those that would reduce reservoir methylmercury production and thus, methylmercury concentrations in waters released from the reservoir.

[17] Available on the State Water Board's website here: https://www.waterboards.ca.gov/water_issues/programs/mercury/reservoirs/

successful mercury management actions in the conditions in Sites Reservoir, this impact would remain significant and unavoidable.

- Water Quality, Metals and Pesticides, Impact WQ-2: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality during operation
    - Disadvantaged Community Location: Disadvantaged communities in the Yolo Bypass
    - Summary of Significant Impact: Operations could cause elevated concentrations of some metals and pesticides in the Yolo Bypass as a result of redirection of some of the Colusa Basin Drain water from the Sacramento River to the Yolo Bypass.
    - Mitigation Included in the RDEIR/SDEIS and Expected in the Upcoming Final EIR/EIS: The effect of the Project on metal and pesticide concentrations in the Yolo Bypass due to increased inflow from the Colusa Basin Drain is uncertain and a few organization are currently monitoring and studying this topic. The Authority will monitor metal and pesticide concentrations in locations in the Colusa Basin Drain and Yolo Bypass from June to October, before and during releases into the Yolo Bypass. In working with CDFW and others, the Authority will evaluate metal and pesticide concentrations to ensure net benefits for aquatic communities. If concentrations increase to a level that could be detrimental, then flows into the Yolo Bypass from the Project would cease.
    - Mitigation Undertaken in, and Directly Benefiting, the Affected Disadvantaged Community: Flow and water quality monitoring actions would occur in the Yolo Bypass, portions of which are designated as disadvantaged communities. This data provides valuable benefits to the community in better understanding water quality challenges and trends in the Yolo Bypass.
    - Impact with Implementation of Mitigation: Less Than Significant with Mitigation. Project flows into the Yolo Bypass would cease if needed to avoid significant impacts.

The 2021 RDEIR/SDEIS included additional significant impacts to aquatic resources, and specifically to all four runs of Chinook salmon and Central Valley steelhead. These impacts were identified as mitigated to less than significant in the 2021 RDEIR/SDEIS by expansion of the Project's operational criteria at Wilkins Slough. In the upcoming Final EIR/EIS, the Project's operational criteria have been further expanded to be more protective of fish and now include a minimum bypass flow in the Sacramento River at Wilkins Slough of 10,700 cfs from October 1 to June 14; 5,000 cfs in September (no diversions to Sites Reservoir from June 15 to August 31). This criterion has now been incorporated into the Project itself as it is a foundational component of Project operations. With this criterion, impacts to all four runs of Chinook salmon and Central Valley steelhead have been reduced to less than significant in the upcoming Final EIR/EIS, and these impacts are not discussed in this section.

2.8.3 Binding and Enforceable Agreement for Mitigating Significant Impacts in Disadvantaged Communities

As part of the CEQA process, the Authority is required to adopt all feasible mitigation measures needed to reduce or eliminate significant impacts. In the event that the Authority certifies the EIR and decides to move forward with Project approval, the Authority is committed to implementing the mitigation measures in the upcoming Final EIR/EIS and will make a binding commitment to do so as part of its adoption of the Project's Mitigation Monitoring and Reporting Plan.

Attachment A
Detailed Project Description from the Upcoming Final EIR/EIS

Attached is Chapter 2, Project Description, from the upcoming Sites Reservoir Project Final EIR/EIR. Changes between the 2021 Revised Draft EIR/Supplemental Draft EIS and the Final EIR/EIS are shown with margin lines.

Chapter 2 Project Description and Alternatives

This chapter describes the Project and alternatives analyzed in this Final EIR/EIS. As part of this Final EIR/EIS analysis, minor changes have been made to this Project description and noted as changes through vertical lines in the margin. The Project would consist of the implementation of Alternative 1, 2, or 3, and a No Project Alternative/No Action Alternative would represent the continuation of existing conditions. These alternatives were developed in accordance with the CEQA objectives and the NEPA purpose and need as described in Chapter 1, *Introduction*. The appendices to this chapter provide additional supporting information and are referenced where relevant.

2.1 Alternatives Development Process

The range of alternatives evaluated in the EIR/EIS is the product of an extensive screening process that has included extensive public input and involvement. This process has spanned several decades and involved multiple distinct water resource planning efforts. The planning efforts considered a wide variety of factors, including the feasibility of implementation and opportunities for reducing potentially significant environmental impacts while meeting the Project's CEQA objectives and NEPA purpose and need. See Appendix 2A, *Alternatives Screening and Evaluation*, and Appendix 2B, *Additional Alternatives Screening and Evaluation*, for information on alternatives considered but eliminated and the alternatives that are evaluated in this document.

2.1.1 Evaluation Prior to 2019

Beginning in 1995, CALFED initiated the evaluation of expanded surface water storage in the Sacramento and San Joaquin Valleys. This assessment was part of a long-term comprehensive plan to restore the ecological health of the Delta and improve water management to protect beneficial uses in the Delta and its watershed. CALFED initially identified more than 50 potential surface storage locations during development of its EIR/EIS and retained several reservoir locations statewide for further study. The screening criteria applied to the potential locations indicated a preference for offstream surface water storage to avoid redirected impacts on aquatic species in the primary tributaries of the Delta.

Following the CALFED Record of Decision (ROD) for the EIR/EIS in 2000, the California Department of Water Resources (DWR) and Reclamation continued to evaluate potential locations for a reservoir on the western side of the Sacramento Valley as part of the Surface Water Storage Investigation (Bureau of Reclamation and California Department of Water Resources 2006). The objectives of this effort were to formulate a project that would enhance water management flexibility in the Sacramento Valley, increase the reliability of surface water supplies in California, and provide storage and operational benefits to enhance water supply reliability and improve water quality and ecosystems. The results of the investigation identified four potential options: Red Bank (Dippingvat and Schoenfield Reservoirs), Newville Reservoir,

Colusa Reservoir, and Sites Reservoir. These four reservoir options were evaluated against additional screening criteria. This secondary screening determined that the Sites Reservoir location was the most conducive to meeting the goals and objectives of the Surface Water Storage Investigation while minimizing environmental impacts and providing the greatest potential benefits.

The Surface Water Storage Investigation also evaluated a variety of water sources and associated conveyance options that included diversions from the Colusa Basin Drain (CBD), Sacramento River, and local tributaries. The evaluation process culminated in the selection of the existing Tehama-Colusa Canal (TC Canal) and GCID diversion and conveyance facilities and the addition of a new pipeline from the Sacramento River near the Moulton Weir (i.e., Delevan Pipeline). These facilities were determined to be the most reliable and capable of meeting the goals and objectives of the Surface Water Storage Investigation.

The 2017 Draft EIR/EIS evaluated four surface water reservoir size and conveyance alternatives. All alternatives included a Sites Reservoir to be filled using existing Sacramento River diversion facilities and the new Delevan Pipeline to allow for release and diversion of flows to and from the Sacramento River. Associated facilities for all alternatives were generally similar but varied in location and size. Appendix 2B contains a detailed comparison of the Project evaluated in this Final EIR/EIS and the alternatives analyzed in the 2017 Draft EIR/EIS.

In August 2017, the Authority submitted a Water Storage Investment Program (WSIP) application to the California Water Commission (CWC) to determine the eligibility for funding under Proposition 1. The CWC process evaluated the technical, economic, financial, and environmental feasibility of constructing and operating Sites Reservoir. The CWC made nine specific determinations, including the determinations that the Sites Reservoir would provide a net ecosystem improvement, would provide measurable improvements to the Delta ecosystem, and would advance the long-term objectives of restoring the ecological health of the Delta and improving water management to protect beneficial uses in the Delta and its watershed. The CWC conditionally determined the Project could receive up to $816 million in Proposition 1 funds for its flood control, ecosystem improvement, and recreation public benefits, if it completes its statutory obligations (California Water Commission 2021).

2.1.2 Value Planning Process and Alternatives Post-2019

In October 2019, the Authority pursued a value planning process to determine if further refinements to the alternatives in the 2017 Draft EIR/EIS were warranted. Between October 2019 and April 2020, the Authority considered previous input from state and federal agencies, non-governmental organizations, elected officials, landowners, and local communities, and decided to "right size" the Project to better meet the needs of Storage Partners,[1] the statewide water supply, and the environment. Multiple alternatives were considered during the value planning process

[1] The Storage Partners consist of the governmental agencies, water organizations, and other entities who are funding the Project and who are receiving a storage allocation in Sites Reservoir and the resulting water supply or water supply-related environmental benefits from the Project. Storage Partners could include local agencies, the State of California, and the federal government. (See Sites Project Authority 2023.)

that took into consideration the public and agency comments received on the 2017 Draft EIR/EIS (Sites Project Authority 2020). The primary objectives of this process were to:

- Improve water supply and water supply reliability;
- Provide Incremental Level 4 water supply for refuges;
- Improve the survival of anadromous fish; and
- Enhance the Delta ecosystem.

The secondary objectives of the value planning process were to provide opportunities for flood damage reduction and recreation.

Value planning alternatives combined different types and sizes of diversion, release, reservoir, road, and bridge facilities. The Authority analyzed operational, environmental, and permitting considerations for different alternatives. For example, operational considerations included the ability of several reservoir sizes and conveyance capacities to meet Storage Partner subscriptions and participation by the State of California through WSIP. Environmental considerations included reducing the footprints of facilities or eliminating facilities to avoid or minimize impacts and reducing the amount of water diverted to storage. In addition, the Authority evaluated the costs of facilities associated with each value planning alternative to understand whether each alternative achieved a reasonable cost-per-acre-foot of water that the Storage Partners could support to ensure that the Sites Reservoir was economically viable.

The value planning process identified three recommended alternatives. Alternative Value Planning (VP) 5 involved a 1.3 MAF reservoir and used an existing regulating reservoir (Funks Reservoir) and a new regulating reservoir (the Terminal Regulating Reservoir [TRR]) to fill Sites Reservoir. Under Alternative VP 5, releases from Sites Reservoir (1,000 cubic feet per second [cfs]) would flow from the southern end of the TC Canal through a pipeline that went to the CBD. Alternative VP 6 was similar to Alternative VP 5, but the releases from the southern end of the TC Canal were conveyed through a pipeline that extended to the Sacramento River. Alternative VP 7 was similar to Alternative VP 5 but included a 1.5-MAF reservoir. The value planning process culminated in a Value Planning Report that was adopted by the Authority in April 2020 (Sites Project Authority 2020). As described in Section 2.3, *Overview of Alternatives*, Alternatives 1, 2, and 3 in this Final EIR/EIS are based on Alternatives VP 5, VP 6, and VP 7 in the Value Planning Report.

2.2 CEQA and NEPA Requirements

2.2.1 CEQA Requirements

The Authority, as the CEQA lead agency, is responsible for the development of alternatives that meet CEQA requirements. Section 15126.6 of the CEQA Guidelines requires that:

- An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives. An EIR need not consider every

conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible.

- The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects.
- The specific alternative of "no project" shall also be evaluated along with its impact.
- The EIR should briefly discuss the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:
  - Failure to meet most of the basic project objectives
  - Infeasibility
  - Inability to avoid significant environmental impacts

This Final EIR/EIS was prepared in accordance with NEPA and CEQA, with Alternatives 1, 2, and 3 analyzed at an equal level (consistent with NEPA standards).

2.2.2 NEPA Requirements

Reclamation, as the federal lead agency, is responsible for the development of alternatives that meet NEPA requirements. For project alternatives, including the proposed action, NEPA requires that federal government agencies shall (40 Code of Federal Regulations Section 1502.14):

(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

(b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.

(c) Include reasonable alternatives not within the jurisdiction of the lead agency.

(d) Include the alternative of no action.

(e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.

(f) Include appropriate mitigation measures not already included in the proposed action or alternatives.

2.3 Overview of Alternatives

The Project would use existing infrastructure to divert unregulated and unappropriated flow from the Sacramento River at Red Bluff and Hamilton City and convey water to a new offstream Sites

Reservoir west of the community of Maxwell, California. New and existing facilities would move water into and out of the reservoir. Releases from Sites Reservoir would ultimately return to the Sacramento River system via existing canals and a new pipeline located near Dunnigan. Construction of the Sites Reservoir would necessitate building a bridge across the reservoir or constructing a bypass road (i.e., South Road) to connect Maxwell with the community of Lodoga. Additional components would include development of new recreational facilities at the reservoir. This Final EIR/EIS evaluates the potential environmental effects of:

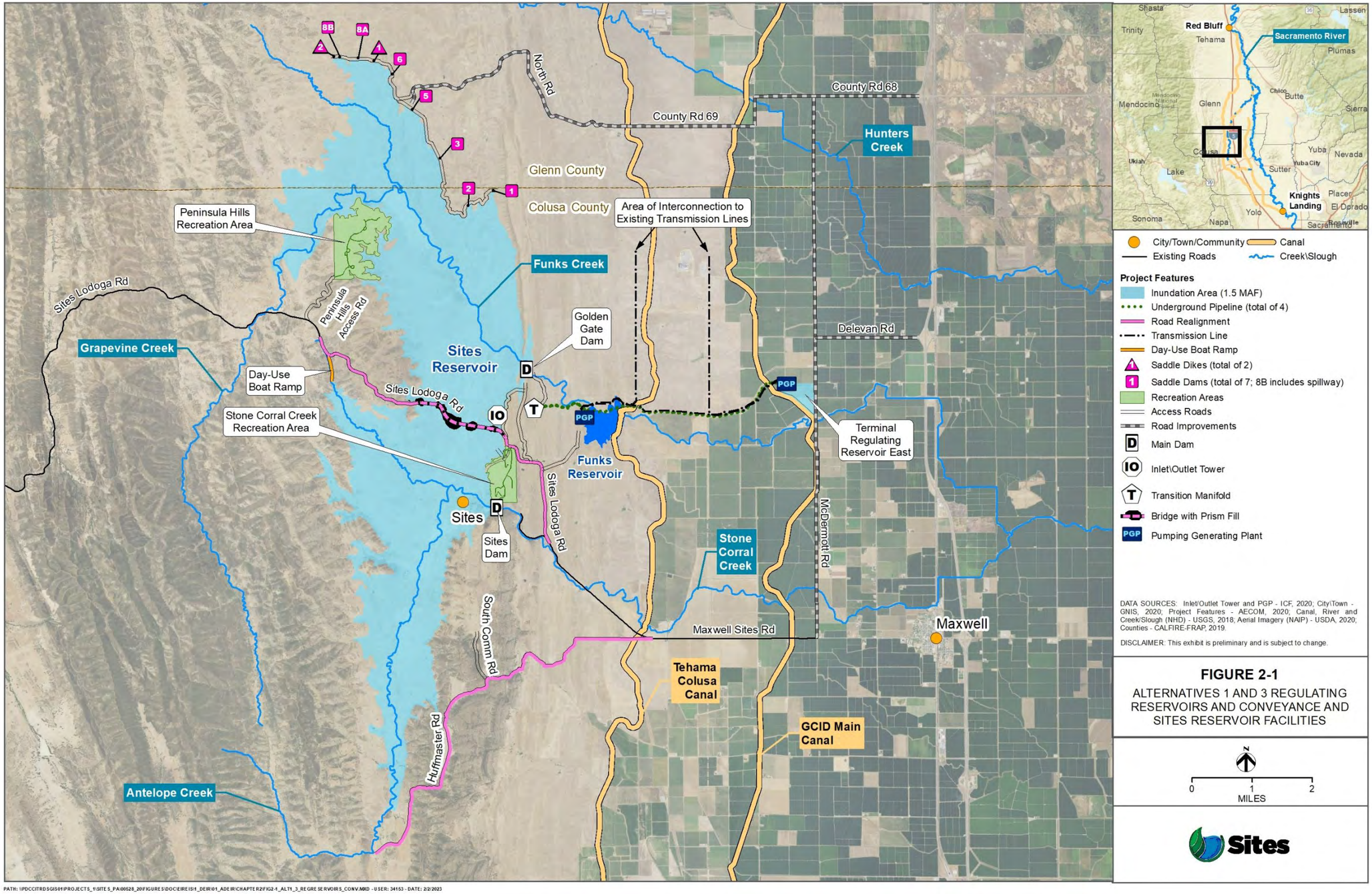
- No Project Alternative/No Action Alternative
- Alternative 1, 1.5-MAF reservoir, bridge, release to the CBD, and Reclamation investment of up to 7% of the Project costs
- Alternative 2, 1.3-MAF reservoir, South Road, partial release to the CBD, discharge to the Sacramento River, and no Reclamation investment
- Alternative 3, 1.5-MAF reservoir, bridge, release to the CBD, and Reclamation investment of up to 25% of the Project costs

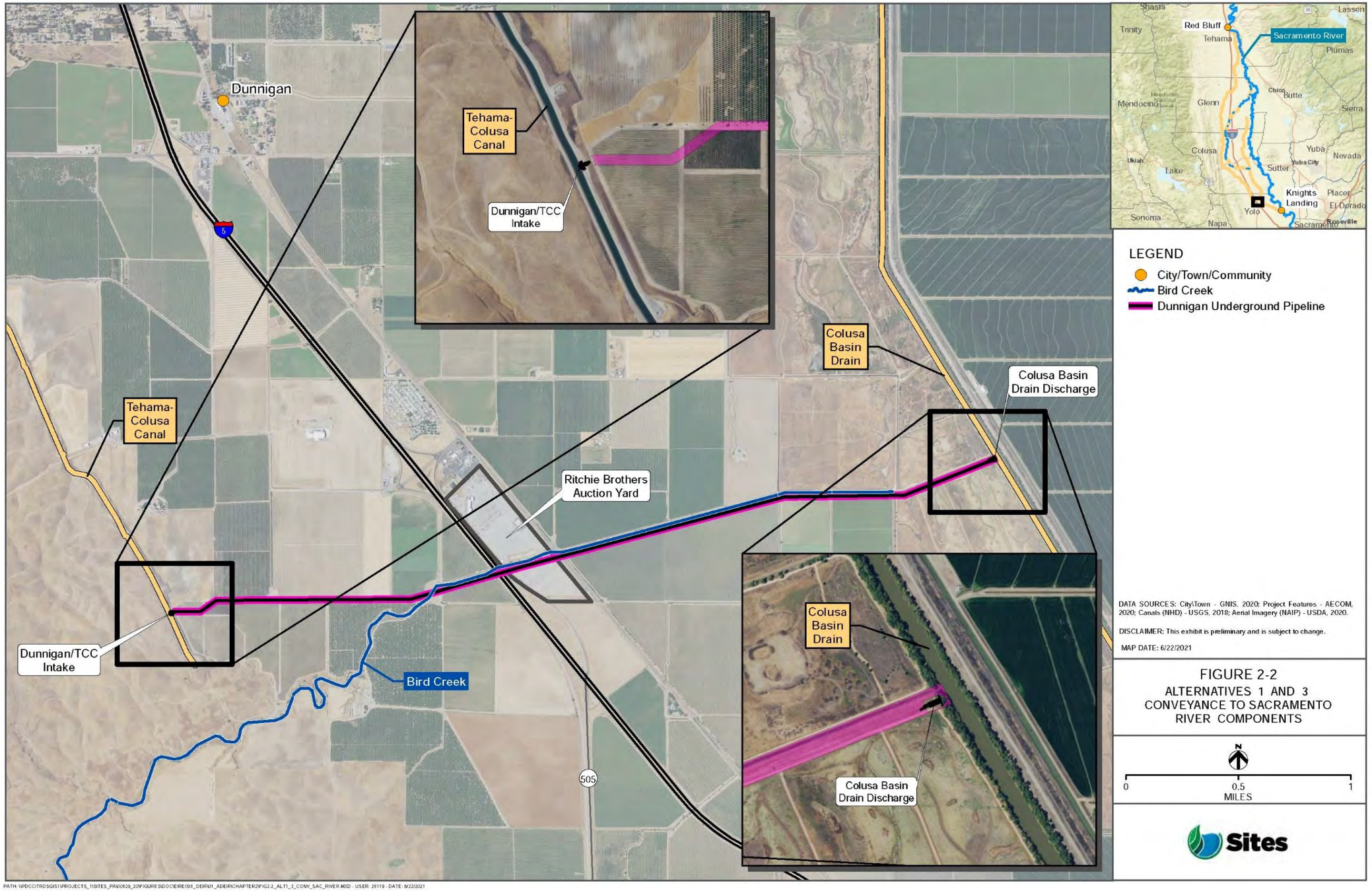
Alternatives 1, 2, and 3 are generally based on the results of the value planning process. Alternative 1 is based on Alternative VP 7, and Alternative 2 is based on Alternatives VP 5 and VP 6. Alternative 3 is based on VP 7 with increased Reclamation investment of up to 25% of the Project costs. Project facilities are shown in Figure 2-1, Figure 2-2, Figure 2-3, and Figure 2-4. Table 2-1 summarizes the components of Alternatives 1, 2, and 3. Due to Project adjustments in how Reclamation would use water supplied by the Project to provide for improved anadromous fish benefits (including enhanced opportunity for cold-water pool management in Shasta Lake, enhanced frequency and amount of spring pulse flows in the upper Sacramento River, and better ability to maintain stable river flows in the upper Sacramento River in the fall) and due to the increased availability of federal funding (see Volume 3, Chapter 3, *Master Responses*, Master Response 2, *Alternatives Description and Baseline*), Alternative 3 is the Authority preferred alternative and is the proposed project under CEQA, and Reclamation's preferred alternative under NEPA.

Refinements to Project facilities since the RDEIR/SDEIS include elimination of the Saddle Dam 3 and 5 emergency release structures from Alternatives 1 and 3, resulting in cost savings to the overall Project. There would be no material change to impact determinations made in the RDEIR/SDEIS as a result of this Project modification, and there would be a potential reduction in some impacts, as described in Master Response 2.

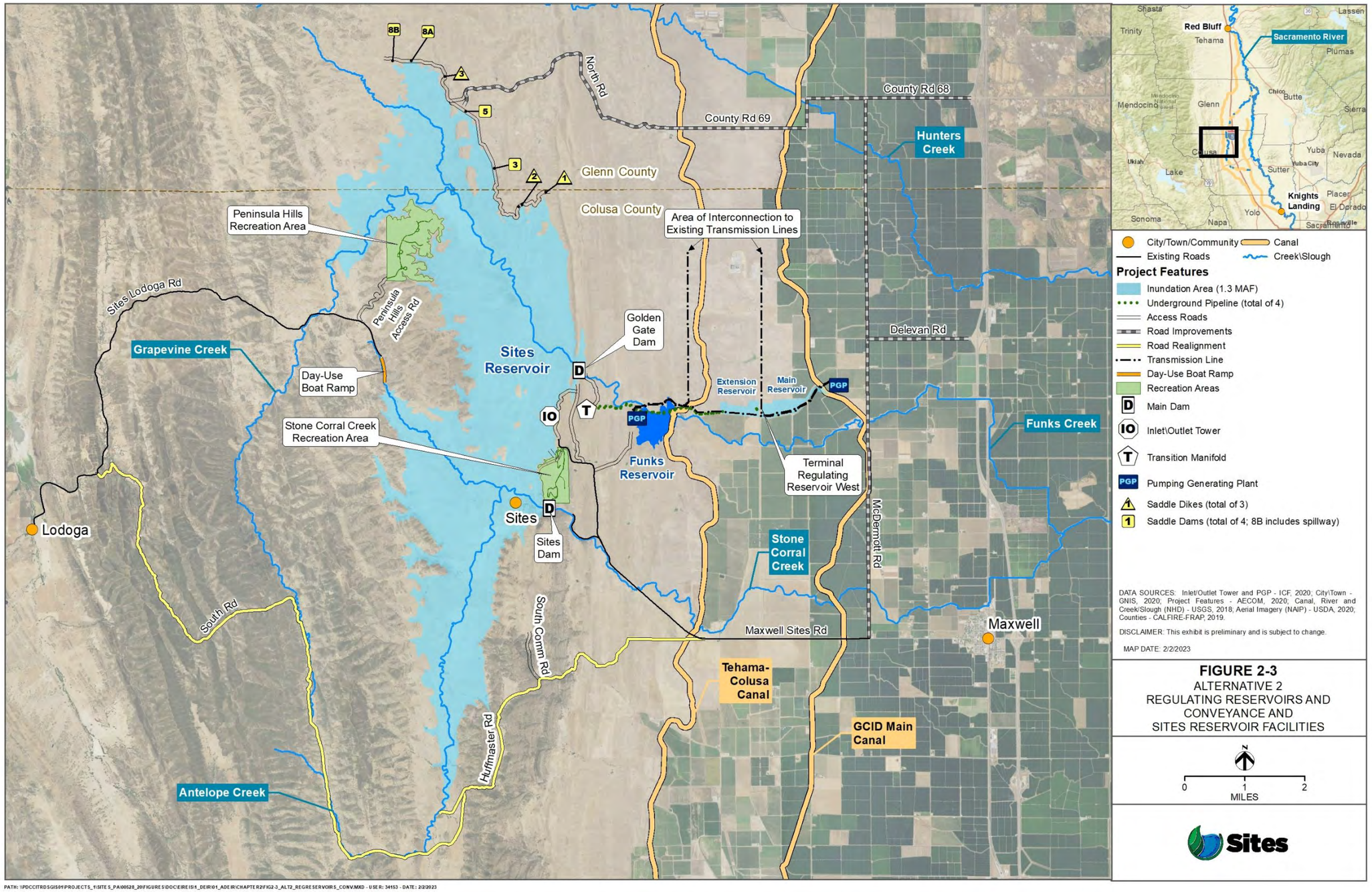
Similarly, the modeling done to incorporate the refinements to Project operations shows that these refinements do not result in additional impacts to those described in the RDEIR/SDEIS. New model results have been incorporated into Volumes 1 and 2 of the Final EIR/EIS. The modeled representation of operations was modified in the Final EIR/EIS to respond to comments regarding the use of exchanges, as well as represent refined operational criteria (e.g., diversion criteria). For more information regarding CALSIM II and modeling modifications, please see Volume 3, Chapter 3, Master Response 3, *Hydrology and Hydrologic Modeling*.

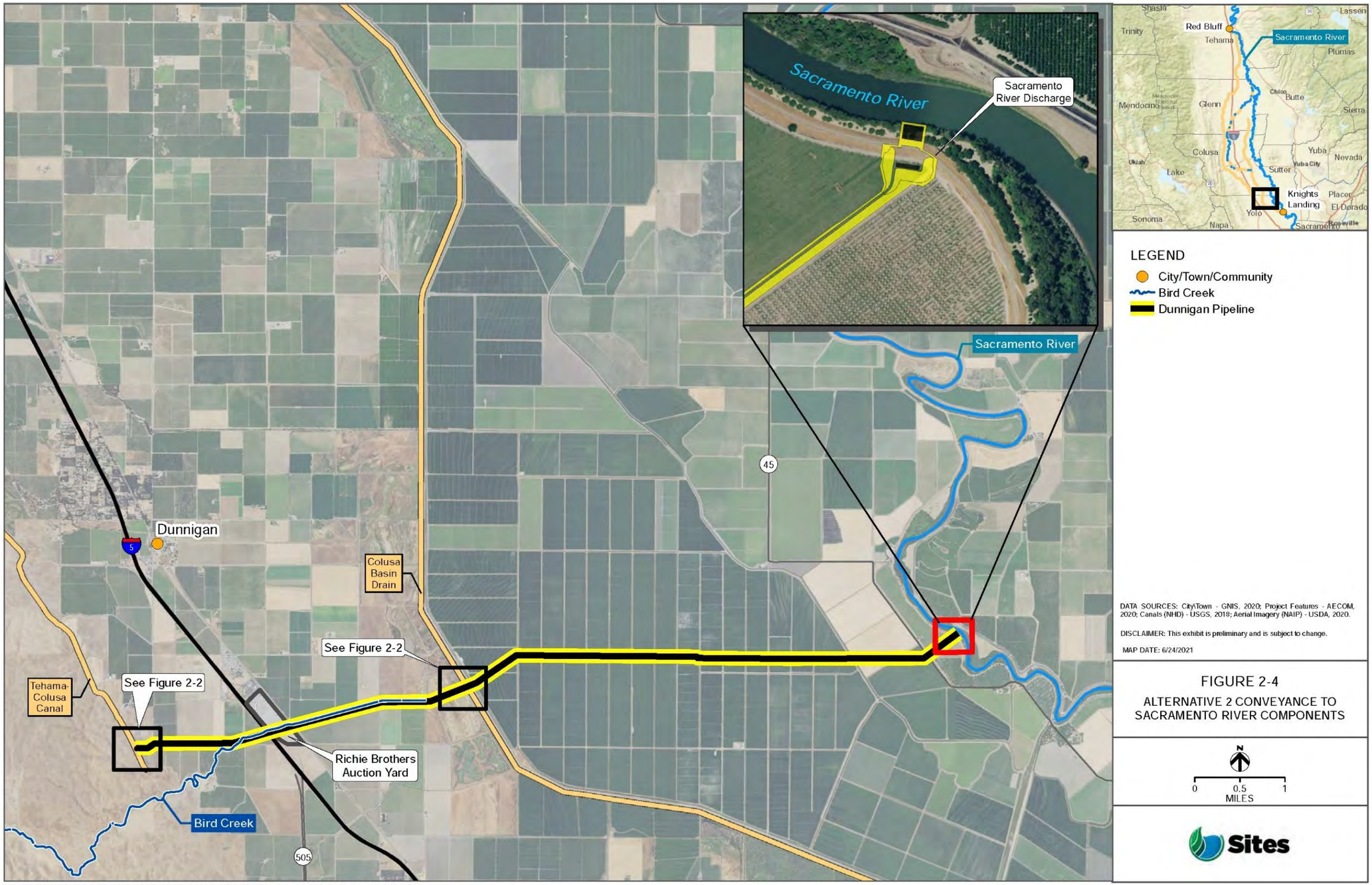
The revisions to the RDEIR/SDEIS were not significant changes and did not affect the NEPA or CEQA conclusions for any resource category.


8B
8A
4
2
6
5
3
2
1
North Rd
County Rd 68
County Rd 69
Hunters Creek
Glenn County
Colusa County
Area of Interconnection to Existing Transmission Lines
Peninsula Hills Recreation Area
Funks Creek
Sites Lodoga Rd
Peninsula Hills Access Rd
Golden Gate Dam
Grapevine Creek
Sites Reservoir
D
Day-Use Boat Ramp
Sites Lodoga Rd
IO
T
PGP
Delevan Rd
Stone Corral Creek Recreation Area
Terminal Regulating Reservoir East
Funks Reservoir
Sites
D
Sites Dam
Sites Lodoga Rd
Stone Corral Creek
McDermott Rd
South Comm Rd
Maxwell Sites Rd
Maxwell
Tehama Colusa Canal
GCID Main Canal
Huffmaster Rd
Antelope Creek
Shasta
Lassen
Trinity
Red Bluff
Tehama
Sacramento River
Plumas
Mendocino
Glenn
Butte
Sierra
Colusa
Yuba
Nevada
Lake
Sutter
Yuba City
Knights Landing
Placer
El Dorado
Sonoma
Napa
Yolo
Sacramento
City/Town/Community
Canal
Existing Roads
Creek\Slough
Project Features
Inundation Area (1.5 MAF)
Underground Pipeline (total of 4)
Road Realignment
Transmission Line
Day-Use Boat Ramp
Saddle Dikes (total of 2)
Saddle Dams (total of 7; 8B includes spillway)
Recreation Areas
Access Roads
Road Improvements
Main Dam
Inlet\Outlet Tower
Transition Manifold
Bridge with Prism Fill
Pumping Generating Plant
DATA SOURCES: Inlet/Outlet Tower and PGP - ICF, 2020; City\Town - GNIS, 2020; Project Features - AECOM, 2020; Canal, River and Creek/Slough (NHD) - USGS, 2018; Aerial Imagery (NAIP) - USDA, 2020; Counties - CALFIRE-FRAP, 2019.
DISCLAIMER: This exhibit is preliminary and is subject to change.
FIGURE 2-1
ALTERNATIVES 1 AND 3 REGULATING RESERVOIRS AND CONVEYANCE AND SITES RESERVOIR FACILITIES
N
0
1
2
MILES
Sites
PATH: \\PDCCITRDSGIS01\PROJECTS_1\SITES_PA\00528_20\FIGURES\DOC\EIREIS\1_DEIR\01_ADEIR\CHAPTER2\FIG2-1_ALT1_3_REGRESERVOIRS_CONV.MXD - USER: 34153 - DATE: 2/2/2023



PATH: W:\DC\CITRD\GIS\1\PROJECTS_1\SITES_PA\00628_20\FIGURES\DOC\EIREIS\1_DEIR\01_ADEIR\CHAPTER2\FIG2-2_ALT1_3_CONV_SAC_RIVER.MXD - USER: 25119 - DATE: 6/22/2021


8B
8A
3
5
North Rd
County Rd 69
County Rd 68
Hunters Creek
3
2
1
Glenn County
Colusa County
Peninsula Hills Recreation Area
Area of Interconnection to Existing Transmission Lines
Sites Lodoga Rd
Peninsula Hills Access Rd
Grapevine Creek
Golden Gate Dam
Sites Reservoir
D
Day-Use Boat Ramp
IO
T
PGP
Extension Reservoir
Main Reservoir
PGP
Delevan Rd
Funks Creek
Stone Corral Creek Recreation Area
Funks Reservoir
Terminal Regulating Reservoir West
Sites
D
Sites Dam
Lodoga
McDermott Rd
Stone Corral Creek
South Rd
South Comm Rd
Maxwell Sites Rd
Maxwell
Tehama-Colusa Canal
GCID Main Canal
Huffmaster Rd
Antelope Creek
Shasta
Lassen
Trinity
Red Bluff
Tehama
Sacramento River
Plumas
Mendocino
Glenn
Chico
Butte
Sierra
Colusa
Yuba
Nevada
Ukiah
Lake
Yuba City
Sutter
Knights Landing
Placer
El Dorado
Yolo
Sonoma
Napa
Sacramento
City/Town/Community
Canal
Existing Roads
Creek\Slough
Project Features
Inundation Area (1.3 MAF)
Underground Pipeline (total of 4)
Access Roads
Road Improvements
Road Realignment
Transmission Line
Day-Use Boat Ramp
Recreation Areas
Main Dam
Inlet\Outlet Tower
Transition Manifold
Pumping Generating Plant
Saddle Dikes (total of 3)
Saddle Dams (total of 4; 8B includes spillway)
DATA SOURCES: Inlet/Outlet Tower and PGP - ICF, 2020; City\Town - GNIS, 2020; Project Features - AECOM, 2020; Canal, River and Creek/Slough (NHD) - USGS, 2018; Aerial Imagery (NAIP) - USDA, 2020; Counties - CALFIRE-FRAP, 2019.
DISCLAIMER: This exhibit is preliminary and is subject to change.
MAP DATE: 2/2/2023
FIGURE 2-3
ALTERNATIVE 2
REGULATING RESERVOIRS AND
CONVEYANCE AND
SITES RESERVOIR FACILITIES
N
0
1
2
MILES
Sites
PATH: \\PDCCITRDSGIS01\PROJECTS_1\SITES_PA\00528_20\FIGURES\DOC\EIREIS\1_DEIR\01_ADEIR\CHAPTER2\FIG2-3_ALT2_REGRESERVOIRS_CONV.MXD - USER: 34153 - DATE: 2/2/2023



PATH: \\PDCCITRDSGIS1\PROJECTS_1\SITES_PA\00628_20\FIGURES\DOC\EIREIS\1_DEIR\01_ADEIR\CHAPTER2\FIG2-4_ALT2_CONV_SAC_RIVER.MXD - USER: 24991 - DATE: 6/24/2021

Table 2-1. Summary of Alternatives 1, 2, and 3

Facilities/Operations	Alternative 1	Alternative 2	Alternative 3
Diversion/Reservoir Infrastructure Details			
Reservoir Size	1.5 MAF	1.3 MAF	Same as Alternative 1
Dams (scaled to the size of the reservoir)	Golden Gate and Sites Dams; 7 saddle dams; 2 saddle dikes	Golden Gate and Sites Dams; 4 saddle dams; 3 saddle dikes	Same as Alternative 1
Spillway	One spillway on Saddle Dam 8B	Similar to Alternative 1	Same as Alternative 1
Funks Reservoir (existing)	New Funks Pumping Generating Plant (PGP) and Funks pipelines	Similar to Alternative 1	Same as Alternative 1
Terminal Regulating Reservoir (TRR)	Construction of TRR PGP and TRR pipelines; TRR East location	Construction of TRR PGP and TRR pipelines; TRR West location	Same as Alternative 1
Hydropower	Incidental power generation up to 40 megawatts each at Funks PGP and TRR PGP	Same as Alternative 1	Same as Alternative 1
Diversion(s)	Diversion from Sacramento River into existing TC Canal at Red Bluff and the existing GCID Main Canal at Hamilton City	Same as Alternative 1	Same as Alternative 1
Emergency Release Flow	Releases into Funks Creek and Stone Corral Creek via Inlet/Outlet Works; Sites Dam; Release from spillway on Saddle Dam 8B north to Hunters Creek watershed	Similar to Alternative 1	Same as Alternative 1
Recreation			
Multiple Facilities Consistent with the Authority's WSIP Application	Two primary areas with infrastructure: 1. Peninsula Hills Recreation Area 2. Stone Corral Creek Recreation Area An additional day-use boat ramp	Same as Alternative 1	Same as Alternative 1

Facilities/Operations	Alternative 1	Alternative 2	Alternative 3
Transportation/Circulation			
Provide Route to West Side of Reservoir	Permanent bridge crossing the reservoir and realignment of a segment of Huffmaster Road with gravel road to residents at the south end of the reservoir	Paved roadway including the realigned segment of Huffmaster Road and a new South Road on the west side of the reservoir	Same as Alternative 1
Operations			
Diversion Criteria [a]	Bypass flows; Pulse flow protection measure to be applied to precipitation-generated pulse flow events from October through May; Wilkins Slough Bypass Flow	Same as Alternative 1	Same as Alternative 1
Reclamation Involvement	1. Funding Partner (up to 7% investment) with operational exchanges; or 2. Operational Exchanges Only a. Within Year Exchanges b. Real-time Exchanges	Operational Exchanges Only a. Within Year Exchanges b. Real-time Exchanges	Funding Partner, up to 25% investment, and Operational Exchanges: a. Within Year Exchanges b. Real-time Exchanges
California Department of Water Resources Involvement	Operational Exchanges with Oroville and use of SWP facilities south of the Delta	Same as Alternative 1 (volumes may vary, however)	Similar to Alternative 1 (volumes may vary, however)
Releases into Funks Creek and Stone Corral Creek	Specific flow criteria to maintain flows to protect downstream water right holders and ecosystem function	Same as Alternative 1	Same as Alternative 1
Conveyance Dunnigan Release	Release 1,000 cfs into new pipeline to CBD	Release into new pipeline to Sacramento River discharge, partial release to the CBD	Same as Alternative 1

[a] Diversion criteria are described in more detail in Section 2.5.2.1, *Water Operations*.

CBD = Colusa Basin Drain; GCID = Glenn-Colusa Irrigation District; MAF = million acre-feet; PGP = pumping generating plant; SWP = State Water Project; TC = Tehama-Colusa; TRR = Terminal Regulating Reservoir; WSIP = Water Storage Investment Program.

Since each component has been analyzed and the range of impacts addressed in the analysis, the Authority and/or Reclamation could decide to approve a version of Alternative 2 (with a 1.3-MAF reservoir) that incorporates: (1) the bridge component of Alternative 1; (2) the CBD release component of Alternative 1 instead of the Sacramento River discharge; or (3) both of these components. Similarly, the Authority and/or Reclamation could elect to approve a version of Alternative 1 (with a 1.5-MAF reservoir) or Alternative 3 that incorporates the roadway improvements: (1) without the bridge component; (2) with the Sacramento River discharge component of Alternative 2 instead of the CBD release; or (3) with both of these components. In addition, the level of Reclamation's participation currently shown for Alternatives 1 and 3 could be considered in the context of the smaller reservoir for Alternative 2. In this way, the evaluation of Alternatives 1, 2, and 3 incorporates a variety of options.

2.4 No Project Alternative/No Action Alternative

This section briefly discusses (1) the CEQA environmental baseline pursuant to Section 15125(a) of the CEQA Guidelines; (2) the CEQA No Project Alternative pursuant to Section 15126.6(e) of the CEQA Guidelines; and (3) the NEPA No Action Alternative under Section 1502.14 of the Council on Environmental Quality's NEPA regulations. These items are discussed further in Chapter 3, *Environmental Analysis*, which describes in detail the approach for evaluating the environmental impacts resulting from construction and operation of the Project and the alternatives and the approach for defining the CEQA existing conditions baseline, the CEQA No Project Alternative, and the NEPA No Action Alternative.

For the environmental baseline, the CEQA Guidelines generally require a discussion of the existing physical conditions that would be affected by the proposed project. The impacts of the proposed project are then measured against the existing conditions baseline to determine whether they are significant.

In addition to the existing conditions baseline, CEQA requires that an EIR analyze the No Project Alternative. Evaluation of the No Project Alternative allows decision makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. Under CEQA, the No Project Alternative consists of the physical conditions that would be reasonably expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services.

The analogue to the CEQA No Project Alternative under NEPA is the No Action Alternative, which represents a projection of current conditions and reasonably foreseeable actions to the most reasonable future responses or conditions that could occur during the life of the project without any action alternatives being implemented.

As explained further in Chapter 3, *Environmental Analysis*, the reasonably foreseeable conditions under the CEQA No Project Alternative and the reasonably foreseeable conditions under the NEPA No Action Alternative are projected to be the same. In this Final EIR/EIS, the term "No Project Alternative" is generally used to describe both alternatives, although in some instances (such as in Chapter 11, *Aquatic Biological Resources*), the term "No Action Alternative" is used. Whichever terminology is used, the reasonably foreseeable conditions

projected without the Project or the other build alternatives are defined as the same under CEQA and NEPA. As further explained in Chapter 3, the reasonably foreseeable conditions projected under the CEQA No Project Alternative and the NEPA No Action Alternative are estimated to be equivalent and would therefore not be materially different from the CEQA existing conditions baseline, with the exception of climate change effects, which are addressed in Chapter 28, *Climate Change*.

Under the No Project Alternative, flood control, ecosystem improvement, and recreation benefits that are part of the Project would not be funded and implemented as part of WSIP. The No Project Alternative would also not provide water supply reliability, operational flexibility, benefits to anadromous fish, water supply for refuges and Delta ecosystem benefits sought with potential Reclamation investment. Finally, the No Project Alternative would eliminate one opportunity to provide a multi-benefit project consistent with the Governor's Water Resilience Portfolio. The No Project Alternative would not meet the Project objectives and purpose and need stated in Chapter 1 but is analyzed in this Final EIR/EIS, consistent with CEQA and NEPA requirements. The purpose of the No Project Alternative/No Action Alternative is to serve as a benchmark against which the effects of Alternatives 1, 2, and 3 may be evaluated, since under this alternative the impacts of building the Project would not occur.

2.5 Elements Common to Alternatives 1, 2, and 3

Project facilities, operations and maintenance, construction considerations, commitments and best management practices (BMPs), and Proposition 1 benefits common to Alternatives 1, 2, and 3 are described below.

2.5.1 Facilities

The facilities descriptions in this section include design and construction considerations. Detailed construction information is provided in Appendix 2C, *Construction Means, Methods, and Assumptions*. In addition, as further discussed in Section 2.5.4, *Project Commitments and Best Management Practices*, construction activities generally described herein would adhere to multiple BMPs described in Appendix 2D, *Best Management Practices, Management Plans, and Technical Studies*. Preliminary design for facilities described herein will continue to be refined and modifications may occur as needed as the Project proceeds to final design and as part of the ongoing value engineering process undertaken by the Authority. As noted in the RDEIR/SDEIS, potential modifications include refinements to design of certain facilities (e.g., use of a sloped inlet/outlet (I/O) tower and elimination of bridge to I/O tower, see below); minor changes in facility footprints; and/or removal of certain facilities described currently herein (e.g., emergency release structures, see below). Future modifications of any facilities described and evaluated herein would be reviewed by the Authority and Reclamation to determine appropriate CEQA and NEPA compliance.

2.5.1.1 Sacramento River Diversion and Conveyance to Regulating Reservoirs

The Project would involve the diversion of water from the Sacramento River at the existing Red Bluff Pumping Plant (RBPP) and Hamilton City Pump Station. Both facilities have a fish screen that meets National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW) criteria. Water diverted at the RBPP enters the TC Canal, and flows diverted at

Hamilton City Pump Station enter the GCID Main Canal. The RBPP, TC Canal, and Funks Reservoir are owned by Reclamation and operated by the TCCA. Reclamation will need to execute one or more contracts in accordance with Section 1 of the Warren Act of 1911 (36 Stat. 925) for use of federal facilities to pump and convey non-CVP water. The use of these federal facilities is included in the Project, and thus the impacts of the anticipated Warren Act contract(s) are covered by this Final EIR/EIS. Hamilton City Pump Station and GCID Main Canal are owned and operated by GCID. The Project would include improvements to the following facilities, and the locations of the improvements are shown in Figure 2-5.

RBPP

The Project would entail the installation of two additional 250-cfs, 600 horsepower (hp) vertical axial-flow pumps into existing concrete pump bays at the RBPP. The addition of these two pumps would increase the capacity from 2,000 to 2,500 cfs, as well as provide redundancy. Figure 2-6 shows a vicinity map of the RBPP and Appendix 2C includes plan and profile views of the pumps. The installation of the additional pumps at the RBPP would require limited construction equipment and personnel and would require only a few months of onsite construction, thereby allowing for flexibility on the timing of construction.

GCID Main Canal Diversion and System Upgrades

The GCID system may require several upgrades to support the operation of Sites Reservoir. The specific details of these upgrades would be confirmed during future hydraulic modeling and assessment of system conditions. However, for purposes of assessing environmental impacts for this document, it is conservatively assumed that upgrades would be constructed at various locations along the GCID Main Canal, as described below. GCID would manage the facility upgrades using an approach consistent with its existing management practices.

The Project would involve the installation of a new 3,000-cfs GCID Main Canal head gate structure about 0.25 mile downstream of Hamilton City Pump Station (Figure 2-7). A new head gate would be required because the existing structure would be inadequate for winter operation due to the decrease in water elevation across it during high river levels. The existing head gate structure would be left in place to continue to serve as a bridge between County Road 203 and County Road 205 in Glenn County. The existing head gate would continue to operate and diversions would occur during construction of the new head gate. The new head gate structure would be constructed upstream of the existing structure and would include eight automated gates. The water level and flow control functions would involve operating conditions that would result in water surface drops across the head gate of between 3 and 15 feet. The canal reach immediately downstream of the new head gate structure would be lined with concrete for approximately 35 feet to prevent erosion. It is expected that State Route (SR) 32, 6th Street, and Cutler Avenue into County Road 205 would be used to access the GCID Main Canal head gate structure during construction.

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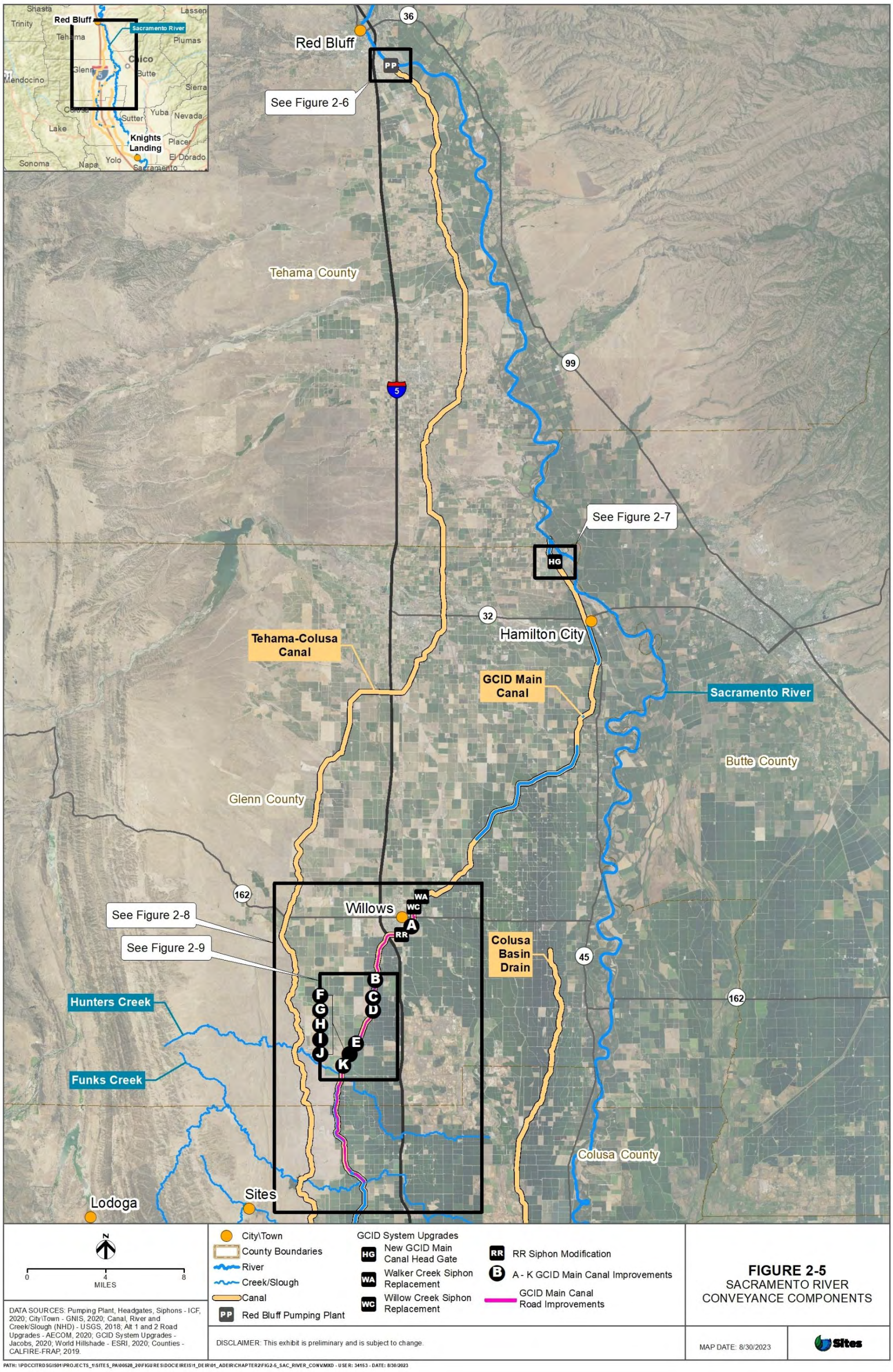

FIGURE 2-5
SACRAMENTO RIVER CONVEYANCE COMPONENTS

PATH: \\PDCCITRDS\GIS1\PROJECTS_1\SITES_PA\00628_20\FIGURES\DOC\EIR\EIS\1_DEIR\01_ADEIR\CHAPTER2\FIG2-6_RED_BLUFF_PP.MXD - USER: 24991 - DATE: 6/24/2021

PATH: \\PDCCITRDSGIS1\PROJECTS_1\SITES_PA\00628_20\FIGURES\DOC\EIR\ES\1_DEIR\01_ADEIR\CHAPTER2\FIG2-7_GCID_HEAD_GATE.MXD - USER: 24991 - DATE: 6/24/2021

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GCID typically shuts down (i.e., dewaters) the Main Canal for up to 6 weeks each year between early January and late February for maintenance activities. This is the time of year that the Project would utilize the Hamilton City Pump Station and GCID Main Canal to divert and convey water to Sites Reservoir. To reduce the winter shutdown period from 6 weeks to 2 weeks, other improvements would be required to the GCID system as described below. Construction for the GCID Main Canal improvements would likely occur in the winter during the regular shutdown period.

