WATER BRANCH, ECOSYSTEM CONSERVATION DIVISION
P.O BOX 944209
SACRAMENTO, CA 94244-9090

California Endangered Species Act
Native Plant Protection Act
Incidental Take Permit No. 2081-2024-018-00

CONSTRUCTION AND OPERATION OF THE DELTA CONVEYANCE PROJECT

I. Authority:

This California Endangered Species Act (CESA) and Native Plant Protection Act (NPPA) incidental take permit (ITP) is issued by the California Department of Fish and Wildlife (CDFW) pursuant to Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, title 14, section 783.0 et seq and 786.9, subdivision (b). CESA prohibits the take[1] of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species.[2] The NPPA prohibits the take, possession, propagation, transportation, exportation, importation, or sale of any native plant that is designated by the California Fish and Game Commission as endangered or rare (Fish & G. Code, §§ 1904, 1908; Cal. Code Regs., tit. 14, §§ 670.2, 786.9., subd. (a)(2)). However, CDFW may authorize the take of any such species by permit pursuant to the conditions set forth in Fish and Game Code section 2081, subdivisions (b) and (c) and California Code of Regulations, title 14, section 786.9, subdivision (b). (See Cal. Code Regs., tit. 14, § 783.4.)

Permittee:	**California Department of Water Resources (DWR)**
Principal Officer:	**Karla Nemeth, Director**
Contact Person:	**Carolyn Buckman, (916) 699-8406**
Mailing Address:	**715 P Street** **Sacramento, CA 95814**

II. Effective Date and Expiration Date of this ITP:

This ITP is effective as of the date signed by CDFW below. Unless renewed by CDFW, this ITP and its authorization to take the Covered Species shall expire on October 30, 2045.

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[1]Pursuant to Fish and Game Code section 86, "'take' means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." (See also *Environmental Protection Information Center v. California Department of Forestry and Fire Protection* (2008) 44 Cal.4th 459, 507 [for purposes of incidental take permitting under Fish and Game Code section 2081, subdivision (b), "'take' … means to catch, capture or kill".)

[2]The definition of an endangered, threatened, and candidate species for purposes of CESA are found in Fish and Game Code sections 2062, 2067, and 2068, respectively.

Notwithstanding the expiration date on the take authorization provided by this ITP, Permittee's obligations pursuant to this ITP do not end until CDFW accepts as complete the Permittee's Phase 2 Project Operations Report required by Condition of Approval 7.5 and all Final Phase Mitigation Report**s** required by Condition of Approval 10.15 of this ITP.

III. Project Location

Construction and operation of the Delta Conveyance Project (Project) will occur within the legal Sacramento-San Joaquin Delta (Delta) and Suisun Marsh and a portion of Alameda County (Project Area; Attachment 1, Figure 1). The Project will use two new intakes on the Sacramento River between the towns of Hood (Intake B) and Courtland (Intake C), California with the physical ability to convey up to a total of 6,000 cubic feet per second (cfs) of water from the Sacramento River located in the north Delta (i.e., along the east bank of the Sacramento River between Clarksburg and Courtland at river miles 39.4 and 36.8, respectively). From Intakes B and C, the single tunnel alignment will follow a route to Twin Cities Complex double launch shaft, New Hope Tract maintenance shaft, Canal Ranch Tract maintenance shaft, Terminous Tract reception shaft, King Island maintenance shaft, tunnel under Rindge Tract, Lower Roberts Island double launch shaft, Upper Jones Tract maintenance shaft, tunnel under Lower Jones Tract, tunnel under Victoria Island, Union Island maintenance shaft, tunnel under Coney Island, and Clifton Court Tract to the Bethany Complex's Surge Basin reception shaft (Attachment 1, Figure 1). The Project will include a new Bethany Reservoir Pumping Plant and Surge Basin located to the south of Clifton Court Forebay (CCF), and a new Bethany Reservoir Aqueduct that conveys flows to a new Bethany Reservoir Discharge Structure on the shore of Bethany Reservoir. The aqueduct will consist of four pipelines including tunneled segments under the existing Central Valley Project (CVP) C. W. "Bill" Jones Pumping Plant (Jones Pumping Plant) discharge pipelines and existing Bethany Reservoir Conservation Easement adjacent to Bethany Reservoir. Collectively, these facilities are called the Bethany Complex.