The Project would involve replacing the Walker Creek siphon (Mile Post [MP] 24.48) and Willow Creek siphon (MP 24.68) on the GCID Main Canal to allow for increased flow capacity (Figures 2-8 and 2-9). The siphon under the Union Pacific Railroad (i.e., railroad siphon) at MP 26.6 would be improved by adding an additional barrel.

The new Walker and Willow Creek siphons would consist of five 10-foot-wide by 8.5-feet-tall barrels. Construction is expected to require canal bypass, and access to the siphon work sites is expected to be from Interstate (I-) 5 to SR 162. The use of individual county roads would be required (i.e., County Road P, County Road 48, County Road 53). For the railroad siphon, a portion of the canal would be dewatered using an earthen coffer dam lined with geomembrane and sump pumps. The new barrel would be installed using a bore-and-jack procedure, and new headwalls on the upstream and downstream end would be installed to approximately match the existing headwall. Construction staging areas would be in the immediate area of the improvements. It is anticipated that coordination and planning with the railroad owners would be required for work within and adjacent to the railroad right-of-way. Construction restrictions may be required by the railroad owners to minimize interference with regular railroad operations. To the extent possible, upgrades to the railroad siphon would take place during periods of lowest train traffic, and railroad shutdown time would be minimized.

The Project would also involve GCID Main Canal improvements between MP 26 and MP 41.3 to increase the freeboard between the city of Willows and the TRR to a standard 2.5 feet; under existing conditions the freeboard range is 1 to 2 feet. The Project would also require road improvements to approximately 17 miles of left bank canal road between the existing Willow Creek siphon and the existing Funks Creek siphon to ensure an all-weather road surface (Figure 2-8). These road improvements would primarily consist of adding approximately 6 inches of aggregate base material. Earthwork related to the GCID Main Canal to increase the freeboard to 2.5 feet would require a total fill of 5,000 cubic yards. There would be no excavation and only minor reshaping and addition of fill to the sides of the canal. The fill would be sourced from other onsite spoils and there would be no net import. Construction activities for the 17 miles of canal road improvements would require approximately 27,000 cubic yards of aggregate base. It is anticipated the aggregate would be imported from a commercial rock facility within 20 miles of the GCID Main Canal. The GCID improvements along the Main Canal and the existing road would occur within established rights-of-way and construction would not permanently remove any existing crops.

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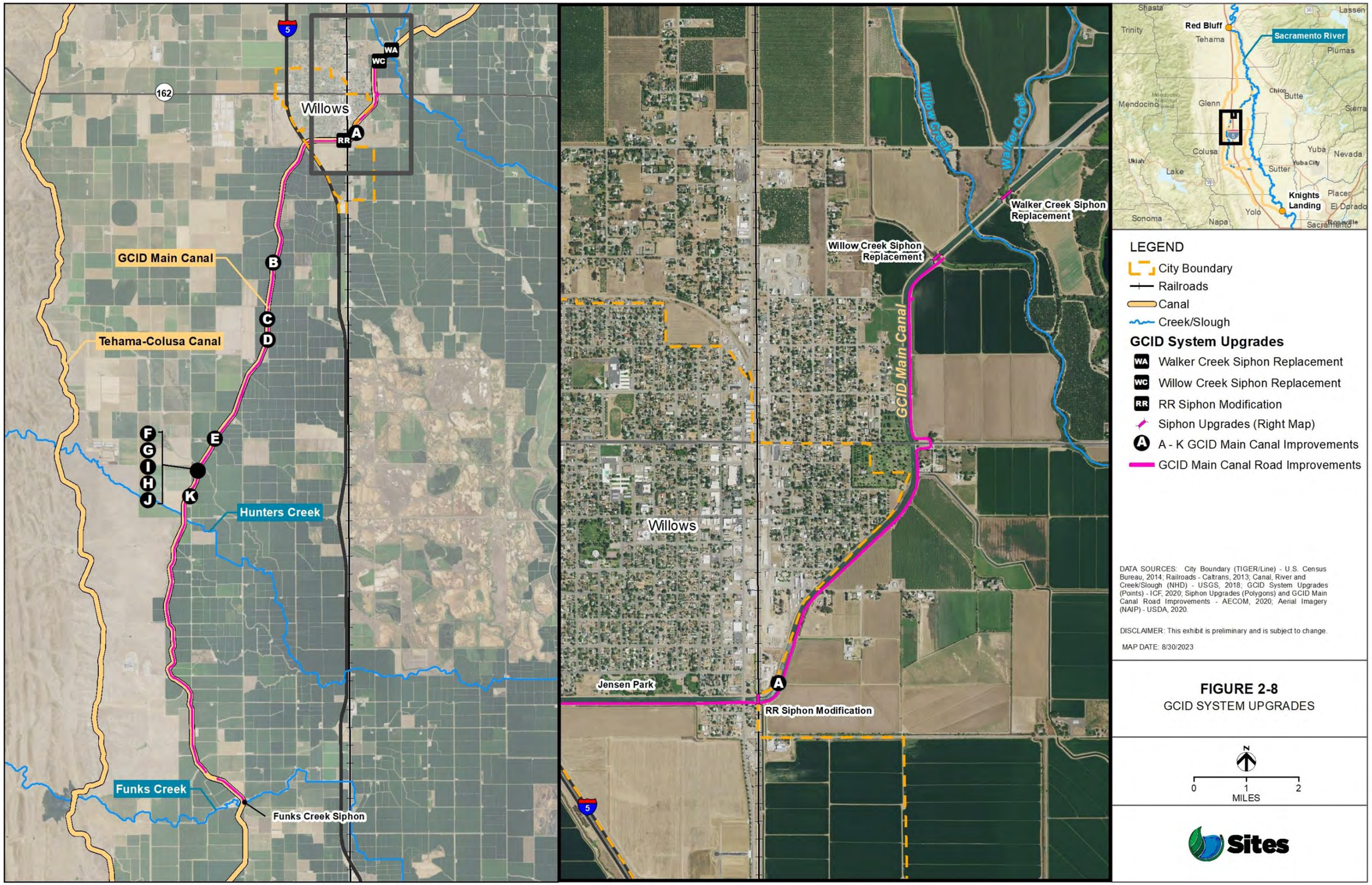

Willows
GCID Main Canal
Tehama-Colusa Canal
Hunters Creek
Funks Creek
Funks Creek Siphon
Willow Creek
Walker Creek
Walker Creek Siphon Replacement
Willow Creek Siphon Replacement
GCID Main Canal
Willows
Jensen Park
RR Siphon Modification
Red Bluff
Sacramento River
Knights Landing
LEGEND
City Boundary
Railroads
Canal
Creek/Slough
GCID System Upgrades
Walker Creek Siphon Replacement
Willow Creek Siphon Replacement
RR Siphon Modification
Siphon Upgrades (Right Map)
A - K GCID Main Canal Improvements
GCID Main Canal Road Improvements
DATA SOURCES: City Boundary (TIGER/Line) - U.S. Census Bureau, 2014; Railroads - Caltrans, 2013; Canal, River and Creek/Slough (NHD) - USGS, 2018; GCID System Upgrades (Points) - ICF, 2020; Siphon Upgrades (Polygons) and GCID Main Canal Road Improvements - AECOM, 2020; Aerial Imagery (NAIP) - USDA, 2020.
DISCLAIMER: This exhibit is preliminary and is subject to change.
MAP DATE: 8/30/2023
FIGURE 2-8
GCID SYSTEM UPGRADES
0 1 2
MILES
Sites
PATH: \\PDCCITRDSGIS01\PROJECTS_1\SITES_PA\00528_20\FIGURES\DOC\EIREIS\1_DEIR\01_ADEIR\CHAPTER 2\FIG2-8_GCID_SYSTEM_UPGRADES.MXD - USER: 34153 - DATE: 8/30/2023


B
GCID Main Canal
C
D
E
GCID Main Canal
F
G
H
J
K
Hunters Creek
Tehama
Chico
Glenn
Butte
Sacramento River
Colusa
Sutter
Yuba
Lake
LEGEND
B - K GCID Main Canal Improvements
DATA SOURCES: Creek/Slough (NHD) - USGS, 2018; GCID Main Canal Improvements - Jacobs, 2020; Aerial Imagery (NAIP) - USDA, 2020.
DISCLAIMER: This exhibit is preliminary and is subject to change.
MAP DATE: 3/24/2021
FIGURE 2-9
GCID SYSTEM UPGRADES CONTINUED
N
0
500
1,000
FEET
Sites
PATH: \\PDCCITRDSGIS1\PROJECTS_1\SITES_PA\80528_20\FIGURES\DOCE\REIS\1_DEIR\01_ADEIR\CHAPTER2\FIG2-9_GCID_SYSTEM_UPGRADES_CONT.MXD - USER: 19105 - DATE: 3/24/2021

2.5.1.2 Regulating Reservoirs and Conveyance Complex

Multiple facilities would be required to control the conveyance of water between the Sites Reservoir, TC Canal, and GCID Main Canal. These facilities would include regulating reservoirs, pipelines, pumping generating plants (PGPs), electrical substations, and switchyards.

Terminal Regulating Reservoir

Pumping from the GCID Main Canal to Sites Reservoir would require construction of a TRR, TRR PGP, an electrical substation, and TRR pipelines. Two options for the location of the TRR facilities are being evaluated: TRR East (Alternatives 1 and 3) and TRR West (Alternative 2). Both options and facilities would encompass over 100 acres and would be located in Colusa County near the GCID Main Canal and east of Funks Reservoir. Asphalt concrete paved roads would provide onsite vehicle access between the PGP and electrical substation, with facility spacing to accommodate a mobile crane. Paved parking would be provided near the PGP. The PGP and electrical substation would encompass approximately 7 acres and would be enclosed with security fence with access gates.

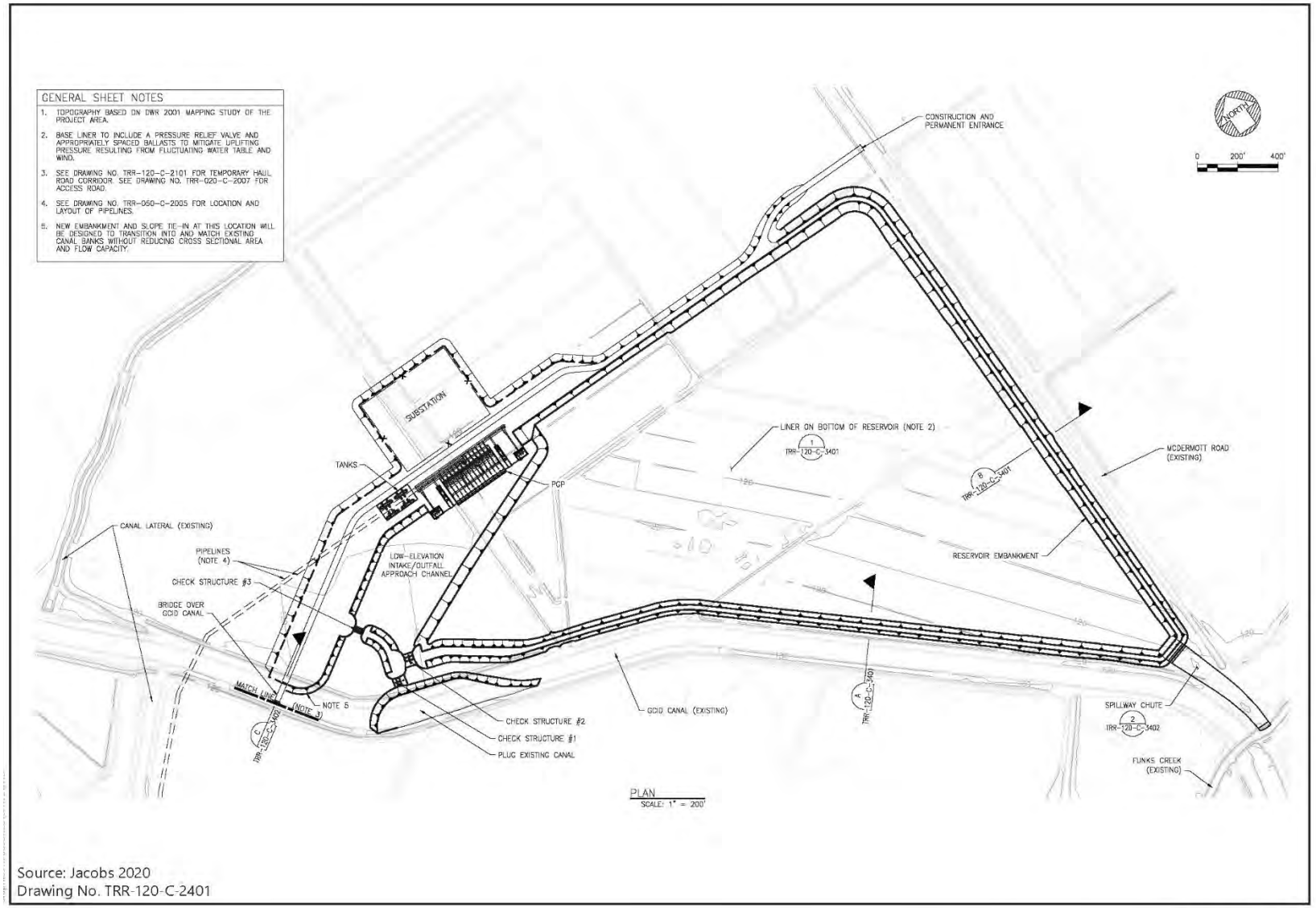
TRR East or TRR West would encompass approximately 100 acres and have a storage capacity of approximately 600 AF. Both TRR East and TRR West would have an impermeable lining consisting of a geomembrane overlying geocomposite placed over compacted earth. TRR East would have earthen embankments around the perimeter. The TRR would be hydraulically connected to the GCID Main Canal to allow water to be conveyed to and from the Sites Reservoir. The TRR would accommodate inflows of up to 1,800 cfs. The GCID Main Canal would be the conveyance source of water for the TRR and its PGP to pump water to Sites Reservoir. The canal would also be the primary conveyance for releases of water from the TRR and its PGP from Sites Reservoir. Figures 2-10a and 2-10b depict the locations of the TRR-related facilities.

The TRR East and TRR West facilities are within a designated Federal Emergency Management Agency (FEMA) Special Flood Hazard Area, Zone A, Without Based Flood Elevation. Site drainage would be conveyed off site to the existing GCID Main Canal or directly into the TRR through shallow swales or overland flow.

TRR Pumping Generating Plant

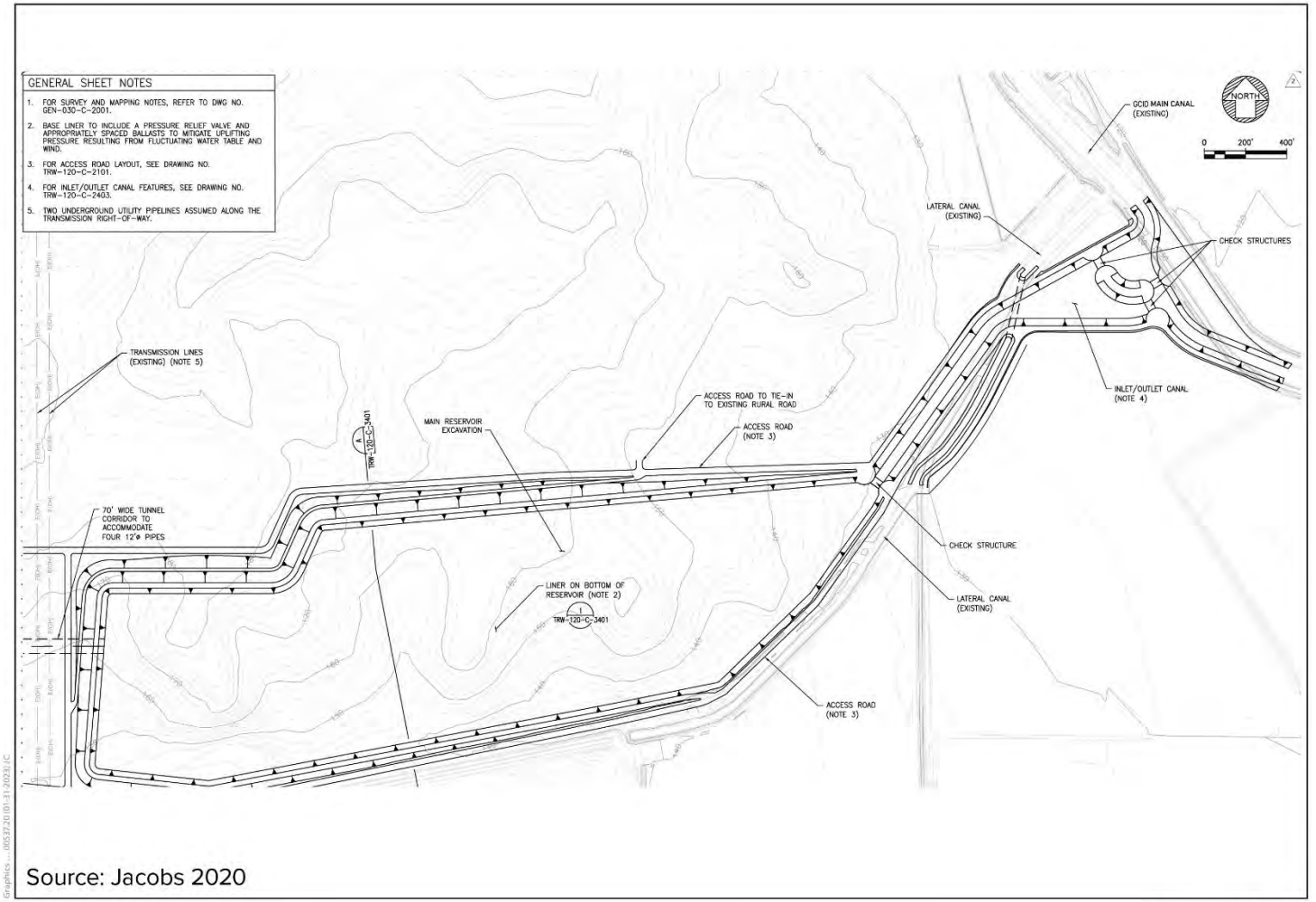
A TRR PGP would pump water from the TRR to Sites Reservoir; the PGP would include hydroelectric turbines to generate electricity when water was released from Sites Reservoir to the TRR. The PGP would include the following three facilities in five buildings: one pump station, two turbine generator buildings, and two energy dissipating structures (Figures 2-11a and 2-11b). The pumping plant would have a design capacity of 1,800 cfs, the generating plant 1,000 cfs, and the energy dissipation facilities sized to accommodate DWR Division of Safety of Dams (DSOD) emergency release drawdown requirements.

The pump station would support the pumps at the edge of the TRR and be designed to minimize pump vibration. A trashrack would be installed at the front of the wet well to exclude debris. Bulkhead slots would be provided at each wet well to allow bulkheads to be installed and isolate pump bays for maintenance. The pump station would contain thirteen 9,000-hp pumps in a single row. Six pumps each would feed into two 12-foot-diameter pipes connecting to the turbines (discussed below), and there would be a single standby pump that could feed into either pipe. It is anticipated that all pumps would have a variable frequency drive to adjust to the variable pumping heads while staying within the pump operating range and efficiency.



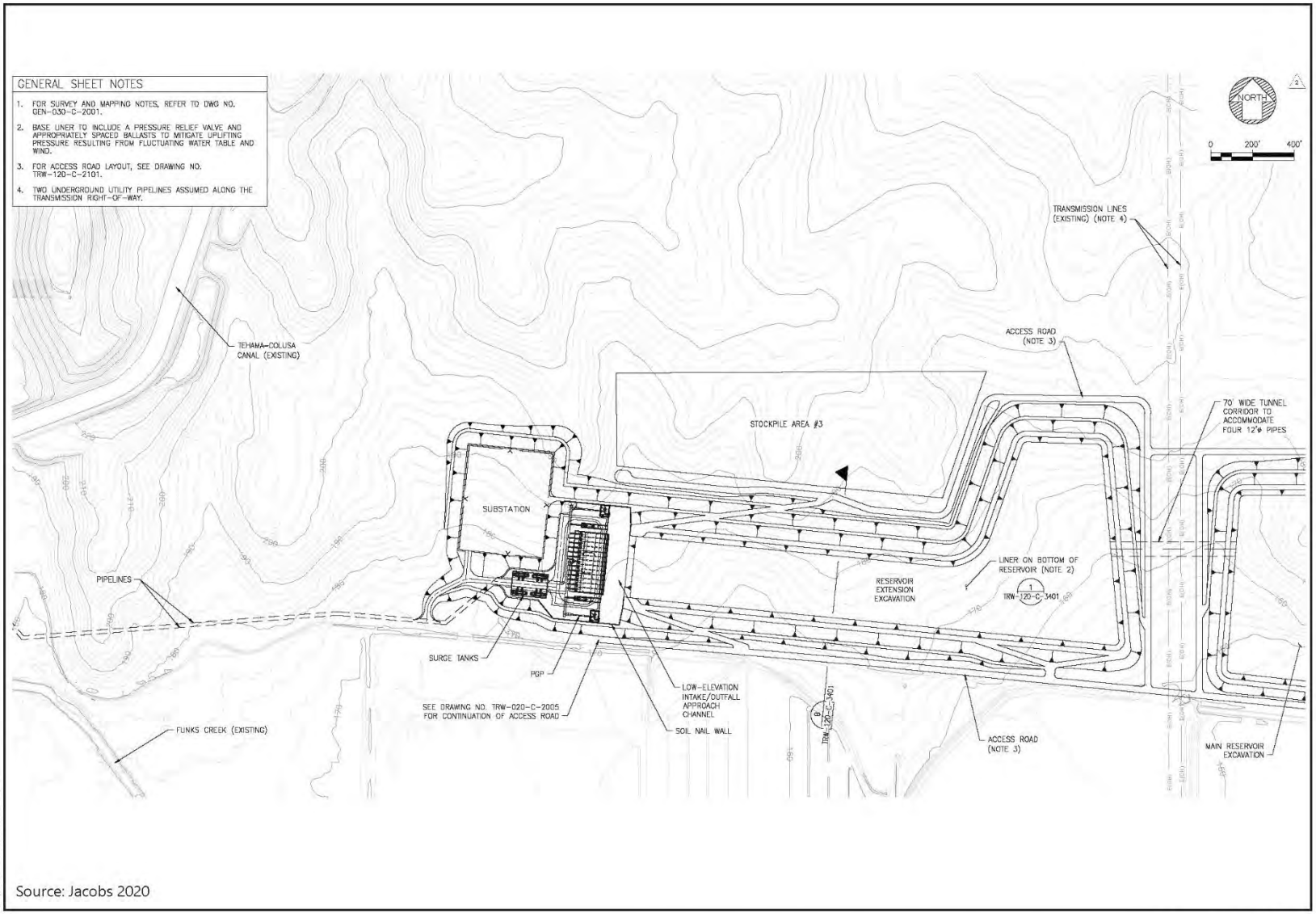
Source: Jacobs 2020
Drawing No. TRR-120-C-2401

Figure 2-10A
Terminal Regulating Reservoir East Facilities Site Plan



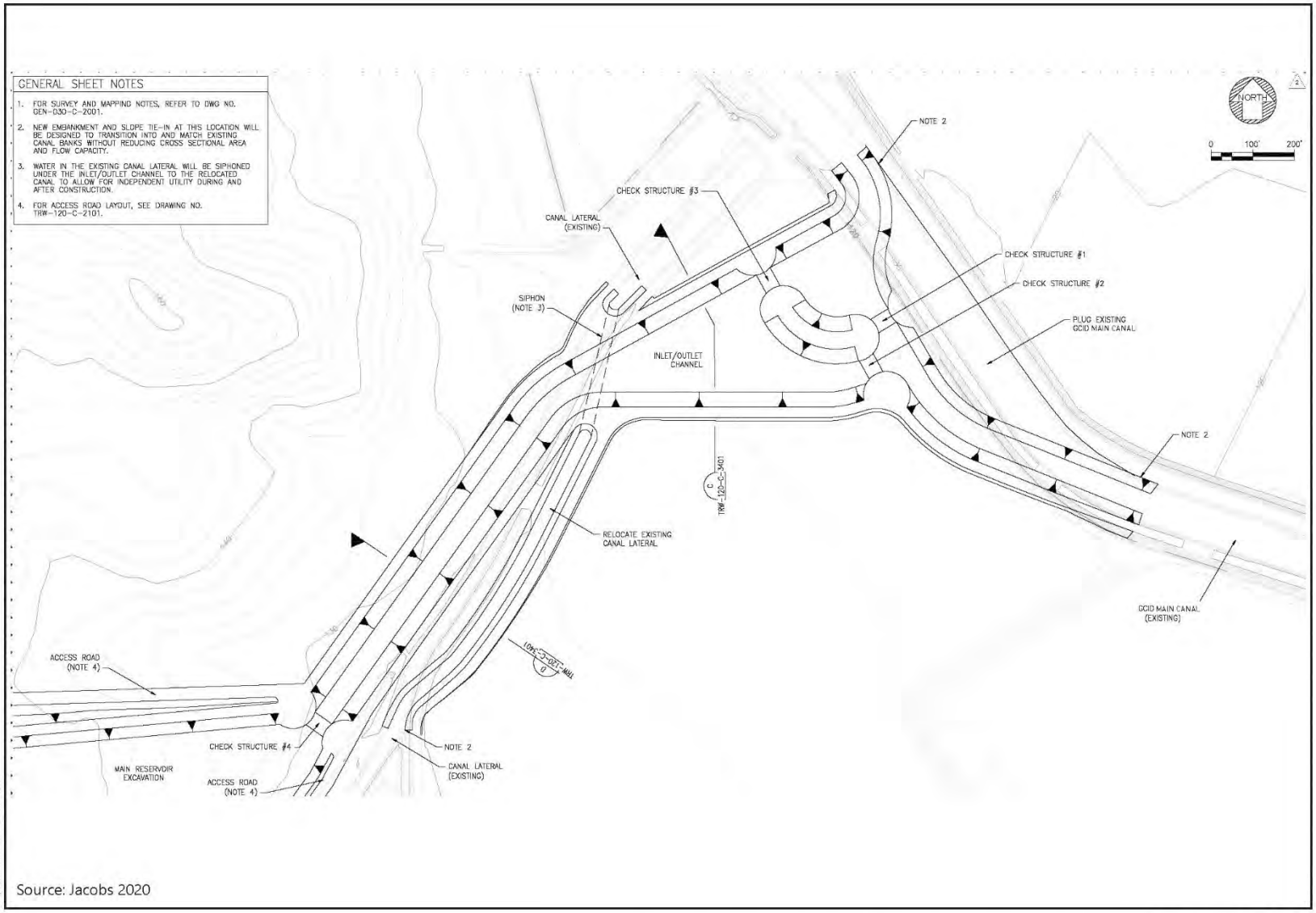
Source: Jacobs 2020

Figure 2-10B1
Terminal Regulating Reservoir West Main Reservoir Plan



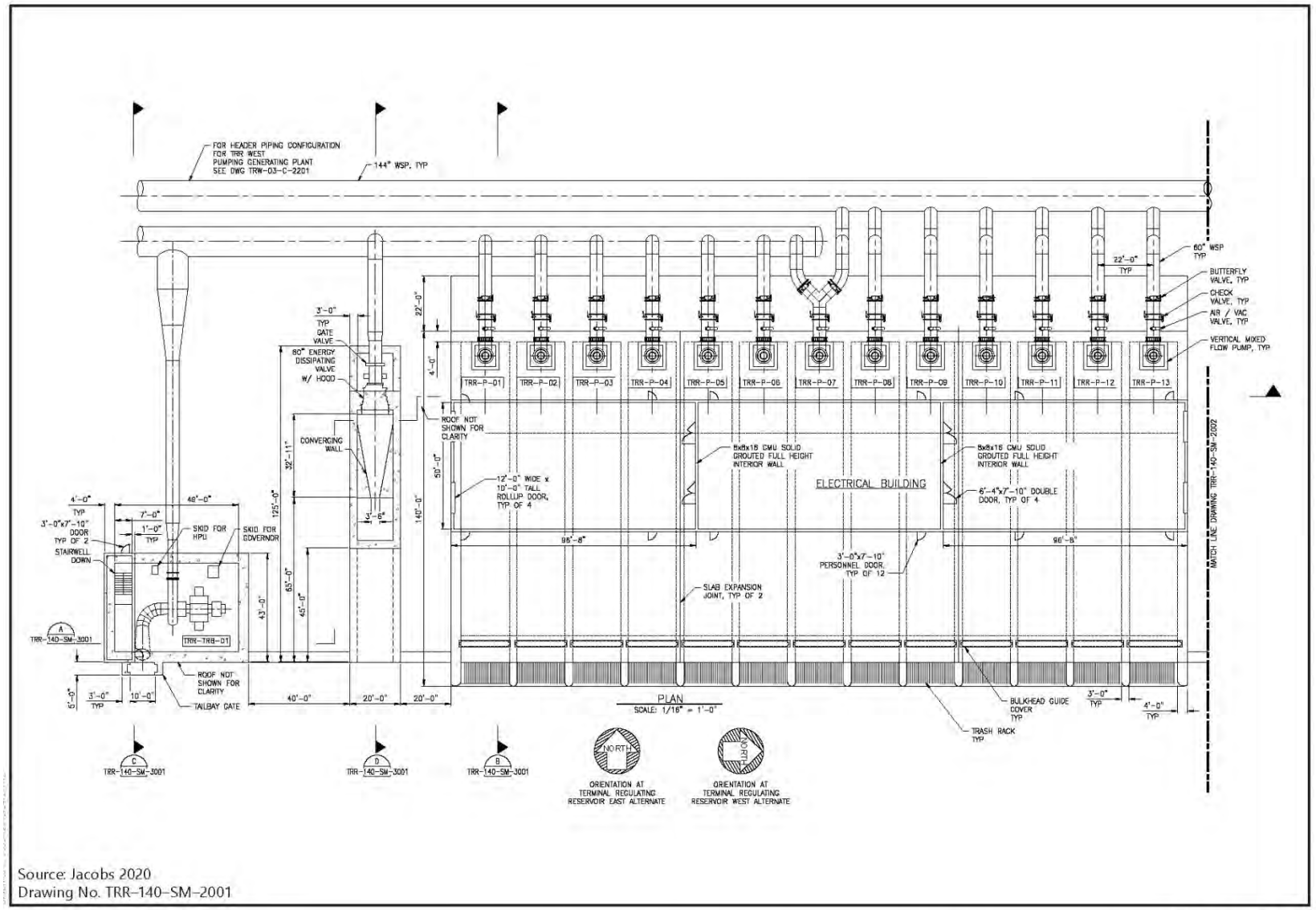
Source: Jacobs 2020

Figure 2-10B2
Terminal Regulating Reservoir West Reservoir Extension Plan



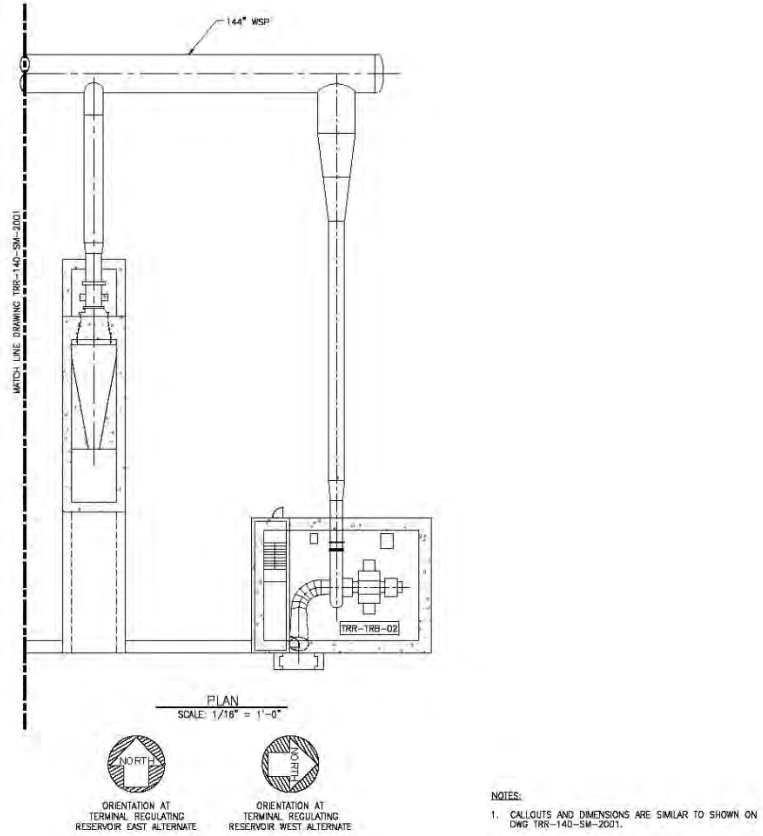
Source: Jacobs 2020

Figure 2-10B3
Terminal Regulating Reservoir West Inlet/Outlet Canal Plan



Source: Jacobs 2020
Drawing No. TRR–140–SM–2001

Figure 2-11A
Terminal Regulating Reservoir East and West Alts Pumping Generating Plant



Source: Jacobs 2020
Drawing No. TRR-140-SM-2002

Figure 2-11B
Terminal Regulating Reservoir East and West Alts Pumping Generating Plant

The two turbine generator buildings would house the turbines, generator, draft tube, associated piping appurtenances, and other electrical equipment. There would be two 13-megawatt (MW) turbines (one for each 12-foot-diameter pipe) that would have a horizontal laying flow pattern. The turbines would discharge water into a draft tube prior to exiting into the TRR. Because the discharge would need to be submerged, the turbines would be in an underground structure with a roof. The aboveground portion of the turbine generator buildings would consist of concrete masonry unit walls.

The two energy dissipation valve structures would allow releases back to the TRR as back-ups to the hydroelectric turbine facilities. These structures would each contain a stilling basin and fixed cone valve to dissipate energy before water enters the TRR. There would be a 60-inch fixed cone valve on each of the two 12-foot-diameter pipes for a total of two 60-inch fixed cone valves and a total flow of 1,000 cfs.

TRR Electrical Substation

An electrical substation would be required to provide electricity to the TRR PGP facilities. The electrical substation would connect to existing Pacific Gas and Electric Company (PG&E) or Western Area Power Administration (WAPA) lines. The substation would be constructed on approximately 1.5 acres within the TRR PGP footprint to the north of the TRR. The dimensions of the electrical substation would depend on whether it is connected with PG&E or WAPA lines. The substation would be approximately 460 feet long by 300 feet wide if connected to PG&E lines and be 300 feet long by 240 feet wide if connected to WAPA lines. Figure 2-12 provides a plan view of the facility.

The electrical substation would use electrical equipment that meets the standards of the National Electrical Manufacturers Association, American National Standards Institute, and Institution of Electrical and Electronics Engineers. Additionally, equipment that is listed or labeled as meeting the safety standards or ratings identified by Underwriter Laboratories or a nationally recognized testing laboratory would also be used. The substation design would include primary safety equipment (e.g., circuit breakers, utility-grade relays) and meet the total pumping power requirements or total generation requirements. Section 2.5.2.2, *Energy Generation and Energy Use,* contains additional information regarding the pumping power requirements or total generation requirements. The substation would have sufficient redundancy such that the failure of any one component would permit the substation to be safely and reliably isolated from the transmission system under fault conditions.

TRR Pipelines

Two underground TRR pipelines would convey water approximately 4–4.5 miles between the TRR PGP and Sites Reservoir. Figures 2-13a and 2-13b show the location and alignment route of the pipelines for TRR East and TRR West, respectively. The 12-foot-diameter pipes for either TRR West or TRR East would extend from the TRR PGP, under Funks Reservoir, and terminate at the transition manifold south of Funks Creek near the Golden Gate Dam. Both TRR pipelines would connect to a 32-foot-inside diameter I/O tunnel at the transition manifold.

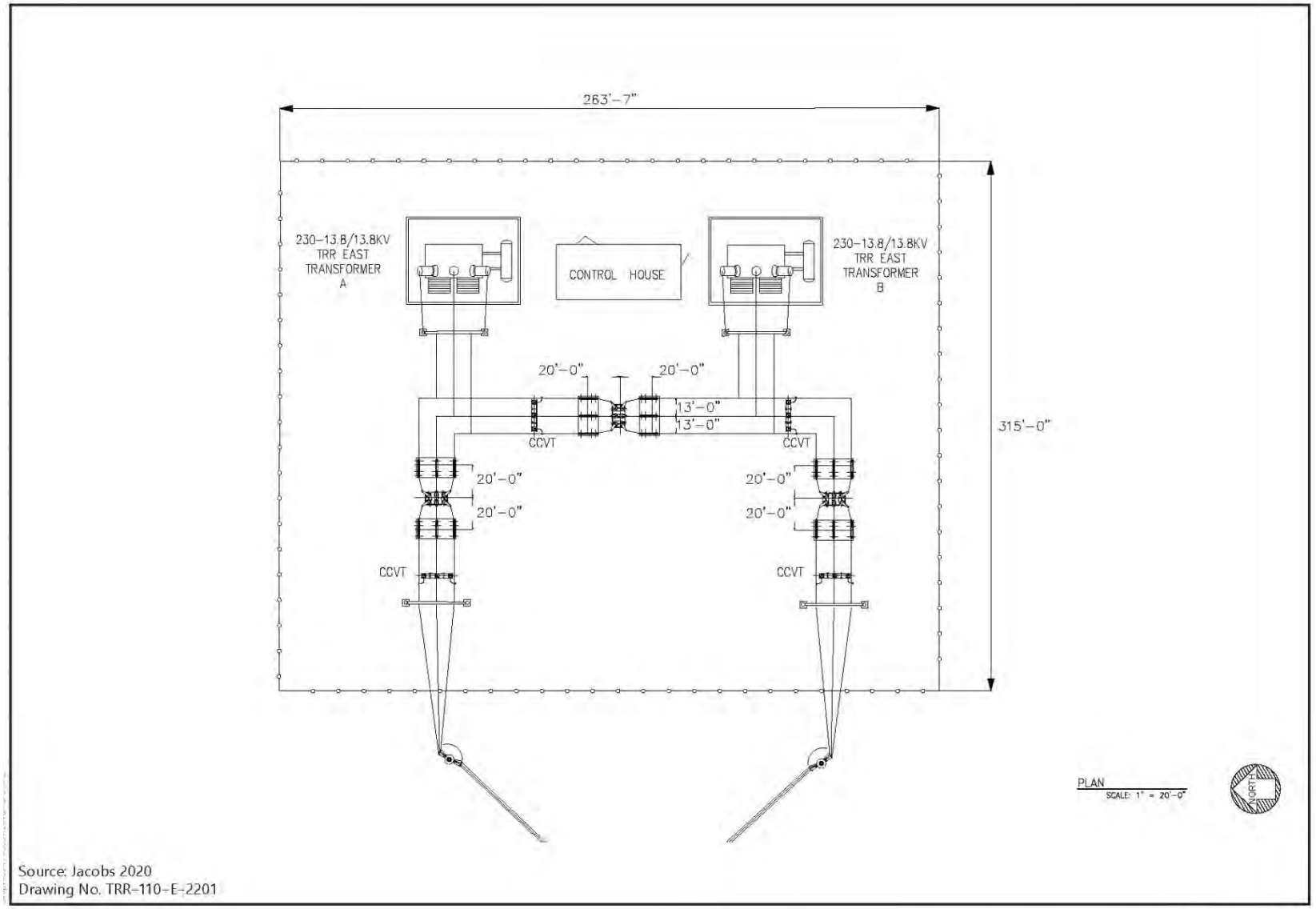


Figure 2-12
Terminal Regulating Reservoir East or West Substation

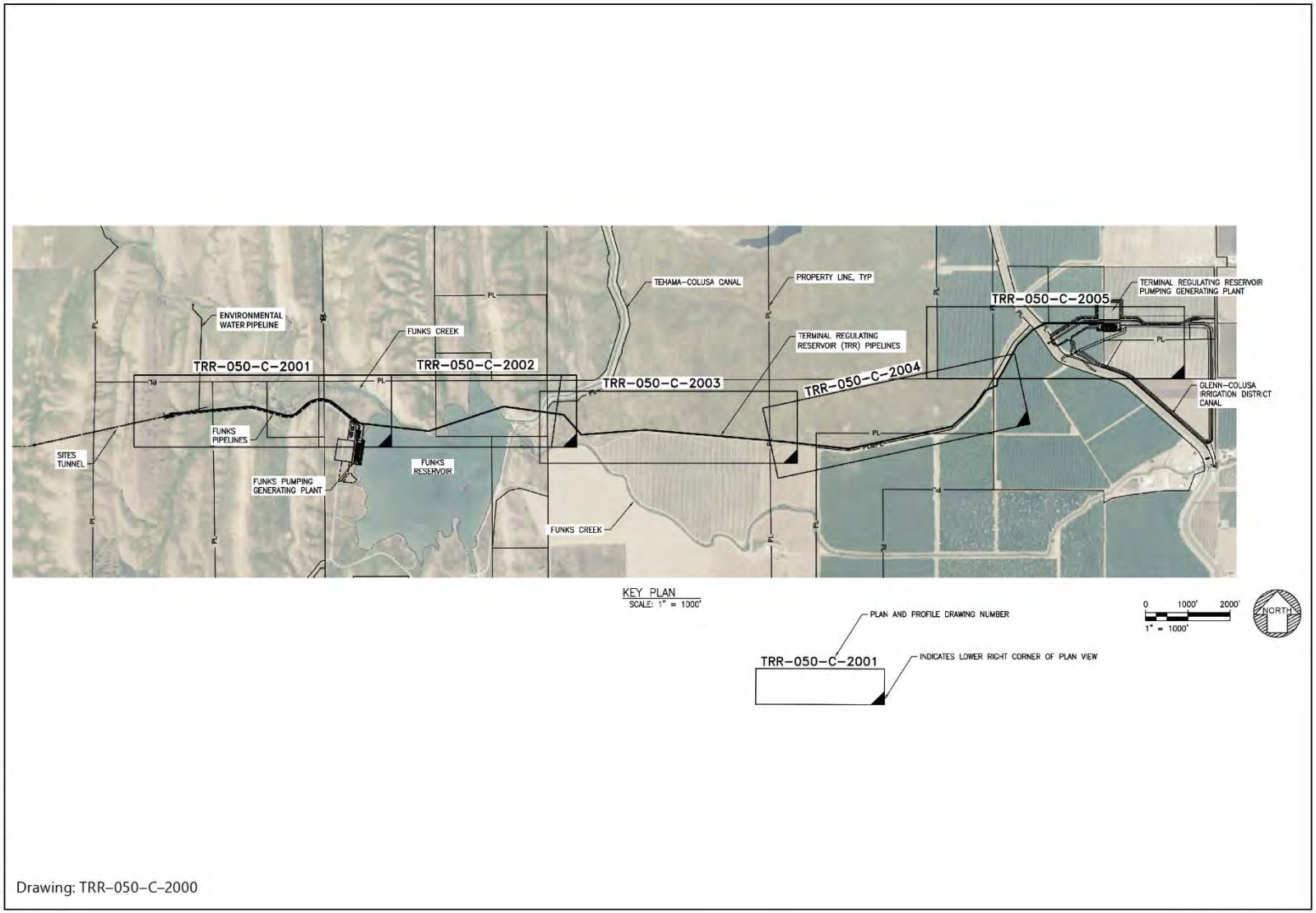


Figure 2-13A
Terminal Regulating Reservoir East Pipelines

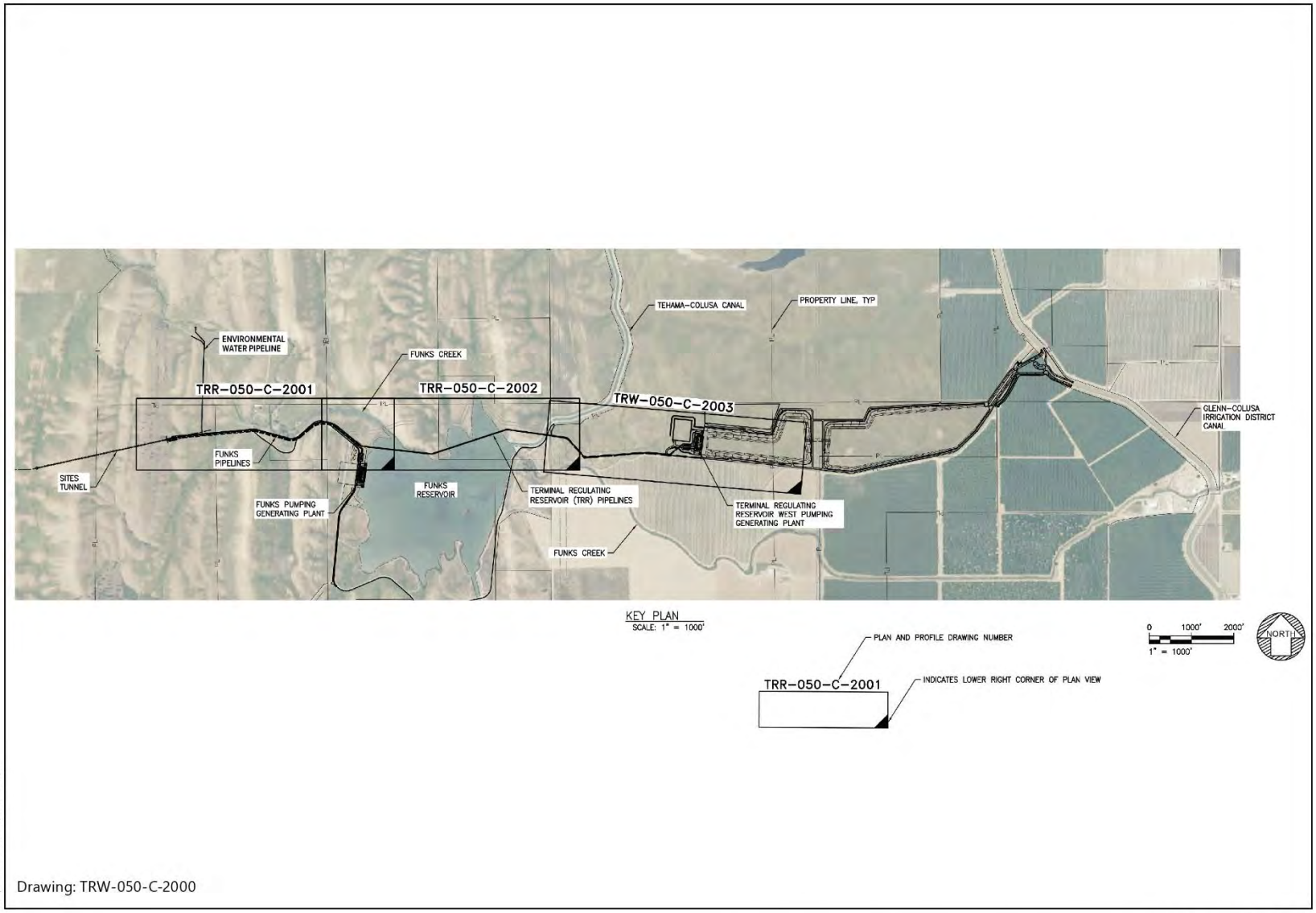


Figure 2-13B
Terminal Regulating Reservoir West Pipelines

Funks Reservoir

The Project would involve excavating sediment from the existing Funks Reservoir and constructing the Funks PGP, an electrical substation, and Funks pipelines. These facilities would be constructed on approximately 7 acres that are west of the TC Canal in Colusa County (Figure 2-14). The existing Funks Reservoir would be used to store and pump water from the TC Canal to and from Sites Reservoir. The Project would not alter the footprint of Funks Reservoir; however, 740,000 cubic yards of sediment that has accumulated since its construction would be excavated from the reservoir. The excavation is anticipated to restore the original capacity of Funks Reservoir of 2,250 AF. Excavation would proceed to an elevation of approximately 197 feet in the reservoir and 185.5 feet near the Funks PGP on the western side. The bottom of Funks Reservoir would be reshaped to allow unimpeded flows to and from the Funks PGP. The excavated sediment would be stockpiled adjacent to Funks Reservoir as shown on Figure 2-15. The sediment may be used for construction purposes, if suitable, or graded in place and revegetated. The reservoir is usually dewatered from the end of December through early February for TC Canal maintenance purposes. The Funks Reservoir and associated facilities would be enclosed by a security fence with access gates on the south and northwest sides.

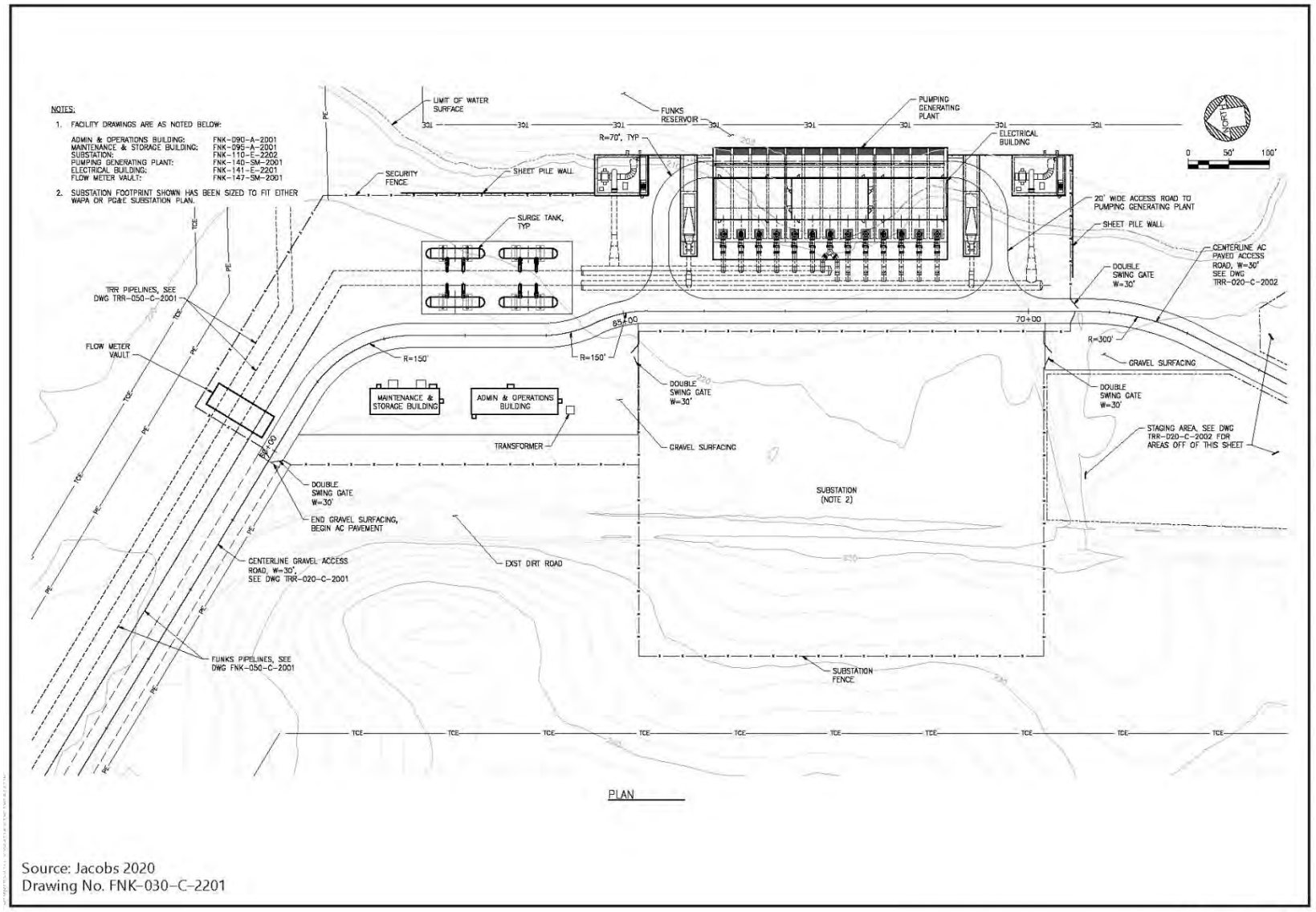
A gravel parking area would be provided near the PGP. Asphalt concrete paved, onsite vehicular access would be provided between the Funks PGP and electrical substation, with facility spacing to accommodate a crane. The facilities site would be accessed by an asphalt concrete paved road from Maxwell Sites Road to the south. Existing gravel roads would be improved to be 30 feet wide, with asphalt concrete surfacing for the southern access route, and would be relocated through the site. A gravel bypass road may be provided to the west of the site. On the north side of the facilities site, the existing dirt road would be improved to be a gravel road that would follow the existing road alignment until it reaches the TRR pipeline. At that location, a new access road would be built along the Funks and TRR pipelines to the connection with the I/O tunnel.

The Funks Reservoir-related facilities would be located in a FEMA Area of Minimal Flood Hazard, Zone X. Onsite drainage would be conveyed offsite directly into Funks Reservoir through shallow swales or overland flow. Offsite stormwater runoff would be collected on the west side of the site in a ditch, conveyed around the site, and deposited into Funks Reservoir.

The existing Funks Reservoir would be used as a source of water to pump to Sites Reservoir and would receive water discharged from the reservoir. The Funks Reservoir operational water surface elevation (WSE) can only vary slightly from the TC Canal and the reservoir WSE typically ranges from 200 to 205 feet, although the preferred operational WSE range is 202 to 204 feet.

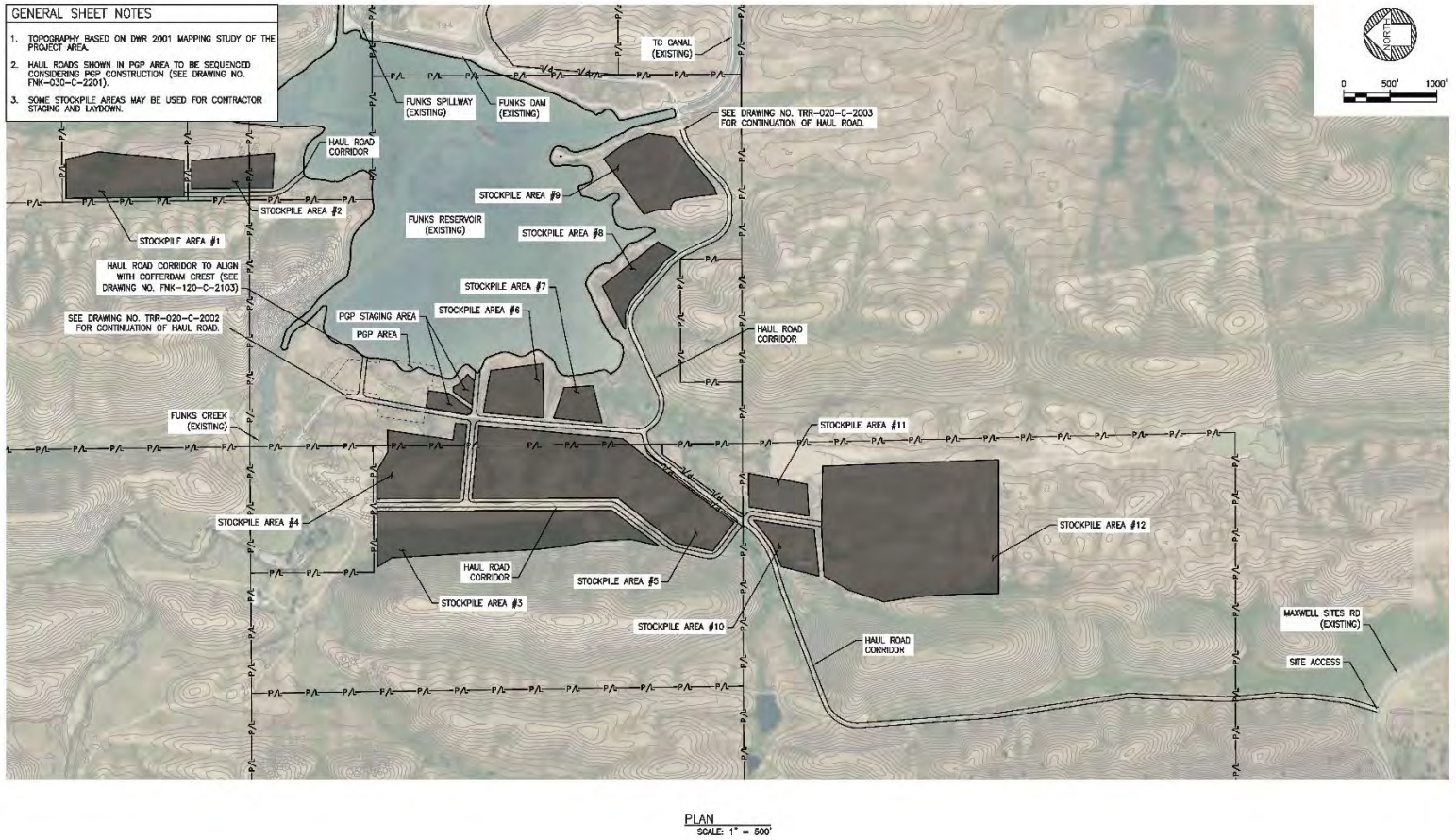
Funks Pumping Generating Plant

The Funks PGP would be used to pump water from Funks Reservoir to Sites Reservoir (Figures 2-16a and 2-16b). The PGP would be constructed on the northwest side of Funks Reservoir. The PGP would include the following three facilities in five buildings: one pump station, two turbine generator buildings, and two energy dissipation structures. An electrical building would also be constructed behind the pumps as part of the pump station.



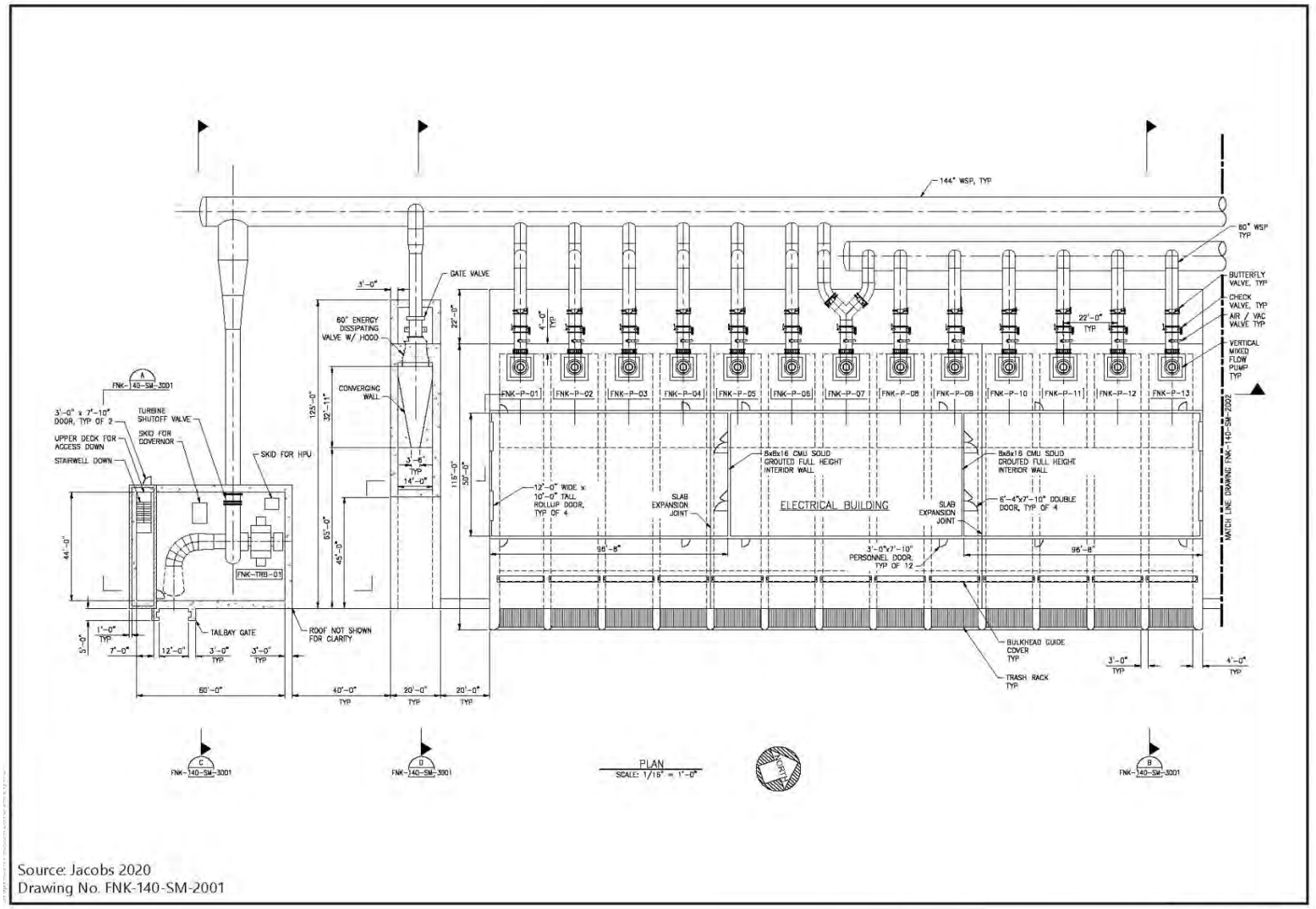
Source: Jacobs 2020
Drawing No. FNK-030-C-2201

Figure 2-14
Funks Reservoir Facilities Site Plan



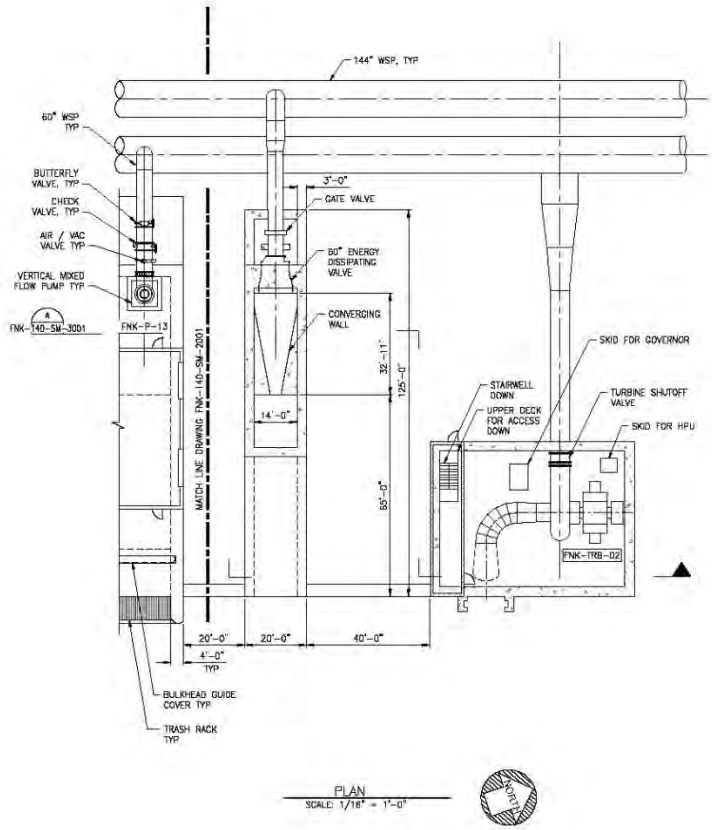
Source: Jacobs, 2020
Drawing No. FNK-120-C-2101

Figure 2-15
Funks Reservoir Stockpile and Haul Route Plan



Source: Jacobs 2020
Drawing No. FNK-140-SM-2001

Figure 2-16A
Funks Pumping Generating Plant Facilities



Source: Jacobs 2020
Drawing No. FNK-140-SM-2002

Figure 2-16B
Funks Pumping Generating Plant Facilities

The Funks pump station would be similar to the TRR pump station, except that the orientation of 12-foot-diameter pipelines would be different. The pump station would have a flow rate of 2,100 cfs and thirteen 8,000-hp pumps. The turbine generator buildings would be the same as described for the TRR PGP, and each generator would have a design criterion of 1,000 cfs for redundancy. There would be two turbines (20-MW and 14.5-MW). Each of the two energy dissipation structures would consist of a single 60-inch fixed cone valve with a design criterion of 1,000 cfs. There would be a 60-inch fixed cone valve on each of the two 12-foot-diameter pipes for a total of two fixed cone valves and a total flow of 2,000 cfs (1,000 cfs each).

Funks Electrical Substation

As with the TRR PGP, the Funks PGP would require a substation to provide electricity to the Funks PGP facilities. This substation would connect to either existing WAPA or PG&E lines. The substation would be located west of Funks Reservoir in the footprint of the Funks PGP and would encompass approximately 3 acres. The Funks electrical substation would be similar to the TRR electrical substation; it would be approximately 460 feet long by 300 feet wide if connected to PG&E lines and would be 300 feet long by 240 feet wide if connected to WAPA lines. The substation would be designed to accommodate the total pumping power requirements (import) or total generation requirements (export).

Funks Pipelines

Two underground Funks pipelines would convey water approximately 1 mile between the Funks PGP and Sites Reservoir. Figure 2-17 shows the location and alignment of the pipelines. The 12-foot-diameter pipes would extend from the Funks Reservoir and Funks PGP to the transition manifold south of Funks Creek near the Golden Gate Dam. The Funks pipelines would generally run parallel to the TRR pipelines. After curving around Funks Creek and hilly areas, the Funks pipelines would run south, deviating from the TRR pipeline alignment, to the Funks PGP. The Funks pipelines would connect to the 32-foot-diameter I/O tunnel at the transition manifold. After installation, the pipelines would generally be from 6 feet to 25 feet below ground surface.

Transition Manifold

The transition manifold would be constructed to the south of Golden Gate Dam to connect Sites Reservoir to Funks Reservoir and the TRR. The transition manifold would be installed approximately 6 feet below ground surface and would be approximately 114 feet long by 92 feet wide. The structure would connect the four 12-foot-diameter conveyance pipelines from Funks Reservoir and TRR to one 32-foot-diameter I/O tunnel, which are discussed in Section 2.5.1.4, *Sites Reservoir and Related Facilities*. The transition manifold would have isolation valves to close off the pipelines and allow for maintenance.

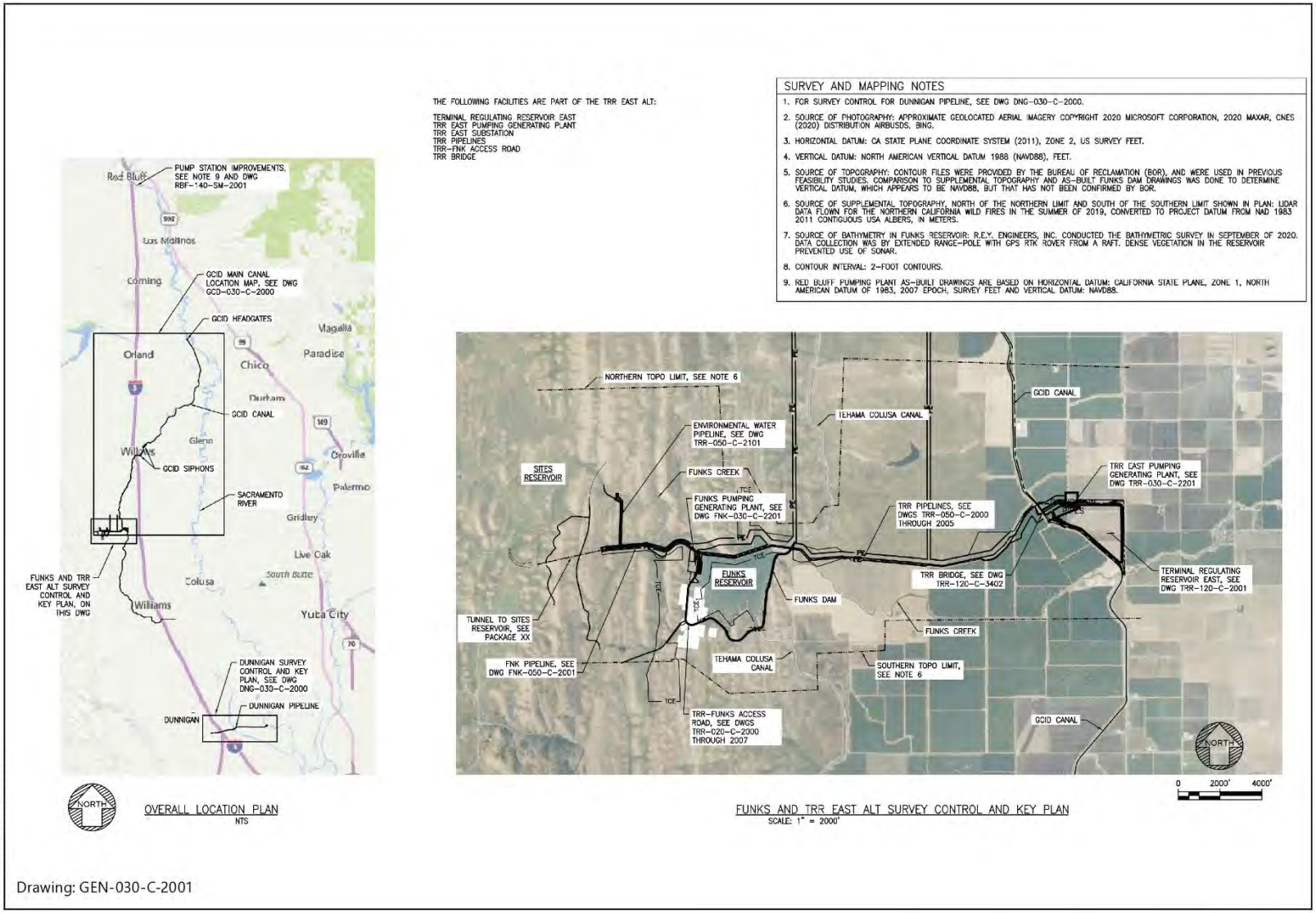


Figure 2-17
Alternatives 1 and 3 Conveyance Complex Facilities

A 42-inch-diameter underground pipeline would extend 2,800 feet north from the transition manifold to Funks Creek. The pipeline would discharge flows into an energy dissipation structure before they entered the creek. The purpose of this pipeline and energy dissipation structure is to release water to Funks Creek for environmental purposes (described further in *Funks Creek and Stone Corral Creek Releases* subsection). The pressure-reducing valve to dissipate energy before the water is discharged into Funks Creek is necessary because the water pressure would be a function of the Sites Reservoir elevation. The pipeline would be sized to accommodate a range of discharges (zero to 100 cfs) to provide water for the approximately 1.8-mile stretch of Funks Creek below Golden Gate Dam to Funks Reservoir. Construction of the transition manifold would occur after the I/O tunnel is constructed. Construction means and methods would be similar to those for the TRR and Funks pipelines (Appendix 2C).

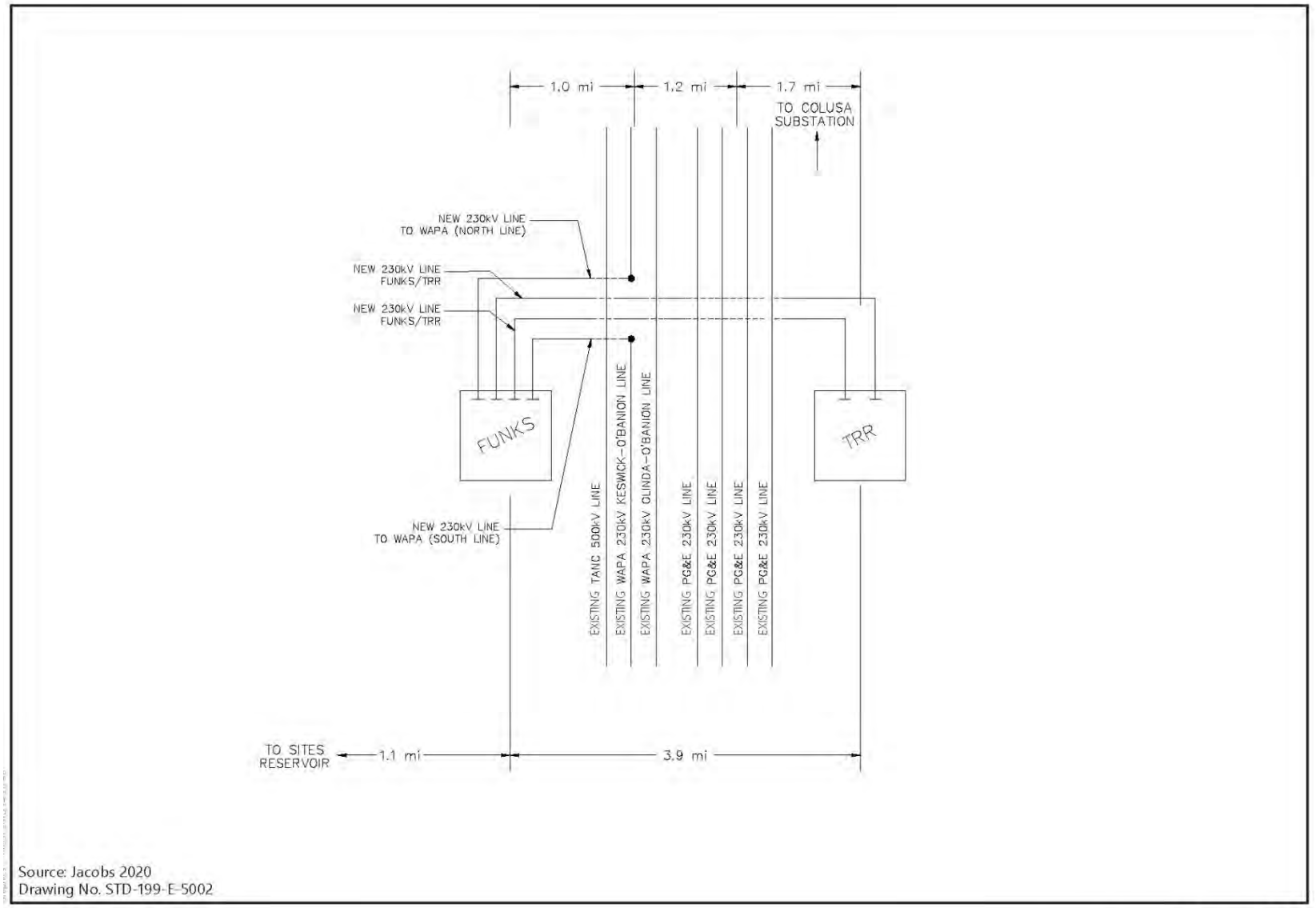
Electrical Transmission Connections

New high-voltage transmission lines would be required to provide power to the Funks and TRR PGPs. Transmission lines connecting Funks and TRR substations would also be required. Interconnecting to the existing transmission system would be necessary to provide the electricity needed to operate the large pumps at the TRR and Funks Reservoir. This interconnection would also enable the energy produced at the Funks and TRR PGPs to enter the transmission system during periods of operation that use their respective turbines/generators. The general laydown areas and construction means and methods of the two substations and the point of interconnection (POI) substation and high-voltage transmission lines that connect either PG&E or WAPA facilities to Sites facilities are provided in Appendix 2C.

North-South Transmission Connections

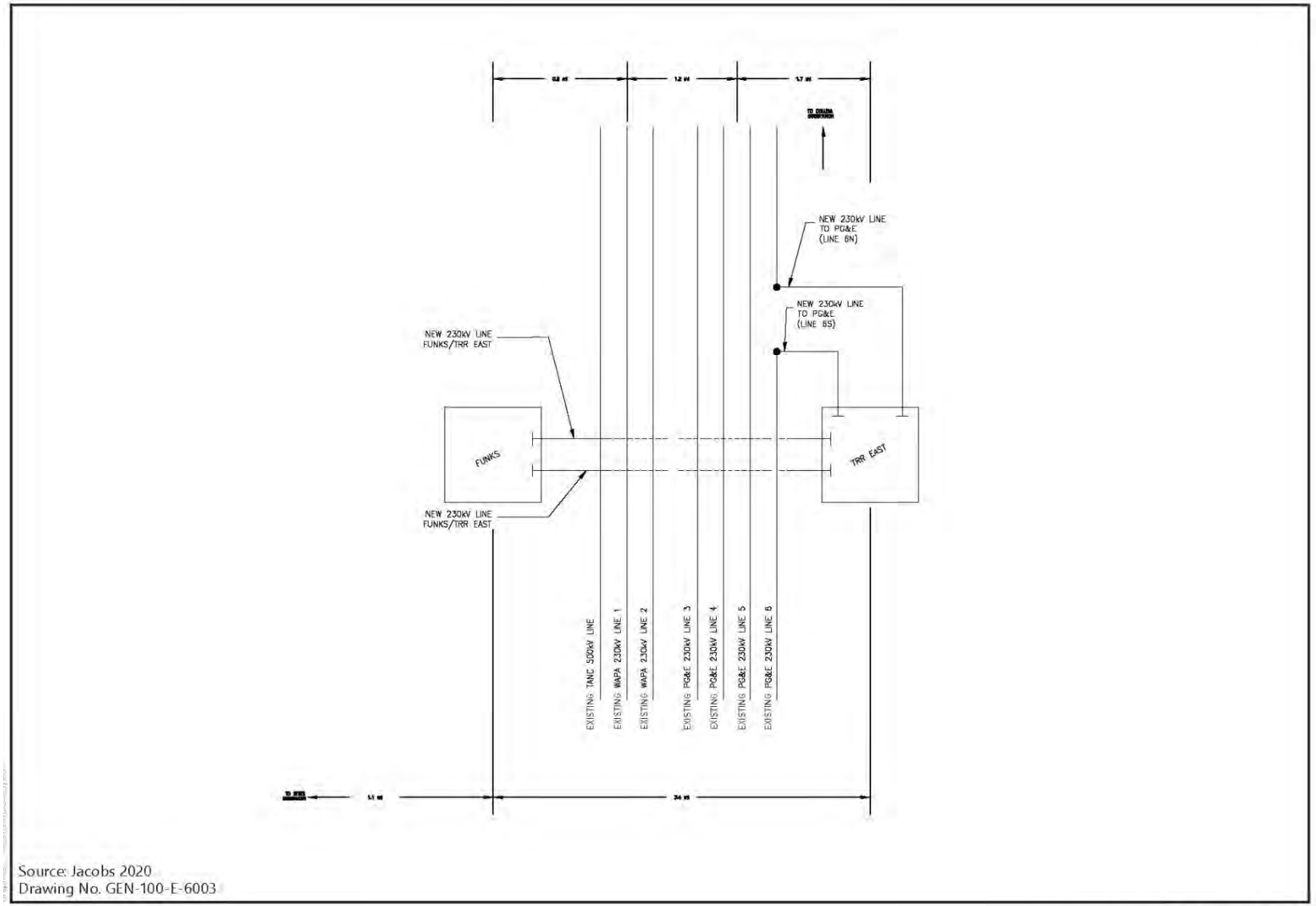
New transmission lines originating between Funks Reservoir and TRR would connect to WAPA or PG&E existing facilities. Two 230-kilovolt (kV) lines owned and operated by WAPA are located north of Funks Reservoir, and four 230-kV lines owned and operated by PG&E are located west and north of the TRR. WAPA and PG&E are defined as the Transmission Owner and the Transmission Operator of their respective high-voltage transmission lines. Each of these lines is a POI location; a POI to a high-voltage electric transmission line would be required to provide power. Figures 2-18 and 2-19 provide a schematic sketch showing the WAPA and PG&E alternative POI arrangements and the required transmission line lengths to the Funks and TRR electrical substations. The POI may require a third substation, which would be located adjacent to the WAPA or PG&E 230-kV lines.

The POI between the electrical substations and existing transmission lines would require that an application for interconnection request be submitted and processed under the California Independent System Operator (CalISO) interconnection process. The location of the POI to the WAPA or PG&E 230-kV transmission lines would depend on the results of a system impact study completed by WAPA or PG&E in conjunction with CalISO.



Source: Jacobs 2020
Drawing No. STD-199-E-5002

Figure 2-18
WAPA Schematic Sketch



Source: Jacobs 2020
Drawing No. GEN-100-E-6003

Figure 2-19
PG&E Schematic Sketch

East-West Transmission Lines

There would also be an interconnection between the Funks and TRR PGPs, and it is anticipated that the transmission lines would parallel the pipelines within the same easement. Up to four 230-kV transmission lines would be required: two for the source supply to either of the PGPs and two between the Funks and TRR electrical substations. The two looped source circuits would be installed on a set of common double-circuit steel monopole structures and would require separate easements because they would not parallel any of the pipelines (Figure 2-20). The two transmission lines between the Funks and TRR electrical substations would be installed on their own common set of double-circuit steel monopole structures within the pipeline easement (Figure 2-21).

2.5.1.3 Administration/Operations and Maintenance/Storage Buildings

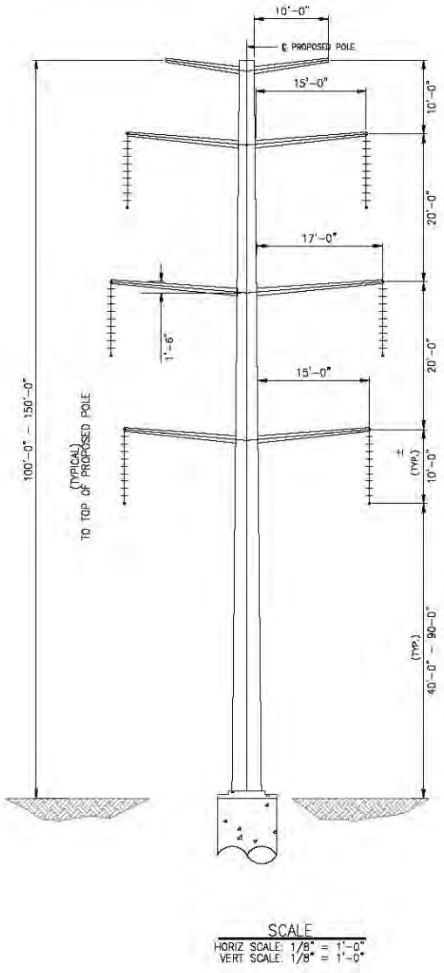
The Project would involve the construction of an administration and operations building and a maintenance and storage building. These two buildings would be located along the existing gravel access road to the Funks PGP on approximately 0.15 acre. The administration and operations building would be a one-story building encompassing approximately 3,400 square feet. The maintenance and storage building would be a one-story building encompassing roughly 2,700 square feet.

Utilities required for these buildings include a septic system at least 100 feet away from Funks Reservoir and Funks Creek (per county code), potable water provided from groundwater wells, and electricity obtained from the Funks Reservoir switchyard. The building designs would be in accordance with the California Building Code and would provide asphalt concrete paved onsite parking and vehicular access. Figures 2-22 and 2-23 show the plan view and elevation view of these two buildings.

Construction of the buildings would include clearing and grading; transporting materials and placing them at staging areas; and constructing ancillary facilities (e.g., potable water source, septic system, lighting, concrete pad for refueling island, aboveground fuel tanks, perimeter fencing).

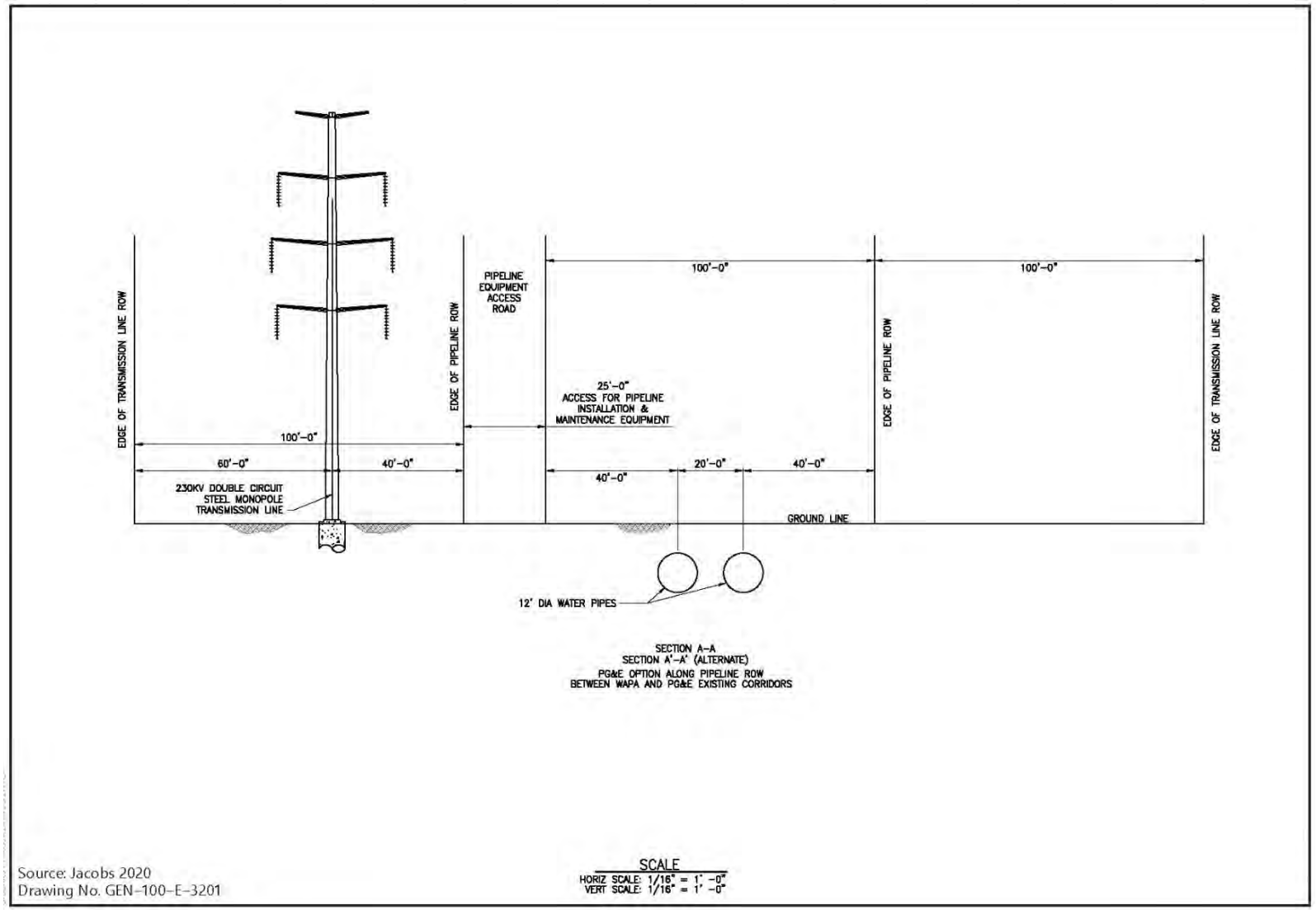
2.5.1.4 Sites Reservoir and Related Facilities

The Project would construct Sites Reservoir, I/O Works, two main dams (Golden Gate Dam, Sites Dam), saddle dams, and saddle dikes. Water from Funks Creek and Stone Corral Creek would be impounded in the inundation area by the construction of Golden Gate Dam and Sites Dam, respectively. A series of saddle dams along the eastern and northern rims of the reservoir would close off topographic saddles in the surrounding ridges to form Sites Reservoir. The saddle dikes would be constructed at the northern end of the reservoir. These components are described in the following sections. A helipad would be constructed near both Sites and Golden Gate Dams for emergency access. Figures 2-1 and 2-3 provide the location of the Sites Reservoir, Golden Gate Dam, Sites Dam, saddle dams, saddle dikes, and I/O Works.



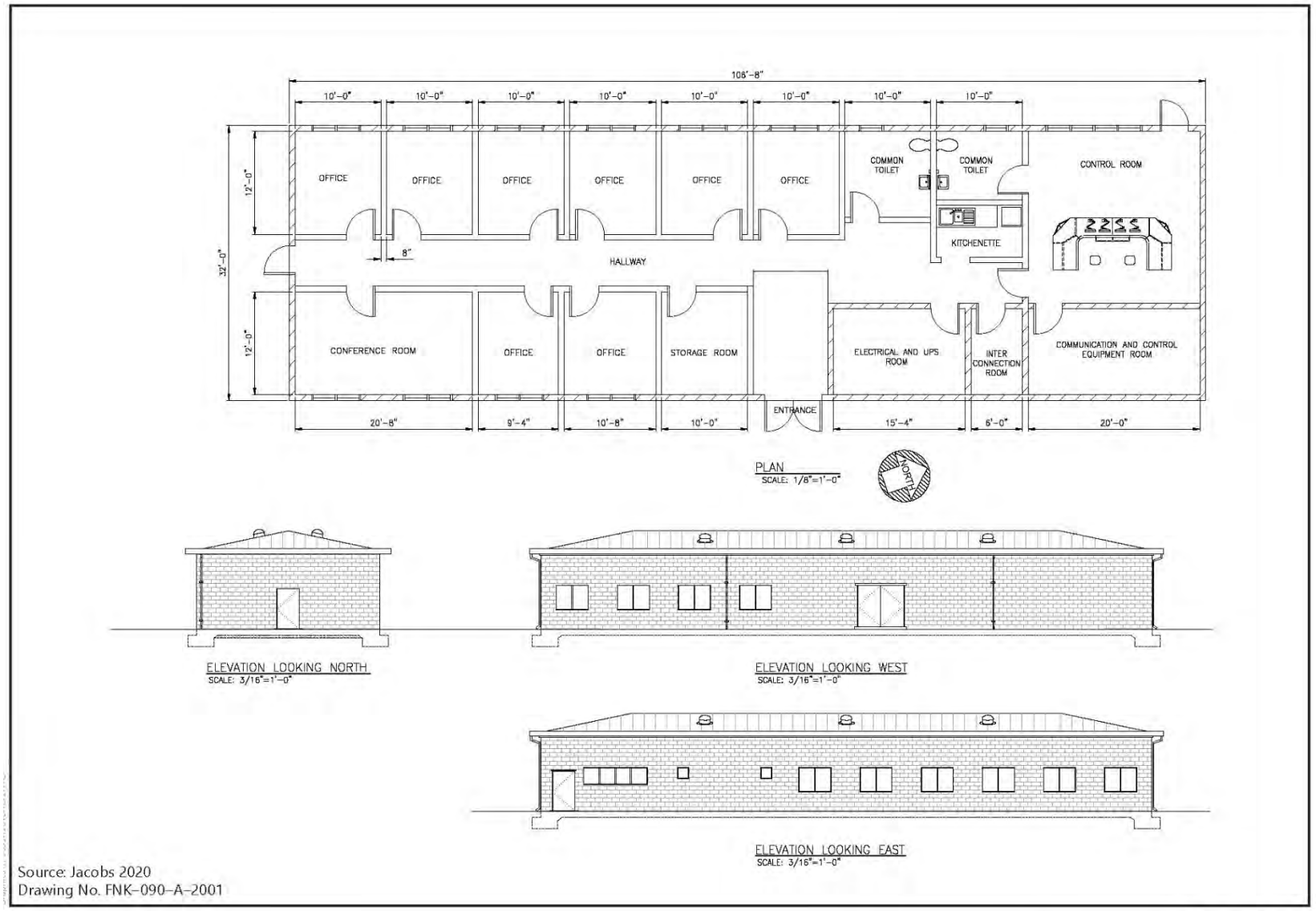
Source: Jacobs 2020
Drawing No. GEN–100–E–5001

Figure 2-20
Double-Circuit Source Transmission Poles



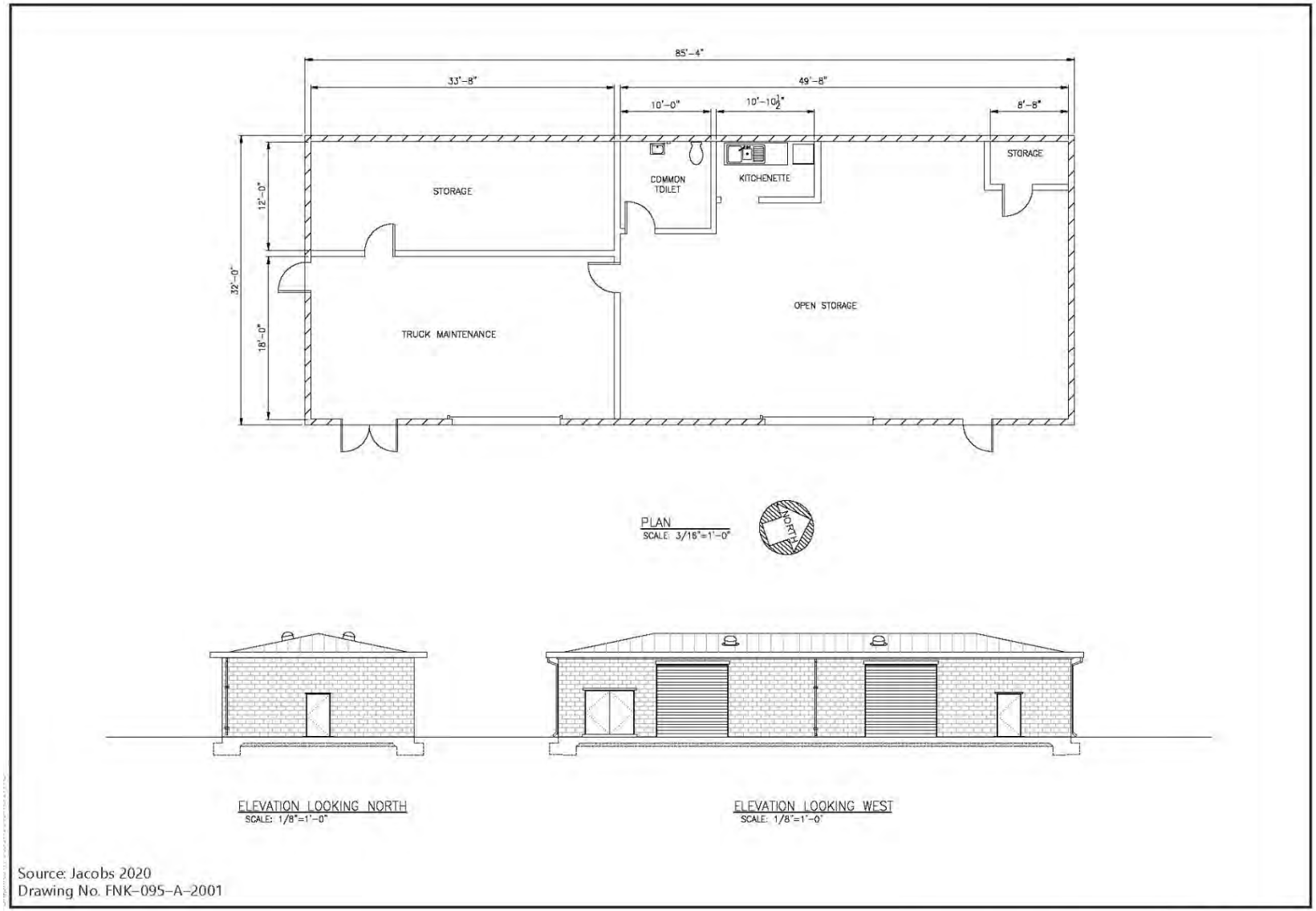
Source: Jacobs 2020
Drawing No. GEN-100-E-3201

Figure 2-21
Alternatives 1, 2, and 3 Funks Reservoir to Terminal Regulating Reservoir East or West Electrical Interconnection



Source: Jacobs 2020
Drawing No. FNK–090–A–2001

Figure 2-22
Administration and Operations Building



Source: Jacobs 2020
Drawing No. FNK–095–A–2001

Figure 2-23
Maintenance and Storage Building

Inlet/Outlet Works

The I/O Works for the reservoir would generally be located south of Golden Gate Dam. Figures 2-24 and 2-25 show the plan and profile view, respectively, of the I/O Works. The I/O Works consists of a low-level intake, multi-level sloped I/O tower, and one I/O tunnel. These structures are described in the subsections below, and Appendix 2C provides the engineering schematics for each structure.

The I/O Works would be designed to meet maximum water supply commitments, as well as safely pass emergency releases per DSOD requirements. The I/O Works would allow a maximum release of 16,000 cfs. The I/O Works would meet water supply demands, including summer irrigation, downstream with an estimated maximum release flow of 3,100 cfs. The I/O Works would also allow inflows pumped into the reservoir from the TC Canal and GCID Main Canal; the maximum inflows are anticipated to be 3,900 cfs.

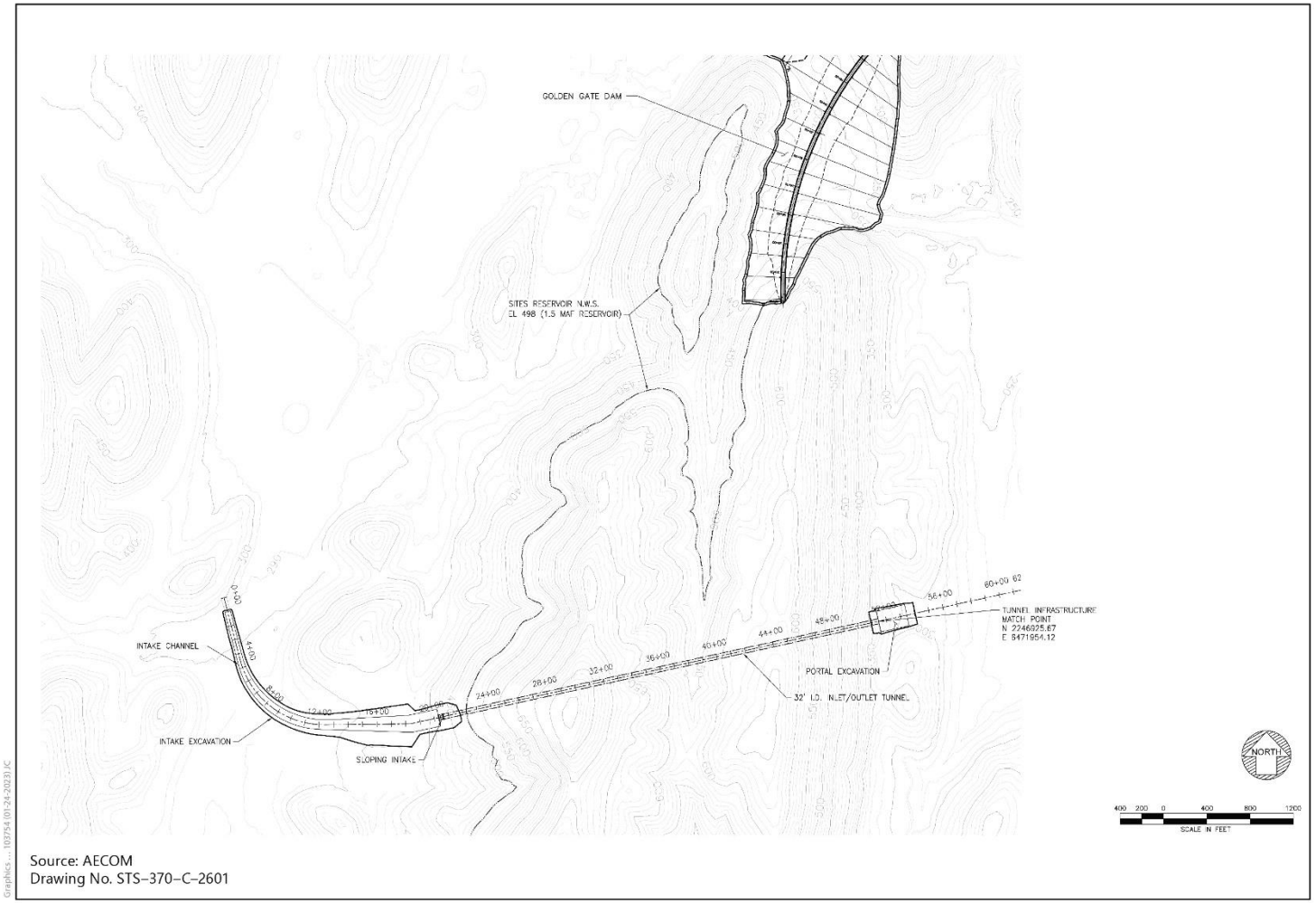
Construction of the I/O Works would disturb approximately 30 acres in the inundation area and a similarly sized area at the downstream tunnel portal. The construction disturbance footprint would encompass the sloping intake; tunnel portal; materials, spoils, and equipment staging areas; and access roads. A portion of the footprint outside the inundation area would overlap with the disturbance area for the conveyance system. Major construction activities associated with the I/O Works would consist of dewatering the construction site with an onsite treatment facility, excavating the hillside for the downstream and upstream tunnel portals, tunneling and hauling tunnel muck to a disposal area, using spoils from the tunnels for Golden Gate Dam or disposing of them in the inundation area, excavating for the multi-level tower shaft, building the multi-level tower, building the low-level intake, and completing grading and site cleanup.

The construction of the tunnels that would connect the Sites Reservoir to the Funks and TRR pipelines would require excavating the tunnels, installing the tunnel support systems, and controlling groundwater. The I/O tunnel would be constructed using a combination of drill-and-blast and road header excavation, depending on the strength of the rock, and pre-excavation measures would be used to stabilize the ground and reduce groundwater inflow. As construction proceeded, support systems would be installed, followed by the placement of the reinforced cast-in-place concrete tunnels and steel carrier pipe.