The Project also includes the following interconnection facilities for Contra Costa Water District (CCWD): 1) an interconnection pump station with water intake from the Project's Union Island Maintenance Shaft on the main Project tunnel, and 2) a new 1.6-mile conveyance pipeline that will extend from the pump station and connect to the existing CCWD Victoria Island Pipeline just downstream of the CCWD's existing Middle River Intake and Pumping Plant.

IV. Project Description

Permittee will build a conveyance facility to divert water from two new intakes on the Sacramento River in the north Delta and move it to south Delta pumping plants (Attachment 1, Figure 2). The Project includes preconstruction activities, the construction and maintenance of new facilities and, once those facilities become operational, up to two years of operations and maintenance.

Introduction

Permittee will construct two new intake facilities as new points of diversion in the north Delta along the Sacramento River. Intake components include cylindrical tee fish screens, intake structures, sedimentation basins, sediment drying lagoons, flow control structures, tunnel inlet, and other inlet structures. The water will be conveyed via a single tunnel that terminates at the Bethany Complex. The Bethany Complex is south of CCF and includes a surge basin, pumping plant, and aqueduct that conveys flows to a new discharge structure on the shore of Bethany Reservoir. The Bethany Reservoir Aqueduct system will consist of four 15-foot-diameter parallel pipelines that convey water from the Bethany Reservoir Pumping Plant to the Bethany Reservoir Discharge Structure, a distance of approximately 2.8 miles each. The aqueduct system's permanent footprint will be about 200 feet wide. Two separate aqueduct reaches will require parallel tunnels to carry each pipeline under existing features. The first reach will be under the Jones Pumping Plant discharge pipelines; at this location pipelines will run about 50 feet below ground surface for about 200 feet. Tunnels will also be needed under the existing Bethany Reservoir Conservation Easement adjacent to Bethany Reservoir for about 3,064 feet, ranging from 45 to 180 feet below ground surface. The aqueduct pipelines will terminate near the bottom of four 55-foot-inside-diameter below-ground vertical shafts at the Bethany Reservoir Discharge Structure. The pipelines will make a 90-degree bend upward inside the shafts, ending at the floor of the discharge structure and flowing through a concrete channel into Bethany Reservoir.

The tunnel from the intakes on the Sacramento River to the Bethany Complex will have an inside diameter of 36 feet and outside diameter of 39 feet and extend approximately 45 miles from the intakes to the surge basin at the Bethany Reservoir Pumping Plant. The Twin Cities double launch shaft will be used to bore one tunnel north to the intake shafts and one south to the Terminous Tract reception shaft. Lower Roberts Island will have a double launch shaft, that will allow one tunnel boring machine (TBM) to bore north to the Terminous Tract reception shaft and one to bore south toward the final reception shaft at the Bethany Reservoir Surge Basin. New shaft pads will be constructed with soil excavated from either the shaft site or nearby shaft sites. The Project's tunnel segments, TBM machinery, other soil materials, and equipment will be delivered to all sites by road. Rail will also be used to deliver tunnel segments to the Lower Roberts Island tunnel launch shaft site. Barges will be used to conduct over-water geotechnical explorations and rip rap installation. The double launch shaft at Lower Roberts Island will require a shaft site to accommodate a double launch shaft with a figure eight configuration, reusable tunnel material (RTM) storage area, and corresponding access roads. Material excavated on-site will be used to construct the shaft pad. The RTM site will also house a rail-served materials depot. Rail access to Lower Roberts Island will be provided from existing Union Pacific Railroad (UPRR) or Burlington Northern Santa Fe (BNSF) tracks located on the Port of Stockton. Rail lines will be extended from one of the existing rail facilities in the Port of Stockton. Rail access will be extended over a new bridge over Burns Cutoff and continue to the tunnel segment storage area near RTM storage area.