Low-Level Intake

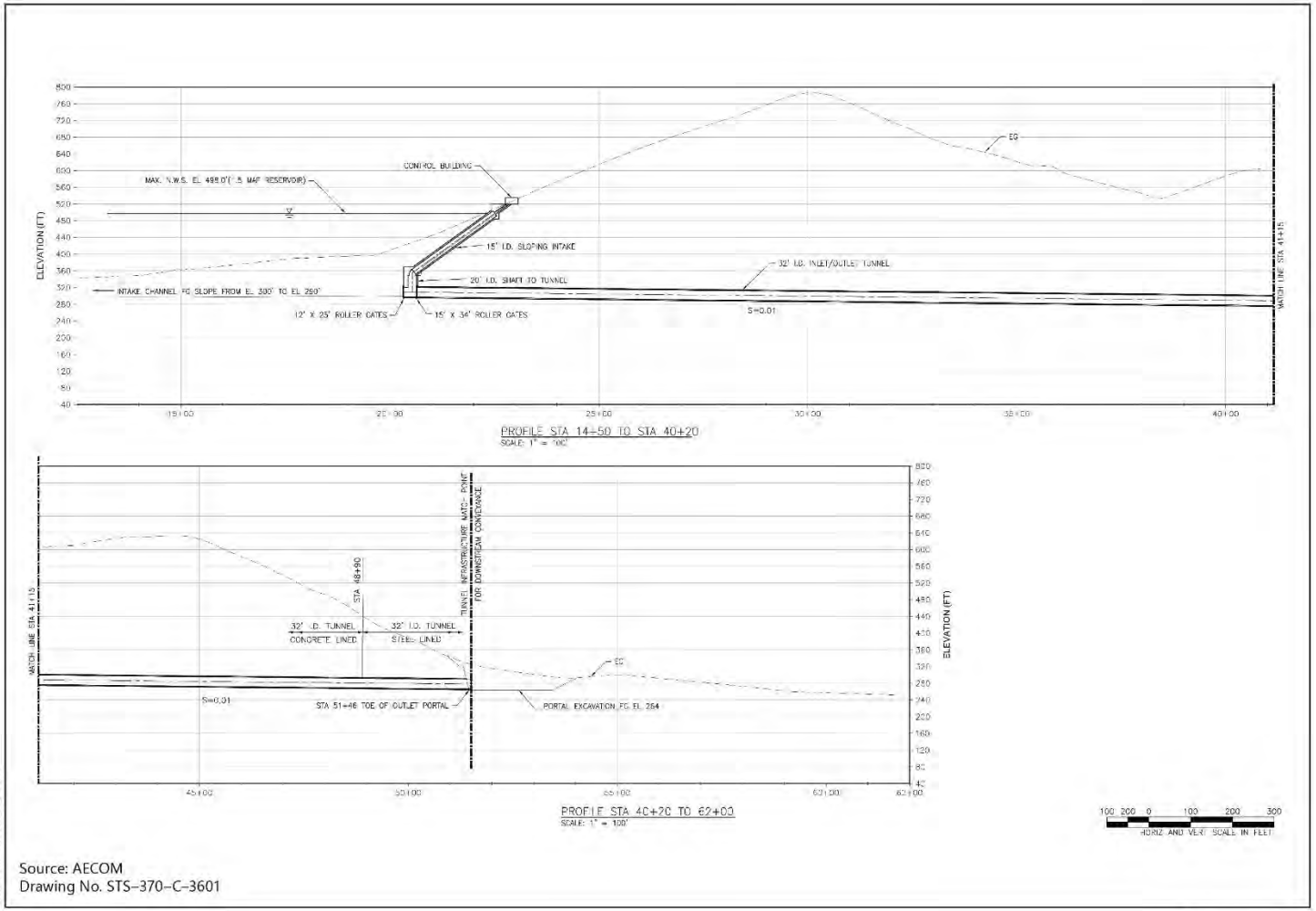
The low-level intake would be used to meet DSOD-required emergency drawdown releases; Section 2.5.2.1, *Water Operations*, contains additional information about these requirements. This intake would also release stored water below the lowest ports in the I/O tower during drought conditions.

The low-level intake would be at an elevation of 300 feet to allow for sediment accumulation over a 100-year Project life. Flows would not be pumped in directly from the Sacramento River, and the main source of sediment is expected to be from local runoff in the reservoir watershed. The intake channel would be excavated down to an elevation of approximately 290 feet. The installation of bar-type trashracks would protect the I/O tunnel from damage and keep debris from clogging the flow streams. The low-level intake would be designed to allow for inspection and maintenance.



Source: AECOM
Drawing No. STS–370–C–2601

Figure 2-24
Plan of Inlet/Outlet Works Site



Source: AECOM
Drawing No. STS–370–C–3601

Figure 2-25
Profile of Inlet/Outlet Works Site

I/O Tower

The vertical, free-standing I/O tower evaluated in the RDEIR/SDEIS for Alternatives 1, 2, and 3 has been redesigned as a sloped I/O tower. The sloped I/O tower would be supported by the reservoir slope for all alternatives. The sloped I/O tower would eliminate the need for significant seismic reinforcement and therefore provide cost savings. There would not be a measurable change in the size or location of the I/O tower footprint. The 300-foot-tall, multi-level I/O tower would allow flows into and out of the reservoir through the use of ports around the tower's perimeter. These ports would be in tiers at multiple elevations and equipped with roller gates or valves, which would allow for operational flexibility, including managing the temperature/quality of water released from the reservoir. The tower would also have moveable fish screens. The moveable fish screens would be sized as design progresses and criteria are established by the Authority in consultation with the applicable regulatory agencies. Head gates at the bottom (300 feet elevation) of the I/O tower would allow access to the I/O tunnel. The lower portion of the I/O tower would be anchored in bedrock, and the connections at the tower and abutments would accommodate differential movement that may occur during the design seismic event. Table 2-2 summarizes key design characteristics for the I/O tower.

Table 2-2. Summary of I/O Tower Design Characteristics

Key Characteristic	Alternatives 1 and 3	Alternative 2
Maximum Normal Water Surface Elevation*	498 feet above mean sea level	482 feet above mean sea level
Top of Tower Elevation	558 feet above mean sea level	542 feet above mean sea level
Top Tier Port Centerline Elevation	470 feet above mean sea level	450 feet above mean sea level
Maximum Number of Ports	21 (3 each at 7 tiers)	18 (3 each at 6 tiers)
Minimum Port Size	5.5-foot-wide by 7-foot-high rectangular ports have been assumed; Ports would be sized such that the maximum operational drawdown (3,900 cfs) can be achieved with ports at two levels (6 ports total)	

*This would also be the maximum normal operating water elevation
cfs = cubic feet per second.

Six or seven operating levels (or tiers) are anticipated based on the current design. The upper tiers would be spaced 20 feet on center, with centerlines at elevations ranging from 370 to 450 feet (Alternative 2) or 470 feet (Alternatives 1 and 3). The lowest tier would be centered at 340 feet, 30 feet below the next lowest tier at 370 feet elevation (Alternatives 1, 2, and 3). The tiers would be constructed at different elevations to allow flexibility to withdraw water based on its quality. At each tier there would be three ports on alternating faces of the hexagonally shaped tower. These ports would be controlled by roller gates or valves.

The head gates would be located in the I/O tower base at 300 feet elevation to allow the isolation of its tunnel for maintenance, inspection, and operational needs. The head gates would be designed to prevent outflow from the I/O tower at the full range of reservoir levels. The gates would be able to open (i.e., raise) and close under all normal reservoir operations and if emergency releases were required. Gates for the I/O tunnel would be closed to prevent outflow

for operational purposes (downstream release, maintenance, or dewatering for inspection or equipment change out). Emergency raising and lowering of the gates by emergency power upon loss of electricity would be required.

One 32-foot-inside-diameter I/O tunnel would extend from the I/O tower through the ridge on the right abutment of Golden Gate Dam. It would daylight on the other side of the ridge and connect to the transition manifold. The tunnel would be about 3,110 feet long, connect to the multi-level tower at approximately 300 feet elevation, and have a downstream slope of 1%.

Dams and Dikes

The Project would involve the construction of the main dams, saddle dams, and saddle dikes. The heights of these facilities and the numbers of saddle dams and dikes would differ between Alternatives 1 and 3 and Alternative 2 (Table 2-3). The dams and dikes are discussed in more detail below.

Table 2-3. Main Dams, Saddle Dams, and Saddle Dikes for Alternatives 1, 2, and 3

Dam/Dike	Alternatives 1 and 3		Alternative 2	
	Maximum Height Above Streambed (feet)	Length (feet)	Maximum Height Above Streambed (feet)	Length (feet)
Sites Dam	267	781	250	729
Golden Gate Dam	287	2,221	270	2,063
Saddle Dam 1	27	318	--	--
Saddle Dam 2	57	250	--	--
Saddle Dam 3	107	3,422	90	2,677
Saddle Dam 5	77	1,894	60	1,747
Saddle Dam 6	47	362	--	--
Saddle Dam 8A	82	1,300	62	1,140
Saddle Dam 8B	37	475	20	277
Saddle Dike 1	12	122	10	148
Saddle Dike 2	12	198	20	79
Saddle Dike 3	--	--	30	247

Sites Dam and Diversion Tunnel

Sites Dam would be on Stone Corral Creek approximately 0.25 mile east of the community of Sites and 8 miles west of the community of Maxwell. The dam would be designed to safely accommodate potential fault displacement by providing widened filter, drainage, and transition zones. Sites Dam would be an embankment dam consisting of a combination of earth and rockfill embankment zones[3] with a central impervious core, exterior upstream rockfill shell, and

[3] Zones include Zone 1 Clay Core; Zone 2 Filter and Drain materials; Zone 3 Rockfill, and Zone 4 Random fill.

downstream earthen shell. The upstream and downstream slopes of the dam embankment would be 2.25:1 (horizontal: vertical; H:V) and 2H:1V, respectively. The upstream and downstream slopes of the dam's central core would be 0.5H:1V. Figure 2-26 provides a plan view of Sites Dam and Figure 2-27 presents a section view of Sites Dam.

Sites Dam would have a permanent diversion pipeline and tunnel that would be constructed in the left abutment of the dam. The approximately 1,600-foot-long tunnel would contain a 1,900-foot-long pipe with an inner diameter of 12 feet. The pipe would be fitted with one or more valves sized to release flow up to 100 cfs[4] into Stone Corral Creek. The Sites Dam piping system is expected to include a bar trashrack, a slide gate, a separate fish screen and inlet valve to support Stone Corral Creek release flows, a stoplog bulkhead, and a permanent air vent assembly. The fish screen would be designed and sized to meet the requirements for aquatic life protection.

Stone Corral Creek would be diverted for construction of Sites Dam. A coffer dam would be installed to enable construction of the dam embankments in dry conditions. During construction, storm flows would be conveyed in the 12-foot-diameter diversion tunnel through the ridge at Sites Dam. This tunnel would prevent a potential seepage path from forming through the embankment. Water in Stone Corral Creek would be diverted directly into the creek diversion pipeline through the Sites Dam abutment and re-enter the creek channel on the east side of the Sites Dam work area. The outlet tunnel with two 84-inch-diameter fixed cone valves would accommodate these releases, and an energy dissipating chamber would reduce the velocity of the water released.

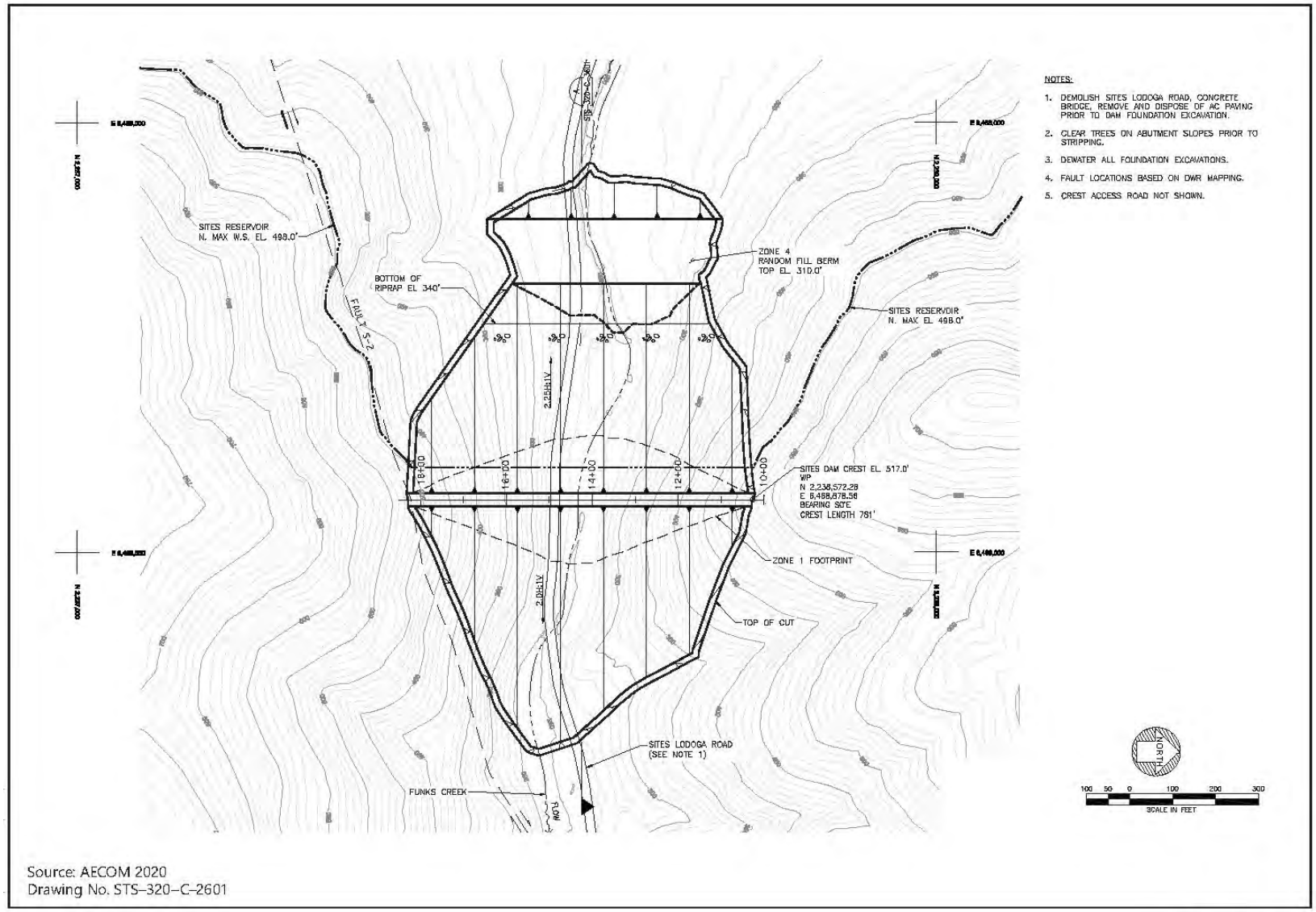
Golden Gate Dam

Golden Gate Dam would be on Funks Creek approximately 1.8 miles west of Funks Reservoir. The dam type and material, upstream slopes, and downstream slopes would be the same as described for Sites Dam. Golden Gate Dam would not have a permanent diversion tunnel; all releases made would be through the I/O Works. Figure 2-28 provides a plan view of Golden Gate Dam and Figure 2-29 presents a section view of Golden Gate Dam.

Funks Creek would be diverted for construction of Golden Gate Dam. A coffer dam would be installed to enable construction of the dam embankments in dry conditions. At Golden Gate Dam, a 48-inch-diameter diversion pipe would be placed in the foundation of the dam to divert Funks Creek. The diversion pipe would be filled in and decommissioned after construction and prior to operation of the dam. The coffer dam would be left in place and become part of the main dam.

During construction, water would pond behind the coffer dam on Funks Creek, flow through the temporary pipe underneath the Golden Gate Dam construction site to the east side of the dam, and then re-enter the creek channel. The coffer dam would be designed to provide enough residence for settling to occur for typical flows in Funks Creek.

[4] There would be additional capacity for emergency releases.



Source: AECOM 2020
Drawing No. STS–320–C–2601

Figure 2-26
Sites Dam Plan

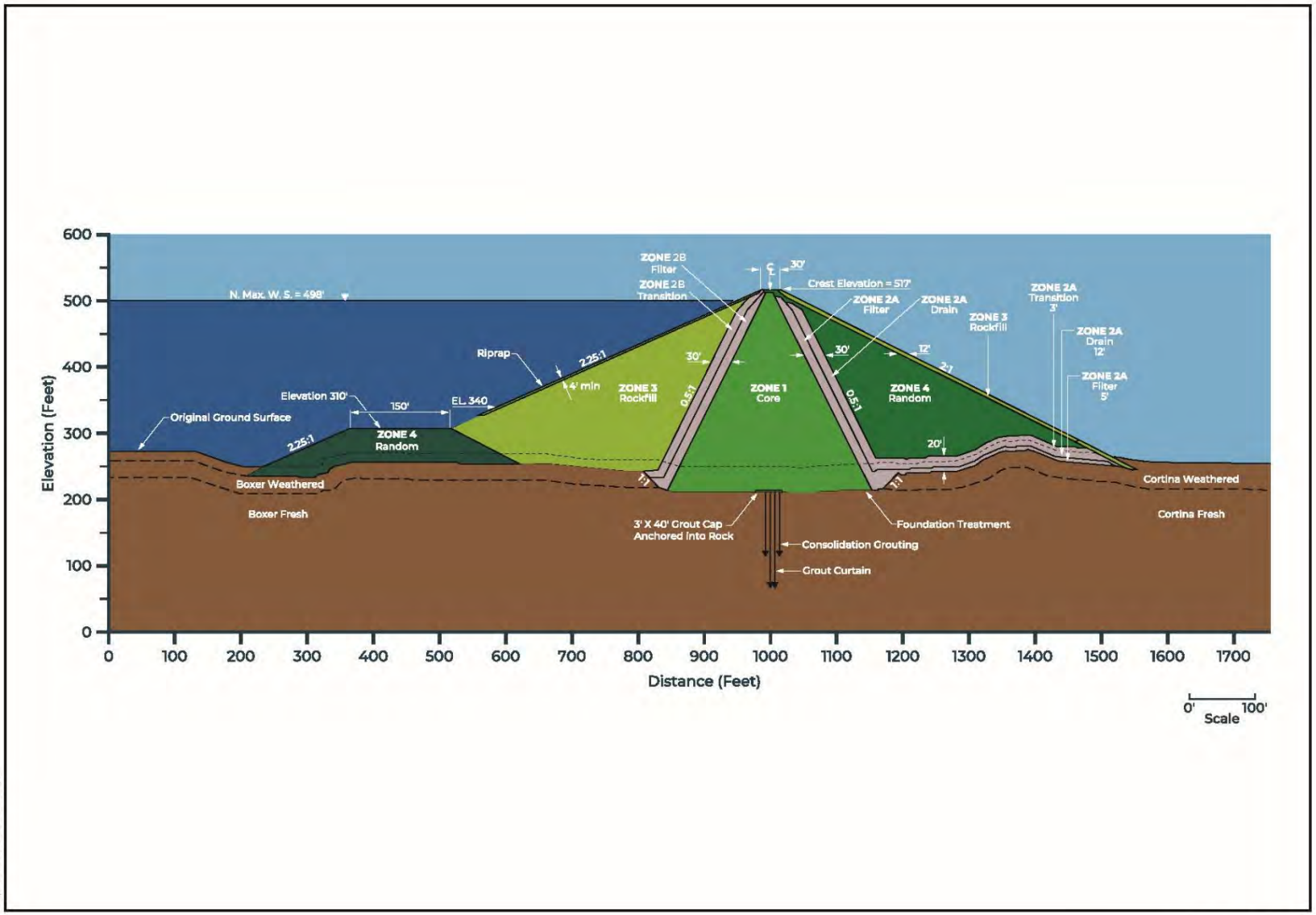
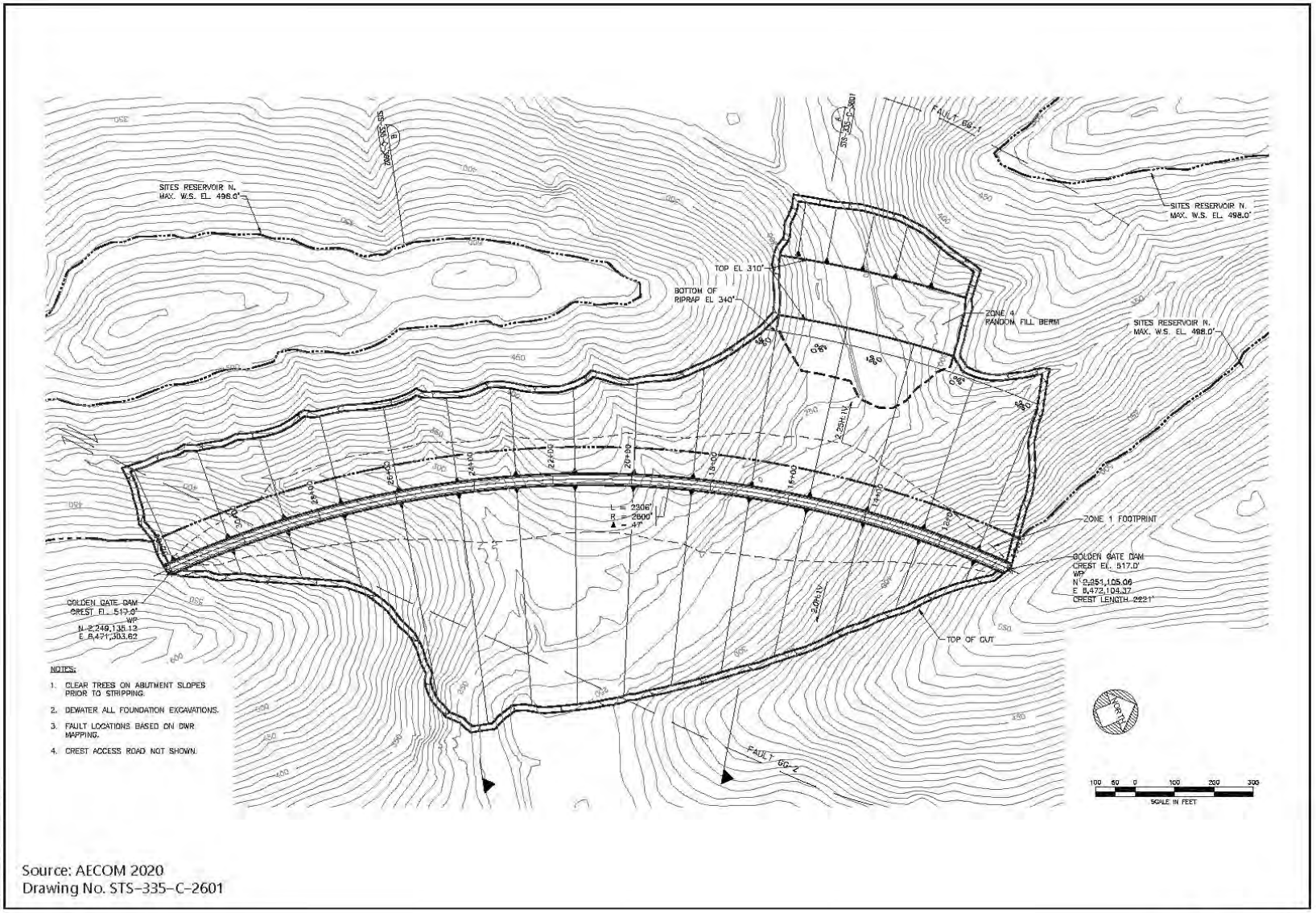


Figure 2-27
Sites Dam Section



Source: AECOM 2020
Drawing No. STS-335-C-2601

Figure 2-28
Golden Gate Dam Plan

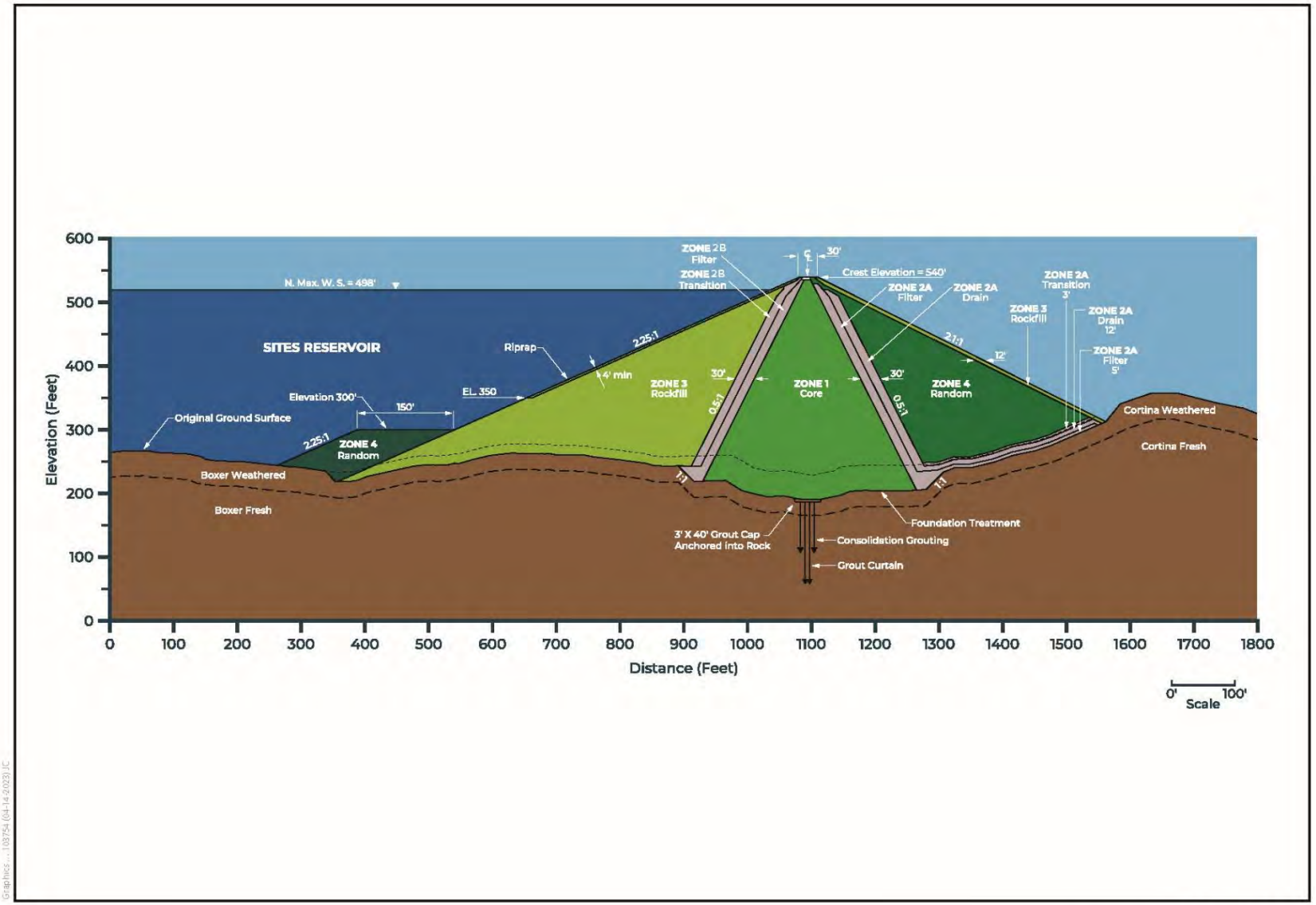


Figure 2-29
Golden Gate Dam Section

Saddle Dams and Saddle Dikes

The saddle dam and saddle dike material would be the same as described for Sites Dam. The number and locations of the saddle dams would be based on the size of the reservoir because they would be needed at topographic saddles along its eastern ridge. The upstream and downstream slopes of saddle dams would be 3H:1V and 2.5H:1V, respectively. The upstream slope of the central core for the saddle dams would be 1H:1V with a vertical downstream face. Figures 2-1 and 2-3 identify the saddle dam and dike locations.

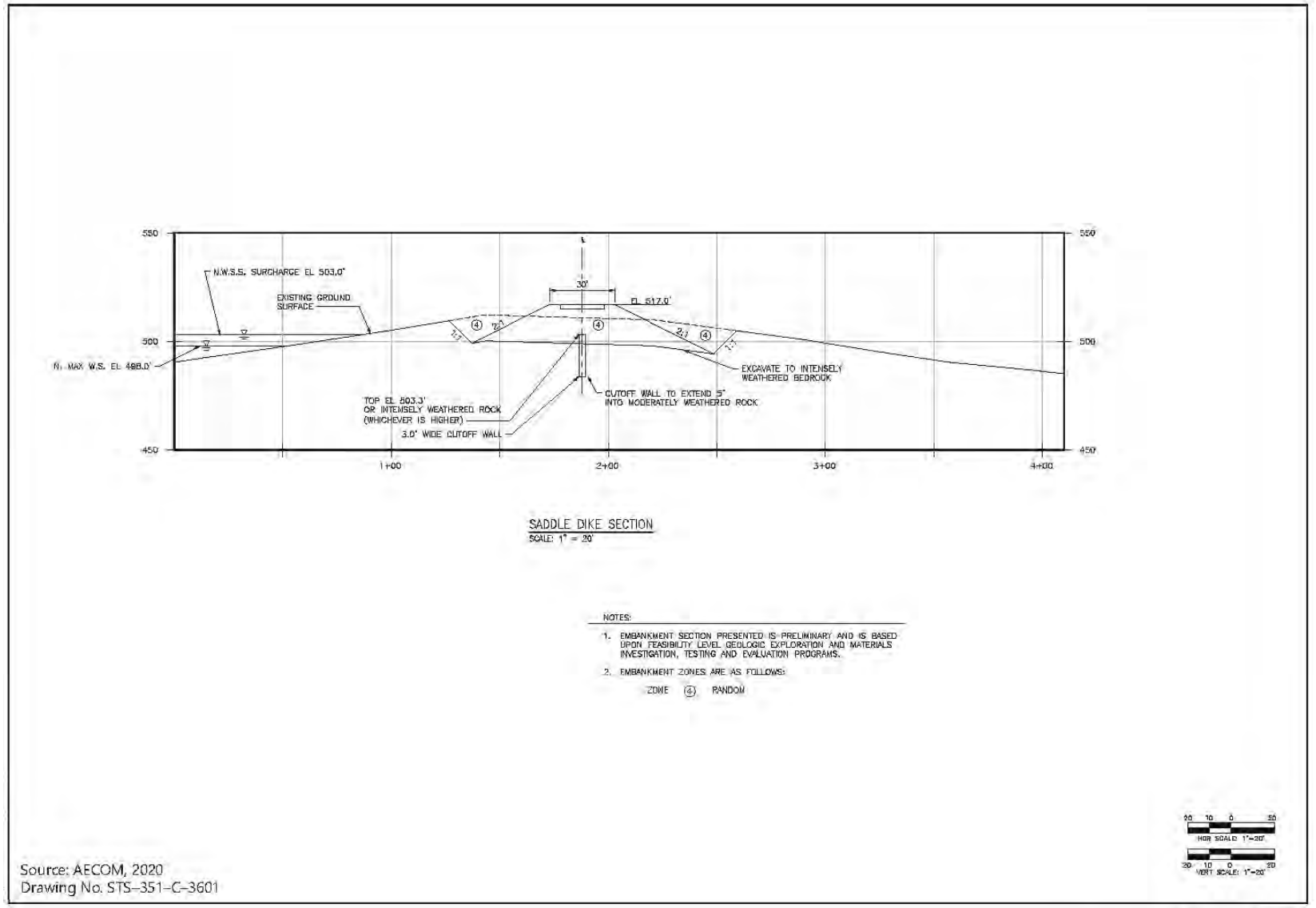
Saddle dikes would be required at topographic saddles along the northern end of the reservoir. The saddle dikes would not retain water like the saddle dams but would raise two saddles that are below the minimum crest elevation to an elevation above the maximum reservoir elevation during the Probable Maximum Flood (PMF). The upstream and downstream slopes of saddle dikes would be 2H:1V. The saddle dikes would not have a central core. A typical saddle dike section is presented on Figure 2-30.

Saddle Dam 8B would contain the reservoir spillway (Figure 2-31). The crest width for the saddle dam would be designed to accommodate a 16-foot-wide crest road with concrete or metal guardrails on both sides. The length of the spillway crest section would be determined from flood routing analyses. The crest elevation would be based on the size of the reservoir and normal operating WSE. The crest elevation would allow storage of the PMF without spilling and have sufficient capacity to pass the volume of over-pumped water and enable controlled emergency spill release to Hunters Creek if needed. Pending approval from DWR DSOD, the size of the spillway would accommodate the peak outflow of a PMF event or the steady-state flow if an over-pumping event occurred, both estimated to produce flows of approximately 3,900 cfs. The design and size of the spillway were developed with the assumption that a PMF overflow event and an over-pumping event have a very low probability of occurring simultaneously. Figure 2-31 provides a schematic of the spillway.

Dam Monitoring

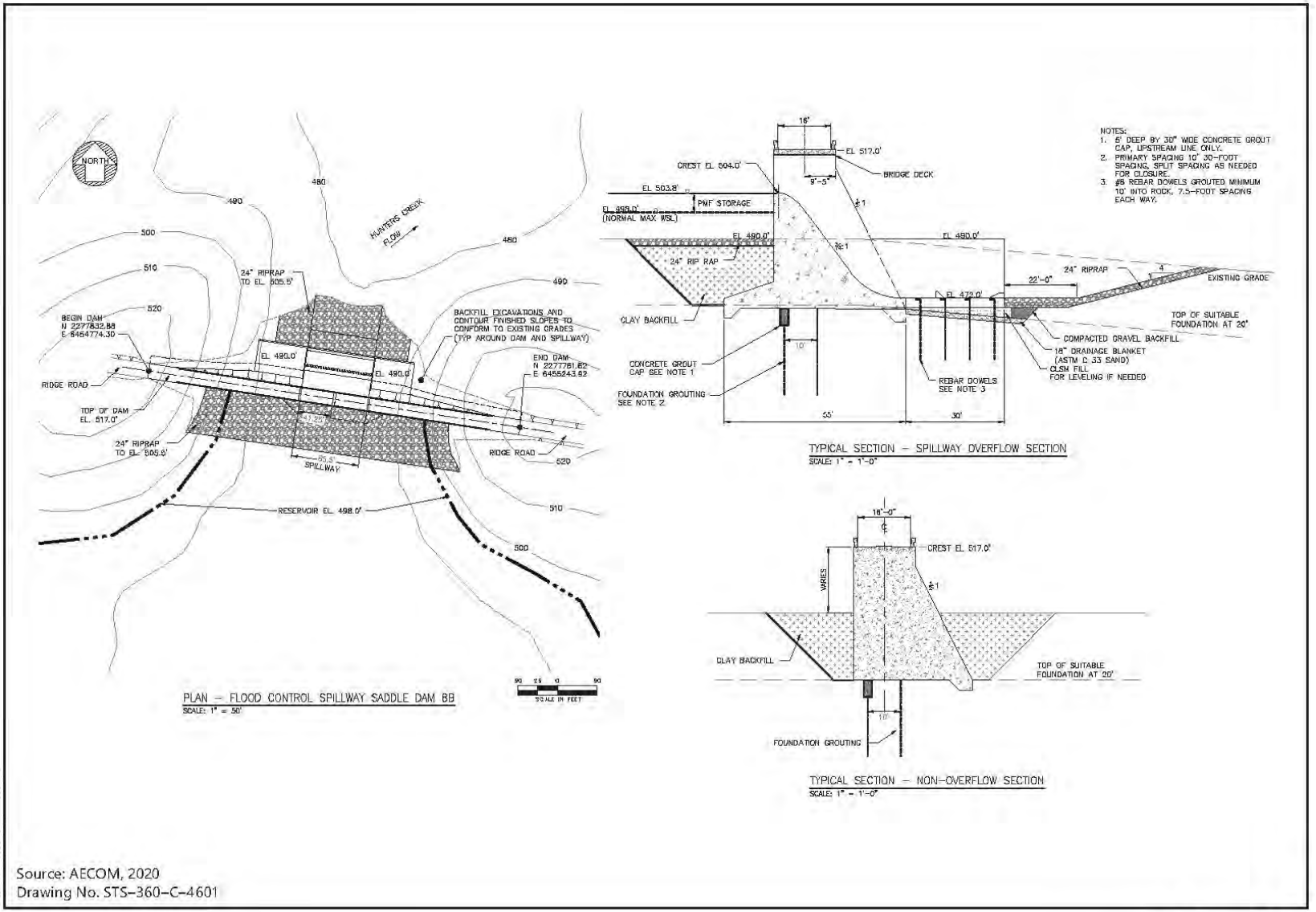
Instrumentation would be installed in the dam abutments, dam embankments, and downstream of the dams for the purposes of monitoring. The objectives of instrumenting the dams include developing physical data for comparison to assumptions made for the design analyses, anticipated behavior based during the studies, and monitoring of dam performance during construction, first filling of the reservoir, and long-term operation of the Project.

The types and locations of instrumentation would be selected to measure specific engineering parameters, including deformation, seepage flows, piezometric levels, pore-water pressure, and seismic response. Types of instrumentation could include piezometers, inclinometers, extensometers, survey monuments, weirs, and strong motion accelerographs. A reservoir level indicator and meteorological station would also be included, and an automated data acquisition system would provide for remote access to dam monitoring data.



Source: AECOM, 2020
Drawing No. STS–351–C–3601

Figure 2-30
Saddle Dike Section



Source: AECOM, 2020
Drawing No. STS-360-C-4601

Figure 2-31
Saddle Dam 8B Spillway

2.5.1.5 Conveyance to Sacramento River

During Project operations, water released from Sites Reservoir would be conveyed south of the reservoir using the existing TC Canal and a new Dunnigan Pipeline. The water would flow south about 40 miles to near the end of the TC Canal, where it would be diverted through a new intake to the Dunnigan Pipeline. The flows would subsequently be conveyed to the CBD and ultimately reach the Sacramento River. Figure 2-2 shows the locations of the facilities associated with conveying water to the CBD and Sacramento River.

TC Canal Intake

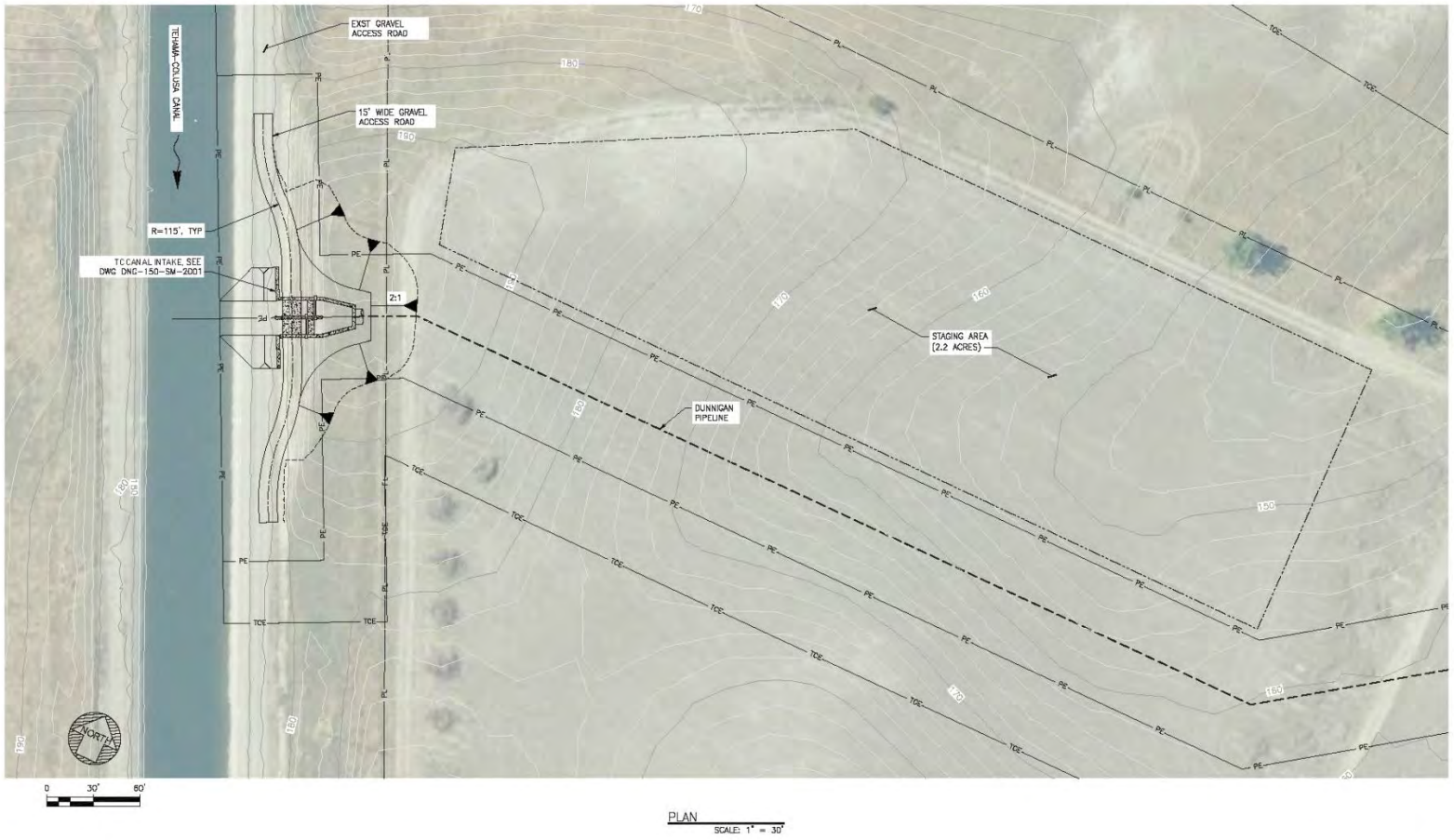
The TC Canal intake and facilities would encompass approximately 0.5 acre and be accessed from the existing TC Canal access road. Figure 2-32 shows a site plan. The intake would be a concrete structure sized for a flow of 1,000 cfs that supports the control gates and associated gate operators. Power would be needed for the operation of a Supervisory Control and Data Acquisition (SCADA) system to let water into the Dunnigan Pipeline; however, there would be a gravity outlet structure from the TC Canal into the Dunnigan Pipeline and no pumping would be required. A concrete bridge deck would provide vehicular access across the top of the intake. Stoplog slots at the inlet and outlet channels would enable isolation of the control gates for maintenance.

Construction of the TC Canal intake would require the temporary disturbance of approximately 2 acres adjacent to the TC Canal for approximately 1 year. The staging area would be located on the east side of the TC Canal and just north of the Dunnigan Pipeline.

Dunnigan Pipeline

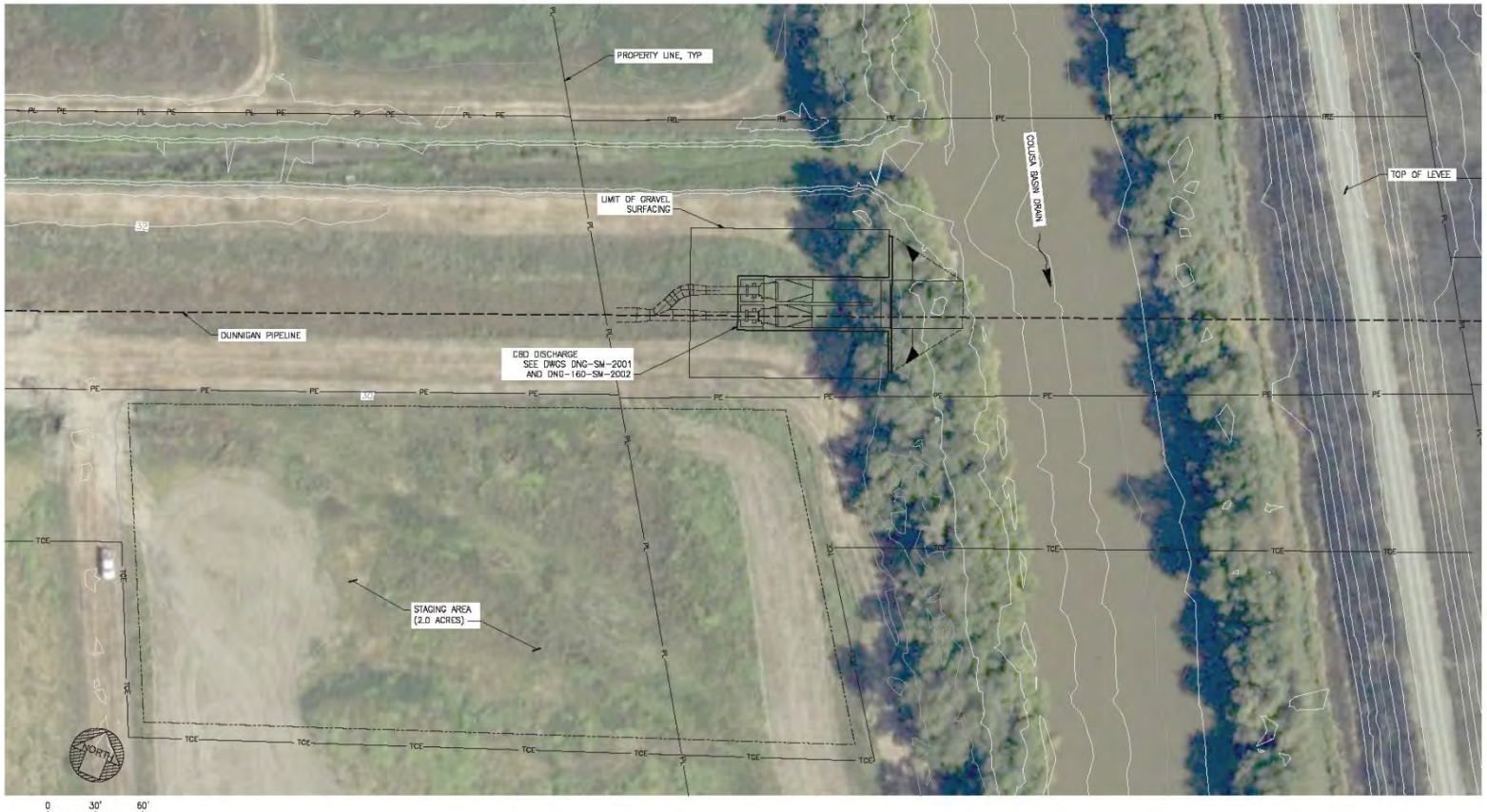
Under Alternatives 1 and 3, the Dunnigan Pipeline would convey water released from the TC Canal to the CBD. Figure 2-33 shows the location of this facility. The Dunnigan Pipeline would be approximately 4 miles (Alternatives 1 and 3) or 10 miles (Alternative 2) in length, have a minimum depth of 6 feet below ground surface, and have an inner diameter of approximately 9 feet (Alternatives 1 and 3) to 10.5 feet (Alternative 2). The Dunnigan Pipeline would extend through existing agricultural lands and would also cross I-5, Road 99W and the railroad (which are close together), and a commercial auction yard between I-5 and Road 99W. The tunneled crossing at I-5 would be 300 feet long and that for Road 99W and the railroad would be 250 feet long. Both tunneled crossings would require 12.5-foot-diameter casings.

A CBD outlet with an energy dissipation structure would be required at the downstream end of the pipeline to allow water to discharge into the CBD. Two 60-inch-diameter, fixed cone valves would be placed at the discharge stilling basin to dissipate energy and adjust the flow being released into the CBD. Hoods on the fixed-cones valves would control spray. The conveyance through the Dunnigan Pipeline to the CBD would use gravity (i.e., no pump station) and have a flow up to 1,000 cfs.



Source: Jacobs 2020
Drawing No. DWG-030-C-2001

Figure 2-32
TC Canal Intake Site Plan



Source: Jacobs 2020
Drawing No. DWG-030-C-2002

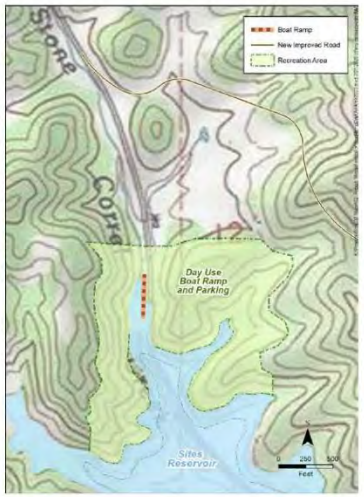
Figure 2-33
Dunnigan CBD Discharge Site Plan

Construction of the Dunnigan Pipeline from the TC Canal to the CBD would require dewatering, trenching, and using pile driving or a vibration hammer. Dewatering would be necessary for a segment of the pipeline to reduce groundwater levels to 20 or 30 feet below ground surface along its length. Trenching and pipeline installation would be completed after dewatering. Pile driving or a vibration hammer would be used to install piles for construction of the CBD outlet. Construction would include open cut of approximately 100 feet to cross Bird Creek in the dry season.

2.5.1.6 Recreation Areas

The Project proposes the development of two primary recreation areas and a day-use boat ramp. Prefabricated structures for storing equipment and materials to assist emergency services personnel may be placed within the footprint of the recreation areas for police and fire emergency response. The recreation areas would also require a network of new roads and upgrades to existing roads for maintenance and local access (Section 2.5.1.7, *New and Existing Roadways*). Figure 2-34 shows a conceptual site map of each recreation area and the recreation areas are described below.

- **Peninsula Hills Recreation Area –** The Peninsula Hills Recreation Area would be located on the northwest shore of the Sites Reservoir, to the north of the existing Sites Lodoga Road and across the reservoir from the Stone Corral Creek Recreation Area. Access would be provided by the existing Sites Lodoga Road west of the reservoir. This recreation area would encompass up to 373 acres and would include a kiosk, access to electricity and potable water, 10 picnic sites (with parking at each site), and hiking trails. There would also be 19 vault toilets, 200 campsites (car and recreational vehicle), and one group camping area.
- **Stone Corral Creek Recreation Area –** The Stone Corral Creek Recreation Area would be located on the eastern shore of the Sites Reservoir, north of the existing Maxwell Sites Road and Sites Dam. Access would be provided from Sites Lodoga Road. This recreation area would encompass up to 235 acres and its facilities would include a kiosk, access to electricity and potable water, 10 picnic sites (with parking at each site), and hiking trails. There would also be 10 vault toilets and 50 campsites (car and recreational vehicle).
- **Day-Use Boat Ramp and Parking Areas –** The day-use boat ramp would be located on the western side of the reservoir where the existing Sites Lodoga Road intersects with the inundation area for the reservoir. A parking area would be added to the existing Sites Lodoga Road where it exits the inundation area footprint of the reservoir. The boat ramp and parking area would encompass up to 10 acres and include a kiosk, access to potable water, and one vault toilet.



DAY-USE BOAT RAMP

PENINSULA HILLS RECEATION AREA

STONE CORRAL CREEK RECREATION AREA

Source: AECOM 2020
Drawing No. STS–312–C–2602

Figure 2-34
Recreation Areas

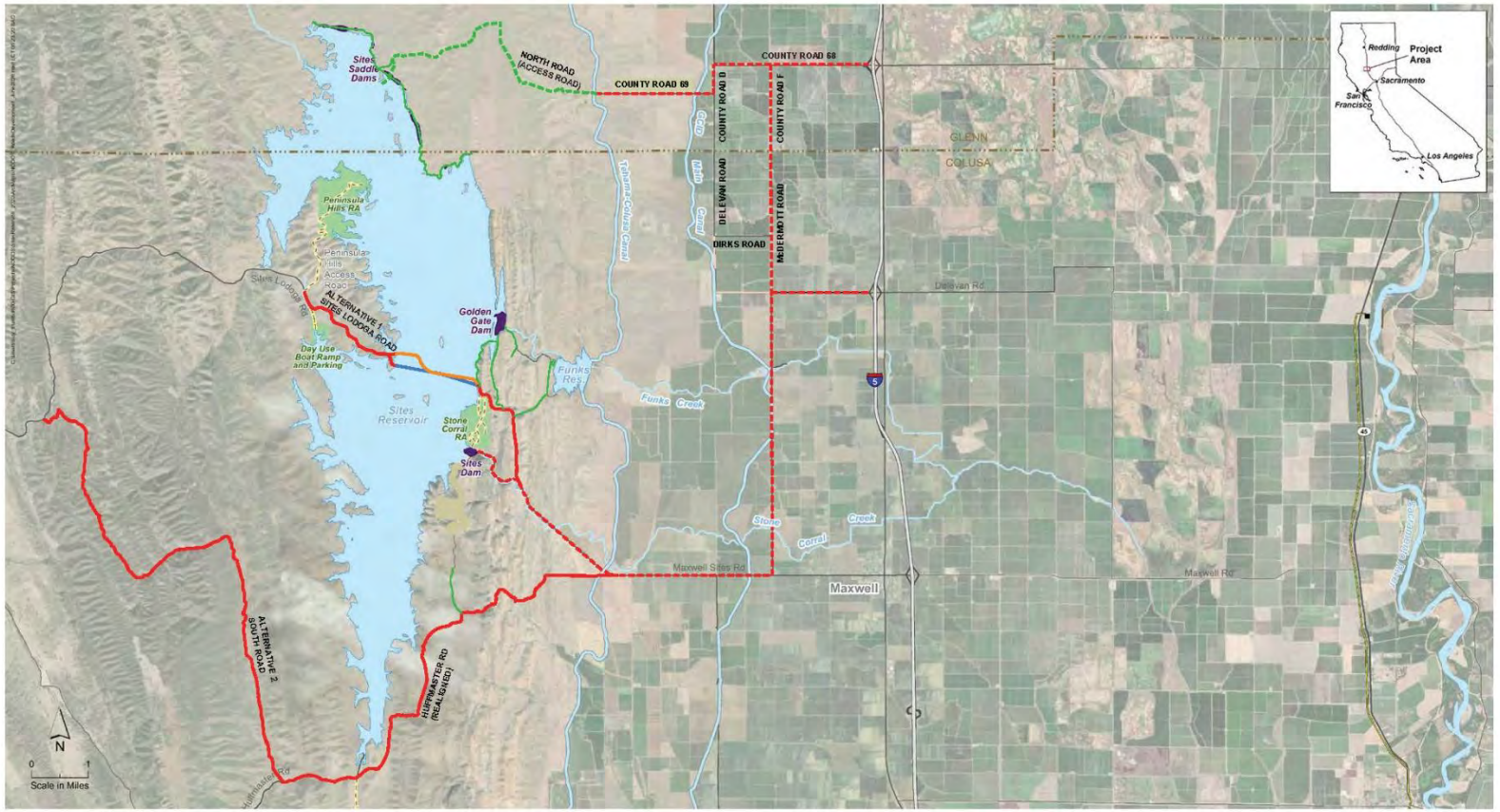
A helipad would be placed within either the Peninsula Hills Recreation Area or the day-use boat ramp area for emergency access. It is anticipated that all construction activities associated with the recreation areas would occur within the footprints of the recreation areas and the temporary and permanent access road areas. The Authority may consider additional recreational areas of varying sizes in the future at other locations around the reservoir. For example, a recreational area of approximately 10 acres to the north side of the reservoir within Glenn County could provide an additional day-use boat ramp, picnic facilities, and parking areas. The preparation of this Final EIR/EIS, and the recreation areas described herein, does not preclude the possible future consideration of other recreation areas and if needed, additional CEQA and NEPA review, as required.

2.5.1.7 New and Existing Roadways

Approximately 46 miles of new paved and unpaved roads would provide construction and maintenance access to the facilities, as well as public access to the recreation areas. Table 2-4 identifies these roads and their purposes (i.e., construction access, local access, and maintenance access). Figure 2-35 shows the locations of all local access, construction access, and maintenance access roads that would be needed. The general objectives and maintenance responsibilities for these road types are discussed below, and more detailed information for construction access, local access, and maintenance access roads presented in the corresponding subsections. The road improvements and roadway designs are being coordinated with the Counties of Colusa and Glenn.

Construction access roads would be designed to provide the roadway improvements necessary to the movement of construction equipment and transport of materials. Roadways that would be used for construction access and local access would be designed to achieve the objectives for both uses and prioritize needs for local traffic use and safety. Roads used solely for construction access would be designed with a minimum 15-foot cross-section and a maximum of a 50-foot cross-section. Construction access roads may be repurposed as permanent operation and maintenance roads after completion of construction. Permanent facility access roads constructed from gravel and asphalt would facilitate operation and maintenance. These access roads would require new construction or the relocation of existing public county roads. Temporary gravel roads would also be built during construction. The maintenance of roads used for both construction and local access would be the Authority's construction contractor's responsibility during construction and the responsibility of the departments for the Counties of Colusa or Glenn having jurisdiction over those roads after construction.

Local access roads that would be improved or relocated for construction purposes would provide reliable infrastructure for the traveling public, accommodate transportation needs, and be consistent with state and local design standards. These improved roads would enable construction vehicles to safely travel and pass one another. After construction of the reservoir was completed, these roads would be maintained to support the operation of the Sites Reservoir. Some of these roads would also be available for public use. Local access roads would generally have two 12-foot-wide lanes with paved shoulders, and their postconstruction maintenance would be the responsibility of the departments for the Counties of Colusa or Glenn having jurisdiction over them.



Source: AECOM 2020
Drawing No. STS–305–C–2601

Figure 2-35
Local Access, Construction Access, and Maintenance Access Roads

Maintenance access roads would be constructed or improved in accordance with the equipment and personnel required for operations and maintenance of specific facilities. As discussed above, construction access roads may be repurposed as permanent operation and maintenance roads after completion of construction.

Table 2-4. Sites Project Roads and Purposes Common to Alternatives 1, 2, and 3

Roads	Road Purpose		Approx. Current Length (miles)	Approx. Improved Length (miles)	Improvement Types
	Colusa County[2]	Glenn County[2]			
Road 68	--	Local, Construction	3	3	Shoulder improvements/ intersection widening, two structure improvements
Road D	--	Local, Construction	0.5	0.5	Shoulder improvements/ intersection widening, two structure improvements
Road 69	--	Local, Construction	2	2	Shoulder improvements/ intersection widening, three structure improvements
North Road	--	Construction, Maintenance	0	5	New gravel road
Delevan Road	Local, Construction		2	2	Shoulder improvements/ widening
McDermott Road	Local, Construction	Local, Construction	8	4	Shoulder improvements/ widening/paving, five structure improvements
Saddle Dam Road – North (5–9) (provide access to northern portions of Sites Reservoir and the saddle dams)	--	Construction, Maintenance	1	2	New gravel road
Saddle Dam Road – South (1–5)	Maintenance	Maintenance	0	3	New road
Huffmaster Road realigned	Local	--	12	7	Gravel road for residents
Sites Lodoga Temporary Detour Road (Shoo-Fly)	Local, Construction	--	1	1	New, temporary gravel road
Day-Use Boat Ramp (westside)	Local	--	0	0.3	New paved road

Roads	Road Purpose		Approx. Current Length (miles)	Approx. Improved Length (miles)	Improvement Types
	Colusa County[2]	Glenn County[2]			
Peninsula Hills Recreation Area (provide access from Sites Lodoga Road to the Peninsula Hills Recreation Area)	Local	--	0	4	New gravel road
Access Road A (Funks PGP/Golden Gate Dam)	Maintenance	--	0	1	New road
Access Road B (Funks PGP/Golden Gate Dam)	Maintenance	--	0	0.4	New road
Access Road C1 (Funks PGP)	Maintenance	--	0.4	0.4	Existing road
Access Road C2 (Funks PGP/Golden Gate Dam)	Maintenance	--	0.6	0.6	Existing jeep road
Stone Corral Creek Recreation Area/Sites Dam	Local	--	0	2.5	New road
Comm Road South	Local	--	0	1	New road

Notes:
Local access includes local road for public use and recreational access.
Any improvement type identified as a new road has an approximate current length of 0.
PGP = pumping generating plant.

The roadway alignments discussed below are based on service needs and existing planning-level-based mapping to establish a corridor width along roadways. Corridor widths would vary depending on the level of topographical relief—greater relief requires greater flexibility throughout the design process to allow the engineers to move the road within the corridor.

Construction traffic will be routed around the community of Maxwell as part of the Project and per the traffic management plan. Construction traffic, including commuting construction workers and deliveries of materials and equipment, will be prohibited on all streets in the community of Maxwell except Old Highway 99 and Maxwell Colusa Road. Specifically, construction traffic is prohibited on or south of Bismark Avenue and North Street to the north; west of Old Highway 99 to the east; north of Sycamore Street to the south; and on and east of Pacific Street and east of Sutton Road to the west. Construction traffic is also prohibited on Oak Street from Old Highway 99 to Sutton Road. Construction traffic is also prohibited south of Maxwell Colusa Road, on and west of East Avenue, on and north of Central Street, and on and west of Railroad Avenue (see Appendix 2D, BMP-16, Development and Implementation of a Construction Equipment, Truck, and Traffic Management Plan (TMP)). Operation of recreational areas at Sites Reservoir would result in an influx of seasonal recreation use and associated traffic. Additional transportation improvements in Maxwell may be necessary, specifically along Oak Street in Maxwell to

support the seasonal recreation trips. The Authority will work with the County of Colusa to identify and implement improvements within Maxwell such as lighted pedestrian crossings, stop signs, and other traffic calming features. The disturbance area for roads would include the footprints of the roads and stream crossings, the staging areas for materials and equipment, and the area needed to construct the facilities and access roads. Traffic not construction related and traveling through certain parts of the construction zone (e.g., Sites Lodoga Road) would be diverted around construction disturbance areas in accordance with a TMP.

Initial construction activities would involve establishing staging areas, surveying and marking roadways, clearing, and grading. Road construction would entail making road cuts and fills; hauling away excess cut materials; constructing culverts; laying aggregate road base and asphalt; erecting fences, guardrails, and signs; installing roadway striping and reflectors; restoring temporary disturbance areas; and cleaning up the work sites.

Construction Access

Construction access for Sites Reservoir and supporting facilities would occur on public roads from I-5 to the reservoir site on the north and at Maxwell Sites Road on the east. These roads currently cross small creeks and irrigation canals, and the crossings are generally reinforced through concrete box culverts and bridges. Figure 2-35 provides a map of access routes, and Chapter 18, *Navigation, Transportation, and Traffic,* provides additional description of construction access routes. There are three primary construction access routes for consideration that would most likely be defined for use by the Authority's construction contractor.

The first construction access route would be on 5.5 miles of existing 24-foot-wide paved road from I-5 west along Road 68, south on Road D, and west on Road 69 to just west of the TC Canal. The road would then revert to a single-lane, 12-foot-wide gravel road (North Road), which would be temporary and continue for approximately 5 miles along existing ranch roads and trails to the north end of the Sites Reservoir at the saddle dams. From this location, the Authority's construction contractor would establish their own onsite access roads within the limits of the reservoir.

The second construction access route would be on 7.2 miles of existing paved road from I-5 west along Delevan Road, north along McDermott Road, and west on Road 69 to just west of the TC Canal. Approximately 1.5 miles of McDermott Road between Dirks Road and West Glenn Road consists of gravel; therefore, it is assumed paving would be needed to accommodate the volume of heavy construction traffic.

The third construction access route would be on 12 miles of existing paved road from I-5 along Delevan Road, south along McDermott Road to Maxwell Sites Road, and then west to the existing gravel access road to Funks Reservoir. The first mile of this gravel road would be the initial segment of the Sites Lodoga Road realignment. This gravel road would also provide access to the Funks PGP and Golden Gate Dam. Maxwell Sites Road would provide access to Sites Dam. Construction equipment/materials would not be permitted to pass through the community of Maxwell on the Maxwell Sites Road; therefore, the construction access roads would circumvent Maxwell.

The existing roads are nonstandard in geometry and their roadbed structural sections cannot accommodate the large, heavy vehicles that would be used to transport construction equipment and materials. These roads consist of Road 68, Road D, Road 69, Delevan Road, Maxwell Sites Road, and McDermott Road. They are narrow and typically include two paved 11-foot- or 12-foot-wide lanes and 1- to 3-foot-wide earthen shoulders. The pavement conditions of Road 68, Road D, and Road 69 pavement conditions were identified as "at risk," "poor," and "very poor," respectively, upon visual inspection by Project engineers. A segment of McDermott Road in Colusa County is gravel. Road 69 transitions to a single-lane, gravel road west of the TC Canal. The following improvements would need to be implemented on these roadways:

- Roadbed and intersection widening to allow for safe mobility of construction traffic that would be comingled with local vehicular and agricultural equipment traffic
- Roadbed reconstruction to enable use by large, heavy vehicles transporting construction equipment and materials
- Horizonal and vertical curve corrections
- Drainage feature improvements to allow for proper drainage

Reconstruction of the aforementioned roads would include the addition of new 2-foot-wide paved shoulders to each lane, as well as potential modifications to existing creek and irrigation canal crossings (as described below). The new shoulders would be within the public right-of-way, as would any temporary work areas needed to reconstruct the roads. All existing roadway improvements would be designed to avoid or minimize impacts on existing utility infrastructure and public right-of-way. Once the roads are constructed, all county roads would be maintained by the Counties of Glenn or Colusa, while specific access and maintenance roads (e.g., North Road, South Comm Road) would be maintained by the Authority.

The following roads are known to have existing creek and irrigation canal crossings. It is assumed that these and other crossings would need to be widened, strengthened, or replaced, depending on their structural condition and load rating capacity.

- Road 68 – two crossings
- Road D – two crossings
- Road 69 – three crossings (two on paved roads crossing the TC Canal and GCID Main Canal, and one on a gravel road)
- McDermott Road – five crossings

GCID improvements would be accessed from I-5 and SR 162, Road 48, Highway 99W, Road 53, and GCID Canal Road.

The Dunnigan Pipeline construction would be accessed from either I-5, Road 8, or alternatively north access from I-5 and County Road and then SR 45 from the north, and south access from I-5 and Road 13, Road 99E, Road 108, 98S, and SR 45.

Local Access

In addition to the local roads described above that would be improved for construction purposes and then remain local access roads, a number of other public local roads would be relocated or developed to accommodate reservoir facilities. These roads include Sites Lodoga Road, Huffmaster Road, Comm Road South, and recreation area roads. There would also be one temporary detour during construction, the Sites Lodoga Temporary Detour Road (Shoo-Fly). Permanent changes to Sites Lodoga Road and Huffmaster Road are discussed in Sections 2.6, *Alternative 1 Specific Elements*, and 2.7, *Alternative 2 Specific Elements*.

- **Comm Road South** – Access to existing communication facilities would consist of a gravel road that would start near the northern end of the relocated Huffmaster Road and proceed north to the communications tower.
- **Recreation Area Roads** – New recreation area roads would provide access from Sites Lodoga Road to the Peninsula Hills Recreation Area, day-use boat ramp, and Stone Corral Creek Recreation Area. The access road to Peninsula Hills Recreation Area on the west side of Sites Reservoir would be paved. The access road to the day-use boat ramp, which would also be on the west side of the reservoir, would be paved. The access road to the Stone Corral Creek Recreation Area on the east side of the reservoir would be a combination of paved and gravel.
- **Sites Lodoga Temporary Detour Road (Shoo-Fly)** – A temporary detour road would be constructed to expedite construction and maintain traffic movement through the reservoir site during the construction of Sites Dam and the bridge across the reservoir (Alternatives 1 and 3 only). This road would convey local traffic for a period of approximately 1 year and would be aligned around the Sites Dam site. There would be overlap with a section of the Sites Lodoga realignment from Maxwell Sites Road to near the easterly bridge at the top of the ridge. The temporary detour road would then split off to the south and traverse hilly terrain before rejoining Sites Lodoga Road near its intersection with Peterson Road.

Maintenance Access

New and existing maintenance access roads would provide access to the main dams, saddle dams and dikes, I/O Works, and Funks PGP. Except for the existing road to Funks Reservoir, the maintenance access roads would be single-lane, 15-foot-wide gravel roads with no shoulder. Comm Road South would be a local access and maintenance access road.

North Road would begin at the end of the unpaved Road 69, continue 5 miles to the reservoir's edge, and connect with several new maintenance access roads that would provide access to the saddle dams and dikes. Access Road A1 would be a new gravel road along the crest of the Golden Gate Dam with minor cuts and fills. Access Roads B1 and B2 would be new gravel roads connecting to the I/O Works and Golden Gate Dam with minor cuts/fills. Access Road C1 is would be a two-lane, 30-foot-wide, paved road to access Funks Reservoir and the existing road to the reservoir would be maintained. Access Road C2 would be improved from an existing jeep trail at the east base of the Golden Gate Dam to a gravel road that would extend off Access Road C1.

2.5.1.8 Project Buffer

The Authority would acquire and maintain a buffer encompassing the lands beyond the facility footprints. The buffer width would be 100 feet around the Sites Reservoir and related facilities, all buildings, most aboveground components, and recreation areas. The buffer may be less than 100 feet wide if a facility is near a property boundary and the associated uses do not conflict with those on the adjacent lands. Buffers are not anticipated for underground or buried facilities (i.e., Dunnigan Pipeline), transmission lines, or roads (both public and Project maintenance access roads).

Although buffer areas would generally remain undeveloped, the Authority would install limited features and perform periodic maintenance primarily related to reducing fire hazards. These actions would include erecting and maintaining fencing, grading fire breaks/trails, maintaining vegetation (e.g., grazing, tilling, or disking), and performing limited prescribed/controlled burns. The Authority may manage buffer areas as wildlife habitat where appropriate.

2.5.2 Operations and Maintenance Common to Alternatives 1, 2, and 3

This section describes the Project operations and maintenance activities and plans.

2.5.2.1 Water Operations

The Project would provide water supply reliability and water supply-related environmental benefits to the Storage Partners. Water would be diverted into Sites Reservoir from the Sacramento River at the existing RBPP into the TC Canal and at the existing GCID Hamilton City Pump Station into the GCID Main Canal. The RBPP and Hamilton City Pump Station each have an existing fish screen that meets NMFS and CDFW fish screen criteria through which flows diverted for the Project would be screened. The TC Canal would convey the water to the existing Funks Reservoir, where it would be pumped into Sites Reservoir via the Funks PGP and associated facilities. The GCID Main Canal would convey the water to the TRR, where it would be pumped into Sites Reservoir via the TRR PGP and associated facilities. Water could be diverted to storage in Sites Reservoir when the diversion criteria are met and when the Delta is in excess conditions as determined by Reclamation and DWR during the timeframe that Sacramento River flows are not fully appropriated (i.e., between September 1 and June 14).

Water would be held in storage in Sites Reservoir until requested for release by a Storage Partner. Water releases would generally be made from May to November but could occur at any time of the year, depending on a Storage Partner's need and capacity to convey water to its intended point of delivery. Water would be released from Sites Reservoir via the I/O Works back through the TRR PGP and into the TRR or back through Funks PGP back into Funks Reservoir. Water released could be used along the GCID Main Canal, along the TC Canal, or conveyed to the new Dunnigan Pipeline and discharged to the CBD under Alternative 1 or 3 or to the Sacramento River under Alternative 2. From the CBD, the water may be conveyed via the Sacramento River or the Yolo Bypass to a variety of locations in the Delta or south of the Delta.[5]

[5] The term south-of-Delta or phrase south of the Delta is used to refer to areas that can receive water from the South Delta pumping facilities, including the SWP Banks Pumping Plant, Reclamation's Jones and Rock Slough Pumping Plants, and Contra Costa Water District's pumping plants. This includes areas south and west of the Delta, such as Contra Costa, Alameda, and Santa Clara Counties.

Exchanges of water may also occur with the CVP and SWP reservoirs. Water impounded from Funks and Stone Corral Creeks would be stored under the Project's water right permit with the exception of the volume needed to meet senior downstream water rights and releases to Stone Corral and Funks Creeks, and flows to comply with California Fish and Game Code Section 5937.

In May 2022, the Authority applied for a water right permit from the State Water Resources Control Board (State Water Board) for the operations of Sites Reservoir (Application Number A025517X01). Reservoir operations would be subject to the terms and conditions of the water right permit, as well as to all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time. Project operations would also require coordination with Reclamation and DWR. The Authority is working with Reclamation and DWR to develop mutually agreeable operating agreements that would describe the approach for coordinating operations with Sites and the CVP and SWP operations, respectively.

The Project would not affect or result in changes in the operation of the CVP Trinity River Division facilities (including Clear Creek) as discussed in Volume 3, Chapter 3, Master Response 8, *Trinity River*. Reclamation would continue to operate the Trinity River Division consistent with all applicable statutory, legal and contractual obligations, including but not limited to the Trinity River ROD, the 2017 ROD for the Long-Term Plan for the Lower Klamath River, and the provisions of the Trinity River Division CVP Act of 1955.

Diversion to Sites Reservoir from Sacramento River

Sites Reservoir would be filled through the diversion of Sacramento River water that generally originates from unregulated tributaries to the Sacramento River downstream from Keswick Dam. Diversions to Sites Reservoir could also come from flood releases from Shasta Lake. Diversions to Sites Reservoir would be made from the Sacramento River at the existing RBPP (River Mile [RM] 243) near Red Bluff into the TC Canal and at the existing GCID Hamilton City Pump Station (RM 205) near Hamilton City into the GCID Main Canal. Water could be diverted to storage in Sites Reservoir from September 1 to June 14. Diversions would occur only when all of the following conditions are met:

- Flows in the Sacramento River exceed the minimum diversion criteria (described below);
- The Delta is in "excess" conditions as determined by Reclamation and DWR and would remain in excess conditions during diversions;
- Senior downstream water rights, existing CVP and SWP and other water rights diversions including Section 215 of the Reclamation Reform Act of 1992 Article 3(f) water, and SWP Article 21 (interruptible supply), and other more senior flow priorities have been satisfied;
- Flows are available for diversion above flows needed to meet all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time that diversion occurs. This would include but is not limited to any flow requirements in Water Right Decision 1641 (State Water Resources Control Board 2000), the 2019 biological opinions for the reinitiation of consultation on coordinated long-term operations of the CVP and SWP (ROC on LTO BiOps) (U.S. Fish and Wildlife Service

2019, National Marine Fisheries Service 2019) and any future related BiOps, and the State incidental take permit (California Department of Fish and Wildlife 2020); and

- There is available capacity at the RBPP and in the TC Canal and GCID facilities to divert and convey water to Sites Reservoir, above the capacity needed for deliveries to existing TC Canal users and within the GCID service area.

The RBPP would serve as the primary diversion location and would divert water from the Sacramento River to Funks Reservoir through the TC Canal and into the Sites Reservoir through the Funks PGP and the I/O Works. A maximum of approximately 2,120 cfs would be diverted at the RBPP for the Project. The Hamilton City Pump Station would serve as the secondary diversion location and would divert water from the Sacramento River to the new TRR through the GCID Main Canal and into the Sites Reservoir through the TRR PGP and the I/O Works. A maximum of approximately 2,070 cfs would be diverted at the Hamilton City Pump Station for the Project. Although the RBPP would be the primary diversion point, both diversion facilities would be operated simultaneously when river conditions and capacity are available for a maximum combined diversion rate of about 4,200 cfs (3,900 cfs, plus losses).

Estimated total annual diversion of Sacramento River water from both diversion facilities to Sites Reservoir could be up to the full reservoir amount. Based on model simulations, the estimated annual diversions under Alternative 3 would usually range from 40 thousand acre-feet (TAF) per year in Critically Dry[6] Water Years to 450 TAF per year in Wet Water Years, depending on hydrologic conditions, availability of Sacramento River water, and diversion and conveyance facility capacities.

Diversion Criteria

The Project would be operated to meet the diversion criteria summarized in Table 2-5 and described in more detail below. All of these criteria must be met for the Project to divert water to Sites Reservoir.

[6] Water year types referenced in this document, including Critically Dry, Dry, Below Normal, Above Normal, and Wet, are based on the Sacramento Valley Water Year Index, which is used to determine the Sacramento Valley water year type as implemented in Water Right Decision 1641 (State Water Resources Control Board 2000).

Table 2-5. Summary of Project Diversion Criteria

Location (Listed from North to South)	Criteria
Bend Bridge Pulse Protection	Protection of all qualified precipitation-generated pulse events (i.e., peaks in river flow rather than scheduled operational events) from October to May based on predicted hydrology and monitoring. A criterion based on the detection of migrating fish may be added if a fish monitoring method can be demonstrated as effective and reliable. A qualified precipitation-generated pulse event is determined based on forecasted flows, and pulse protection may cease after 7 days or earlier if flows at Bend Bridge exceed 29,000 cfs and Project diversions subtracted from Bend Bridge flows continue to be at least 25,000 cfs.
Minimum Bypass Flows in the Sacramento River at the RBPP	3,250 cfs minimum bypass flow at all times; rate of diversion controlled by fish screen design
Minimum Bypass Flows in the Sacramento River at the Hamilton City Pump Station	4,000 cfs minimum bypass flow at all times; rate of diversion controlled by fish screen design
Minimum Bypass Flows in the Sacramento River at Wilkins Slough	10,700 cfs from October 1 to June 14; 5,000 cfs in September (no diversions to Sites Reservoir from June 15 to August 31)
Freeport, Net Delta Outflow Index, X2, and Delta Water Quality	Operations consistent with all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time that diversion occurs

cfs = cubic feet per second; RBPP = Red Bluff Pumping Plant.

Bend Bridge Pulse Protection

Project implementation would include a pulse flow protection measure to be applied to all qualified precipitation-generated peaks in the hydrograph that originate primarily from tributaries to the Sacramento River that flow into the mainstem Sacramento River downstream of Keswick Dam from October through May. The pulse flow protection measure addresses the survival of migrating juvenile winter-, spring-, fall-, and late fall–run Chinook salmon (*Oncorhynchus tshawytscha*), and steelhead (*Oncorhynchus mykiss*) through the middle reaches of the Sacramento River. Pulse flows during this period would provide flow continuity between the upper and lower Sacramento River (i.e., below Wilkins Slough) and are expected to enhance survival of these migratory fish (Michel et al. 2015, 2021; Notch 2017) as fish movement is thought to occur in response to increased flow, water year type and turbidity associated with the beginning of a precipitation-generated high-flow event (Poytress et al. 2014, Cavallo et al. 2015).

Pulse protection would occur from October through May to address outmigration of juvenile winter-, spring-, fall- and late fall–run Chinook salmon, as well as a majority of the steelhead juvenile outmigration period.

The Project would include a fish monitoring program capable of detecting a migratory fish response during the beginning of a precipitation-generated high-flow event. The criterion regarding the detection of a pulse of outmigrating fish will be subject to the Project's Adaptive

Management Program with the goal of demonstrating a relationship between flow pulses and fish movement that is detectable, reliable, and sufficiently predictable to serve as a criterion for initiation and termination of pulse protection. Until such a time as a detailed criterion is developed and agreed to by CDFW, NMFS, and U.S. Fish and Wildlife Service (USFWS), outmigrating pulse cues would be limited to only the hydrological components of the pulse protection criteria, as described below. The program would be developed in cooperation with Reclamation and the fishery resource agencies and would be integrated with previous and existing fish monitoring programs to the extent possible and additional monitoring sites could be included as necessary. For example, the USFWS monitoring program at the Red Bluff Diversion Dam (RBDD), which has since been removed, that was conducted for purposes of estimating fish production indices in the spawning reach above the dam is particularly relevant. Appendix 2D describes the purpose, outcomes, content, and timing of the monitoring, technical studies, and adaptive management. The following criteria define a qualified pulse event:

- Outmigration of anadromous fish is detected based on the Adaptive Management Plan and fish monitoring program (applicable only once a detectable, reliable, and predictable fish detection criterion has been developed and agreed upon with CDFW, NMFS, and USFWS; if there is no fish criterion, then pulse protection would be based on flow criteria only as specified below).
- If a 3-day forecasted average of Sacramento River flow at Bend Bridge is projected to exceed 8,000 cfs and the 3-day forecasted average combined tributary flow upstream of Bend Bridge (Cow Creek, Cottonwood Creek, and Battle Creek) is projected to exceed 2,500 cfs, then a pulse protection event is anticipated. Diversion restrictions would begin when the average hourly flows in the Sacramento River at Bend Bridge exceed 8,000 cfs and the average hourly flows in the tributaries upstream of Bend Bridge (Cow Creek, Cottonwood Creek, and Battle Creek) cumulatively exceed 2,500 cfs, provided that the previous day was not already in a pulse protection event.
- A pulse event terminates 7 days after initiation; or earlier than 7 days after initiation if the average daily Sacramento River flow at Bend Bridge exceeds 29,000 cfs. In the event that Sacramento River flow at Bend Bridge exceeds 29,000 cfs during the 7-day pulse protection event, Project diversions may resume in such way that average daily diversions subtracted from Sacramento River flow at Bend Bridge continue to be at least 25,000 cfs during what would have been the 7-day pulse protection period.
- After completion of a pulse event, the following conditions must occur before another pulse event is triggered: (1) 3-day trailing average of Sacramento River flow at Bend Bridge was less than 7,500 cfs for 7 consecutive days; and (2) 3-day trailing average of tributary flow upstream of Bend Bridge (Cow Creek, Cottonwood Creek, and Battle Creek) was less than 2,500 cfs for 7 consecutive days.

Project diversions from the Sacramento River would not occur during a qualified pulse event. Diversions are otherwise unrestricted by the Bend Bridge Pulse Flow protection criteria.

Minimum Bypass Flows in the Sacramento River at the RBPP

As required by Water Rights Order 90-5, a minimum bypass flow in the Sacramento River at the RBPP of 3,250 cfs would continue to be in place to stabilize flows in the Sacramento River and

protect salmon redds. When flow in the Sacramento River is less than 3,250 cfs at the RBPP, the Project would not divert. When flows in the Sacramento River exceed 3,250 cfs at the RBPP, diversion for the Project may occur. The rate of diversion at the RBPP would be controlled by fish screen design, regulatory restrictions, operations criteria, and irrigation demands. While full diversion capacity of 2,120 cfs may be achieved at flows of approximately 7,860 cfs in the Sacramento River (Figure 2-36), such high proportions of flow diverted are not likely to occur (see analyses in Chapter 5, *Surface Water Resources*, Section 5.4.1.1, *Summary of General Changes in Hydrology*, and Chapter 11, *Aquatic Biological Resources*, Table 11-6).

Minimum Bypass Flows in the Sacramento River at the Hamilton City Pump Station

A required minimum bypass flow in the Sacramento River at the Hamilton City Pump Station of 4,000 cfs would continue to be in place at all times to stabilize flows in the Sacramento River and ensure proper function of the fish screen and river gradient facility. When flow in the Sacramento River is less than 4,000 cfs at the Hamilton City Pump Station, the Project would not divert. When flows in the Sacramento River exceed 4,000 cfs at the Hamilton City Pump Station, diversion for the Project at the Hamilton City Pump Station may occur and the rate of diversion at the Hamilton City Pump Station would be controlled by the fish screen design, regulatory restrictions, operations criteria, and irrigation demands. While the full diversion capacity of 2,070 cfs (Figure 2-37) may be achieved at flows of about 5,800 cfs in the Sacramento River, such high proportions of flow diverted are not likely to occur (see analyses in Chapter 5, Section 5.4.1.1 and Chapter 11, Table 11-7).

Minimum Bypass Flows in the Sacramento River at Wilkins Slough

In addition to the minimum bypass flows in the Sacramento River at RBPP and the Hamilton City Pump Station, diversions to Sites Reservoir may not cause flow in the Sacramento River at Wilkins Slough to decline below 10,700 cfs from October 1 to June 14 and below 5,000 cfs in September. Sacramento River flows are fully appropriated between June 15 and August 31, during which time there will be no diversion to Sites Reservoir.

Fremont Weir Notch Protections

The Project's diversion criteria have been formulated to avoid impacts on Reclamation's ability to meet Reasonable and Prudent Alternative (RPA) Actions I.7 and I.6.1 in the 2019 NMFS ROC on LTO BiOp to improve Yolo Bypass adult fish passage and increase juvenile salmonid access to Yolo Bypass and increase the duration and frequency of Yolo Bypass floodplain inundation, respectively (National Marine Fisheries Service 2019). The Project would thus operate to avoid effects on the Yolo Bypass Fremont Weir Big Notch Project's (Big Notch Project) ability to achieve its juvenile entrainment and adult passage performance goals for salmonids in the Sacramento River. The Bend Bridge pulse protection measure and minimum bypass flows requirement at Wilkins Slough are expected to prevent substantial changes in flows that thus prevent substantial changes in juvenile salmonid entrainment into the Big Notch and adult salmonid passage over the Big Notch under Alternatives 1, 2, and 3 compared to the No Project Alternative. However, as described in Appendix 2D, Section 2D.6.5, *Effects on Fremont Weir Big Notch*, the Adaptive Management Plan for the Project recognizes there is uncertainty about the performance of the Big Notch as it is currently not operational and, thus, there is uncertainty regarding how Project operations might affect the Big Notch Project's ability to achieve its performance goals. Monitoring will be conducted, in cooperation with the State, to ensure that

the Project does not prevent the Big Notch Project from meeting its performance goals; if warranted based on this monitoring, adaptive management will be applied to Project operations, which could include the adjustment of Project diversions upstream of the Big Notch as needed to ensure that the Project does not prevent the Big Notch Project from meeting its performance goals.

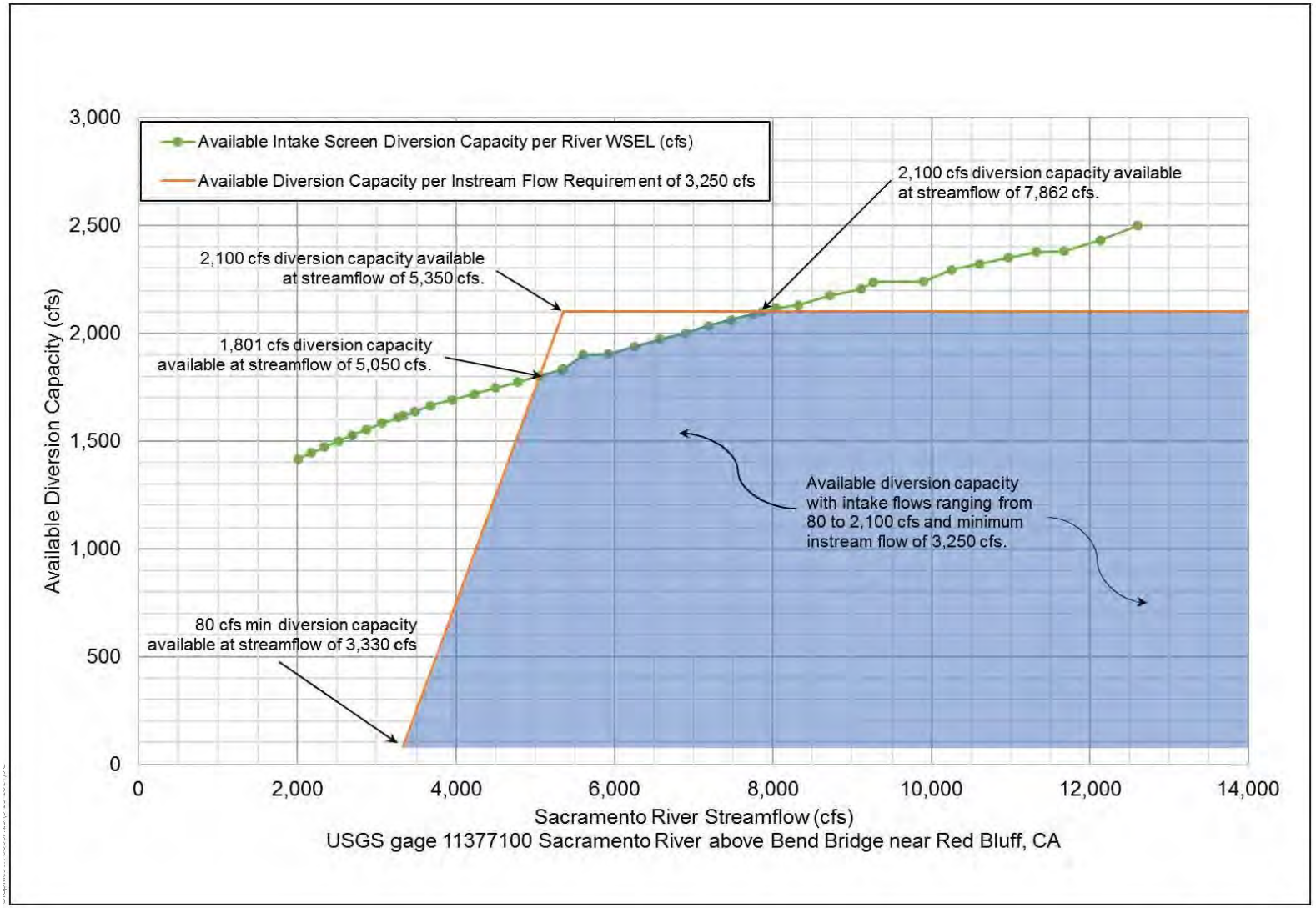


Figure 2-36
Available Diversion Capacity versus Streamflow at Red Bluff Pumping Plant

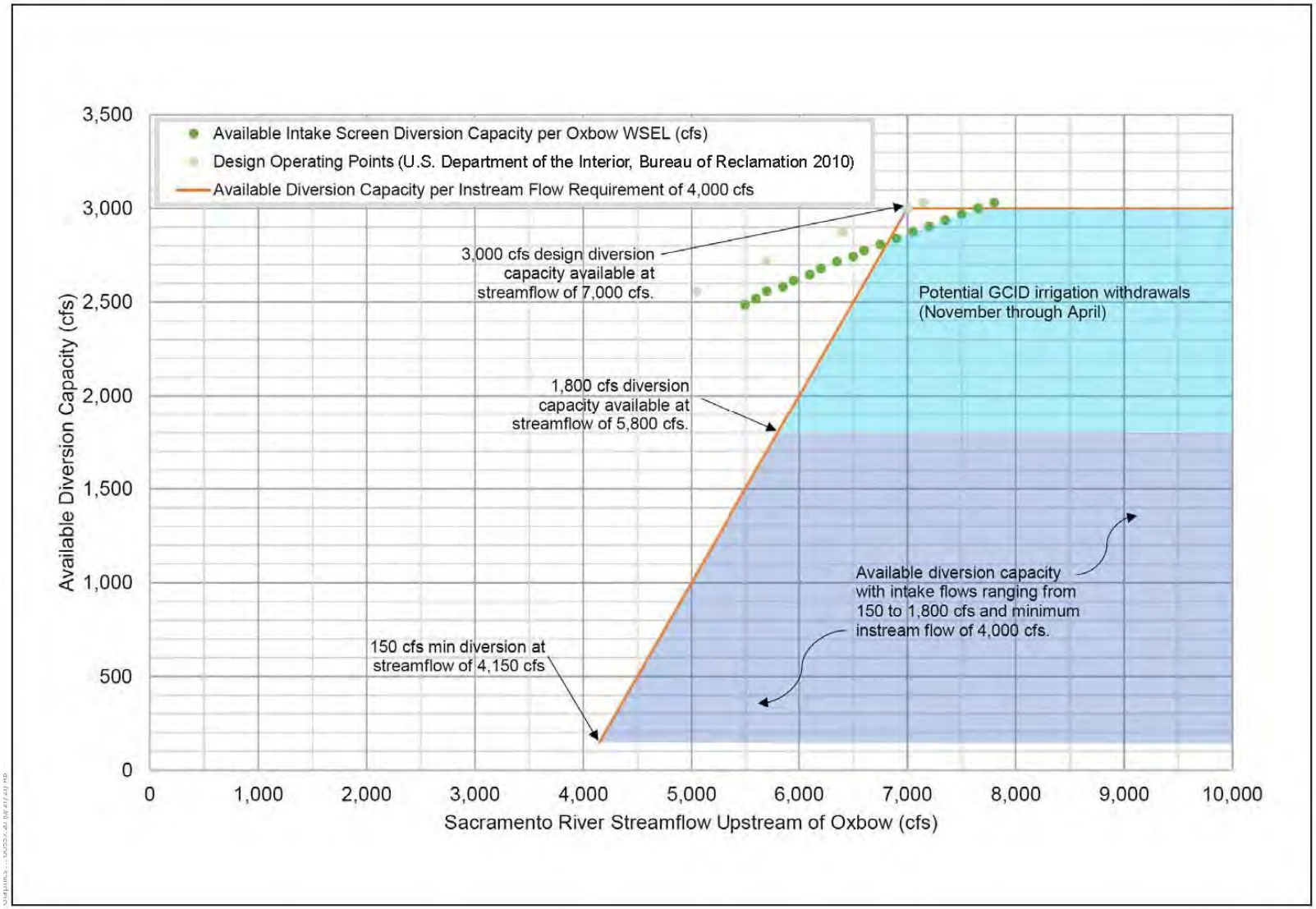


Figure 2-37
Available Diversion Capacity versus Streamflow at the GCID Hamilton City Pump Station

Freeport, Net Delta Outflow Index, X2, and Delta Water Quality

For lower Sacramento River and Delta locations, the Project would operate in a manner that would not adversely affect the ability of others to meet all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time that diversion occurs.

Losses during Diversions from the Sacramento River

Losses due to seepage and evaporation are anticipated to occur from the locations where water is diverted from the Sacramento River at the RBPP and Hamilton City Pump Station. Diversions at the RBPP are conveyed to Funks Reservoir through the TC Canal, which is concrete lined. Conveyance losses from the Sacramento River to Funks Reservoir are estimated to be about 1%. The pumping plant at Funks Reservoir has a proposed capacity of 2,100 cfs, thus diversions from the Sacramento River at the RBPP will be up to 2,120 cfs. Diversions at the Hamilton City Pump Station are conveyed to the proposed TRR through the GCID Main Canal, which is an unlined, earthen canal. Conveyance losses from the Sacramento River to TRR are estimated to be about up to 13%. The pumping plant at TRR has a proposed capacity of 1,800 cfs, thus diversions from the Sacramento River at the Hamilton City Pump Station will be up to 2,070 cfs. When river conditions and capacity are available for both diversion facilities to be operated simultaneously, there would be a maximum combined diversion rate of about 4,200 cfs (3,900 cfs, plus losses).

Diversion to Sites Reservoir from Funks and Stone Corral Creeks

Sites Reservoir would also be filled by water that is impounded due to the construction of Golden Gate and Sites Dams on Funks and Stone Corral Creeks, respectively. Water from Funks and Stone Corral Creeks could be diverted to storage in Sites Reservoir from September 1 to June 14, and senior downstream water rights on the creeks have been satisfied.

Storage in Sites Reservoir

Water would be stored in Sites Reservoir until requested for release by a Storage Partner. The Authority would prepare a Reservoir Management Plan (RMP) that would describe the management of water resources in Sites Reservoir and include a plan for monitoring water quality. Section 2.5.2.4, *Operations and Management Plans*, contains additional information on the RMP.

Releases from Sites Reservoir

Releases from Sites Reservoir would be made in any water year type to meet the needs of the Storage Partners, including the water-supply-related environmental benefits under WSIP. The releases would be made from the I/O Works in Sites Reservoir and conveyed via pipeline to either Funks Reservoir or the TRR. Under normal operating conditions, up to 2,000 cfs could be released from the I/O Works to Funks Reservoir and up to 1,000 cfs could be released from the I/O Works to the TRR. The I/O Works would allow withdrawal of water from Sites Reservoir over a range of depths to manage release water temperatures.

From Funks Reservoir or the TRR, releases would be conveyed as follows:

- **Release for Storage Partners Along the TC Canal and GCID Main Canal –** Releases would be made to Funks Reservoir or the TRR and conveyed to the respective Storage Partner via the existing TC Canal and GCID facilities.
- **Releases for Storage Partners Along the Sacramento River –** Releases for Storage Partners along the Sacramento River would generally be made via exchange as water from Sites Reservoir cannot be physically conveyed to any Storage Partner on the Sacramento River between the Hamilton City Pump Station and Knights Landing. Real-time exchanges, primarily with GCID but also with Reclamation, would be used for these Storage Partners.
- **Releases for Storage Partners Along the CBD, Yolo Bypass, Sacramento River downstream of Knights Landing, and North Bay Aqueduct –** Releases for Storage Partners, including some of the Proposition 1 water, would be made to Funks Reservoir. This water would then be conveyed down the TC Canal to the new Dunnigan Pipeline and released into the CBD. The water would subsequently be conveyed down the CBD, through the Knights Landing Ridgecut, to the Yolo Bypass/Cache Slough Complex for Proposition 1 benefits. Water destined for Storage Partners who receive water from the North Bay Aqueduct could follow this path, but it is more likely this water would be moved through the Sacramento River as described below. Water destined for Storage Partners who receive water from the Sacramento River downstream of Knights Landing would be conveyed down the TC Canal to the new Dunnigan Pipeline and released into the CBD for release through the Knights Landing Outfall Gates back into the Sacramento River.
- **Releases for South-of-Delta Storage Partners –** Releases for Storage Partners who are located south of the Delta, including water for Incremental Level 4 Refuge water supply benefits under WSIP, would be made to Funks Reservoir, conveyed down the TC Canal to the new Dunnigan Pipeline, and released into the CBD. This water would then be conveyed to the Sacramento River via the Knights Landing Outfall Gates. Once in the Delta, this water could be diverted at any of the South Delta pumping facilities (SWP's Banks Pumping Plant, Reclamation's Jones Pumping Plant, the North Bay Aqueduct, or Contra Costa Water District's pumping plants) and conveyed to the respective Storage Partner using existing conveyance facilities and mechanisms. Releases for Storage Partners who are located south of the Delta, including water for Incremental Level 4 Refuge water benefits under WSIP, may also be made through exchanges with Reclamation and DWR. Releases for south-of-Delta Storage Partners would generally be made during July to November to coincide with available pumping capacity at the South Delta pumping facilities and would be subject to applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time that releases occur.

Releases would be coordinated with Reclamation and DWR to ensure there are no conflicts with CVP and SWP operations and no adverse effects to the CVP and SWP. In addition, releases would be coordinated with Reclamation and DWR to ensure that there is available capacity to redivert releases at the South Delta pumping facilities for any releases that would be pumped at

these locations. Reclamation will need to execute one or more contracts in accordance with Section 1 of the Warren Act of 1911 (36 Stat. 925) for use of federal facilities to pump and convey non-CVP water for Storage Partners who are located south of the Delta, including water for Incremental Level 4 Refuge water benefits under WSIP. The use of these federal facilities is included in the Project, and thus the impacts of the anticipated Warren Act contract(s) are covered by this Final EIR/EIS.

Sites Reservoir is currently estimated to have a dead pool of approximately 17,700 AF, below which water cannot physically be removed from the reservoir using the I/O Works. However, the Authority is currently planning to operate to a dead pool of up to 60 TAF under normal conditions. For the RDEIR/SDEIS, Sites Reservoir operational dead pool was assumed and modeled at 120 TAF. However, the reservoir was modeled to be drawn lower than this for TCCA water supply during drought conditions. The Project description and CALSIM II now models an operational dead pool of 60 TAF. The operational dead pool amount may be revised and reduced in final design. Sites Reservoir may also be drawn down below the operational dead pool in drought situations.

Coordination with CVP and SWP

Project operations would be coordinated with Reclamation and DWR to benefit portions of CVP and SWP operations, prevent conflicts with the CVP and SWP operations, and avoid additional obligations on the CVP or SWP to meet applicable laws, regulations, biological opinions or incidental take permits (in the case of the SWP), and court orders in place at the time of operations. The Authority is currently working with Reclamation and DWR to establish operating principles with both agencies that would describe the details of the coordination and collaboration that would take place during the operation of the Project.

It is expected that the Project would also be incorporated into existing and future technical and advisory teams in which Reclamation and DWR participate to coordinate the CVP and SWP operations with the regulatory agencies. These teams could include the Sacramento River Temperature Task Group and other groups as applicable. This participation would allow for better and more efficient coordination of the Project's operations, in concert with CVP and SWP operations, with the regulatory agencies. Involvement on the technical and advisory teams would also provide opportunities to work collaboratively to achieve species benefits in the Sacramento Valley and the Delta.

The proposed operation of the Project includes exchanges of water with the CVP and SWP. Exchanges have the potential to assist the CVP and SWP in meeting their regulatory obligations and their authorized purposes including to protect, restore and enhance fish, wildlife, and associated habitats, provide water supply and generate power. The exchanges are expected to primarily occur with Shasta Lake and Lake Oroville. Exchanges are also expected to take place in real-time with local Storage Partners. Exchanges would only be conducted when they would be neutral or net beneficial to CVP and SWP operations and not affect the ability of the CVP or SWP to meet applicable laws, regulations, biological opinions and incidental take permits, contractual deliveries, and court orders in place at the time.

Coordination with CVP:

To help Reclamation achieve operational objectives without additional burden or negative effects on the existing CVP system, the Authority is considering the following actions to coordinate operations with Reclamation towards common goals. These actions would be pursued regardless of Reclamation's investment level; however, it is expected that increased federal benefits would be achieved with increased level of federal investment in the Project.

Shasta Lake Exchanges – Exchanges with Shasta Lake would be formulated to target cold-water pool preservation and anadromous fish benefits. The exchanges would use Storage Partners' share of Sites Reservoir storage, including but not limited to the CVP share of the storage, in a manner to meet CVP deliveries and obligations as much as possible via Sites Reservoir to preserve water stored in Shasta Lake. These coordinated operations would be shaped in a way to minimize effects on Project deliveries to Storage Partners. Water exchanged in Shasta Lake would be released for Storage Partners' diversions north or south of Delta or would be used for in-basin uses. The following outcomes would be targeted:

- Cold-Water Pool Maintenance – Exchanges intended to maintain the cold-water pool in Shasta Lake would occur in years when temperature management would improve if the exchange occurs. Under this exchange, water would be released from Sites Reservoir in the spring and summer to meet CVP needs, including Sacramento River Settlement contract diversions, CVP water service and/or repayment contracts or Central Valley Project Improvement Act (CVPIA) refuge needs in the Sacramento Valley that could physically receive water from Sites Reservoir and/or Reclamation's Delta obligations. By reducing releases from Shasta Lake in the spring and summer, the storage and cold-water pool in Shasta Lake would be preserved for use later in the year, typically during critical months of the cold-water pool management season (August and September) and into the fall. In late summer and fall (i.e., August through November) of that same calendar year, Reclamation would release an equivalent amount of water from Shasta Lake and/or CVP share of Sites Reservoir for Storage Partners. These releases would be subject to other limitations and regulations including State Water Board actions.
- Fall-Run Redd Maintenance – Exchanges with Shasta Lake may also occur to minimize fall-run Chinook salmon redd dewatering. Under this exchange, water released from Shasta Lake from the fall through the winter to maintain inundation and prevent fall-run redd dewatering would be used downstream to meet Storage Partners' needs. Sites Reservoir would subsequently release an equivalent amount of water to meet CVP needs in the spring and summer. Fall-run redd maintenance flows could also be achieved by releasing previously exchanged water stored in Shasta Lake similar to the Cold-Water Pool Maintenance action described above. For example, in Wet and Above Normal Water Years, if Shasta Lake storage is high due to exchanged water, Reclamation may choose to meet the Fall X2 requirement by releasing water from Shasta Lake instead of reducing Delta exports. The water that can be pumped instead of what would have been reduced to meet Fall X2 could be delivered to Storage Partners.
- Spring Pulse Assistance – Exchanges with Shasta Lake and/or Project Storage Partners may also assist Reclamation in making spring pulse flows for the benefit of juvenile salmon out-migration in the lower Sacramento River. When Reclamation is

implementing a spring pulse release from Shasta Lake and to prevent reduction in the pulse flow, water would be released from Sites Reservoir during the pulse period to meet other CVP needs, such as contractual diversions by Sacramento Valley settlement and water service contractors. During spring pulse flow times when the Authority may otherwise divert flows from the Sacramento River, Reclamation may transfer water stored in Sites Reservoir to the other Storage Partners in lieu of diversions. Spring pulse flow assistance could also be achieved by releasing previously exchanged water stored in Shasta Lake similar to the Cold-Water Pool Maintenance action described above. CVP needs including deliveries to Sacramento River Settlement Contractors can be made via Sites Reservoir to maintain water in Shasta Lake that might help achieve additional pulse flows (either an additional pulse or increased volume) from March through May.