The Project also includes construction of interconnection facilities for CCWD. The facilities will consist of an interconnection pump station with water intake from the Project's Union Island Maintenance Shaft on the main Project tunnel, and a new 1.6-mile conveyance pipeline that will extend from the pump station and connect to the existing CCWD Victoria Island Pipeline just downstream of the CCWD's existing Middle River Intake and Pumping Plant. The interconnection pipeline will be installed in a trench with open cut-and-cover construction along existing roadways and within agricultural fields. The pipeline construction easement will be 100 feet wide for the entire length of the trench, including a 30-foot temporary construction easement around the 70-foot permanent easement. Dewatering may occur along the open trench, with flows collected, treated, and reused on-site. The portion of the interconnection pipeline that crosses Victoria Canal will be microtunneled. Launch and retrieval pits, approximately 35 feet wide by 50 feet long, will be placed within the 100-foot open trench construction easement on Union Island and Victoria Island to launch and receive microtunneling equipment. A permanent 70-foot wide easement will be maintained along the length of the pipeline in Union Island and Victoria Island. Air valves, blow offs, and access manways will be placed along the pipeline within the permanent easement. Pumped flow from the new Interconnection Pump Station will convey water from the Project's Union Island shaft to CCWD's existing Transfer Pumping Station through the new conveyance pipeline and subsequently through CCWD's existing Victoria Island and Old River Pipelines. During periods when CCWD's existing Middle River and Old River Pumping Plants are in simultaneous operation with the Interconnection Pump Station, a maximum combined pumped flow of up to 250 cfs could be conveyed through the Victoria Island Pipeline and a maximum combined flow of up to 320 cfs could be conveyed through the Old River Pipeline.

Following construction, the Project includes two years of operations and maintenance. Operations consist of initial testing of facilities, pump maintenance, and systemwide commissioning tests to confirm if facilities and equipment function as expected and make repairs or adjustments as needed. Following initial testing of facilities and equipment the Project may conduct full operations consistent with the Conditions of Approval in this ITP.

Construction of the Project will take approximately 13 years. Construction will not take place in all locations at the same time. Rather, it will proceed in stages, starting with access roads and power and supervisory control and data acquisition (SCADA) systems installation to facility sites, then concurrent tunnel and facility construction, and finally proceeding to commissioning, site reclamation, and road overlays in the final years. Operation of the Project is authorized for two years, following completion of construction.

Conveyance Facility Construction

1. Preconstruction Activities with Temporary Impacts

Field investigations will occur during the preconstruction and construction periods and are related to geotechnical, hydrogeologic, agronomic testing, and construction test projects located within the Project Area (Attachment 1, Figure 1). These activities and installations are considered temporary and will be completed with sites restored to pre-Project conditions or better in less than a year after initial disturbance (Conditions of Approval 12.2, 12.3).

1.1 Investigations to Support Section 408 Permitting - Soil Boring and Cone Penetration Tests.
Soil borings and cone penetration tests (CPTs) will be conducted within the Project Area at the north Delta intakes and within the Stockton Deep Water Ship Channel and adjacent non-Project levees at the location of the tunnel undercrossing. Land-based soil borings, overwater soil borings, and CPTs will be conducted within the tunnel shafts, tunnel alignments, power lines, access roads and bridges, railroads, and levees. Tests will be conducted at the Bethany Reservoir Pumping Plant and Surge Basin, Bethany Reservoir Aqueducts, and the Bethany Reservoir Discharge Structure. Drilling techniques will generate an approximately 4- to 8-inch-diameter boring. For CPTs, a cone-tipped rod with a diameter of 1 to 2 inches will be pushed through the ground. All CPT holes will be filled with grout following completion and prior to abandonment, and all soil borings not planned to function as a groundwater monitoring well will be completely grouted following boring. Groundwater monitoring wells will be constructed with casings, in accordance with all applicable laws.