Coordination with SWP:

Exchanges with Lake Oroville would be done to primarily to increase flexibility and yield of Sites Reservoir while providing environmental benefits. Exchanges with Lake Oroville would be formulated to facilitate Project deliveries to Storage Partners and may also improve cold-water pool conditions at Lake Oroville. Exchanges with Lake Oroville are expected to happen more frequently than Shasta Lake exchanges and would be driven by a variety of factors. Under a Lake Oroville exchange, water would be released from Sites Reservoir primarily in June and July to meet SWP purposes. By reducing releases from Lake Oroville in these months, the storage and cold-water pool in Lake Oroville would be preserved for use later in the year, typically during critical months of the cold-water pool management season (August and September). In late summer and fall (i.e., August through November), DWR would release an equivalent amount of water from Lake Oroville for Storage Partners. All exchange water would be released from Lake Oroville in late summer and fall and no exchanged water would be carried over from year to year.

Real-Time Exchanges or Transfers with Local Storage Partners:

To support timing of releases and deliveries to Storage Partners north and south of the Delta, exchanges or transfers with local Storage Partners may occur. This type of exchange or transfer is most likely to occur with GCID but could also occur with other Sacramento River Settlement Contractors and Reclamation. Instead of diverting all or a portion of its water from the Sacramento River, the local Storage Partner would receive a portion of its water from Sites Reservoir. A portion of the local agencies' supply would be left in the Sacramento River (i.e., not diverted by that contractor or agency) and used for other Storage Partners.

Funks Creek and Stone Corral Creek Releases

The Project has the capacity to make releases from Sites Reservoir into Funks and Stone Corral Creeks should they be necessary to comply with California Fish and Game Code Section 5937[7]

[7] "The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam. During the minimum flow of water in any river or stream, permission may be granted by the department to the owner of any dam to allow sufficient water to pass through a culvert, waste gate, or over or around the dam, to keep in good condition any fish that may be planted or exist below the dam, when, in the judgment of the department, it is impracticable or detrimental to the owner to pass the water through the fishway."

and ensure no harm to downstream water right holders on these creeks. Field studies would be conducted once access is obtained and before final designs for Sites Dam and Golden Gate Dam are completed to determine the following:

- Existing fish assemblage in these creeks, including fish species presence and habitat use;
- Characterization of habitats available (e.g., spawning, rearing, foraging, and sheltering habitats) at varying flow levels, including the presence or absence of pools that persist through summer;
- Characterization of flows, including assessing the base flow during the summer months;
- Conducting a fluvial geomorphologic study to characterize habitat condition including substrate compositions and bed load and to document the relationship between flow levels and mobilization;
- Surface Water Ambient Monitoring Program technical study (i.e., bioassessment) that focuses on relationships between physical habitat, water quality, and benthic macroinvertebrates; and
- Hydrological studies to define flow temperature relationships.

Using information from these field studies, along with currently available information, the Authority would prepare a Funks and Stone Corral Creeks flow schedule that would be incorporated into the Reservoir Operations Plan that would identify the approach for releases, including release schedules and volumes. If flows in Stone Corral Creek and Funks Creek are needed to maintain fish in good condition and the habitats on which they depend, consistent with California Fish and Game Code Section 5937, then the Authority would adapt this study program into an operations monitoring plan with a duration of 5 to 10 years to document and adaptively manage the timing and magnitude of flow releases. Releases into these creeks would be made in consideration of the flood control benefits of the Project and would not overtop the stream banks and flood downstream areas. In its Application to Appropriate Water for the Sites Reservoir Project submitted to the State Water Board on May 10, 2022, the Authority requested that a Project-specific water right term regarding Funks and Stone Corral Creeks be included in a permit issued on the application. The term states that the Authority will perform technical studies, as described above, prior to impoundments to storage of flows from Funks and Stone Corral Creeks (Sites Project Authority 2022a). Appendix 2D describes the purpose, objectives, content, and timing of the studies identified above.

Releases into Funks Creek would be made through a pipeline that links the transition manifold to Funks Creek below the dam. This pipeline would carry up to 100 cfs with a release range of 0 to 100 cfs into Funks Creek. Releases into Stone Corral Creek would be made through the permanent outlet at Sites Dam. This outlet would have a release range of 0 to 100 cfs, with an emergency release capacity of approximately 4,700 cfs.

Flood Control

The Project would provide flood control benefits to the communities of Maxwell and Colusa, local agricultural lands, rural residences, and I-5 by impounding Funks Creek and Stone Corral

Creeks. These flood control benefits are inherent in the design of the Project and no specific operational criteria are necessary to achieve these benefits.

Emergency Release

The Project includes the design and operation of facilities to meet DSOD requirements, including:

- Ability to reduce the depth of water in the reservoir by 10% of the reservoir depth within 7 days. Reservoir depth is defined as the elevation difference between the maximum normal operating WSE and the top of dead pool elevation.
- Ability to drain the reservoir to dead pool within 90 to 120 days.

During an emergency release event, the I/O Works and the diversion outlet at Sites Dam would operate simultaneously to release water. The emergency releases would be in accordance with DSOD requirements and would occur as follows:

- The diversion outlet at Sites Dam would release to Stone Corral Creek at a maximum rate of approximately 4,700 cfs.
- The I/O tunnel would release to Funks Creek and the TRR at a rate of 16,000 cfs, with 9,000 cfs being discharged to Funks Reservoir and 7,000 cfs to the TRR with a maximum velocity of 40 feet per second (ft/s) in the conveyance pipelines downstream of the I/O tunnel. The I/O tunnel itself would be sized such that the maximum velocities are 20 ft/s in accordance with Reclamation criteria for reinforced concrete lining. Additional energy dissipation structures at Funks Reservoir and the TRR would be required for the emergency releases.

The RDEIR/SDEIS identified two emergency release structures that were proposed for Alternatives 1 and 3: Emergency Release Structure 1 adjacent to Saddle Dam 3 and Emergency Release Structure 2 adjacent to Saddle Dam 5. These structures have been eliminated, which also eliminates emergency release flows that would occur to Hunters Creek and downstream agricultural lands except during emergency spills from overtopping at Saddle Dam 8B.

2.5.2.2 Energy Generation and Energy Use

The Project would require power to run facilities and pump water, but it would also generate incidental power. The pumping energy requirements and power generation are summarized in Table 2-6 and Table 2-7 for Alternatives 1, 2, and 3.

Table 2-6. Pumping Summary for Alternatives 1, 2, and 3

Site	Net Pumping Power (MW)	Other Auxiliary Loads (MW)	Transformer and T Line Losses (MW)	Total Pumping Power (MW)	Total Pumping Power @ 0.85 PF (MVA)
Funks	67.1	1	0.1	68.2	80.2
TRR	75.4	1	0.1	76.5	90.0
Total	142.5	2	0.2	144.7	170.2

Notes:
MW = megawatts; PF = power factor; MVA = megavolt amperes; TRR = terminal regulating reservoir.

Table 2-7. Potential Generating Summary for Alternatives 1, 2, and 3

Site	Potential Net Generating Power (MW)	Other Auxiliary Loads (MW)	Transformer and T Line Losses (MW)	Total Power Generation (MW)	Total Power Generation @ 0.85 PF (MVA)
Funks	48.1	1	0.1	55.3	47.0
TRR	27.4	1	0.1	31.0	26.3
Total	75.5	2	0.2	86.3	73.3

Notes:
MW = megawatts; PF = power factor; MVA = megavolt amperes; TRR = terminal regulating reservoir.

Power generation at the Funks PGP and TRR PGP during operation would be limited to 40 MW nameplate capacity per facility and as such, would not require a Federal Energy Regulatory Commission license per the "Qualifying Conduit Hydropower Facility" under the Hydropower Regulatory Efficiency Act of 2013, as amended by America's Water Infrastructure Act of 2018. The Project would include electrical substations at Funks Reservoir and the TRR. These substations would service a net pumping energy demand estimated at 80 megavolt amperes (MVA) at Funks Reservoir and 90 MVA at the TRR (i.e., 170 MVA of demand load total). Because of the size of the pumping units, no backup generation is planned for pumping facilities. The Project would require power to operate in order to divert and convey water to and from Sites Reservoir during the winter months and would generate power when releases from storage are made during the summer and fall months. Project operations would generate power when water is released from Sites Reservoir at the Funks and TRR PGPs. The power generated during this time of the year is when California typically needs more power to satisfy demand because of higher temperatures and thus it is expected Project-generated power would be sold on the market to a willing buyer. The Project would require purchasing power to operate (i.e., power generated by the Project would not be used to operate the Project). The Project has a target of purchasing at least 60% of the Project's operations power needs from renewable, carbon-free sources from the start of operations to 2045. Starting in 2045, the Authority would target purchasing 100% of the Project's operations power needs from renewable, carbon-free sources. This target does not include any operational power needs attributable to Reclamation's participation, including the conveyance and pumping of Incremental Level 4 Refuge water supply.

2.5.2.3 Facility Operations and Maintenance

Operations and maintenance activities for all facilities, including recreation areas, would include debris removal, vegetation management, rodent control, erosion control and protection, routine inspections (dams, tunnels, pipelines, PGPs, I/O Works, fencing, signs, and gates), painting, cleaning, repairs, and other routine tasks to maintain the facilities in accordance with design standards after construction and commissioning. Routine visual inspections of the facilities would be conducted to monitor performance and prevent mechanical and structural failures. The Authority will implement operations and maintenance BMPs that are described in Section 2.5.4.

The RBPP has an established operations and maintenance plan. The two new pumps at the facility would be incorporated into the existing plan and operated and maintained as part of the overall activities at the facility. Improvements to the GCID facilities would likewise be incorporated into GCID's regular operations and maintenance activities.

Operations and maintenance activities unique to the TRR would include daily visual inspections, setting and checking water control structures, annual and 5-year dam safety inspections, quarterly vegetation and weed abatement and rodent control, annual preventative leak location surveys and evaluations of the reservoir liner, instrumentation monitoring and maintenance, and annual debris removal at the spillway outfall to Funks Creek. Replacement of the TRR liner may be needed on an infrequent basis.

Operations and maintenance activities unique to the TRR and Funks PGPs and hydroelectric turbines would involve greasing, painting, oiling, and keeping the pumps in good operating condition. These activities would also include different monthly and annual inspections of pumps, interior coating condition inspection, pump leakage inspections, temperature and pressure checks, and exterior surface cleaning. Repair and replacement of pump components would be needed on a periodic basis. Energy dissipation structures would be visually inspected and lubrication of bearings would be conducted on an as-needed basis.

Operations and maintenance activities unique to the electrical switchgear would include visual and mechanical inspections, moisture and corrosion inspections, general wiring checks, and insulator and barrier checks. A series of tests would be conducted at regular intervals, including but not limited to insulation electrical tests, control wiring electrical tests, circuit breakers and switch tests, system function tests, and surge arrestor tests. Electrical switchgear would be maintained, repaired, or replaced as needed to continue safe and efficient operations.

Pipelines and tunnels would be inspected at least every 5 years and remote operated vehicle (ROV) inspections would be acceptable. ROV inspections would not require dewatering the tunnels or pipelines. If physical inspections of tunnel interiors would be required, the tunnels would be completely shut down. Tunnel inspections may be completed during normally scheduled shutdowns when water is not being conveyed into or out of the reservoir. The tunnel shutdown duration could range from a few days (inspection only) to 2 weeks (if maintenance is required).

Different components of the I/O Works would need to be inspected and maintained at varying frequencies. Any port gate that was not operated in a given year based on reservoir WSE would be functionally tested at least once during that year. In general, pipeline appurtenances (e.g.,

air/vacuum valves, blowoffs) would be inspected and functionally tested where possible annually. Most of the mechanical components in the multi-level I/O tower could be functionally tested and/or maintained without requiring a shutdown (as there would be multiple tiers from which to draw water).

Maintenance of access roads would include replacing gravel, scraping and filling ruts in gravel roads, or pavement replacement and repair for paved roads. Minor infrastructure maintenance would include repair or replacement of gates, locks, or fencing; painting gates; replacing lost or damaged signage; and lubricating gates.

Maintenance of lands could include grading fire breaks/trails, maintaining vegetation (e.g., grazing, tilling, or disking), and performing limited prescribed/controlled burns.

In general, operations and maintenance activities could occur on a daily, annually, periodically (as needed), and long-term basis. It is estimated that 30 operations and maintenance workers would be needed to perform operations and maintenance activities (based on three shifts per day, 365 days a year).

2.5.2.4 *Operations and Management Plans*

The Authority would develop and implement a number of operations and management plans to direct the Project operations and maintenance activities.

Reservoir Operations Plan

The Reservoir Operations Plan would describe the management of water operations, including releases into Funks and Stone Corral Creeks. This plan would include the following:

- **Diversions to Sites Reservoir** – Mechanics on how diversions are scheduled and managed, including diversion criteria and operating requirements for diversions.
- **Storage in Sites Reservoir** – How losses and evaporation are accounted for, how exchanges and transfers are managed (both between Storage Partners and with non-Storage Partners), and the process for leasing or sharing storage space.
- **Releases from Sites Reservoir** – When and how water can be released to each facility, how release orders are made and adjusted, and how releases are prioritized when necessary.
- **Flows in Funks and Stone Corral Creeks** – Release operations for releases into Funks and Stone Corral Creeks.
- **Flood Control and Health and Safety Considerations** – Descriptions of how emergencies should be handled and processes for notification in the event of emergencies. Emergency flow releases will be addressed in an Emergency Action Plan.

The Authority has developed Version 1 of a Reservoir Operations Plan in parallel to the development of the RDEIR/SDEIS. The purpose of the Reservoir Operations Plans is to compile operations-related items from other documents in one location. The contents of the Reservoir Operations Plan are primarily pulled from the RDEIR/SDEIS and the Authority's Principles of Storage. Version 1 of the Reservoir Operations Plan focuses on modeling Alternative 1B as the

Authority's preferred alternative at the time of the RDEIR/SDEIS. The Reservoir Operations Plan is a living document and at this stage is for illustrative purposes. Future versions of the plan will be modified as needed based on the final alternative selected and on the requirements established by the permitting and water rights processes for the Project. A complete Reservoir Operations Plan would be prepared at least 1 year prior to Project operations being initiated.

Reservoir Management Plan

The RMP would describe the management of water resources within Sites Reservoir. Information regarding the purpose, outcomes, content, and timing of components of this plan are included in Appendix 2D. This plan would include the following:

- **Fisheries Management** – Target fisheries species composition and management activities for Sites Reservoir, including stocking strategies (if any), habitat enhancement measures, and monitoring efforts. Species that may be considered include rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), Kokanee salmon (*Oncorhynchus nerka*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), channel catfish (*Ictalurus punctatus*), and brown bullhead (*Ameiurus nebulosus*).
- **Reservoir Water Quality** – Water quality metrics, standards, testing and monitoring protocols (including guidelines for water quality measurements), and the frequency and location of measurements in the reservoir, the source water, and the reservoir discharge. Protocols to respond to emerging water quality concerns, such as protocols for invasive aquatic weed control, potential adjustments to inflow and release volumes, minimum reservoir storage levels, and inlet/outlet port selection. Water quality metrics, standards, testing, and protocols would follow information and guidance available from the Central Valley Regional Water Quality Control Board. More detail regarding water quality management is provided in Chapter 6, *Surface Water Quality.*
- **Vector Management** – Protocols and practices for communicating/coordinating with vector control authorities and determining how vector control would be managed at Sites Reservoir and the TRR.

The RMP would be completed at least 1 year prior to Project operations being initiated.

Traffic Management Plan

The Authority will develop the TMP in coordination with the applicable jurisdictions, including local governments, transit providers, and rail operators for construction. The TMP will describe measures to ensure that Project-related traffic will be managed to avoid conflicts with local traffic. Information regarding the key features, responsible party(ies), timing monitoring and reporting requirements, and regulatory and permitting agency responsibilities, as appropriate, of the TMP are contained in Appendix 2D. As noted elsewhere in this chapter and in Appendix 2D, the TMP would identify specific haul and access routes with all contractors to disperse Project-generated construction traffic to the extent practicable and necessary during concurrent construction of multiple facilities and prohibit construction traffic in the community of Maxwell. Other actions would be identified and developed as needed by the Authority in coordination with

the construction manager/resident engineer to ensure that impacts on transportation facilities are minimized.

Land Management Plan

The Land Management Plan would describe the management and maintenance activities on all non-recreation land resources held in fee or easement by the Authority. This plan would include management actions for buffer areas and the specific type and frequency of maintenance activities by location. Land management, maintenance, and monitoring actions for onsite mitigation areas that may be owned and managed by the Authority would also be described. The Land Management Plan would be completed within 1 year of the first fee title acquisition by the Authority and would be amended as needed as additional lands are acquired. Appendix 2D identifies the purpose, outcomes, content, and timing of the Land Management Plan.

Recreation Management Plan

The Recreation Management Plan would describe the types, management, maintenance and monitoring activities on all Project recreation lands and areas. Development of the Recreation Management Plan would be coordinated with the Counties of Colusa and Glenn and the local police, fire, and emergency response entities and organizations. The Recreation Management Plan would be completed at least 1 year prior to the opening of Project recreational facilities. Appendix 2D identifies the purpose, outcomes, content, and timing of the Recreation Management Plan.

Initial Sites Reservoir Fill Plan

The Initial Reservoir Fill Plan would describe the monitoring program for Sites and Golden Gate Dams, saddle dams, saddle dikes, and areas around the reservoir that would be implemented during the initial filling of Sites Reservoir. The Initial Reservoir Fill Plan would be prepared as part of the DSOD approval process and would be completed at least 1 year prior to beginning to fill Sites Reservoir. Appendix 2D identifies the purpose, outcomes, content, and timing of the Initial Sites Reservoir Fill Plan.

Standard Operating Procedures

The Authority would prepare Standard Operating Procedures for all major Project facilities. These Standard Operating Procedures for each facility would include operational guidelines and schedules for inspection, monitoring, and maintenance. The Standard Operating Procedures are expected to be developed as part of the DSOD approval process and would be completed prior to beginning operations of the specific Project facility.

Security Plan

The Authority would prepare a Security Plan for all major Project facilities. Development of the Security Plan would be coordinated with local, state, and federal law enforcement agencies. This approach would ensure a comprehensive security review and assessment and the development of security measures to be implemented for all major Project facilities. The Security Plan is expected to be completed as part of the DSOD approval process and would be completed during final design.

Emergency Action Plan

Consistent with California Water Code Sections 6160, 6161, and 6002.5, an Emergency Action Plan would be prepared and submitted to the Governor's Office of Emergency Services (CalOES). The Emergency Action Plan would comply with California Senate Bill 92 and CalOES Emergency Action Plan requirements. The Emergency Action Plan would include: (1) a summary of responsibilities; (2) notification procedures and flowchart; (3) emergency response process; (4) preparedness for different emergencies; and (5) potential inundation mapping. The Emergency Action Plan would also identify the frequency for desktop and full exercises to prepare for emergencies. Appendix 2D identifies key features, responsible party(ies), timing, monitoring and reporting requirements, and regulatory or permitting agency responsibility, as appropriate.

2.5.3 Construction Considerations Common to Alternatives 1, 2, and 3

This section summarizes the activities associated with construction of the Project. Appendix 2C provides additional detail regarding the construction means and methods for various facilities that are ultimately incorporated into the impact analyses in Chapters 5 to 30.

2.5.3.1 Geotechnical Investigations

To support the engineering and final design of all facilities, the Authority would undertake preconstruction geologic, geotechnical, and geophysical investigations and testing.[8] These geotechnical investigations and associated testing would also be required to support DSOD permitting processes. The investigations would be implemented in various locations in and around the footprints of the facilities. Geotechnical investigations would be focused in areas where additional or updated data are needed for engineering cost refinement, for design, and to prepare permit applications. Depending on the time of year these investigations would take place, almost all of the geotechnical borings and geophysical work areas would require biological monitoring and/or some pre-activity clearance assessment and/or surveys due to their proximity to sensitive biological resources, particularly because the precise location of each individual investigation within its associated facility footprint has not been determined. The site-specific geotechnical investigations would include surface geologic mapping and surface and subsurface geophysical investigations as described below.

- Surface geologic mapping would generally involve noninvasive evaluation and documentation of geologic features and topography and would consist of soil mapping, walking surveys, and geophysical surveys.
- Surface geophysical investigations would generally involve non- or minimally invasive surface testing, such as seismic, gravitational, magnetic, electrical, and electromagnetic testing, and documentation of surface and subsurface site characteristics.

[8] The Authority has initiated preliminary geotechnical field investigations to support ongoing engineering evaluations and design development. These efforts include the *2022–2024 Sites Reservoir Geologic, Geophysical, and Geotechnical Investigations* (Sites Project Authority and Bureau of Reclamation 2022) and the *2023–2024 Proposed Sites Reservoir Test Pits, Fault Studies and Quarry Studies* (Sites Project Authority 2022b). More extensive field investigation would be needed to finalize Project design, as noted in this chapter.

- Subsurface geotechnical investigations would involve surface and subsurface evaluation and documentation of site characteristics using test pits, borings and cone penetration test (CPT) probes, and fault trenching for different facilities.
    - All subsurface geotechnical investigation techniques would require some degree of ground disturbance, including spot leveling of areas directly below truck leveling jacks and holes measuring 2 to 10 inches in diameter through which augers and sampling equipment would be lowered to collect subsurface data and samples. Some drilling locations would require a bulldozer to create temporary roads for drill rig access. Test pits would be roughly 10 to 12 feet deep, and fault trenching would vary between roughly 10 to 30 feet deep.
    - Borehole drilling would be performed using a drill rig that utilizes a combination of pilot bit, hollow stem flight augers, and rotary diamond core drilling. The hollow stem augers would likely have an 8.5-inch outer diameter and a 4.25-inch inner diameter, with a 5-foot-long split tube inner barrel for dry core sample collection. Standard Penetration Test samplers may also be used at 5-foot intervals. All drill cuttings and any drilling fluids would be contained on site in drums or bins and removed from the site to an existing permitted landfill or waste treatment facility. The temporary disturbance area would be approximately 20 by 50 feet (0.025 acre). Once each boring is complete, augers and testing equipment would be removed, the boring grouted and capped with soil, and the area cleared of work items (as required by permit requirements and at a minimum in accordance with California regulations and industry standards [Water Well Standards, DWR 74-81 and 74-90]). The permanent disturbance area would be approximately 1 square foot per borehole, except where a bulldozer created a larger area to access some locations.
    - CPTs are minimally invasive and consist of a specialized vehicle that inserts a 1.7-inch-diameter cone (probe) into the ground with a hydraulic direct push system. The temporary disturbance area would be approximately 20 by 50 feet (0.025 acre). Once each test is complete the rod would be retracted, the hole grouted and capped with soil, and the area cleared of work items (as required by permit requirements and at a minimum in accordance with California regulations and industry standards [Water Well Standards, DWR 74-81 and 74-90]). The permanent disturbance area would be approximately 1 square foot per borehole.
    - As part of groundwater investigations, well pump-out tests may be conducted in areas where groundwater will be encountered during construction to inform design.
- Test fills will be constructed of materials located in proposed borrow areas for the Golden Gate Dam, the Sites Dam, and Saddle Dams areas.
    - Each test fill area will initially be grubbed and scraped, and then ripped to expose highly weathered rock.
    - A specific blasting programs for each borrow area will then be conducted. For each blasting area a series of holes, varying in pattern and depth, will be prepared to receive blasting charges. The charges will be detonated as a means to remove rock.

The results of blasting will be evaluated to refine means and methods required for construction.

- Tests fills will then be constructed of the blasted and processed rock materials, to model construction means and methods. Testing of the constructed fills will then be conducted to evaluate water content, density and in-situ permeability of the placed layers.

Activities at most investigation areas would require approximately five personnel, including a driller/operator and one to two assistants, a utility locator, and a geologist/engineer to log the conditions encountered. Biological and cultural monitoring could also be required based on biological and cultural sensitivity and the type of activity being conducted. Each geotechnical investigation site would be active for a period ranging from 1 workday for CPT probes to 10 workdays for deep drill holes. Additional details regarding geotechnical investigations for several of the key facilities are provided below.

I/O Works

The I/O Works are located south of the Golden Gate Dam. They would be used both to fill the Sites Reservoir through conveyance facilities situated to the east and to make releases from the reservoir. The I/O Works would include the following:

- A multi-level intake tower, including a low-level intake
- One 32-foot-inside-diameter I/O tunnel through the ridge on the right abutment of Golden Gate Dam.

The investigation footprint for the I/O Works would encompass the area around the tunnel portal, at the I/O tower, and along the tunnel alignment. Geotechnical work would occur within the footprint of the construction area for these facilities. It is assumed that a boring would be required every 250 feet and that each boring would extend below the tunnel invert approximately 70 feet.

A seismic fault study would map the faults adjacent to the I/O Works and ensure the location of the alignment would minimize fault crossings. The geotechnical investigation footprint for the seismic fault study would encompass the area between the mapped faults and I/O Works.

Current access to the site is limited given the existing topography and lack of access roads. It is assumed that track-mounted drill rigs would be used for the accessible locations and helicopters would be required to transport drill rigs to remote locations.

Dams and Reservoir

The dam foundations and reservoir rim would be the subject of specific geotechnical investigations. The investigations for the dams would involve geologic mapping, geophysics, borings, test pits, test excavations, and fault trenching. In-situ testing would include downhole geophysics (suspension and televiewer), packer testing, and dilatometer. Piezometers would be installed at select locations to collect data on groundwater depth.

Investigation objectives for the dam foundation and reservoir rim would differ. The objectives of the dam foundation exploration would be to evaluate excavation methods, excavated material use for dam construction, dewatering requirements for foundation excavation, foundation deformability, hydraulic conductivity and strength, foundation treatment, and foundation grouting/cutoff requirements. The dam foundation exploration objectives would also be to confirm fault locations and fault rupture potential. The objective of the exploration of the reservoir rim would be to evaluate seepage and stability. This investigation would use geologic mapping, geophysical investigations, and borings. In-situ testing would include downhole geophysics (televiewer) and packer testing.

Laboratory testing for the dam foundation and reservoir rim may include point load and unconfined compression on rock and index testing of soils. Laboratory testing for the rim of the reservoir may also include testing of remolded joint/shear material for strength evaluation.

Onsite Borrow Areas

The onsite borrow areas would have specific geotechnical investigations. The objectives of the exploration for the borrow areas would be to confirm that the volume of materials available is at least 1.5 times the volume required and to evaluate excavation methods, excavation slopes at borrow locations, dewatering for borrow excavations, volume of materials generated from excavation, material types generated by excavation, requirements for processing of materials, properties of materials when placed and compacted in the dams, use of rock for riprap and aggregates, and types and volumes of materials generated from required excavations (i.e., at locations of dams, structures, and tunnels).

The investigations for the borrow areas would involve geologic mapping, geophysics, borings, test pits, test excavations, test blasting and test fills. In-situ testing would include downhole geophysics (suspension and televiewer) and rippability studies. Laboratory testing would include point load and unconfined compression on rock and index testing of soils. Laboratory testing would also involve testing remolded samples for compaction, strength, permeability, compressibility, and erosion potential. Test fills would be performed on rockfill and random fill materials.

2.5.3.2 Land Acquisition and Resident Relocation Program

Prior to initiation of construction activities, land acquisition or establishment of temporary or permanent easements on private properties would be acquired by the Authority consistent with all applicable law.

2.5.3.3 Additional Biological Surveys

After land acquisition and prior to construction actions, the Authority would complete additional biological surveys to confirm mapped habitat types and the presence/absence of biological resources including, but not limited to, special-status species, state and federal waters, sensitive plant communities and other applicable resources identified as sensitive by state, and/or federal agencies and discussed in Chapter 9, *Vegetation and Wetland Resources*; Chapter 10, *Wildlife Resources*; and Chapter 11 of this document. The Authority would use this information regarding occupied habitat to fulfill the permitting and consultation requirements of the federal and state

resource agencies (USFWS, CDFW, U.S. Army Corps of Engineers, Central Valley Regional Water Quality Control Board, and State Water Board).

2.5.3.4 Cemetery Relocation

Two private cemeteries in the inundation area would be relocated to a site approved for interment of human remains per requirements of the California Health and Safety Code Sections 7500–7527. The code requires a written order from the local health department or county superior court before human remains in a cemetery may be moved. The disinterment, transportation, and removal of human remains is subject to rules and regulations adopted by the board of health or health officer of the county. The Authority will work with descendants of the individuals interred to determine final disposition.

2.5.3.5 Construction Disturbance Areas and Access

Construction activities would be confined to designated construction disturbance areas. The designated construction disturbance areas represent envelopes of potential disturbance from the Project as analyzed in the EIR/EIS. These areas would also be used for construction vehicle and equipment parking and construction material storage. Certain areas may be restricted and construction personnel would be trained to recognize restricted areas and understand the equipment movement exclusions. Marking materials would be maintained until final cleanup and/or site restoration is completed, after which they would be removed. Potential staging areas would be located near each of the facilities. Construction-related traffic and local access routes are described in Section 2.5.1.7.

Demolition

Demolition would take place in the reservoir inundation area once lands are acquired. These activities would include the demolition of 20 houses, 25 barns, and 40 other structures (i.e., sheds, silos, and pump houses); removal of existing septic tanks and other underground storage tanks; and removal of existing roads, fences, and other utilities. Demolition debris would be reused and recycled to the extent possible. Any materials not recyclable would be transported and disposed of at an approved landfill(s). Some minor demolition would be needed for GCID system upgrades along the GCID Main Canal and the TC Canal Intake.

No demolition or relocation would be required for the RBPP, TRR-related facilities, Funks Reservoir-related facilities, Dunnigan Pipeline, or CBD outlet.

Clearing, Grubbing, and Topsoil Preservation

Clearing and grubbing would be required in the inundation area and within the footprints for most new facilities (i.e., dam facilities, I/O Works, Funks Reservoir facilities, TRR facilities, and Dunnigan Pipeline). This work would entail removing and disposing of woody vegetation and is estimated to occur over 3 years. Materials cleared and grubbed would be composted, reused, placed in the inundation area to provide future fish habitat, or recycled to the extent possible.

Prior to construction, measures would be taken to preserve topsoil. In the inundation area where disturbance would occur, the topsoil material would be excavated, stockpiled separately, and used in one of several ways: for restoration of temporary work areas outside the inundation area, for support of native or naturalized plant species around a facility following construction, or for

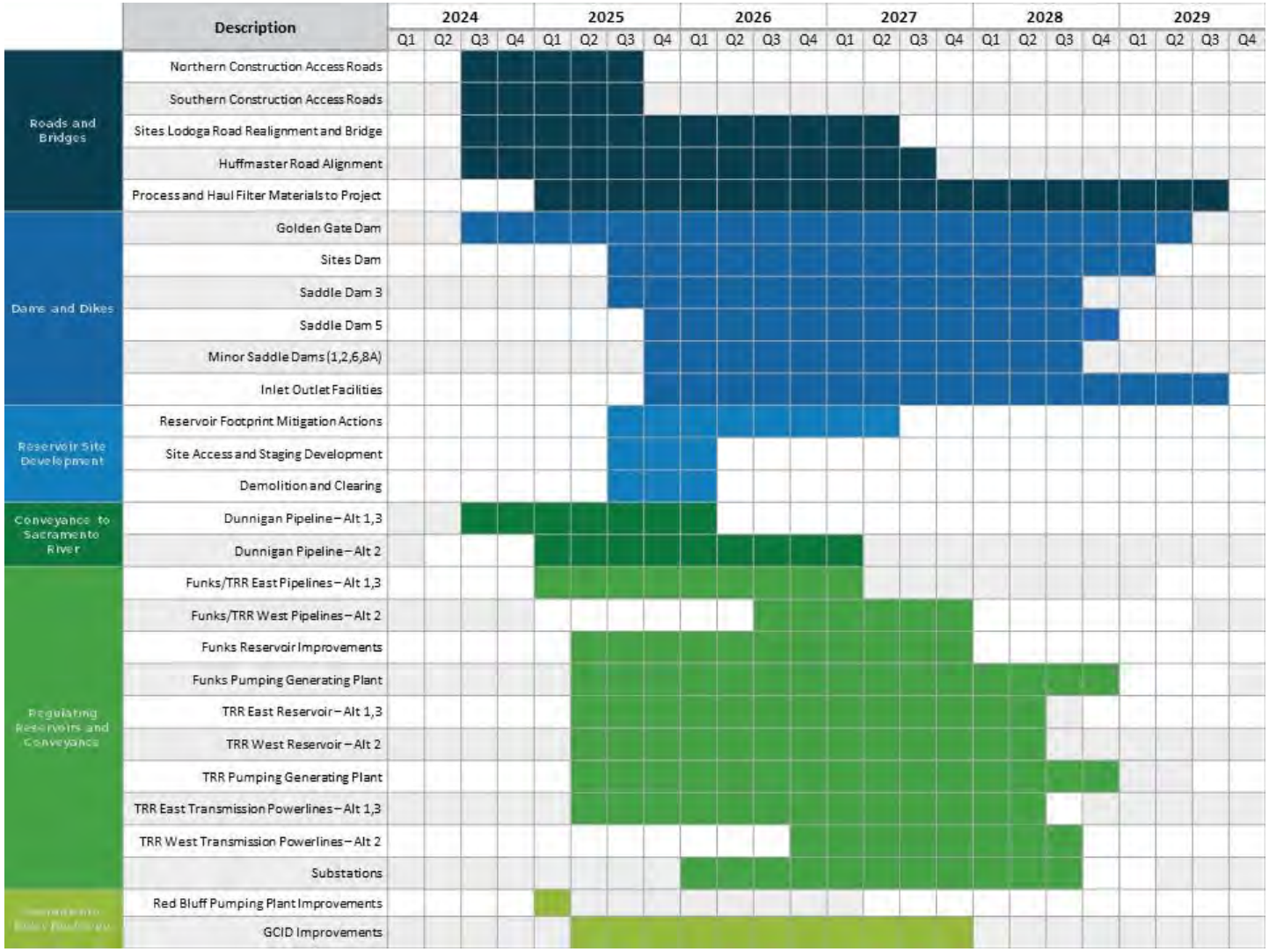
placement in agricultural areas. In the irrigated agricultural areas around the TRR and Dunnigan Pipeline, topsoil would be removed, stored, and replaced in areas of orchards, row crops, and rice fields. The topsoil would be restored so the irrigated agricultural areas would have the same soils composition except in areas that would be covered by permanent maintenance roads. In the rangeland areas between the TRR and Funks Reservoir along the TRR pipeline route, the topsoil would be removed, stored, and replaced. This soil would be used to restore the rangeland to its same soils composition, except in areas that would be covered by permanent maintenance roads. The commercial area between I-5 and Road 99W would be restored to the preconstruction condition (i.e., unpaved large lot).

2.5.3.6 Construction Duration, Timing, and Sequence

Construction may start as early as spring 2025, depending on the timing of funding, design, and permitting. Overall, construction is expected to take approximately 6 years for reservoir facilities and 2 years for conveyance facilities. Construction of the reservoir facilities and the conveyance facilities would be conducted concurrently for a total construction duration of 6 years. Several factors could affect this anticipated schedule. Additional adjustments to the schedule would be addressed as required during Project development and implementation. Initial construction activities would include clearing and demolition within the Sites Reservoir inundation area, constructing the access roads, and realigning/constructing the Sites Lodoga Road or South Road (Alternative 2). Durations of construction were based on production rates associated with the anticipated equipment types needed for construction.

Construction of the Project components would generally be expected to occur in the sequence shown in Table 2-8 and detailed in Appendix 2C. Some construction activities would be concurrent with the road relocations, but the existing Sites Lodoga Road and Huffmaster Road would not be closed until the road realignments were completed.

Table 2-8. General Construction Timing and Sequencing



Alt = alternative; GCID = Glenn-Colusa Irrigation District; TRR = terminal regulating reservoir.

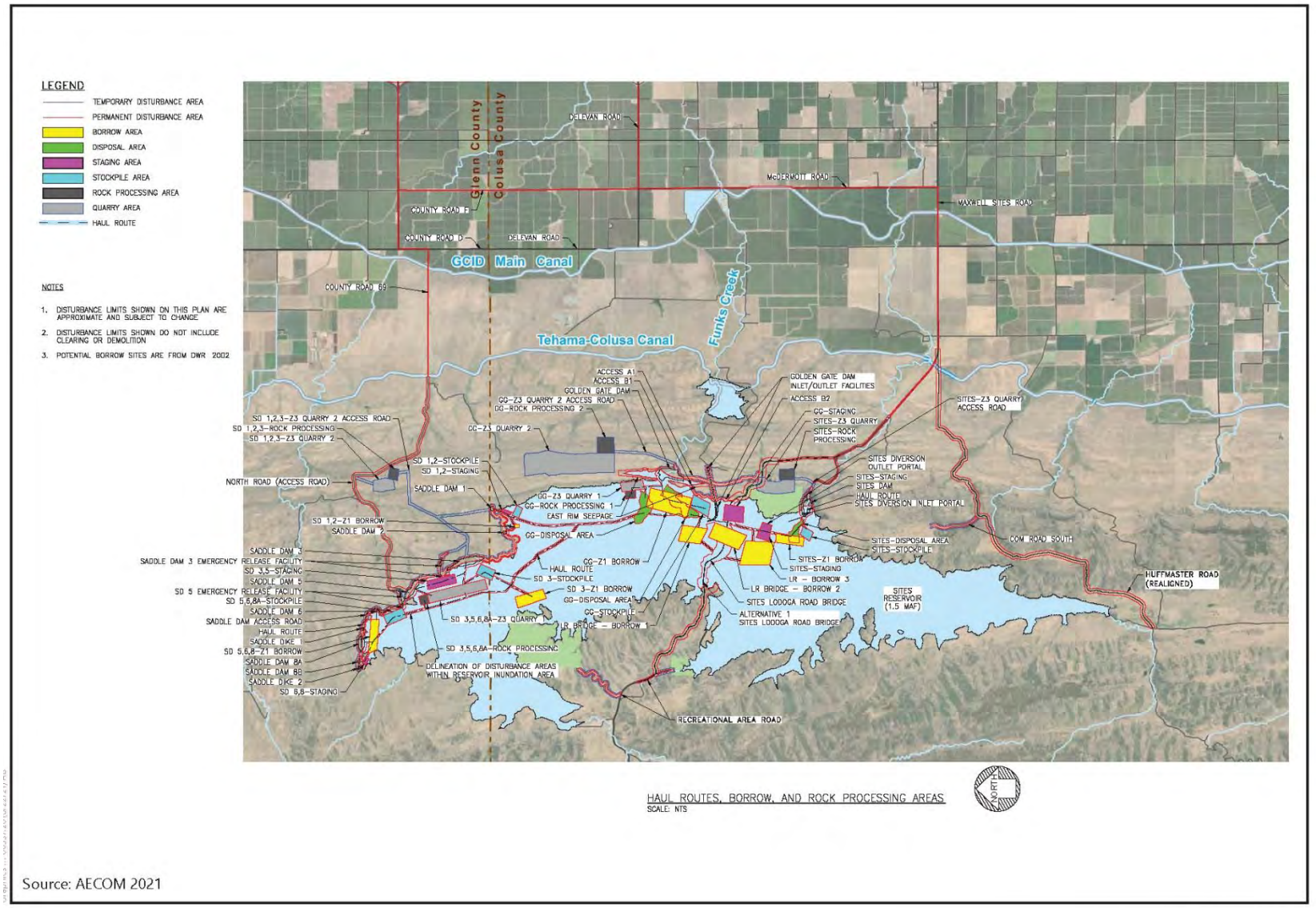
The general sequence of nonroad construction would begin with Golden Gate Dam, the I/O Works, and Dunnigan Pipeline. The next facilities to be constructed would be Sites Dam, the larger saddle dams, regulating reservoirs, and most associated facilities and pipelines. These facilities would be constructed over several years. Construction of the substations would be initiated last in the sequence. The recreation areas would be completed after construction of the main dams and saddle dams and generally concurrently with the regulating reservoirs and conveyance complex for a period of 2 years (expected between 2025 and 2027).

2.5.3.7 Borrow Areas and Quarries

It is anticipated that all earth and rockfill for the reservoir facilities (approximately 80% of materials required) would come from onsite sources (within the Sites Reservoir area or just outside Antelope Valley). Figure 2-38 shows potential onsite sources. Aggregate for dam construction (approximately 20% of material required) would be obtained from offsite commercial sources. There are multiple existing offsite commercial sources that could provide these materials and the Authority's construction contractor(s) would determine the appropriate location in consultation with engineering and the results of onsite geotechnical investigations. Potential sources and locations are described in Appendix 2C, Section 2.3.2, *Offsite Quarries*.

2.5.3.8 Construction Utilities

Approximately 750,000 to 1,000,000 gallons of water per day (500 to 700 gallons per minute) would be needed for constructing the Golden Gate Dam, Sites Dam, saddle dams, saddle dikes, and I/O Works over a period of 4 years. As such, a total of approximately 3,360 acre-feet per year (AFY) to 4,480 AFY would be required over the 4 years. Approximately 350,000–400,000 gallons per day would be required for GCID system upgrades and the regulating reservoirs and conveyance complex over a period of 4.5 years. An additional 20,000–30,000 gallons per day would be needed during construction of the Dunnigan Pipeline over a period of 4.5 years. This water would be obtained from three potential sources: existing surface water from the Storage Partners pursuant to existing water rights agreements and permitted uses; existing groundwater wells in the Sites Reservoir inundation area; and new groundwater wells in the Sites Reservoir inundation area. Water captured during dewatering for the construction of the Dunnigan Pipeline may be reused. Batch water treatment plants would be used to treat water, as necessary, for the intended use. Construction water would be reused to the extent possible. Anticipated construction energy needs are shown in Table 2-9.



Source: AECOM 2021

Figure 2-38
Onsite Borrow Area Details

Table 2-9. Estimated Temporary Construction Power Requirements

Location/Facility	Required Load, 3-Phase, KVA	Annual Use (hours/year)
Golden Gate and Sites Dams		
Contractor's and Owner's Office Complex	300	2,100
Golden Gate Quarry Feeder/Jaw for Rockfill	1,000	1,500
Sites Quarry Feeder/Jaw for Rockfill	1,000	1,500
Golden Gate Concrete Batch Plant	600	1,500
Sites Concrete Batch Plant	600	1,500
Contractor's Shop Complex	300	1,500
Saddle Dams		
Contractor's and Owner's Office Complex	300	2,100
Saddle Dams Quarry Feeder/Jaw for Rockfill	1,000	1,500
Concrete Batch Plant	600	1,500
Contractor's Shop Complex	300	1,500
Inlet-Outlet Facilities		
Contractor's and Owner's Office Complex	300	2,100
Concrete Batch Plant	600	1,500
Contractor's Shop Complex	200	1,500
Roads		
Contractor's and Owner's Office Complex	300	2,100
Asphalt Batch Plant	600	1,500
Contractor's Shop Complex	200	1,500
Conveyance		
Contractor's and Owner's Office Complex (3)	300 each	2,100
Concrete Batch Plant & CDSM Batch Plant	600 each	1,500

2.5.3.9 Batch Plants

For dam construction, batch plants would be established in the inundation area of the Sites Reservoir or in staging areas outside the inundation area near various reservoir facilities. Concrete batch plants would be necessary for the I/O Works, Golden Gate Dam, Sites Dam, creek diversions, saddle dams, and the bridge crossing the reservoir (Alternatives 1 and 3). Asphalt batch plants would be used for paving public access and maintenance roads.

A concrete batch plant is equipment that combines water, admixtures, sand, aggregate, fly ash, and cement to form concrete. In general, the concrete batch plant is anticipated to have the following features: mobile or semi-mobile (modular stationary) plants; capacity of 100 to 500 cubic yards per hour; at least three aggregate feed bins; and computerized batching/proportioning.

An asphalt batch plant is equipment that combines aggregate and asphalt to form asphalt to be used for road construction. In general, the asphalt batch plant is anticipated to have the following features: (1) mobile or semi-mobile (modular stationary) plants; (2) drum-mixer type plant, but could be a weigh-batch type; (3) capacity of 200 to 500 tons per hour, but could be lower for some of the smaller portions; (4) at least four aggregate feed bins; and (5) computerized batching/proportioning.

2.5.3.10 Construction Traffic and Equipment

Under Alternatives 1 and 3, up to 1,657 construction personnel would be working at the peak of construction. Approximately 847 of these personnel would be involved with reservoir facilities and 810 would be working on conveyance facilities. Expected highway truck trips per day associated with construction would range from 4 for installation of the new pumps at the RBPP to 330 estimated trips (each) for the construction of dams, dikes, and other reservoir-related components. Similarly, personnel vehicle trips associated with the same facilities would range from 2 to over 1,600 per day. Trips associated with Alternative 2 would be slightly less for reservoir facilities. Estimated vehicle trips per day for all construction activities are included in Appendix 2C.

Construction workers would likely commute to construction sites from local population centers in Glenn or Colusa Counties such as Maxwell, Willows, Orland, Williams, and Colusa, and from other northern California counties when specialty trades or skillsets are not available regionally.

Daily construction traffic would consist of trucks hauling equipment and materials to and from the worksites and the daily arrival and departure of construction workers. Construction traffic on local roadways would include dump trucks, bottom-dump trucks, concrete trucks, flatbed trucks for delivering construction equipment and permanent Project equipment, pickups, water trucks, equipment maintenance vehicles, and other delivery trucks. Dump trucks would be used for earth moving and clearing, removal of excavated material, and import of other structural and paving materials. Other delivery trucks would deliver construction equipment, job trailer items, concrete-forming materials, reinforcing steel and structural steel, piping materials, foundation piles and sheet piling, sand and gravel from offsite sources, new facility equipment, and other construction-related deliveries. Construction equipment/materials would not be permitted to pass through the community of Maxwell on the Maxwell Sites Road.

2.5.3.11 In-Channel Construction

Coffer dams would be required along Stone Corral and Funks Creeks for construction of Sites Dam and Golden Gate Dam, respectively. The coffer dams would be incorporated into the upstream toe of the embankment dams and would be constructed of material likely derived from the excavation of the dam foundations. The crest of the coffer dams would be set at an elevation of 310 feet (5 feet above highwater during construction). The Sites Dam would require approximately 260,000 cubic yards of Zone 4 Random fill for the coffer dam in Stone Corral Creek, and the Golden Gate Dam would require approximately 800,000 cubic yards of Zone 4 Random fill for the coffer dam in Funks Creek.

Construction of the Funks pipelines would generally skirt Funks Creek and not intersect the channel but two large fills needed for the Funks Pipeline and TRR Pipeline could be placed near

the south creek bank. Construction of the TRR pipelines would cross the GCID Main Canal, TC Canal, and the Funks Reservoir. Trenching of the TRR pipelines under the GCID Main Canal and TC Canal would occur during the 6-week winter shutdown period. If possible, trenching would be scheduled for a time when the canals were dry, such that trenching would result in in-channel construction but not in-water construction. Construction of the TRR pipelines would require in-channel work where they cross Funks Reservoir. An earth and geomembrane liner coffer dam would be constructed to allow work to occur under dry conditions.

Construction of the Dunnigan Pipeline would require installation of water level and flow control gates at the concrete-lined TC Canal intake. The tie-in between the intake and the TC Canal would be done during the winter shutdown period, and a small portion of the TC Canal would be dewatered. In-channel work would be required at the CBD to install the energy dissipation control structure, and a coffer dam would be constructed so that the work would be completed in the dry.

2.5.4 Project Commitments and Best Management Practices

A number of BMPs and Project commitments will be implemented during Project design, construction, operations, and maintenance. The BMPs and Project commitments are part of the Project and discussed in detail in Appendix 2D. Appendix 2D describes key features of each BMP, the timing of the BMP, the responsible party(ies), monitoring requirements, and the responsible regulatory or permitting agency, if applicable. The numbers and titles of the BMPs are listed below:

- BMP-1, Conformance with Applicable Design Standards and Building Codes
- BMP-2, Siting of Recreational Structures
- BMP-3, Completion of Preconstruction Geotechnical Evaluations and Data Reports
- BMP-4, Verification and/or Relocation of Utilities and Infrastructure
- BMP-5, Decommissioning of Natural Gas Wells
- BMP-6, Decommissioning of Water Wells
- BMP-7, Removal and/or Reuse of Materials from Abandoned Roads
- BMP-8, Performance of Environmental Site Assessments
- BMP-9, Siting and Design of Onsite Wastewater Disposal Systems
- BMP-10, Salvage, Stockpiling, and Replacement of Topsoil and Preparation of a Topsoil Storage and Handling Plan
- BMP-11, Management of Dredged Material
- BMP-12, Development and Implementation of Stormwater Pollution Prevention Plan(s) (SWPPP) and Obtainment of Coverage under Stormwater Construction General Permit (Stormwater and Non-stormwater) (Water Quality Order No. 2022-0057-DWQ/NPDES No. CAS000002 and any amendments thereto)

- BMP-13, Development and Implementation of Spill Prevention and Hazardous Materials Management/Accidental Spill Prevention, Containment, and Countermeasure Plans (SPCCPs) and Response Measures
- BMP-14, Obtainment of Permit Coverage and Compliance with Requirements of Central Valley Regional Water Quality Control Board Order R5-2022-0006 (NPDES No. CAG995002 for Limited Threat Discharges to Surface Water) and State Water Resources Control Board Order 2003-0003-003-DWQ (Statewide General Waste Discharge Requirements For Discharges To Land With A Low Threat To Water Quality) (BMP-14 would require compliance with the existing permits and any amendments thereto.)
- BMP-15, Performance of Site-Specific Drainage Evaluations, Design, and Implementation
- BMP-16, Development and Implementation of a Construction Equipment, Truck, and Traffic Management Plan (TMP)
- BMP-17, Implementation of Visual/Aesthetic Design, Construction, and Operation Practices
- BMP-18, Development and Implementation of Fire Safety Plans for Prevention and Suppression/Control During Construction and Maintenance
- BMP-19, Development and Implementation of Worker Occupational Health and Safety Plans
- BMP-20, Preparation and Implementation of Blast Plans for Worker Health and Safety
- BMP-21, Performance of Mosquito and Vector Control During Construction
- BMP-22, Development and Implementation of a Construction Noise Abatement Plan
- BMP-23, Development and Implementation of an Underwater Construction Noise Control, Abatement, and Monitoring Plan
- BMP-24, Use of Design Features and Noise Control Practices to Reduce Operation and Maintenance Noise
- BMP-25, Preparation of an Emergency Action Plan for Reservoir Operations
- BMP-26, Preparation and Implementation of an Electrical Power Guidelines and EMF Field Management Plan
- BMP-27, Development and Implementation of a Construction Equipment Exhaust Reduction Plan
- BMP-28, Preparation and Implementation of Fugitive Dust Control Plans
- BMP-29, Minimization of Asphalt and Concrete Batching Odors and GHG Emission
- BMP-30, Development and Implementation of Hazardous Materials Management Plans
- BMP-31, Implementation of Onsite Security Measures and/or Personnel at Construction Sites
- BMP-32, Notification of Construction Activities in Waterways

- BMP-33, Implementation of a Worker Environmental Awareness Program (WEAP)
- BMP-34, Development and Implementation of Fish Rescue and Salvage Plans for Funks Reservoir, Stone Corral Creek, Funks Creek, and CBD for Alternatives 1, 2, and 3; for Sacramento River for Alternative 2
- BMP-35, Development and Implementation of Construction Best Management Practices and Monitoring for Fish, Wildlife, and Plant Species Habitats, and Natural Communities
- BMP-36, Control of Invasive Plant Species during Construction
- BMP-37, Shading of Work Lighting for Nighttime Work (Alternative 2 Discharge Location on Sacramento River)

Appendix 2D also describes the purpose, outcomes, content, and timing for the following plans:

- Initial Sites Reservoir Fill Plan
- RMP
- Stone Corral Creek and Funks Creek Aquatic Study Plan and Adaptive Management
- Sediment Technical Studies Plan and Adaptive Management for Sacramento River
- Fish Monitoring and Technical Studies Plan and Adaptive Management for Diversions
- Land Management Plan
- Recreation Management Plan

2.5.5 Proposition 1 Benefits Common to Alternatives 1, 2, and 3

The CWC conditionally determined the Project could receive up to $816 million of Proposition 1 funds for its flood control, ecosystem improvement, and recreation public benefits, if it completes its statutory obligations. Alternatives 1, 2, and 3 include providing these benefits by entering into a contract with DWR for the flood damage reduction and recreation benefits, a contract with CDFW for the ecosystem benefits, and a contract with the CWC for final funding award.