1.2 Investigations to Support Section 408 Permitting - Groundwater Testing and Monitoring.
At each intake, one 12-inch-diameter steel-cased test well will be installed in a 24-inch-diameter borehole to conduct pumping tests. Vibrating wire piezometers will be installed in several levee borings, and 4-inch groundwater monitoring wells will be installed in several site borings at each north Delta intake to allow measurements of groundwater head, monitoring of groundwater elevations during the pumping tests, and the collection of water quality samples at the intake locations. At each north Delta intake, a surface water gauge will be installed to track the elevation of the adjacent river for use in analysis of the results. Pumping tests will be conducted in the test wells. Water levels before, during, and following the various tests will be monitored using automated data loggers, which will also record barometric pressure and the level of the river. The groundwater monitoring program (Condition of Approval 11.23) will use remotely monitored instrumentation and onsite personnel.

1.3 Bethany Fault Study.
Electrical resistivity tomography (ERT) will be used to characterize subsurface soil characteristics above the Bethany Reservoir Aqueduct tunnels. ERT will involve a linear array of removable small steel electrodes (approximately 0.5 inches in diameter by 8 inches long) driven into the ground approximately every 10 feet within an area 210 feet long by 3 feet wide to induce a low current in the

ground, while a small readout unit provides the measurements.[3] The temporary work area will be approximately 10,500 square feet (210 feet long by 50 feet wide).

1.4 Pile Installation Methods at the Intake Locations.

The north Delta intake locations on the Sacramento River will include the construction of temporary in-river cofferdams. The cofferdams will use interlocking steel sheet piles. Pilot studies will be conducted to test pile installation and acoustic mitigation measures in the river at the intake location along the Sacramento River (Condition of Approval 11.33). The studies will use equipment to monitor vibrations in air and water and noise while test driving a variety of pile types using vibratory and driving methods to validate rates and penetration depths. Additionally, CPTs will be performed in the river from a barge to determine the in-situ density of the soils prior to, during, and after test pile installation.

1.5 Location of Buried Groundwater and Natural Gas Wells.

Desktop surveys of documented wells will be conducted and will include research of historical topographical mapping that may document the presence of wells that were not identified in the State of California oil and gas database, as maintained by California Department of Conservation (previously known as DOGGR, and now known as CalGem [Geologic Energy Management Division]). An underground well detection plan will be conducted in the field to evaluate the suitability of various geophysical techniques to detect buried and abandoned wells (Condition of Approval 11.24). To identify and/or confirm the location of well casings, including wells that have not been identified in the published database, the use of wide-area airborne methods (drone, helicopter, and/or fixed wing aircraft) to conduct magnetic surveys followed by more site-specific walk- or tow-over ground based magnetic surveys will be conducted. These surveys will be conducted at the north Delta intake and tunnel shaft locations, along tunnel alignments, and at the Bethany Complex to identify buried groundwater and natural gas and oil wells. Surface geophysical surveys will also be used at these locations. The locations of identified wells will be evaluated to determine methods to abandon, relocate, or avoid the wells. Actions to abandon or relocate wells identified through these surveys are not covered by this ITP.