The Project would provide flood damage reduction benefits to portions of Colusa County, including Maxwell and the surrounding agricultural areas. Incidental storage in Sites Reservoir would capture and store flood flows from the Funks Creek and Stone Corral Creek watersheds. These flood damage reduction benefits are inherent to the Project design and would occur regardless of the Project's operations for water supply and water-related environmental benefits. The Project would provide recreation benefits through the recreational facilities described previously in this chapter.

The ecosystem benefits funded by the CWC include providing water for Incremental Level 4 Refuge water needs for CVPIA refuges both north and south of the Delta and providing additional flow into the Yolo Bypass to benefit delta smelt (*Hypomesus transpacificus*). Incremental Level 4 Refuge water deliveries could occur in any water year type and at any time of year. For those refuges located south of the Delta, it is assumed that water would be moved from July to November through the Delta. Additional flows into the Yolo Bypass could occur at

any time of year but are assumed to occur during the summer and fall months (August through October) of all water year types. These deliveries increase desirable food sources for delta smelt and other fish species in the late summer and early fall. The Authority envisions that CDFW would take an active role in managing the ecosystem water and would work with CDFW to schedule and adjust releases of ecosystem water to address real-time conditions and needs.

As described in Section 2.5.2, *Operations and Maintenance Common to Alternatives 1, 2, and 3*, additional ecosystem benefits beyond those funded by the CWC may occur via exchanges with Shasta Lake or Lake Oroville.

2.6 Alternative 1 Specific Elements

Alternative 1 was initially identified (see Volume 3, Chapter 3, Master Response 2, *Alternatives Description and Baseline*) in the RDEIR/SDEIS as the Authority's preferred alternative and the proposed project under CEQA. Figures 2-1 and 2-2 present plan views of the Alternative 1 features. The features of Alternative 1 include the following:

- Reservoir capacity would be 1.5 MAF;
- A bridge across the reservoir would provide access to the area west of Sites Reservoir; and
- Reclamation investment would range from no investment to up to 7%.

Alternative 1 would impound surface water at the Golden Gate Dam on Funks Creek and Sites Dam on Stone Corral Creek. A series of seven saddle dams along the eastern and northern rims of the reservoir would close off topographic saddles in the surrounding ridges to form Sites Reservoir. The 1.5-MAF reservoir under Alternative 1 would inundate approximately 13,200 acres of Antelope Valley in Colusa County. Alternative 1 would convey water from the Sacramento River through existing or upgraded TC Canal and GCID Main Canal facilities to new and upgraded regulating reservoirs and into the new Sites Reservoir. Existing and new facilities would convey water from Sites Reservoir for uses along the TC Canal, along the GCID Main Canal, and down the TC Canal to the new Dunnigan Pipeline and the CBD for release, and flows would enter the Yolo Bypass or Sacramento River. Construction roads, local roads, and maintenance roads would be developed or realigned to accommodate the reservoir facilities, including the realignment of Sites Lodoga Road with a new bridge over the reservoir. Alternative 1 would involve two primary recreation areas (Peninsula Hills Recreation Area and Stone Corral Creek Recreation Area) and a day-use boat ramp. These areas would provide multiple recreational amenities, including campsites, boat access, horse trails, hiking trails, and vista points.

Releases from Sites Reservoir would be made to meet environmental purposes, such as for the delivery of Incremental Level 4 water to refuges or fall food production in the Yolo Bypass for north Delta fish species. Releases would also be made for Storage Partners based on their requests to meet their respective water supply portfolio needs and any water conveyed south of the Delta would comply with all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time. Under Alternative 1, operational exchanges may also occur with Reclamation in Shasta Lake, and with DWR in Lake Oroville. Alternative 1

includes a range of Reclamation investment in the Project, from no investment to up to an assumed 7% Reclamation investment.

2.6.1 Sites Reservoir and Related Facilities

Sites Reservoir would have a maximum normal WSE of 498 feet above mean sea level and would require I/O Works, seven saddle dams (1, 2, 3, 5, 6, 8A, and 8B), and two saddle dikes (1 and 2). Figure 2-1 depicts the locations of the Sites Reservoir, Golden Gate Dam, saddle dams, and I/O Works under Alternative 1. Table 2-10 provides the general characteristics of the Sites Reservoir under Alternative 1.

Table 2-10. General Reservoir Characteristics of Alternative 1

Key Characteristic	Detail
Nominal Reservoir Gross Storage	1.5 MAF
Maximum Normal Operating Water Elevation	498 feet above mean sea level
Minimum Normal Operating Water Elevation	340 feet above mean sea level
Top of 60 TAF Dead Pool	323 feet above mean sea level
Top of Physical Dead Pool	300 feet above mean sea level
Active Storage Capacity[1]	1.4 MAF

[1] Between minimum normal operating water elevation (elevation 340.0 feet) and maximum normal operating elevation

MAF = million acre-feet; TAF = thousand acre-feet.

A total of nine dams (Golden Gate Dam, Sites Dam, and seven saddle dams) would create the 1.5-MAF Sites Reservoir under Alternative 1. Two saddle dikes would be required to close off topographic saddles in the ridges near Saddle Dams 8A and 8B. The dam crests would be 30 feet wide and would include asphalt paved or gravel maintenance roads. The nominal crest would be at an elevation of 517 feet for all dams, including Saddle Dam 8B. See Table 2-3 for a summary of the dam heights for Alternative 1.

Preliminary design for Alternative 1 facilities described herein would be refined and modifications may occur as needed as the Project proceeds to final design and the Authority continues with the ongoing value engineering process. Modifications may include reductions in facility footprints or removal of certain facilities described currently herein and analyzed as part of Alternative 1 (e.g., emergency release structures). Any future modifications from Alternative 1 evaluated herein would be reviewed by the Authority and Reclamation to determine appropriate CEQA and NEPA compliance.

2.6.2 TRR East Facilities

The TRR East facilities under Alternative 1 would be located in Colusa County north of the GCID Main Canal and west of McDermott Road. The approximately 150-acre site would be accessed by an asphalt concrete paved road off McDermott Road. The spillway for the TRR East would be located at the southernmost corner of the reservoir and discharge into Funks Creek. Access between the east and west sides of the GCID Main Canal adjacent to the TRR East would be over a new TRR bridge between the TRR embankment near the gate structures and the west

side of the GCID Main Canal. The TRR bridge is anticipated to consist of a precast concrete span between the banks of the GCID Main Canal with concrete abutments founded on piles. Figures 2-10a and 2-10b show the locations of the TRR-related facilities.

The TRR East pipelines would parallel the Funks pipelines and Funks Creek and would generally be from 6 feet to 30 feet below ground surface after installation. The pipelines would cross Funks Reservoir, TC Canal, and GCID Main Canal. The pipelines would cross Funks Reservoir, requiring construction of a coffer dam to work in the dry during the non-operational period (i.e., winter). The pipelines would cross the TC Canal using a trenchless method or open cut, depending on construction schedule. East of the TC Canal, the TRR pipelines would run parallel to a drainage canal until they reached the GCID Main Canal where they would cross using a trenchless method or open cut, depending on construction schedule.

2.6.3 New and Existing Roadways

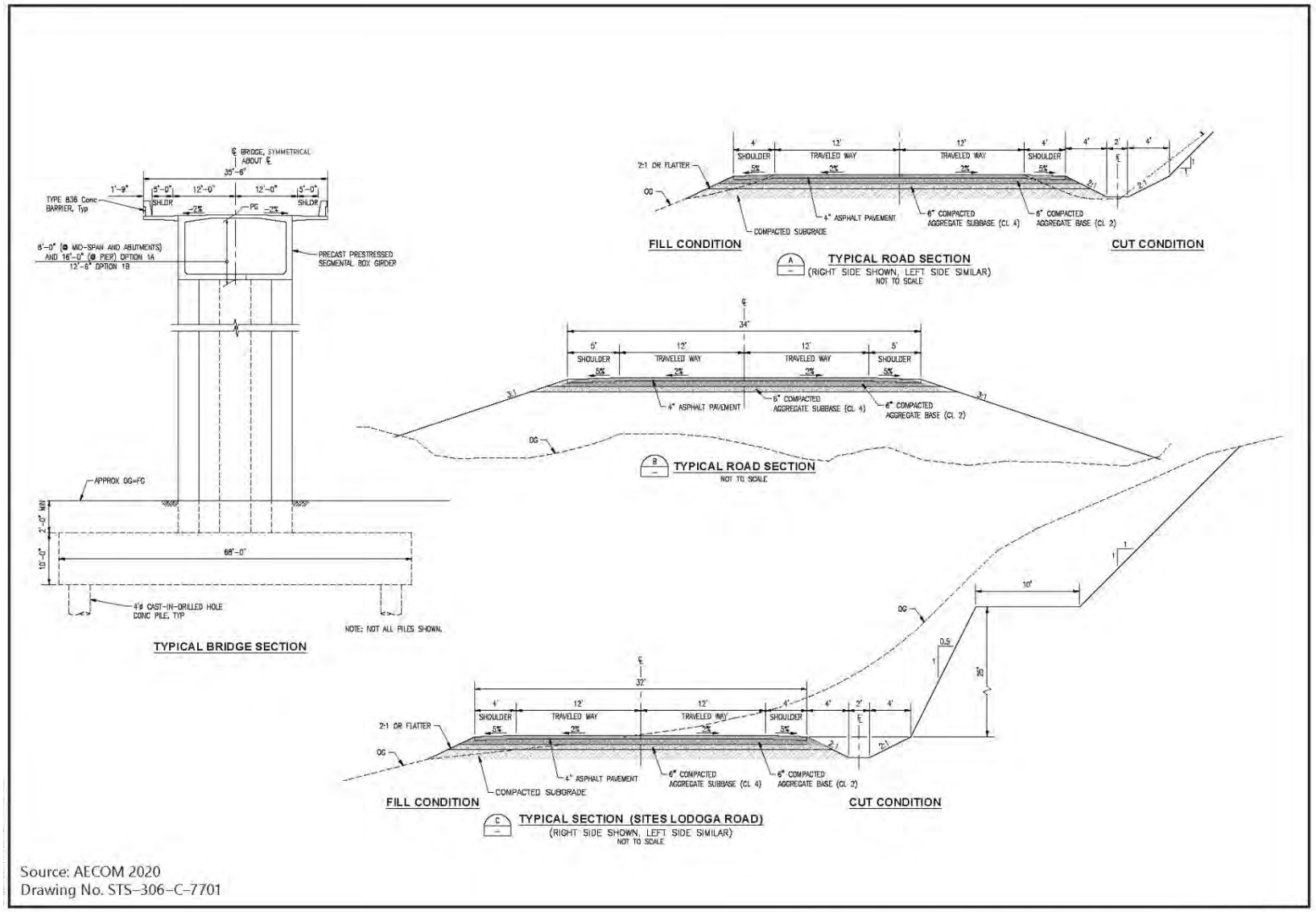
Sites Lodoga Road is an east-west, two-lane major collector road that extends through the community of Maxwell, which is adjacent to I-5, and provides an important emergency and evacuation route in a limited roadway network to and from the rural communities of Lodoga and Stonyford. Sites Lodoga Road becomes Maxwell Sites Road east of the community of Sites, which is in the inundation area. The Sites Reservoir would eliminate east-west access to I-5 (east of the reservoir) from Stonyford and Lodoga (west of the reservoir) because it would inundate the current alignment of Sites Lodoga Road. Because Sites Dam and the inundation area would eliminate access on Sites Lodoga Road, an alternative method for access west of the reservoir would be needed. Under Alternatives 1 and 3, this access is provided by realigning a segment of Sites Lodoga Road and constructing a bridge over the reservoir. The relocated segment of Sites Lodoga Road would include 5-foot-wide shoulders adjacent to the two 12-foot-wide lanes to accommodate bicycles and would connect to the new bridge.

The realigned Sites Lodoga Road would be placed across the reservoir and extend 7,800 feet; it would necessitate the construction of four fill prisms that would be up to 150 feet tall and would support two shorter bridge segments approximately 3,450 and 4,050 feet long. Figure 2-39 shows a typical cross-section of the road and the bridge that would be needed to cross the reservoir. The roadway and bridge profile would be at least 2 feet above the maximum flood plus wave height. The maximum flood plus wave height is set at 10 feet above the normal WSE (elevation 498 feet for the 1.5-MAF reservoir).

The bridge structure would consist of a cast-in-place, prestressed concrete box girder that would have two lanes with a total width of 35.5 feet and 5-foot-wide shoulders. The bridge would have California Department of Transportation-approved edge barriers with small-diameter electrical conduits, a suicide prevention barrier, emergency phone service facilities, deck drains, and an opening for potential utilities. The bridge design does not include sidewalks due to the remote rural nature of this site. The bridge would be exposed to high winds; therefore, high wind advisory facilities, such as static roadside signs or extinguishable message signs that are illuminated when instruments measure high winds, would be installed.

The disturbance area for bridge construction would include the footprint of the bridge structure, the staging areas for materials and equipment, and the area needed to construct the facilities and access roads. Traffic that was not construction-related would be diverted around construction

disturbance areas in accordance with a TMP. Initial construction activities would involve establishing staging areas, surveying and marking roadways, clearing, and grading. Bridge construction would consist of constructing the foundation and prisms, including drilled-pier installation; bridge columns; and bridge spans.



Source: AECOM 2020
Drawing No. STS–306–C–7701

Figure 2-39
Sites Lodoga Road Realignment and Bridge

The Huffmaster Road realignment, which is associated with the easterly segment of Sites Lodoga Road realignment, would move the affected segment out of the Sites Reservoir footprint. The realigned Huffmaster Road would be a gravel road to serve the residences currently located at the end of the existing Huffmaster Road.

The Project includes construction of temporary roads. Once construction is completed temporary roads may remain within construction corridors (e.g., along power lines) or would be restored after use. Temporary roads identified for restoration would be recontoured to pre-Project elevations and revegetated consistent with BMP-36.

2.6.4 Operations and Maintenance

In addition to the operations and maintenance activities common to Alternatives 1, 2, and 3, operations and maintenance activities under Alternative 1 would include Reclamation as a Storage Partner and maintenance of the bridge as described below.

2.6.4.1 Water Operations

Alternative 1 includes a range of potential investment by Reclamation. For the purposes of modeling, two options have been identified under this alternative. Alternative 1A includes no Reclamation investment and Alternative 1B includes up to 7% Reclamation investment, which equates to about 91,000 AF of storage allocation dedicated to Reclamation in Sites Reservoir. With investment from Reclamation, 7% of Sites Reservoir storage would be managed as a CVP supply under Alternative 1. Reclamation's share of Sites Reservoir water would be flexibly used by Reclamation to meet CVP objectives of providing water for water supply reliability and environmental needs. Increased storage, diversion, and release capacity provides the CVP with additional opportunities to store and release water when it may have been otherwise constrained. Releases for Reclamation would be made for a variety of purposes as identified and directed by Reclamation and would be made in the same manner as described for all Storage Partners.

2.6.4.2 Bridge Maintenance

There are no day-to-day operations of the bridge (i.e., no moving components of the bridge that would be operated on a daily basis). Typical bridge maintenance activities would include replacing damaged or missing signage, replacing or repairing railings, replacing or repairing damage to the bridge deck (road surface), sealing joints, repairing erosion on approaches, unplugging drains and removing debris, and checking for and repairing faulty electrical contacts. The bridge would be periodically inspected on foot to detect any obvious defects, hazards, or potential problems and to also monitor known problems. The bridge would also be periodically inspected by Caltrans to detect any major structural concerns. Repairs and replacements would be made as needed based on these inspections.

2.7 Alternative 2 Specific Elements

The unique features of Alternative 2 include the following:

- Reservoir capacity would be 1.3-MAF;
- A local access road around the southern end of the reservoir would provide access to the area west of Sites Reservoir; and

- Dunnigan Pipeline would extend to and discharge at the Sacramento River with a partial discharge at the CBD.

Figures 2-3 and 2-4 provide plan views of the Alternative 2 features.

Alternative 2 would impound surface water at the Golden Gate Dam on Funks Creek and Sites Dam on Stone Corral Creek. A series of four saddle dams along the eastern and northern rims of reservoir would close off topographic saddles in the surrounding ridges to form Sites Reservoir. The 1.3-MAF reservoir would inundate approximately 12,600 acres (600 acres less than Alternative 1 or 3) and require four saddle dams and three saddle dikes. Alternative 2 also includes a partial release into the CBD, and flows would enter the Yolo Bypass or Sacramento River. Construction roads, local roads, and maintenance roads would be developed or realigned to accommodate the reservoir facilities, including the realignment of Sites Lodoga Road with a new local access road around the southern end of the reservoir. Under Alternative 2, operational exchanges may also occur with Reclamation in Shasta Lake, and with DWR in Lake Oroville. Alternative 2 does not include Reclamation investment.

2.7.1 Sites Reservoir and Related Facilities

Under Alternative 2, the 1.3-MAF reservoir would have a maximum normal WSE of 482 feet above mean sea level (17 feet lower than Alternative 1) and would require I/O Works, four saddle dams (3, 5, 8A, and 8B) and three saddle dikes (1, 2, and 3). Figure 2-3 shows the location of Sites Dam and Golden Gate Dam and the location of the four saddle dams and three saddle dikes under Alternative 2. Table 2-11 provides the general characteristics of the Sites Reservoir under Alternative 2.

Table 2-11. General Reservoir Characteristics of Alternative 2

Key Characteristic	Detail
Nominal Reservoir Gross Storage	1.3 MAF
Maximum Normal Operating Water Elevation	482 feet above mean sea level
Minimum Normal Operating Water Elevation	340 feet above mean sea level
Top of 60 TAF Dead Pool	323 feet above mean sea level
Top of Physical Dead Pool	300 feet above mean sea level
Active Storage Capacity[1]	1.2 MAF

[1] Between minimum normal operating water elevation (El. 340.0 feet) and maximum normal operating elevation
MAF = million acre-feet; TAF = thousand acre-feet.

2.7.2 TRR West Facilities

The TRR West facilities under Alternative 2 would be located in Colusa County west of the GCID Main Canal and east of Funks Reservoir. The approximately 150-acre site would be accessed by an all-weather gravel road from the Funks Dam/TC Canal area. The TRR West would encompass 100 acres between the GCID Main Canal and the TC Canal. The new reservoir would be a different configuration than TRR East and would include a main reservoir and an extension reservoir. This bifurcation of the reservoir into two parts would allow avoidance of an existing PG&E transmission right-of-way that contains a pair of underground natural gas

pipelines and overhead transmission lines running north to south through the site. The main and extension reservoirs would be hydraulically connected through a tunnel corridor (four 12-foot-diameter pipes) passing under the PG&E transmission right-of-way.

The TRR West PGP would generally be the same as the TRR East PGP except in a different location. The PGP and electrical substation would encompass approximately 7 acres and would be enclosed by a security fence with access gates. The dual 12-foot-diameter TRR West pipelines would be approximately 10,300 feet shorter than the TRR East pipelines. These pipelines would need to cross Funks Reservoir, the TC Canal, and an existing private drainage canal, but not the GCID Main Canal. The TRR West electrical transmission lines would be approximately 8,000 feet shorter than those for TRR East.

The TRR West reservoir would be hydraulically connected to the existing GCID Main Canal and constructed via primarily mass excavation. This connection would occur through the I/O canal facilities located adjacent to and west of the GCID Main Canal. The I/O canal would facilitate flow through several check structures into the main and extension reservoirs to the west. Figures 2-10a and 2-10b show the locations of the TRR-related facilities.

2.7.3 Conveyance to Sacramento River

As with Alternative 1, a portion of the water released from Sites Reservoir would be conveyed using the existing TC Canal, and for south-of-Delta Storage Partners the water would be conveyed using the new Dunnigan Pipeline. The water would flow south approximately 40 miles to near the end of the TC Canal. At this point, flow would be diverted into the Dunnigan Pipeline. A gravity outlet structure from the TC Canal into the Dunnigan Pipeline would be constructed to control the flow in the pipeline. No pumping would be required. Power would be needed for SCADA control and operating the gates to let water into the pipeline and at the discharge point.

Under Alternative 2, the Dunnigan Pipeline would extend 5.6 additional miles, pass through the western levee of the Sacramento River, and discharge into the Sacramento River at approximately RM 100.8 (Figure 2-40). At the CBD, there would also be a discharge structure similar to Alternative 1, but the structure would be smaller and would divert only a portion of the flow, while the remaining flow would continue to the Sacramento River.

The pipeline would have a 10.5-foot-inner diameter with three tunneled crossings (I-5, Road 99W and the railroad, and CBD) that require 12-foot (144-inch) casings. The CBD boring would cross under the levees adjacent to the CBD and under the CBD.

Because groundwater can be within 3 feet below ground surface from near the CBD to the Sacramento River, the Authority's construction contractor would install dewatering wells every 50 to 100 feet. However, excavating and placing pipes closely (spatially and temporally) would avoid running the dewatering system for long periods. Construction of the Dunnigan Pipeline in this area would require crossing nearly 20 irrigation laterals and drainage canals. Bypass pipes would be used to allow irrigation water to flow down canals and also allow drainage water from irrigation to flow. Boring may be required under SR 45 if open cut is not possible. Multiple access routes would be required through various rural county roads to access the additional 5.6-mile Dunnigan Pipeline between I-5 and SR 45. SR 45 would be used to access the Sacramento River discharge site and the Dunnigan Pipeline east of SR 45.

Source: Jacobs 2020
Drawing No. DNG-030-C-2003

Figure 2-40
Dunnigan Sacramento River Discharge Site Plan

The Sacramento River discharge is intended to accommodate flows of up to 1,000 cfs. The structure would include an exclusion barrier for upstream-migrating salmonids in accordance with NMFS 2018 draft guidelines (National Marine Fisheries Service 2018). It is anticipated that the discharge would operate during the months of April through November. The Sacramento River discharge would include the following components: (1) a 10.5-foot inner-diameter transmission pipeline; (2) a reinforced concrete stilling well; (3) 20 36-inch-diameter discharge pipes crossing the existing levee at minimum cover, and discharging at a reinforced concrete headwall with duckbill-type check valves; (4) a reinforced concrete stilling basin; and (5) a reinforced concrete weir and apron extending to near the edge of the river and tying into the existing bank riprap.

The discharge structure would include a vertical drop exclusion barrier to prevent the passage of anadromous fish into the pipeline. The weir and apron would meet NMFS guidelines for a combination velocity and vertical drop barrier for the exclusion of fish. This includes a minimum hydraulic drop of 3.5 feet at the weir wall, an apron slope of 16H:1V with a maximum water depth of 6 inches, and a 1-foot minimum drop to the high design tailwater in the Sacramento River.

The Sacramento River discharge would be located on the west bank of the river about 1 mile upstream of the Rough and Ready Pumping Plant. As described in Appendix 2D, in-water construction activities in the Sacramento River would occur during the work window of September 1 through October 15. This work would include constructing a coffer dam. Once the coffer dam is completed, work would continue in the dry and could occur outside the in-water work window. Pile driving or a vibration hammer would be used to install piles on the land side of the levee.

2.7.4 New and Existing Roadways

Realignment of Huffmaster Road and construction of the new South Road would occur under Alternative 2 (Figure 2-35). As with Alternative 1, Sites Dam and the inundation area would inundate 4.2 miles of the Sites Lodoga Road and eliminate access on this 13-mile-long collector road. Similar to Alternative 1, the relocated segment of Sites Lodoga Road would include 5-foot-wide shoulders adjacent to the two 12-foot-wide lanes to accommodate bicycles and would provide access to the Stone Corral Creek Recreation Area. Similar to Alternative 1, Huffmaster Road would be realigned for approximately 9 miles. The approximately 20-mile-long South Road would be constructed and connected to the end of the realigned portion of Huffmaster Road. The total length of the realigned portion of Huffmaster Road and the new South Road would be approximately 30 miles, all of which would be paved.

All other permanent access, maintenance, detour, and construction roads would be the same for the reservoir facilities between Alternatives 1 and 2. These roads would be needed regardless of the inundation area size to serve the new facilities and recreation areas.

The bridge described under Alternative 1 would not be built under Alternative 2. The South Road would generally require more excavation and more aggregate when compared to the bridge under Alternative 1. These materials are listed in Table 2C-26 in Appendix 2C.

2.7.5 Operations and Maintenance

Operations and maintenance activities under Alternative 2 would be similar to those described for Alternative 1. In addition to the water operations activities described for Alternative 1, Alternative 2 would include releases directly to the Sacramento River from the extended Dunnigan Pipeline, with a partial release into the CBD, primarily in the late summer and fall months to serve as habitat flow releases.

2.8 Alternative 3 Specific Elements

Alternative 3 facilities and components would be the same as those described for Alternative 1 in Sections 2.5.1, *Facilities*, and 2.6. Operationally, Alternative 3 would include increased Reclamation participation and investment of up to 25%. In March 2022, the Authority changed its preferred alternative to Alternative 3, which has the same physical Project facilities as Alternatives 1A and 1B but would involve additional federal investment in the Project, at a range of between 7% and 25%. Reclamation has identified Alternative 3 as being the NEPA preferred alternative.

Under Alternative 3, Reclamation would have an increased investment in Sites Reservoir of up to 25% compared to up to 7% in Alternative 1. The increased level of Reclamation investment would result in up to 25% of Sites Reservoir storage space being dedicated to Reclamation's use. Reclamation's share of Sites Reservoir water would be flexibly used by Reclamation to meet CVP objectives of providing water for water supply reliability and environmental needs. The increased level of Reclamation investment would also result in increased opportunities for maintaining cold-water pool in Shasta Lake and Lake Oroville as part of the integration of the CVP.

Reclamation and the Authority have worked together to make minor adjustments in the modeling of how Reclamation would utilize the water supplied to it from the Project. The modeling done to incorporate the Project refinements shows that these refinements do not result in additional impacts to those described in the RDEIR/SDEIS. New model results have been incorporated into Volumes 1 and 2 of the Final EIR/EIS. The modeled representation of operations was modified in the Final EIR/EIS to respond to comments regarding the use of exchanges, as well as represent refined operational criteria (e.g., diversion criteria). These adjustments include the enhanced opportunity for cold-water pool management in Shasta Lake, enhanced frequency and amount of spring pulse flows in the upper Sacramento River, and better ability to maintain stable river flows in the upper Sacramento River in the fall. In addition, in November 2021, Congress passed and the President signed the Infrastructure Investment and Jobs Act, providing over $1 trillion in federal funding for infrastructure projects. This new law provides for a substantial increase in federal spending on infrastructure projects throughout the country. Considering both the additional anadromous fish benefits of the Project and the increased availability of federal funding for infrastructure projects, Alternative 3 is identified as the preferred alternative and proposed Project under CEQA, and the preferred alternative under NEPA, in this EIR/EIS. Increased Reclamation investment would require some reduction in local participation for Alternative 3 as compared with Alternative 1. Alternative 3 assumes that Storage Partners which are local agencies would reduce their participation to accommodate the investment by

Reclamation. The Proposition 1 funding for ecosystem, flood control, and recreation benefits would not change with the increased Reclamation investment in Alternative 3.

2.9 References

2.9.1 Printed References

Bureau of Reclamation and California Department of Water Resources. 2006. *North-of-the-Delta Offstream Storage Investigation: Initial Alternatives Information Report*. May.

California Department of Fish and Wildlife. 2020. *Incidental Take Permit for Long-term Operations of the State Water Project in the Sacramento-San Joaquin Delta (2081-20129-066-00)*. March.

California Water Commission. 2021. *Proposition 1 Water Storage Investment Program: Funding the Public Benefits of Water Storage Projects*. Available: https://cwc.ca.gov/Water-Storage. Accessed: September 7, 2021.

Cavallo, B., P. Gaskill, J. Melgo, and S. C. Zeug. 2015. Predicting Juvenile Chinook Salmon Routing in Riverine and Tidal Channels of a Freshwater Estuary. *Environmental Biology of Fishes* 98:1571–1582.

Michel, C. J., A. J. Ammann, S. T. Lindley, P. T. Sandstrom, E. D. Chapman, M. J. Thomas, G. P. Singer, A. P. Klimley, and R. B. MacFarlane. 2015. Chinook Salmon Outmigration Survival in Wet and Dry Years in California's Sacramento River. *Canadian Journal of Fisheries and Aquatic Sciences* 72(11):1749–1759.

Michel, C. J., J. J. Notch, F. Cordoleani, and E. M. Danner. 2021. Nonlinear Survival of Imperiled Fish Informs Managed Flows in a Highly Modified River. *Ecosphere* 12(5):e03498. doi: 10.1002/ecs2.3498.

National Marine Fisheries Service. 2018. *NOAA Fisheries West Coast Region Anadromous Salmonid Passage Design Guidelines*. NOAA Technical Memorandum NMFS-NWFSC-1xx, PEER REVIEW DRAFT: August 16, 2018. National Marine Fisheries Service, West Coast Region, Oregon & Washington Coastal Office, Environmental Services Branch, California Coastal Office, Environmental Services Branch. 183 pp.

National Marine Fisheries Service. 2019. *Biological Opinion on Long-term Operations of the CVP and SWP*. October.

Notch, J. 2017. *Out-Migration Survival of Wild Chinook Salmon* (Oncorhynchus tshawytscha) *Smolts from Mill Creek through the Sacramento River during Drought Conditions*. Master's Thesis. University of California, Santa Cruz.

Poytress, W. R., J. J. Gruber, F. D. Carrillo, and S. D. Voss. 2014. *Compendium Report of Red Bluff Diversion Dam Rotary Trap Juvenile Anadromous Fish Production Indices for*

Years 2002–2012. U.S. Fish and Wildlife Service. Red Bluff Fish and Wildlife Office, CA. 151 pp.

Sites Project Authority. 2020. *Sites Project Value Planning Alternatives Appraisal Report*. April.

Sites Project Authority. 2022a. *Sites Project Authority Application to Appropriate Water and Petition for Partial Assignment and Release from Priority*. May 10.

Sites Project Authority. 2022b. *2023–2024 Proposed Sites Reservoir Test Pits, Fault Studies and Quarry Studies: Final Initial Study/Mitigated Negative Declaration*. December.

Sites Project Authority. 2023. *Participating Entities*. Available: https://sitesproject.org/participants/. Accessed: May 31, 2023.

Sites Project Authority and Bureau of Reclamation. 2022. *2022–2024 Sites Reservoir Geologic, Geophysical, and Geotechnical Investigations: Final Environmental Assessment/Initial Study*. July.

State Water Resources Control Board. 2000. Revised Water Right Decision 1641. March.

U.S. Fish and Wildlife Service. 2019. *Biological Opinion for the Reinitiation of Consultation on the Coordinated Operations of the CVP and SWP*. Service File No. 08FBTD00-2019-F-0164. October.

Attachment B
California Water Commission
Conditional Funding Award and Early Funding Letters

CALIFORNIA WATER COMMISSION
901 P STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 651-7501

July 27, 2018

Jim Watson, General Manager
Sites Project
jwatson@sitesproject.org

Re: Water Storage Investment Program Maximum Conditional Eligibility Determination – Sites Reservoir Project

Dear Mr. Watson:

As you know, the California Water Commission (Commission) has formally signaled its intent to invest up to $816,377,686 in Proposition 1 Water Storage Investment Program (WSIP) funds in Sites Project Authority's Sites Project, which includes an Early Funding award of $40,818,884. The Commission voted on July 24, 2018, to conditionally commit the funding subject to completion of all remaining requirements outlined in regulations sections 6013(c) and 6013(f). Several of those requirements must be completed by January 1, 2022. Variances to the January 1, 2022 date are allowable under Water Code section 79757(b).

Quarterly status reports will be used to keep the Commission informed on your project's progress toward the final award hearing and subsequent funding agreement. Staff will regularly update the Commission on the progress of all projects within the program, and applicants may be invited periodically to provide updates to Commission. Enclosure 1 at the end of this letter specifies the reporting due dates and guidance on report contents.

In addition to meeting the requirements outlined in the above-referenced enclosure, since your agency was authorized Completion of Environmental Documentation and Permitting funding (regulations section 6013(e), i.e. "Early Funding"), the following items must also be provided to the Commission:

- A revised project scope of work, budget, and schedule that will be incorporated into the funding agreement. The scope of work should be consistent with the Commission July 24, 2018, decision regarding Early Funding for this project. The scope of work, budget, and schedule must be consistent and at a level of detail that clearly conveys the major work tasks and sub-tasks. Staff will work with you to detail the format, level of detail, and timing for submittal of these items.
- Audited financial statements for the two most recent fiscal years.

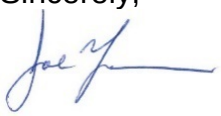
These items should be submitted as soon as possible to ensure the timely execution of an Early Funding agreement.

Commission staff look forward to meeting with you as soon as you are able to

schedule a day and time. At that meeting, we will discuss your project's status and schedule for completing the materials and the next steps in the WSIP process. We will also discuss any questions or concerns that you may have on the needed scope of work and Early Funding agreement template which can be found at the following link: https://cwc.ca.gov/Documents/2017/WSIP/EarlyFundingTemplate.pdf.

If you have any questions or concerns regarding this matter, please contact Amy Young, who will be your point of contact for this project, at (916) 651-9256 or amy.young@water.ca.gov.

Sincerely,



Joseph Yun, Executive Officer
California Water Commission

Enclosure

Cc: Karla Nemeth, Director, Department of Water Resources

Eileen Sobeck, Executive Director, State Water Resources Control Board

Chuck Bonham, Director, California Department of Fish and Wildlife

Chad Dibble, Deputy Director, Ecosystem and Conservation Division, California Department of Fish and Wildlife

Enclosure 1: Reporting Requirements

This enclosure establishes a quarterly reporting schedule for submittal of Progress Reports that are to be submitted to the Commission from now until execution of a WSIP funding agreement, pursuant to regulations section 6013(d). The Quarterly Progress Reports document the progress the applicant is making toward complying with the items contained in regulations section 6013, including any changes in the magnitude of public benefits that could affect costs allocations.

Progress Reporting Schedule for Regulations Section 6013(c) Items
Reports shall be submitted on a quarterly basis. The reports will be due 30 days after the end of a quarter for the prior quarter, as follows: • The Initial Report shall be due no later than October 30, 2018. This report shall provide an update on the project status since submittal of the application in August 2017 through September 30, 2018 • Quarterly Reports after the Initial Report will be submitted as follows: o October 1 through December 31 – Due on January 30 o January 1 through March 31 – Due on April 30 o April 1 through June 30 – Due on July 30 o July 1 through September 30 – Due on October 30

Submit a PDF version of each Quarterly Report to the Commission at CWC@water.ca.gov. Please note, the Commission will post these reports within one week of receipt, consistent with regulations section 6013(d).

Initial Report

Provide a project schedule that outlines the estimated completion dates for the milestones as listed in Table 1.

Provide a summary level update of the project status for the requirements and milestones as explained in Table 2. Note any milestones or accomplishments that occurred since submittal of the application.

Submit a completed Financial Management Systems Questionnaire. As discussed below in Table 2, regulations section 6013(a) requires applicants to provide audited financial statements prior to execution of a funding agreement. As a precursor to that future submittal, submit a completed Financial Management Systems Questionnaire. An electronic version of the questionnaire is posted on the Commission website on the program summary page. Because of the nature of the information contained in this questionnaire, the Commission will not post this document on its website. Therefore, please submit the questionnaire as a separate PDF file; not contained within the Initial Report.

Quarterly Reports

Provide a summary level update of the project status for the requirements and milestones as explained in Table 2. Table 2 can be used as the format for the Quarterly Report. A fillable form will be issued for applicant use. This format may be modified as necessary to effectively communicate information. If minimal activities occurred during a reporting period, the report format can be condensed. The Quarterly Report must note any issues or concerns that have, will, or could affect milestones or requirements. Identify key issues including legal issues such as lawsuits or injunctions related to the project that need to be resolved. Discuss how the actual schedule is progressing in comparison to the schedule provided in the Initial Report or the last reported schedule. Update the project schedule as needed. Note any milestones or accomplishments that occurred since submittal of the prior Quarterly Report.

Table 1. Project Schedule

Funding Agreement Milestone	Start Date	Finish Date	% Complete
Non-Public Benefit Cost Share Contracts • List the estimated date for submittal of all executed non-public benefit cost share contracts (regulations section 6013(c)(1)) • If your project will not complete 100% of the contracts for non-public benefit cost share prior to January 1, 2022, also list estimated date for submittal of funding commitments from not less than 75 percent of the non-WSIP cost share for the project			
Contracts for Administration of Public Benefit • List the estimated date(s) for submittal of executed contracts for administration of public benefit with each relevant state agency: o Department of Fish and Wildlife o State Water Board o Department of Water Resources			
Completed Feasibility Study • List the estimated date for submittal of the Draft Final Completed Feasibility Study • List the estimated date for submittal of the Final Completed Feasibility Study			
Environmental Documentation • List the estimated date for submittal of the Public Review Draft CEQA document. • List the estimated date for submittal of the Final CEQA document • List the estimated date(s) for any National Environmental Policy Act (NEPA) documents			
Federal, State, Local Approvals • List the estimated date for issuance of all necessary approvals			
Funding Agreement Components • List the estimated date for submittal of a draft workplan, schedule, and budget that will be used by the Commission to develop the WSIP funding agreement			
Project Planning (Design)			
Construction			
Begin Operation			

Table 2: Quarterly Reporting Items

The following information is needed to execute a funding agreement with the Commission. We recommend that applicants submit documents to the Commission as they are completed. Items have been grouped according to their applicability to the final hearing or funding agreement. The instructions column includes requested timing of document delivery or specific due dates as applicable. Additional text sections may be added as needed.

The following items are needed to schedule a Commission Hearing for Final Awards (regulations section 6013(c))			
Description	Instructions	Estimated Completion Date	Percent Complete %
Contracts for non-public cost share	• Executed contracts that demonstrate that 100 percent of the non-public benefit cost share to construct the project will be paid • If executed contracts for 100% of the non-public benefit cost share cannot be submitted before January 1, 2022, the applicant, according to regulations section 6013(f)(2), must submit commitments of at least 75% of the non-public benefit cost share. CWC staff will work with applicants to coordinate delivery to the Department of Water Resources Director per the regulations.		
Contracts for administration of public benefits	• Agencies administering public benefits include California Fish and Wildlife, State Water Board, and Department of Water Resources		

The following items are needed to schedule a Commission Hearing for Final Awards (regulations section 6013(c))			
Description	Instructions	Estimated Completion Date	Percent Complete %
Completed feasibility studies	• Staff strongly encourages all applicants to submit the draft final version of the completed feasibility study for Commission staff review to ensure that any WSIP-related technical or eligibility concerns are addressed in the final version of the feasibility studies. • A completed feasibility study is required by January 1, 2022 (Water Code section 79757 and regulations section 6013(f)). It is strongly encouraged that the completed feasibility study be submitted prior to that deadline, to accommodate scheduling the necessary Commission meeting regarding a feasibility determination prior to January 1, 2022. • Section 3.5 of the Technical Reference can be used as guidance for developing the completed feasibility study. The completed feasibility study must thoroughly evaluate the projects feasibility, including, but not limited to, cost effectiveness and technical feasibility.		
Final environmental documentation	• Under California Environmental Quality Act (CEQA), the Commission is a Responsible Agency for this project. The Commission will engage with the applicant during the CEQA environmental review process to address issues and concerns regarding potential project impacts and the effects of required mitigation on public benefits. Therefore, in addition the required submittal of the final environmental documentation, staff strongly encourages all applicants to coordinate with the Commission by submitting draft CEQA documents. • Submit all NEPA documents		
All required federal, state, and local approvals, certifications, and agreements	Quarterly Reports should contain specific permit status.		
Funding Agreement The following documents are needed to execute a funding agreement for the project (regulations section 6013(a)(1)(G))			
Applicant's audited financial statements	Submit audited financial statements for the two most recent fiscal years to the Commission no earlier than six months prior to the estimated Commission hearing date, regulations section 6013(a).		
Final project costs, schedule, and scope of work	The final project costs, schedule, and scope of work will be incorporated into the WSIP funding agreement. Staff will work with you to detail the format, level of detail, and timing for submittal of these items. • The final project costs will be used, in part, to develop the funding agreement budget which in turn governs aspects of cost reimbursement. • The schedule should cover the period from the estimated time that the applicant is ready to enter into an agreement with the Commission through completion of all actions that will be included in the WSIP funding agreement (i.e., Project Construction and, if relevant, Project Start Up). • The Scope of Work should be consistent with the final project costs and schedule and at a level of detail that clear conveys the major work tasks and sub-tasks.		
Evidence of bilateral communications	Please provide documentation or a narrative description of efforts taken by the applicant to ensure bilateral communication with any owners and operators of potentially impacted facilities regarding the potential impacts of the proposed project to their facilities.		

The following items are needed to schedule a Commission Hearing for Final Awards (regulations section 6013(c))			
Description	Instructions	Estimated Completion Date	Percent Complete %

Limited waiver of sovereign immunity (see regulations section 6013(f)(8))	Provide documentation or a narrative description of whether the project will or will not be situated on tribal lands and the basis for such conclusions. The applicant may provide a map(s) that detail the following information:
	• The project area (i.e. the lands that will be used for construction and operation of the proposed project)
	• The current landownership categorized as follows:
	  o Private
	  o Public
	  o Tribal
	Please provide a listing of the member entities and categorize each, as applicable, from the following list of eligible applicants (Water Code section 79712(a)):
	• Public Agency
	• Nonprofit Organization
	• Public Utility
	• Federally Recognized Indian Tribe
	• State Indian Tribe
	• Mutual Water Company		

Status Update The status of the following items is needed to execute a funding agreement (regulations section 6013(a)(1)(C))			
Labor Compliance	Funding Recipients are bound by all the provisions of the Labor Code regarding prevailing wages and shall monitor all contracts subject to reimbursement by WSIP to assure that the prevailing wage provisions of the Labor Code are being met. Current Department of Industrial Relations (DIR) requirements may be found at: https://www.dir.ca.gov/lcp.asp. For more information, please refer to DIR's *Public Works Manual* at: https://www.dir.ca.gov/dlse/PWManualCombined.pdf.		
Urban Water Management Plans	• Compliance with the 2015 Urban Water Management Plan (UWMP) obligations was evaluated through the WSIP application process. On-going compliance, include meeting any 2020 UWMP update requirements, will be a continuing eligibility obligation. • Your agency currently does not meet the definition of an Urban Water Supplier (Water Code sections 10608.12(p) and (r)). However, if your agency subsequently becomes an Urban Water Supplier, then meeting the UWMP obligations will become an execution requirement and continuing eligibility obligation.		
Agricultural Water Management Plans	Compliance with the 2015 Agricultural Water Management Plan (AWMP) obligations was evaluated through the WSIP application process. Your agency currently does not meet the definition of an Agricultural Water Supplier that would be required to submit an AWMP (Water Code sections 10800 *et seq*. and 10608). However, if your agency subsequently meets that definition, then meeting the AWMP obligations will become an execution requirement and continuing eligibility obligation.		
Groundwater Management or Groundwater Sustainability Plans	Use the required Initial Quarterly Report to bring the Commission up to date on the status of efforts to meet the relevant Groundwater Management or Groundwater Sustainability Plan requirements. Use subsequent Quarterly Reports to provide the on-going status of these efforts.		
Potential effect of other conditionally eligible projects on the applicant's public benefits	For each of the other projects that received an MCED by the Commission, describe the potential effects that each project may have on your agency's project or explain how there will not be any potential effects.		

CALIFORNIA WATER COMMISSION
P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 902-7328

April 10, 2022

Jerry Brown, Executive Director, Sites Project Authority
jbrown@sitesproject.org

Re: Water Storage Investment Program Maximum Conditional Eligibility Determination Adjusted – Sites Project

Dear Mr. Brown:

At its March 16, 2022 meeting the California Water Commission (Commission) adjusted the Maximum Conditional Eligibility Determination (MCED) for the Sites Project. The Commission made a $25,625,000 rank 3 adjustment as well as an additional 1.5% inflation adjustment. The adjusted MCED for the Sites Project is $875,396,369. The MCED is the maximum amount of Proposition 1 WSIP funds the Commission can invest in a project. The Commission has discretion to award less than the MCED at the final funding hearing based on project changes.

The MCED amount above supersedes the 2021 MCED decision.

If you have any questions or concerns regarding this matter, please contact Amy Young at (916) 902-6664 or amy.young@water.ca.gov.

Sincerely,

Joseph R. Yun
Executive Officer
California Water Commission

Cc: Karla Nemeth, Director, Department of Water Resources

Eileen Sobeck, Executive Director, State Water Resources Control Board

Chuck Bonham, Director, California Department of Fish and Wildlife

Chad Dibble, Deputy Director, Ecosystem and Conservation Division, California Department of Fish and Wildlife.

California
WATER COMMISSION

Meeting Minutes
Meeting of the California Water Commission
Wednesday, December 15, 2021
Remote Meeting
Beginning at 9:30 a.m.

1. Call to Order
Chair Teresa Alvarado called the meeting to order at 9:30 a.m.

2. Roll Call
Executive Secretary Kimberly Muljat called the roll. Commissioners Alvarado, Arthur, Curtin, Gallagher, Makler, Solorio, Steiner, and Swanson were present, constituting a quorum.

3. Closed Session
The Commission did not hold a closed session.

4. Approval November 17, 2021 Meeting Minutes
Commissioner Gallagher motioned to approve the November 17, 2021 meeting minutes. Commissioner Solorio seconded motion. All Commission members voted in favor.

5. Executive Officer's Report
Executive Officer Joseph Yun said the Commission received many comment letters for this meeting and staff was able to post most of them on the website yesterday. Those that came in late were forwarded to Commission members and will be posted after this meeting. Staff will present the 2022 workplan at the January meeting. Staff will present the draft State Water Project (SWP) 2021 Review in February. Staff will present the draft Groundwater Trading White Paper in January, allow a month for public comment, and finalize it in March. The Department of Water Resources (DWR) was given money through the budget process and opened their subsidence of existing infrastructure program, which is consistent with conclusions from the Commission's Conveyance White Paper. The Commission received a letter from the Secretaries of Food and Agriculture, Environmental Protection, and Natural Resources asking the Commission to assist with Water Portfolio action 26.3, related to developing long-term strategies to protect communities and wildlife that could be used in a sustained drought scenario. This will be part of the January workplan discussion. Staff is making plans for in-person meetings beginning in February.

6. Commission Member Reports
Commissioner Makler, in his day job capacity, attended two Bay Area Council meetings, the November 30 update on the Bay Delta Plan and the December 3 Water and Climate Resilience subcommittee meeting, where proponents of the Water Infrastructure Funding Act of 2022 solicited support. Commissioner Arthur was part of a panel at the Association of California

Water Agencies (ACWA) fall conference and discussed the Commission's role in groundwater trading.

7. Public Testimony

Public comment from Malinalli Calli who said we need to save the Del Puerto Canyon, it is not feasible to build a dam there, a dam will ruin the ecosystem and harm Native American burial grounds and will not bring any jobs or money to the area.

Public comment from Isaac Kinney who would like the Commission to include more indigenous-led research programs, partnerships, and institutions on infrastructure projects.

Chair Alvarado reminded attendees that items 8 through 11 relate to Water Storage Investment Program projects that received Maximum Conditional Eligibility Determinations (MCEDs) in 2018 and the current Commission is not awarding any funding today; the projects must all meet multiple additional statutory requirements first. Public comment will be limited to three minutes. If it appears many people will be commenting on the same item, the Commission may shorten the comment time to two minutes after a substantial number of commenters have gone.

8. Water Storage Investment Program: Kern Fan Groundwater Storage Project Continuing Eligibility and Feasibility Determination (Action item)

Water Storage Investment Program (WSIP) Program Manager Amy Young presented the staff recommendation regarding the Kern Fan Groundwater Storage Project feasibility consistent with WSIP regulations, and as required by Water Code §79757, for the Commission's consideration. This project is promoted by its applicant, the Groundwater Banking Joint Powers Authority. By January 1, 2022, feasibility studies must be complete, draft environmental documentation must be available for public review, the DWR Director must receive commitments for not less than 75% of the non-public benefit cost share of the project, and the Commission must find the project is feasible and will advance the long-term objectives of restoring ecological health and improving water management for beneficial uses of the Delta. The five categories of feasibility are technical, environmental, economic, financial and constructability. A review of project operations, engineering designs, costs and construction methods found the project can be technically and physically constructed and operated. A review found that potentially significant impacts of the project will be mitigated, a Mitigation Monitoring and Reporting Program was adopted in 2020, and documentation shows environmental feasibility. A review of all benefits and costs found the benefits exceed costs, showing the benefit to cost ratio is greater than one, showing economic feasibility. A review found funds from all sources are sufficient to cover all costs, costs allocated to non-public beneficiaries are consistent and do not exceed benefits received, and documentation shows financial feasibility. Both draft and final environmental impact reports (EIR) were released in 2020. The Director of DWR received a letter of commitment and supporting documentation for 75 percent of the non-public benefit funding on November 5, 2021. Statutory requirements were met. Based on review of documents received, staff recommended the Commission find the project feasible.

Public comment from Sydney who asked if this project captures water by rain harvesting. Kern Fan Program Manager Fiona Sanchez said they capture water that would otherwise not be able to be stored in reservoirs that are filled to capacity in wet years, divert it into recharge basins, and make it available in dry years.

Commissioner Curtin asked how long the percolation process takes after a heavy flow capture and how many acre-feet are captured. Dan Bartel, Rosedale-Rio Bravo Water Storage District Engineer-Manager, said three to nine months, and about 100,000 acre-feet.

Commissioner Steiner asked if there was acceptance of the incremental cost of providing takeaway water to Irvine Ranch. Ms. Sanchez said Metropolitan Water District (MWD) provides them a credit, so $150 is not always necessarily applied.

Chair Alvarado entertained a motion to find the project feasible and adopt a supporting resolution to that effect. Commissioner Solorio moved to accept the motion and Commissioner Steiner seconded the motion. All Commission members voted in favor.

9. Water Storage Investment Program: Willow Springs Water Bank Conjunctive Use Project Continuing Eligibility and Feasibility Determination (Action item)

WSIP Program Manager Amy Young presented the staff recommendation regarding the Willow Springs Water Bank (WSWB) Conjunctive Use Project feasibility consistent with WSIP regulations, and as required by Water Code §79757, for the Commission's consideration. This project is promoted by its applicant, the Southern California Water Bank Authority. A review of project operations, engineering designs, costs and construction methods found the project can be technically and physically constructed and operated. A review found that the EIR and Addendum identified significant impacts, additional California Environmental Quality Act (CEQA) documents for Antelope Valley-East Kern Water Agency *(*AVEK) facilities indicated no significant impacts, and a Mitigation Monitoring and Reporting Plan was adopted, showing environmental feasibility. The project's facilities, costs, and water source have changed since application. In a review that included staff-adjusted calculations, benefits exceed costs showing the benefit to cost ratio is greater than one, showing economic feasibility. A review found project costs are much less for the current project and the applicant's commitment to pay its cost share shows financial feasibility. A draft EIR was released in 2006, an Addendum to the EIR was released in 2018, initial studies and mitigated negative declarations were released in 2014 and 2018. The DWR Director received a letter of commitment and supporting documentation for 75 percent of the non-public benefit funding on December 2, 2021. Statutory requirements were met. Based on documents received, staff recommended the Commission find the project feasible.

Public comment from Isaac Kinney who said, based on lack of treaty law, the state does not hold full legal title of this project, and planning documents do not address the adverse effects to surrounding indigenous communities, including cultural impacts, natural impacts and impacts on economic well-being to sovereign nations.

Commissioner Makler asked for confirmation that 100 percent of capital costs will be covered by WSIP funding, and operations and maintenance (O&M) costs are covered by AVEK. WSWB General Manager Mark Beuhler said there will be no spillover onto AVEK ratepayers. Revenue generated from surplus water will pay for O&M costs. Makler said a greater description of the project-cost ratio would be needed for the final funding decision.

Commissioner Steiner asked about staff's concern with MWD having first rights for capacity and was told all projects would have to address staff concerns and have all agreements worked out before the final funding decision.

Commissioner Curtin asked how much water they expect to store in the combined water banks, is the source the California or Los Angeles Aqueduct, how long does it take to percolate, and how much would be captured in a high flow. He was told that all water is from the SWP, they can store potentially 70,000 acre-feet/year, with 8,400 acre-feet/year on average going to fish, currently operational percolation ponds get about a foot or two of recharge a day, and capture is dependent upon reservoir storage capacity. They will also have on-site storage.

Commissioner Arthur asked staff to explain the 2018 finding around Delta benefits. Ms. Young said the Commission verified physical public benefits, monetized their value, and the Commission made MCEDs based on the ecosystem and water quality benefits accepted by the administering agencies. The benefits that determination was made on are still there. She asked the applicants if pulse flows are designed for when fish need it most. GEI Project Manager Mark Ashenfelter said releases will be in the spring of dry and critical years, for three consecutive years.

Chair Alvarado said public benefits and ecosystem benefits are what the state is investing in with this program, and it is important to frame the conversation around it. She then entertained a motion to find the project feasible and adopt a supporting resolution to that effect. Commissioner Curtin moved to accept the motion and Commissioner Steiner seconded the motion. All Commission members voted in favor.

The Commission took a 10-minute break.

10. Water Storage Investment Program: Sites Project Continuing Eligibility and Feasibility Determination (Action item)

WSIP Program Manager Amy Young presented the staff recommendation regarding the Sites Project feasibility consistent with WSIP regulations, and as required by Water Code §79757, for the Commission's consideration. This project is promoted by its applicant, the Sites Project Authority. A review of project operations, engineering designs, costs and construction methods found the project can be technically and physically constructed and operated. A review found that significant impacts for the project can be mitigated, significant and unavoidable impacts were identified, and a Statement of Overriding Considerations (SOOC) will be prepared, showing environmental feasibility. There were changes to the dam size and facilities since the application was submitted, and based on a review, benefits exceed costs showing the benefit to cost ratio is greater than one, showing economic feasibility. A review found funds from all

sources are sufficient to cover all costs based on the applicant's financial plan, costs allocated to non-public beneficiaries do not exceed benefits received, and documentation shows financial feasibility. A revised draft EIR and supplemental draft were released for public review in November 2021. The DWR Director received a letter of commitment and supporting documentation for 75% of the non-public benefit funding on November 5, 2021. Statutory requirements were met. Based on documents received, staff recommended the Commission find the project feasible. Staff noted that the Commission has received public comments on this item, and they have been posted on the website and included in Commissioner packets.

Public comment from Barry Nelson of the Golden Gate Salmon Association, who opposed the project, saying it is not environmentally feasible and will cause negative impacts to bypass flows and Chinook salmon runs.

Public comment from Jim Brobeck, AquAlliance, who opposed the project, saying it is not environmentally feasible and will cause negative impacts to surface water quality.

Public comment from Andrew Meredith, President of State Building and Construction Trades Council of California, who supported the project because of the economic benefit in its employment of local workers and said it meets the state's climate change goals.

Public comment from Regina Chichizola, who opposed the project because the EIR was rushed and it will cause negative impacts to fisheries, bypass flows, and water quality, and said that Tribal representatives are supposed to be allowed to speak first, and that consultation has not been done for most of the Tribes in California that will be affected.

Public comment from Sydney who opposed the project due to negative environmental impacts to numerous species, communities of color, and indigenous communities.

Chair Alvarado said she was unable to identify Tribal representatives in the queue, but if staff were able to identify them, they could move them to the front of the line.

Public comment from Steve Evans, Rivers Director for California Rivers Coalition, who opposed the project because there is no excess water in the Sacramento River water system, and it will cause negative impacts to fisheries and Sacramento River riparian habitat.

Public comment from Sheridan Noelani Enomoto from Save California Salmon, who opposed the project because it is not environmentally feasible and will negatively impact Native American Tribal burial grounds, ceremonial sites, salmon fishing, and drinking water quality.

Public comment from Margo Robbins from the Hurok Reservation, who opposed the project because it is not environmentally feasible and will negatively impact salmon fisheries and Native American natural and cultural resources. Its only public benefit is to big agriculture.

Public comment from Cecilia who opposed the project because it is not economically, financially, or environmentally feasible, will not improve the Delta's ecological health or provide

water for local communities, and will negatively impact ecosystems, wildlife diversity, and people by releasing hot, polluted water to the Delta.

Public comment from Jo Coffey who opposed the project because it will negatively impact wetland and woodland plant and animal species, drown Native American cultural sites, and disrupt salmon and other fish species.

Public comment from Erin Woolley from the Sierra Club, who opposed the project, saying it is not environmentally feasible, will not provide any benefits to the Delta, and will cause negative impacts to local burial grounds and habitat.

Public comment from Robert Kunde from Wheeler Ridge Maricopa Water Storage District, who supports the project and said many of the statements made in opposition are lacking in basis. Climate change will result in an increase in winter flows and flooding, and Sites will divert those flows and release them in dry periods to benefit salmon runs and the environment.

Public comment from Adrian Covert from the Bay Area Council, who supports the project and said it will provide 1.5 million acre-feet of badly needed storage, the right sizing of the dam was responsive to public feedback, and the current project provides the state with competitive public benefits.

Public comment from Dan Bacher who opposed the project, saying it is not environmentally feasible and will cause negative impacts to the salmon population and the Trinity and Klamath Rivers, will not benefit the ecosystem, will cause the Sacramento River to be overdrafted, and would divert more water to San Joaquin Valley agri-business.

Public comment from John Armstrong, who opposed the project because of the human disease reactions from water degradation, and the push for Sites is nothing but imperialism from MWD, international Central Valley agri-business, the U.S. Bureau of Reclamation, and legislature-enabled international civil engineering firms that specialize in dam building.

Public comment from Assemblyman James Gallagher, who supports the project because it has been studied for many years; the latest analysis shows it is an environmentally feasible project; will provide for farms, cities, and the environment; will expand smart surface water storage; provides operational flexibility; and was recognized in the Governor's Water Resilience Portfolio. A letter of support was signed by a bi-partisan group of 22 state legislators.

Public comment from Amelia, who opposed the project on behalf of her students, saying fisheries and nature are not protected with this plan, and nature and community should be prioritized over profits and corporations.

Chair Alvarado said that the time limit for comments would be adjusted to two minutes after Mr. Warren, who had been in the queue for some time.

Public comment from Ronald Stork from Friends of the River, who opposed the project, saying there are still significant environmental and financial feasibility issues. He said the applicant's

briefings with project skeptics was paid for by early funding dollars, and a letter was submitted in opposition signed by 13 organizations.

Public comment from Caty Wagner, who opposed the project, saying it will cause negative impacts to wildlife habitat, salmon, Native American culture, and 41 prehistoric sites are subject to destruction. The public benefits are not substantiated and violate WSIP regulations. It is another example of colonization and exploitation of indigenous people.

Public comment from Sheree Norris from California Indian Environmental Alliance, who opposed the project, saying it will cause negative impacts to the Delta, salmon production and indigenous people, and we need the EIR and EIS completed before a decision is made.

Public comment from Dierdre Des Jardins was cut off due to technical difficulties, but was told she will keep her place in line once she reconnects. Chair Alvarado reminded the public that following Mr. Warren there will be a two-minute time limit on speakers.

Public comment from Jan Warren from Save the Delta, who opposed the project, saying it will cause negative impacts to the salmon population and Native American burial sites. More water going south will lead to more almond growers, and a river cannot remain healthy if water continues to be drawn from it.

Public comment from Dierdre Des Jardins from California Water Research, who opposed the project, saying there is not enough scientific information being presented to the Commission, the bypass flows proposed are too low, and are not driven by appropriate flow criteria necessary for salmon. Do not automatically assume there are Delta benefits.

Chair Alvarado reminded the public of the two-minute time limit going forward.

Public comment from Ashley Overhouse, Friends of the River, who opposed the project, saying it is not environmentally feasible and will not advance the long-term objectives of the Delta. The Save California Salmon online petition has 48,0000 signatures in opposition.

Public comment from Malissa Tayaba, Vice-chair of Shingle Springs Band of Miwok Indians, who opposed the project, saying it will further diminish the Delta ecosystem and will have a direct impact on the health and life expectancy and future of their Tribe.

Public comment from William M. Martin, who opposed the project because the Bay Delta Water Quality Plan Update will require increased flows through the Delta and the Sites Project will stand in the way.

Public comment from Vivian Helliwell, Watershed Conservation Director of Pacific Coast Federation of Fishermen, who opposed the project, saying it is not environmentally feasible and will cause negative impacts to salmon from the Sacramento and Klamath River systems.

Public comment from Keiko Mertz from South Yuba River Citizens League, who opposed the project, saying it is not a sustainable solution to water security and will contribute to the erasure of Native American values and culture.

Public comment from Krystal Moreno, Program Manager for Traditional Ecological Knowledge for the Shingle Springs Band of Miwok Indians, who opposed the project saying true and meaningful Tribal consultation has not occurred, and her Tribe was not consulted at all.

Public comment from Isaac Kinney, who opposed the project, saying it will cause negative impacts to salmon and take water without the consent of indigenous people. It is unstable, obsolete infrastructure, using unstable, obsolete financing.

Commissioner Alvarado asked staff to speak to the vetting of the ecological benefits and efforts taken to validate the feasibility of the project. Ms. Young said the projects are still early on and have not gone through the full EIR process. Staff has looked at the potential impacts, but the administering agencies still need to enter into contracts with applicants to show these public benefits can happen. Permits and water rights still need to be completed before final funding.

Commissioner Curtin asked how much water north of the Delta would be used in the Sites Reservoir. Jerry Brown, Executive Director of the Sites Project Authority, said of the local participant share, about 25 percent of the water supplies are slated for north of the Delta.

Commissioner Arthur asked about changes to the public benefits that result in a significant decrease in deliveries to refuges, and how do they account for the cost as well as the benefit. Mr. Brown said it was because of the changes to the size of project, and they tried to assign benefits that achieve the level of value of the state's contribution. They will dedicate 250,000 acre-feet for environmental purposes. In developing a project cost estimate, it is inclusive of all mitigation efforts to the impacts identified in the EIR.

Commissioner Makler asked about the timing of regulatory and environmental approvals, and at what point in the process can the public engage. Mr. Brown said the public comment closes mid-January, with a six- to seven-month period to address the comments, concluding in late summer, followed by permits, water rights, and final design, with start of construction in 2024.

Commissioner Steiner asked what has been done to reach out to Tribal entities, and what further discussion is planned. Mr. Brown said they reached out to 14 Tribes in the project's footprint and sent out a wider net of coordination request letters but have not gotten any additional responses to date.

Commissioner Solorio asked what changes will be made to improve or modify the environmental documents, and Mr. Brown said they are looking at continued mitigation.

In addition, Mr. Brown said the Sites Project will not solve all the problems we face and will continue to face, but if we do nothing things will get worse. Sites represents a step forward, and many see eye-to-eye on what Sites is trying to do but differ on how to approach solving

some of the problems. Sites meets Proposition 1 requirements in all regards. The recirculated EIR demonstrates that the Sites team heard comments and made the adjustments.

Chair Alvarado reminded attendees that the Commission is not awarding any funding today.

Commissioner Steiner said the Commission is following a process set up by the Legislature, and it does not require the EIR or public benefit contracts to be complete. Commissioners are looking at a very limited number of things in making today's determination.

Commissioner Curtin said a lot of people feel this is such a slow process and ask why Proposition 1 is taking so long to get the projects off the ground.

Chair Alvarado entertained a motion to find the project feasible and adopt a supporting resolution to that effect. Commissioner Gallagher moved to accept the motion and Commissioner Curtin seconded the motion. All Commission members voted in favor.

The Commission took a 30-minute lunch break.

11. Water Storage Investment Program: Pacheco Reservoir Expansion Project Continuing Eligibility and Feasibility Determination (Action item)

WSIP Program Manager Amy Young presented the staff recommendation regarding the Pacheco Reservoir Expansion Project feasibility consistent with WSIP regulations, and as required by Water Code §79757, for the Commission's consideration. This project is promoted by its applicant, the Santa Clara Valley Water District (Valley Water). A review of project operations, engineering designs, costs and construction methods found the project can be technically and physically constructed and operated. The feasibility study includes a Sensitivity Analysis Alternative because of DWR's Division of Safety of Dams review of the proposed hardfill dam concept. A review found that significant impacts and mitigation measures were identified and the applicant anticipates filing a SOOC, and documentation shows environmental feasibility. The project location, cost and the economic benefits claimed have changed since application. Based on a review as adjusted by staff, benefits exceed costs showing the benefit to cost ratio is greater than one, showing economic feasibility. A review found that Valley Water's strong financial base, ability to pay for the project, and the commitment to pay for a substantial share of costs allocated to ecosystem benefits shows financial feasibility. A draft EIR was released for public review in November 2021. The DWR Director received a letter of commitment and supporting documentation for 75% of the non-public funding on November 19, 2021. Statutory requirements were met. Based on documents received, staff recommended the Commission find the project feasible. The Commission has received public comments on this item, and they have been posted on the website and included in Commissioner packets.

Public comment from Katja Irvin from the Sierra Club Loma Prieta Chapter, who opposed the project, saying they are concerned about extensive environmental and biological impacts, overstated benefits, and an increase in water rates. There are less costly and less environmentally damaging options available.

Public comment from Christophe LaBelle of the Silicon Valley Group, who supports the project and said the reservoir expansion will ensure the continued prosperity of the region.

Public comment from Marjan Kris Abubo, U.C. Davis law student, who opposes the project, saying it will cause unavoidable impacts to low-income communities of color, is detrimental to ecosystem health, the public benefits are small, and the hypothetical improvements claimed should be approached with skepticism.

Public comment from Alvaro Casanove of the California Native Plant Society, who opposed the project saying they are concerned about adverse impacts on rare plant species and habitats.

Public comment from Anna Sciaruto of the Bay Area Council, who supports the project because it will provide a drought resilient, south-of-Delta emergency water supply to the Bay Area.

Public comment from David Bini of the Santa Clara and San Mateo Counties Building and Construction Trade Council, who supports the project because the region is in a water shortage emergency, and this infrastructure project will provide 21,000 local, well-paying jobs.

Public comment from Don, a reporter, who asked if some of the water that will potentially be in Sites will end up in Pacheco if both are funded.

Public comment from Kat Wilson, Climate and Sustainability Policy Advisor speaking on behalf of San Jose Mayor Sam Liccardo, who opposed the project, saying there is concern in the cost benefit analysis, and it will not provide more water or expand our water supply.

Public comment from William L. Martin, who opposed the project, saying the environmental impact is much greater than any supposed benefits, it will result in the loss of acres of oak and sycamore forests and riparian habitat, and the cost has been understated.

Public comment from Ronald Stork, from Friends of the River, who opposed the project, saying the project encountered seismic difficulties, and the new reservoir would go in Henry Coe State Park, which would be illegal, making it infeasible.

Public comment from Ashley Overhouse, from Friends of the River, who opposed the project, because it is not legally, economically, financially or environmentally feasible. It will not improve the water supply in the South Bay. She also referenced Professor Jeff Michael's letter attached to the Stop Pacheco Dam letter.

Public comment from Molly Culton, Sierra Club California, who opposed the project, saying it fails to provide public benefits and will result in extraordinary rate increases.

Public comment from Meg Giberson, who opposed the project, saying it will cause negative environmental impacts, the costs and impacts are greater than can be justified, and it will not provide measurable improvement to the Delta.

Chair Alvarado said that speakers will move to a two-minute time limit after Mr. Middlemiss.

Public comment from Jeremy Smith from the State Building and Construction Trades Council, who supports the project and seconded David Bini's comments.

Public comment from Amelia, speaking for her students, who opposed the project, saying it is a waste of money and she will yield the rest of her time to Regina Chichizola.

Public comment from Regina Chichizola of Save California Salmon, who opposed the project, saying there are concerns with transfers of water from the Delta, carryover storage in the upper Sacramento watershed, and water quality in the Bay Delta. The treatment of the Shingle Springs Tribal leader was outrageous and unacceptable.

Public comment from Ross Middlemiss, from the Center for Biological Diversity, who opposed the project, saying it will destroy hundreds of acres of habitat, and sever habitat connectivity for many threatened species.

Chair Alvarado reminded the public of the two-minute time limit going forward.

Public comment from Scott Cashen, who opposed the project because of its negative impacts to biological and cultural resources, it will provide only marginal improvement to steelhead habitat, and it has numerous mitigation obligations.

Public comment from Malinalli Calli, from Save the Del Puerto Canyon, who referred to AB275: American Cultural Preservation chapter 167 and said Native American sovereignty has not been considered. All indigenous Tribes in California must be respected.

Public comment from Margo Schueler, who opposed the project, saying urban water loss is only beginning to be tracked and quantified. The state must address current losses within the existing water system before discussing the need to capture more wild water.

Public comment from Osha Meserve from the Stop Pacheco Dam Coalition, who opposed the project, saying they submitted 233 letters in opposition, it is a different project than the one proposed in 2017, it is a different Commission, and it is a bait-and-switch by Valley Water.

Chair Alvarado suggested staff ask other state agencies how they identify Tribal commenters.

Chair Alvarado asked about the change to the benefits, what was shared at April's Valley Water Board of Directors meeting, the consistency determination concerning State Park lands, and staff's vetting of the project's financial and environmental feasibility. Ms. Young said projects are in early stages and regulations require applicants to identify potential impacts and whether they can mitigate them or adopt SOOCs. The administering agencies still need to enter into contracts with applicants to show these public benefits can happen. Steve Hatchett, economic consultant to the Commission, said when reviewing economic and financial feasibility, they follow requirements listed in the regulations and do not dig down into rate-making policy and cost distribution. They look at whether the applicant has demonstrated and obligated itself and shown an ability and willingness to pay an aggregate for their share of the costs, and his opinion is that they have. Valley Water Engineering Unit Manager Ryan McCarter said they have

analyzed five different alternatives in the EIR. At the April Board meeting, the "no new water supply" statement meant that they are not taking water that comes into the watershed from the creek itself and using that for Valley Water's benefit. All of that water goes to the steelhead benefit. It is off-stream storage, conveniently located, with 97,000 acre-feet set aside for emergency water supply. It will contribute to water supply reliability. Valley Water conveyed to the California Department of Parks and Recreation that the plan is consistent with the park's general plan and purpose and the public resources code. There is a three-quarter mile stretch of creek that crosses over the park's boundary, and it does not inundate any trails or roads.

Commissioner Steiner asked for more information on the single purpose alternative, Dr. Michael's comments about the benefits being overstated, and the legality of building the reservoir in Henry Coe State Park. Mr. McCarter said they looked at the single purpose reservoir comparison for the steelhead benefit. The infrastructure is needed to provide the cold water and timed releases. In response to Dr. Michael's comment, he said he did not know what rationale or method was used to calculate the benefit and could not answer in further detail.

Commissioner Arthur asked about the economic feasibility of the single purpose alternative costs used to assess the public benefits. It looks like the increase in construction costs brings up an increase in benefit cost. How does that allow the Commission to assess the economic feasibility? Roger Mann, economic consultant to the Commission, said the alternative cost principle requires that one buy something that is worth more than the cost one is paying. They decided it was a fair judgement at that time. The concern is, he does not know with this alternative cost if the benefit as far as the fish is worth that much money because he does not have information on that.

Commissioner Solorio said if the project did not receive the $500,000 through the WSIP, that cost would be paid by rate payers. Infrastructure only gets more expensive over time. He asked how committed the current general manager and board are on this project, and was told they are working with the board annually on the rate-setting process. Last year they came up with an 8.6 percent increase without Pacheco, and a 1.1 percent increase on top of that with it. Deputy Director of Dam Safety and Capital Delivery Christopher Hakes said the project is Valley Water's second priority, and the board is absolutely committed and plans to move forward with it.

Commissioner Makler said the Commission is in a legislatively determined process and must determine if Valley Water provided a set of deliverables that are in statute. A substantial amount of work needs to be done on this project, it is in the beginning of the environmental entitlement process and he would like to hear about the timeline. Ms. Young said the timelines on the Commission website are updated based on the quarterly reports received from the applicants. Mr. McCarter said they have been given approval by U.S Environmental Protection Agency to apply for $1.3 billion in Federal Water Infrastructure Finance and Innovation Act loans.

Vice Chair Swanson asked how much money the Commission has allocated to this project in early funding. Ms. Young said they received an award for $24.2 million. Mr. McCarter said they have spent $12 million of that.

Commissioner Arthur asked how significant the increase in benefit to steelhead is and what is the mitigation cost. Mr. McCarter said Pacheco Creek runs dry most years, and a consistent perennial flow is needed to sustain the steelhead population. The current small reservoir is not managed to control flows very well now; there is not enough water and it is not cold enough. It is a pretty significant increase in benefit. There will be downstream benefits with the increased releases down Pacheco Creek that will benefit some of the other wildlife and botanical species. They are potentially looking to do some preservation projects.

Commissioner Curtin said this is another attempt to store excess water when available and manage it, but the project still does not the answer the question of possibly more water. If someone thinks the project provides more water, such as from either desalination or recycled water, then that person is not on the same page. Staff did a good job under difficult circumstances vetting what the applicant is proposing, and he feels comfortable supporting the staff recommendation.

Commissioner Makler told the applicant to utilize this forum to continue the discussion as it goes through the process because these are important questions.

Commissioner Arthur asked about the willingness to pay and the public benefit process. Mr. Mann said alternative cost works when one believes the thing he or she is buying is more valuable than what he or she is paying. There is no willingness to pay for a project that provides flows but no fish. Willingness to pay has to do with having a population of fish. There is not a study that pertains to this type of fish so he really cannot say what the willingness to pay is. Ms. Young said the applicant will put together a contract with the California Department of Fish and Wildlife which will come before Commission in draft stage for review and comment.

Chair Alvarado said, as the Commission moves forward, Commissioners want assurance that the benefits projected are reasonably expected to come to fruition. Ms. Young said the environmental documentation process and the permitting process will tell the Commission a lot about some of these benefits.

Chair Alvarado entertained a motion to find the project feasible and adopt a supporting resolution to that effect. Commissioner Curtin moved to accept the motion and Commissioner Solorio seconded the motion. All Commission members voted in favor.

12. Water Storage Investment Program: Screening Project Feasibility Determination (Action item)

12A. Regional Surface Water Supply Project

WSIP Program Manager Amy Young presented the staff recommendation regarding the Stanislaus Regional Water Authority Regional Surface Water Supply Project, one of two screening projects that met the requirements of Water Code §79757 and, if found feasible and

if determined that the project will advance the long-term objectives of restoring ecological health and improving water management for beneficial uses of the Delta, would be eligible for WSIP funding should the Commission pursue a second solicitation. Screening information for this project was submitted by the Stanislaus Regional Water Authority (SRWA). Screening projects were not required to perform all analyses outlined in regulations. Information may be limited and staff evaluations show where projects may not currently meet the WSIP Technical Reference requirements. If the Commission chooses to move forward with a second solicitation, an additional set of regulations will be required and any eligible projects would need to submit full applications before receiving an MCED or funding.

The SWRA Regional Surface Water Supply Project is a conjunctive use project in Stanislaus County, currently under construction, scheduled to be operational in 2023. Water is pumped from the Tuolumne River at the new raw water pump station, treated and delivered to the cities of Ceres and Turlock. Potential public benefits include steelhead in the Tuolumne River, and emergency response during drought or infrastructure failures. It would address fish and wildlife beneficial uses identified in the Bay-Delta Plan. It allows for Turlock Groundwater subbasin in-lieu recharge and conjunctive management of surface and groundwater. The draft and final EIR were released in 2018. The DWR Director received a letter of commitment on November 19, 2021. The feasibility study broadly addressed the categories of feasibility. Areas where the feasibility study does not meet WSIP regulatory requirements are noted in the staff report. It is difficult to understand all benefits and costs of the project without a modeling analysis of impacts both with and without project in the context of a larger water system as well as climate scenarios. SRWA would still need to submit a full application with all of the required components at a later date if the Commission moves forward with a second solicitation. The documentation submitted meets minimum statutory requirements although staff cannot make a feasibility recommendation based on WSIP regulations. If the Commission makes both findings, the project could apply to the WSIP in the future and would need to complete a full application. If Commission does not make the findings, the project would not be able to apply under WSIP if a second solicitation occurs.

Public comment from Deirdre Des Jardin, said that Del Puerto Canyon Dam has not done proper modeling and analysis to identify the water sources or impacts on the Delta. The modeling that was done did not use latest current operations which are much more aggressive and have had very negative impacts on fisheries.

Public comment from Jerry Brown who said as the Commission considers new projects, consider that Sites remains the only project in the WSIP that has not been fully funded and has the capability to provide additional public benefits.

Vice Chair Swanson said the Commission would be remiss if it did not consider these two projects. The Commission is very limited and restricted by what it can do from a funding perspective, but new projects should not move ahead of existing projects.

Commissioner Steiner said this project could be fully built before they are through the application process and asked if the Commission would be reimbursing and was told that is correct. She also asked about the beneficial use to the Delta, and was told the applicant was asked to provide a summary of what they believed their public benefits could be and how they might benefit the Delta. The claimed improvements for steelhead and benefits for wildlife fisheries would be reevaluated in the application process.

Commissioner Gallagher said these projects are few and far between, and it is hard to get one off the ground. By joining WSIP are they going to be increasing their costs, is the Commission's program creating a larger burden on the project with increased costs for permits, and is it slowing them down in the middle of construction to be part of this? SRWA representative Monique Day said it should not slow down the project's progress. If the project gets additional funding it will offset the amount of loan money needed and end up saving ratepayers quite a bit.

Chair Alvarado asked why they did not apply for funding earlier and SRWA General Manager Robert Granberg said at the time it looked like a pretty heavy lift but now that they are further down the road they would like to continue down the process. The benefit could be there, and they are hoping for consideration through this process.

Commissioner Makler cautioned the applicants that there is a lot more to do in a second solicitation, and because of the statutory deadline it is important the Commission have backups if other projects fall out.

Chair Alvarado entertained a motion to find the project feasible and adopt a supporting resolution to that effect. Commissioner Makler moved to accept the motion and Commissioner Curtin seconded the motion. Commissioner Steiner asked if they are also making a determination about the Delta benefit. Commission Legal Counsel Holly Stout said yes, this vote is for both the feasibility determination and the Delta benefit, and asked Commissioner Makler if that was his intent when he moved to accept the motion, and both he and Commissioner Curtin said yes. Commissioners Curtin, Gallagher, Makler, Solorio, Steiner, Swanson, and Alvarado voted in favor. Commissioner Arthur voted no. The motion passed.

12B. Del Puerto Canyon Reservoir

WSIP Program Manager Amy Young presented the staff recommendation regarding the Del Puerto Canyon Reservoir, submitted by the Del Puerto Water District and the San Joaquin River Exchange Contractors Water Authority. A regional surface storage project located in Stanislaus County near Patterson, it is an off-stream reservoir with 82,000 acre-feet storage capacity. Construction includes the reservoir, conveyance facilities and relocation of Del Puerto Road and utilities. Potential public benefits include incremental level 4 refuge water supply, riparian benefits, flood control benefits to residential and agricultural areas, and the project would address wildlife habitat beneficial uses identified in the Bay-Delta Plan. The feasibility study submitted was prepared under federal rules and broadly addresses feasibility components. The final EIR was completed in 2020. The DWR Director received a letter of commitment on

November 19, 2021. The feasibility study was prepared for federal funding and deemed technically and financially feasible by the Department of Interior. Areas where the feasibility study does not meet WSIP regulatory requirements are noted in the staff report. It is difficult to understand all benefits and costs of the project without a modeling analysis of impacts both with and without project in the context of a larger water system as well as climate scenarios; and estimated utility and road relocation costs were not as refined as normally accepted for a feasibility study. Benefits and costs of the project would be fully evaluated in a full application process before the Commission would make any funding decision. The WSIP Technical Reference, incorporated into regulations, further defined what would be required for completed feasibility studies which included documentation required for full applications. The Commission has discretion to find the project feasible based on statutory language alone. The Del Puerto Water District and the San Joaquin River Exchange Contractors Water Authority will still need to submit a full application with all of the required components at a later date if the Commission moves forward with a second solicitation. The documentation submitted meets minimum statutory requirements although staff cannot make a feasibility recommendation based on WSIP regulations. If the Commission makes both findings, the project could apply to the WSIP in the future; it would need to complete full application. If the Commission does not make the findings, the project would not be able to apply under WSIP if a second solicitation occurs. The Commission has received public comments on this item, and they have been posted on the website and included in Commissioner packets.

Public comment from Justin Fredrickson from the California Farm Bureau, who said the “no dam anywhere” people are not realistic. Voters spoke very clearly, they want storage, and the Commission needs to deliver that. It is important to leave the door open with these second-tier projects.

Public comment from Christopher Quock, who opposed the project saying it will negatively affect a valuable, tangible resource for teachers, and there is a deficiency in key information areas that threatens the ability of this project to deliver on its promises.

Public comment from Ronald Stork from Friends of the River, who opposed the project saying staff was unable to determine feasibility, as no feasibility studies have been completed.

Public comment from Elias Funez of Save Del Puerto Canyon Group, who opposed the project because environmental studies put forward do not show the full picture, the dam will be built over the San Joaquin fault line, it will produce an inherent flood danger, and Native American cultural sites would be destroyed.

Public comment from Ashley Overhouse from Friends of the River, who opposed the project, saying not all feasibility studies have been completed and the public benefits are to be paid for by federal funds so taxpayers would be paying for the same benefits twice.

Public comment from Julie Rentner who opposed the project saying the project’s flood damage reduction potential does not match the magnitude of flood risk introduced with a dam in this location, and it would negatively impact a sturgeon spawning habitat.

Commissioner Steiner asked to verify the quantity of new water. Del Puerto Water District and San Joaquin River Exchange Contractors Water Authority General Manger Anthea Hansen said the project does have a Department of Interior finding of feasibility. Del Puerto completed a large-scale recycled water project, and the challenge will be making sure there is storage in times of good to protect all that water. San Joaquin River Exchange Contractors Water Authority Executive Director Chris White said they have a conservation and transfer program in place and work with local west side districts that provide refuge supply.

Commissioner Arthur asked about the Delta benefit. Ms. Hansen said they will provide 9,800 acre-feet per year of water to south-of-Delta refuges and will aid healthy wildlife corridors along Del Puerto Creek.

Chair Alvarado entertained a motion to find the project feasible and determine that the project will advance the long-term objectives of restoring ecological health and improving water management for beneficial uses of the Delta, and adopt a supporting resolution to that effect. Vice Chair Swanson moved to accept the motion and Commissioner Curtin seconded the motion. Commissioners Curtin, Gallagher, Makler, Solorio and Swanson voted in favor. Commissioners Arthur, Steiner, and Alvarado voted no. The motion passed.

13. Consideration of Items for Next California Water Commission Meeting
The next meeting of the Water Commission is currently scheduled for Wednesday, January 19, 2022. At the January meeting, the Commission will elect officers for the 2022 calendar year, consider the Commission's 2022 workplan, receive a briefing on the Big Notch project, and discuss a draft of the groundwater trading white paper.

Commissioner Solorio suggested the upcoming drought work could involve regional listening sessions and offered Orange County as a possible location.

14. Adjourn
The Commission adjourned at 4:18 p.m.

Attachment C
Final EIR/EIS, Mitigation Measure GHG-1.1: Achieve Net-Zero Emissions Through a GHG Reduction Plan

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Attachment C

This attachment provides the entire text of Mitigation Measure GHG-1.1: Achieve Net-Zero Emissions Through a GHG Reduction Plan from the upcoming Sites Reservoir Project Final EIR/EIS. The Final EIR/EIS is expected to be released in October 2023 and will be available on the Sites Project Authority's website here: https://sitesproject.org/environmental-review/. Greenhouse Gas Emissions are addressed in Chapter 21 of the Final EIR/EIS.

Mitigation Measure GHG-1.1: Achieve Net-Zero Emissions Through a GHG Reduction Plan

To achieve net-zero emissions, the Authority will develop a GHG Reduction Plan to reduce Project emissions from onsite and offsite sources. The Authority will retain a qualified consultant to develop a GHG Reduction Plan to reduce GHG emissions resulting from construction and operational activities to net zero. Net additional GHG emissions from the construction period and annual emissions from operations have been quantified as part of this analysis. Construction emissions total to 348,648 to 351,362 metric tons of CO_2e depending on the alternative and variant of the Project. Annual operational emissions could be a maximum of 72,736 metric tons CO_2e, which corresponds to Alternative 1A, but are expected to continually decrease in future years as the electric power sector transitions to more renewable sources of energy. This yields a reduction commitment of up to 351,362 metric tons CO_2e total for construction and up to 72,736 metric tons of CO_2e annually needed to meet the net-zero performance standard. These maximum values of 72,736 metric tons CO_2e and 351,362 metric tons CO_2e correspond to Alternatives 1A and 2, respectively. Table 21-6 summarizes the reduction by alternative.

Table 21-6 Summary of Metric Ton Reduction (metric tons CO2e)

Year	Alternatives 1A		Alternative 1B		Alternative 2		Alternative 3	
	Variant 1[a]	Variant 2[b]	Variant 1	Variant 2	Variant 1	Variant 2	Variant 1	Variant 2
Total Construction Emissions Commitment	348,648	348,796	348,648	348,796	351,317	351,362	348,648	348,796
Maximum Annual Operational Emissions Commitment (Long-Term Average)	60,610	60,610	59,573	59,573	59,003	59,003	56,613	56,613
Maximum Annual Operational Emissions Commitment (Dry and Critically Dry)	72,736	72,736	72,070	72,070	71,056	71,056	67,778	67,778

Notes:
CO2e = carbon dioxide equivalent.
a Variant 1 assumes the Project would connect to existing Western Area Power Administration utility infrastructure.
b Variant 2 assumes the Project would connect to existing Pacific Gas and Electric utility infrastructure.

As noted in the text of this measure, below, the net-zero performance standard may be achieved based on actual emission calculations, and thus the Authority's reduction commitment may differ from the values included in this analysis.

The GHG Reduction Plan will include the following content and adhere to the following requirements.

1. *Emissions Quantities and Reduction Commitments*: GHG emissions from construction and operations must be reduced to net zero on a continual basis throughout construction and operations. Advanced planning for GHG reductions will be necessary to ensure that the net effect of Project emissions and this mitigation is that the Project will not result in any increase in GHG emissions relative to the No Project Alternative throughout the construction and operational period. The Authority will thus need to proactively assess upcoming construction activity and implement early investment in GHG reduction efforts prior to construction (to ensure that the emissions that are being mitigated through other measures are only those that are unavoidable).

   Since some of the planning will be reliant on the estimated GHG reduction value of future actions during construction and operation (as discussed below) there may be an emissions credit debt if emissions are higher than expected or if certain measures do not achieve the reductions that were anticipated. Conversely, if emissions are lower than expected or measures achieve higher reductions than expected, the Authority may bank credits for the next year of construction and/or operations.

2. *Plan Development:* The GHG Reduction Plan will identify the amount of GHG emissions anticipated during each construction phase. Amendments to the GHG Reduction Plan may be made during the construction period for the purpose of giving the Authority flexibility to adapt to changing technologies that have increasing effectiveness at reducing emissions and/or changes in expected construction emissions or available mitigation approaches. For operations, the GHG Reduction Plan may be developed and implemented in 5-year increments and can be amended to include more cost effective or environmentally beneficial technologies. This analysis presents an estimate of annual GHG emissions generated by Project construction and operations. Although the emissions provided in this analysis could be used to inform the required mitigation commitment, the methods used to quantify emissions are conservative. This analysis does not account for any GHG reduction measures that may be implemented by the Authority pursuant to this measure. Accordingly, this EIR likely overestimates actual GHG emissions that would be generated by the Project. The Authority may therefore reanalyze GHG emissions for construction and/or operation of the Project to update the required reduction commitment to achieve net zero.

   Updated emissions analysis conducted for the GHG Reduction Plan will be performed using approved emissions models and methods available at the time of that analysis. Updated emissions analysis conducted for the GHG Reduction Plan will, at a minimum, consider the categories and types of emission sources included in this Final EIR/EIS; additional categories and types of emission sources should be considered for inclusion based on then available scientific information. The analysis must use the latest available engineering data for the Project, inclusive of any required BMPs or GHG emissions reduction measures. Consistent with the methodology used in this analysis,

emission factors may account for enacted regulations that will influence future year emissions intensities (e.g., fuel efficiency standards for on-road vehicles). Net emissions from changes in operations emissions will be quantified using approved methods at the time of analysis and applicable activity data for each component of operations (such as maintenance activities, recreational vehicle trips, recreational boating, public services and utilities, water conveyance, and land use including water storage).

3. *GHG Reduction Strategies:* The construction component and each operational increment in the GHG Reduction Plan will identify the GHG reduction measures that will be implemented during that period to achieve the net-zero performance standard. GHG reduction measures must be verifiable and feasible to implement. The GHG Reduction Plan will identify the entity responsible for implementing each measure and the estimated GHG reduction that will be achieved by implementation of the measure. If the selected measures are shown to result in reductions that exceed total net emissions of that period, the estimated surplus can be applied as a credit for future periods.

   The constituent measures in the GHG Reduction Plan are summarized in this section. Implementation of BMP-29 is a required Project design feature that must be incorporated into the GHG Reduction Plan. The Authority will prioritize strategies to reduce emissions in the following order (1) onsite measures for construction or operations that are not already part of BMP-29, (2) offsite measures, and (3) carbon credits. The order of priority for the location of selected measures will be (1) within the Project footprint, (2) within communities in the vicinity of the Project site, (3) in the Sacramento Valley Air Basin, (4) in the State of California, and (5) in the United States. If the GHG Reduction Plan proposes GHG reduction strategies that do not conform to the priorities outlined above, it must present substantial evidence to justify the deviation or explain why higher priority locations were deemed infeasible as defined under CEQA. In addition, the Authority will seek opportunities to implement GHG reduction measures in environmental justice communities (as defined in this Final EIR/EIS) in and near the Project site and report on the effort and outcomes in the annual reporting required in this measure.

   The Authority will be responsible for determining the measures necessary to ensure the performance standard to mitigate the significant GHG impact is met.

   The list of measures presented in this section is not exclusive. The Authority may include additional measures to reduce GHG emissions to the extent that the measures become commercially available, have documented reliability in real-world conditions and become cost effective. This may include new equipment and vehicle systems (e.g., autonomous construction equipment, fuel-cells), new energy systems (e.g., battery storage), or other technologies (e.g., carbon capture and storage).

   a. <u>Construction Best Management Practices and Other Onsite Measures.</u> The Authority will reduce onsite GHG emissions as much as feasible through implementation of the measures identified below. These measures include a list of strategies to reduce GHG emissions from construction. Two measures that have a higher potential to reduce emissions include the use of electric equipment and vehicles instead of diesel-powered vehicles and the use of vehicles that use alternative fuels, such as compressed natural gas, liquified natural gas, propane, or biodiesel. These measures are not reflected in the emissions modeling results, because the future availability of electric-powered construction equipment and vehicles and alternative fuels in the California market is uncertain. As such, a mandate to use all-electric

equipment and vehicles and alternative fuels cannot be made at this time. The Authority and its construction contractors will prioritize the use of electric or hybrid-electric off-road construction equipment and vehicles over diesel equipment. These measures, or other equivalent measures, will be implemented by the Authority and their construction contractors prior to or during construction. The Authority would review all designs and plans to ensure incorporation of these measures or the equivalent. In addition, the Authority will deploy a construction monitor during construction to monitor implementation of the required measures. Construction monitors will report regularly (at least quarterly) to the Authority on contractor compliance and will record inspection records in the Project file.

i. Preconstruction and Final Design Considerations: Preconstruction and final design considerations would be designed to ensure unique characteristics of facility construction are taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions. Examples of requirements and considerations are identified below.

- Consider Project characteristics, including location, Project workflow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the Project or specific elements of the Project.
- Ensure that all economically feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, consider use of alternative fuels, such as propane or solar, to power generators to the maximum extent feasible, as specified in construction contracts.
- Minimize idling time by requiring that equipment be shut down after 3 minutes when not in use (5 minutes required by the State airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.
- Maintain all construction equipment in proper working condition and perform all preventive maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an Air Quality Control Plan prior to commencement of construction.
- Implement a tire inflation program on each jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives onsite and every 2 weeks for equipment that remains onsite. Check vehicles used for hauling materials offsite weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an Air Quality Management Plan prior to commencement of construction.
- Develop a Project-specific ride share program to encourage carpools and shuttle vans.

- Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business, wherever feasible.
- For material deliveries to Project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay26 certified truck will be used to the maximum extent feasible.
- Develop a Project-specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste.
- During all activities, diesel-fueled portable equipment with maximum power greater than 25 horsepower shall be registered under the CARB's Statewide Portable Equipment Registration Program.

b. Offsite Measures. For GHG emissions that cannot be reduced through the construction BMPs and other onsite measures discussed above, the Authority will reduce emissions as much as feasible through offsite measures. The GHG Reduction Plan will identify offsite measures that are suitable to reduce emissions. Offsite strategies include those that reduce emissions from an emissions source(s) that is not located in the Project area and may or may not be associated with the Project.

   i. For construction electricity and water conveyance–related energy, the Authority will increase the proportion of renewable energy purchases for the Project's electricity needs to the highest amount that is feasible. The Authority is planning on purchasing 60% of the Project's power needs from renewable, carbon-free sources starting in 2030. To fully reduce the emissions from construction electricity and water conveyance electricity, the Authority would need to purchase 100% of energy needs from carbon-free sources. If the Authority determines that it is infeasible to purchase 100% carbon-free energy for construction and/or operations, carbon credits would be required to reduce the remaining emissions.

   ii. The GHG Reduction Plan may identify other strategies that reduce emissions from sources that are not affiliated with the Project. The Authority can take credit for reductions that result from projects it sponsors, to achieve the net-zero goal. For example, the Authority could directly sponsor emissions-reducing projects, such as the following.

      - replacing diesel school buses with electric buses.
      - planting trees in local communities.
      - providing support to local businesses or homeowners to install solar photovoltaic systems, other renewable energy projects, or energy efficiency improvements. Energy efficient improvements could include installing energy efficient appliances and cool roofs on buildings.
      - working with local communities to implement transportation-related emissions-reducing projects. These may include sponsoring bike- or car-

share programs, providing support to public transit systems, or contributing to infrastructure and streetscape improvements for pedestrians and bicycles.

c. Carbon Credits. For all emissions that cannot otherwise be reduced through onsite or offsite measures, the purchase and retirement of carbon credits would be required. A carbon credit enables development projects to compensate for their GHG emissions and associated environmental impacts by financing reductions in GHG emissions elsewhere. GHG credits derived from completed prior actions are referred to as "GHG offsets" or "carbon offsets." GHG credits derived from future contracted actions are referred to as "GHG future credits" or GHG (future mitigation units [FMUs]). Carbon credits are classified as either compliance or voluntary. Compliance credits can be purchased by covered entities subject to the cap-and-trade regulation to meet predetermined regulatory targets. Voluntary credits are not associated with the cap-and-trade regulation and are purchased with the intent to voluntarily meet carbon-neutral or other environmental obligations.

   The Authority may purchase carbon credits from a voluntary GHG credit provider that has an established protocol that requires projects generating GHG credits to demonstrate that the reduction of GHG emissions is real, permanent, quantifiable, verified, enforceable, and additional (per the definition in California Health & Saf. Code §§ 38562(d)(1) and (2)). Definitions for these terms are as follows.

   i. **Real**. Estimated GHG reductions should not be an artifact of incomplete or inaccurate emissions accounting. Methods for quantifying emission reductions should be conservative to avoid overstating a project's effects. The effects of a project on GHG emissions must be comprehensively accounted for, including unintended effects (often referred to as "leakage").1

   ii. **Additional**. GHG reductions must be additional to any that would have occurred in the absence of the Climate Action Reserve or of a market for GHG reductions generally. "Business as usual" reductions (i.e., those that would occur in the absence of a GHG reduction market) should not be eligible for registration.

   iii. **Permanent**. To function as GHG credits, GHG reductions must effectively be "permanent." This means, in general, that any net reversal in GHG reductions must be fully accounted for and compensated through the achievement of additional reductions.

   iv. **Quantifiable**. The ability to accurately measure and calculate GHG reductions or GHG removal enhancements relative to a project baseline in a reliable and replicable manner for all GHG emission sources, GHG sinks, or GHG reservoirs included within the credit project boundary, while accounting for uncertainty, activity-shifting leakage, and market-shifting leakage.

[1] To ensure that GHG reductions are real, CARB requires the reduction be "a direct reduction within a confined project boundary."

v. **Verified**. GHG reductions must result from activities that have been verified. Verification requires third-party review of monitoring data for a project to ensure the data are complete and accurate.

vi. **Enforceable**. The emission reductions from credits must be backed by a legal instrument or contract that defines exclusive ownership, and the legal instrument can be enforced within the legal system in the country in which the credit project occurs or through other compulsory means. Please note that per this mitigation measure, only credits originating within the United States are allowed.

Carbon credits must also meet the following requirements:

i. Carbon credits may be in the form of GHG offsets for prior reductions of GHG emissions verified through protocols or forecasted mitigation units for future committed GHG emissions meeting protocols.

ii. All credits will be documented per protocols functionally equivalent in terms of stringency to CARB's protocol for offsets in the cap-and-trade program. If using credits not from CARB protocols, the Authority must provide the protocols from the credit provider and must document why the protocols are functionally equivalent in terms of stringency to CARB protocols.

iii. The Authority will identify carbon credits in geographies closest to the Project first and only go to larger geographies (i.e., California, United States) if adequate credits cannot be found in closer geographies or the procurement of such credits would create an undue financial burden. The Authority will provide the following justification for not using credits in closer geographies in terms of either availability or cost prohibition.

- Lack of enough credits available in closer geographies (e.g., Northern Sacramento Valley).
- Prohibitively costly credits in closer geographies defined as credits costing more than 300% the amount of the current costs of credits in the regulated CARB offset market or of the current costs of credits in the Compliance Offset Program, which is part of CARB's broader cap-and-trade Program.

iv. Documentation submitted supporting carbon credit proposals will be prepared by individuals qualified in GHG credit development and verification, and such individuals will certify the following:

- Proposed credits meet the criteria in California Health and Safety Code Sections 38562(d)(1) and (d)(2).
- Proposed credits meet the definitions for the criteria provided in this measure.
- The protocols used for the credits meet or exceed the standards for stringency used in CARB protocols for offsets under the California cap-and-trade system.

Monitoring, reporting, and enforcement requirements for implementation of the GHG Reduction Plan will include the following components.

1. *Phased Analysis and Plan Amendments:* As described above, the GHG Reduction Plan may be developed and implemented over five-year increments for Project operations. Prior to the start of each five-year increment, the Authority will update the GHG Reduction Plan to calculate the amount of GHG emissions anticipated in the upcoming five-year period, as well as emissions from prior periods (if needed to cover any deficits) and the projected total net emissions of the Project. The GHG Reduction Plan will identify the specific GHG reduction measures that will be implemented to meet the net-zero performance standard for the upcoming five-year period and include quantification of the expected reductions that will be achieved by each measure. All emissions and reductions will be quantified in accordance with the requirements outlined in Plan Development above.

   The Authority will retain a third-party expert to assist with the review and approval of the GHG Reduction Plan. Subsequent amendments to the GHG Reduction Plan will identify reductions that have been achieved during prior phases and determine if those reductions exceed emissions generated by the Project. If the GHG reduction measures implemented by the Authority result in a surplus of reductions above the net-zero performance standard, the balance of those reductions may be credited to subsequent phases.

2. *Timing and Execution:* The Authority will prepare the GHG Reduction Plan prior to issuance of the first construction or grading permit for the Project. For Project operations, the GHG Reduction Plan will be prepared prior to the end of construction and prior to the start of the next five-year phase of operations. The Authority Board of Directors will formally adopt the completed GHG Reduction Plan and make it publicly available on its website prior to its adoption.

   BMPs and selected onsite construction measures will be included in construction-permits and contractor bid packages and/or agreements. Offsite measures that the Authority chooses to implement will be completed or in progress before completion of construction or before the end of the calendar year (for Project operations) in which the measure(s) are intended to reduce emissions. If GHG credits are purchased, the Authority will enter the necessary contract(s) to purchase credits prior to the start of construction or prior to the start of the calendar year (for Project operations). All credits must be retired before completion of construction or the calendar year (for Project operations).

3. *Monitoring and Reporting:* The Authority will retain a third-party expert to assist with review and approval of annual reports for verification purposes. Through the third-party expert, the Authority will conduct annual monitoring and reporting to ensure that the reduction measures included in the plan achieve sufficient emission reductions to reduce Project emissions to net zero. Each annual report should describe the GHG reduction strategies that were implemented over the prior year; summarize past, current, and anticipated Project phasing; document compliance with GHG Reduction Plan requirements; and identify corrective actions needed to ensure that the GHG Reduction Plan achieves the net-zero performance standard. If GHG credits have been purchased to reduce emissions for the reporting year, the annual report must include copies of the credit retirement verification.

   The reports will be finalized and posted in a publicly accessible location online by December 31st of the following year.