1.6 West Tracy Fault Studies.

Up to six test trenches (up to approximately 1,000 feet long, 3 feet wide, and 20 feet deep) will be excavated along a line running from the southeast of Byron to the southeast of CCF to further investigate the nature and location of the West Tracy Fault between the town of Byron and the area southeast of the forebay. The trenches will remain open for up to six weeks, depending on the

[3] California Department of Water Resources (2020). Soil investigations for data collection in the Delta. Final Initial Study/Mitigated Negative Declaration. SCH# 2019119073. California Natural Resources Agency, California Department of Water Resources, Sacramento, CA. July 2020.

findings, and will be backfilled completely upon the completion of observation of soil conditions within the trench. In addition to the test trenches, two arrays of surface geophysical surveys will be completed before, and along the alignment of, the excavation of the test trenches. Geophysical surveys will consist of noninvasive techniques to provide information on subsurface geologic conditions and anomalies, such as buried casings or abandoned wells. Seismic refraction/reflection techniques will be used at each of the two linear sites, referred to as geophysical arrays. CPTs and soil borings will also be conducted. Select soil samples from the test borings will be subjected to age-dating laboratory testing.

1.6 Agronomic Testing.
If preconstruction activities indicate it is warranted, additional testing will involve agronomic testing, including investigations and testing of compacted soil rehabilitation methods and rehabilitation treatments for agricultural crop or native grass species establishment. Agronomic testing will validate the reuse assumptions prior to reclamation of disturbed areas based on representative samples and likely tunneling conditioners. This pilot-scale testing will be used to refine program-level approaches and strategies for RTM stockpiling and reuse.

1.7 Utility Potholing.
Utility potholing, utilizing either a vacuum excavator or a backhoe, will be conducted to confirm locations of existing utilities such as public and residential utilities, surface water diversions, and agricultural drainage features. Utility potholing will be conducted at locations near the intakes, underground SCADA and power corridors, road and bridge modifications including intersections, tunnel shaft sites, and at utility crossings along the tunnel alignment. Utility potholing will also be conducted at Union Island, Bethany Reservoir Pumping Plant and Surge Basin, the Bethany Reservoir Aqueduct, the Bethany Reservoir Discharge Structure, the raw water feed from Skinner Fish Facility, and at new road and road widening locations. The investigations will be conducted within the construction boundary. The investigations will include vacuum or backhoe excavations, followed by noninvasive surface field surveys. Some features may not require utility potholing and may subsequently be located using only noninvasive surface field surveys.

1.8 Test Trenches.
Trenches approximately 30 feet long, 3 feet wide, and 10 feet deep will be implemented at all the facilities to confirm near-surface soils and to investigate potential buried magnetic anomalies. Trenches will be immediately backfilled following observations of the soil conditions encountered in the trench.

2. Preconstruction Activities with Permanent Impacts

The following activities are primarily related to the installation of monitoring equipment, such as inclinometers, confirmatory sampling for areas of ground improvement, and evaluation of changes in anticipated conditions or alternative contractor means and methods. These long-term temporary

activities are anticipated to cause habitat loss or disturbance that lasts longer than one year but the area will be returned to as close to pre-Project conditions as possible after construction is finished or be incorporated into permanent construction support facilities. For the purposes of this ITP, these activities' impacts are considered permanent.

2.1 Geotechnical Pilot Studies for Settlement.

Site specific pilot studies will be conducted to test the geotechnical response to placement of fill at tunnel shaft sites. One settlement test fill study will be performed at King Island shaft, Lower Roberts RTM area, and Upper Jones Tract shaft. The test fills will be approximately 10 feet high and roughly 1,000 square feet in base area. The material will be purchased from a commercial enterprise that provides soil. The studies will include the installation of inclinometers, piezometers, and borehole extensometers within soil borings, as well as settlement plates buried within the fill, to verify estimates of consolidation and lateral spreading of pad fills in peat and soft soils. At each pilot site (King Island shaft, Lower Roberts RTM area, and Upper Jones Tract shaft), a total of 10 soil borings with piezometers and 20 CPTs will be completed to a depth of 100 feet within and adjacent to the test fill areas before and after their placement. Additionally, four inclinometers and six extensometers will be installed in additional holes drilled at least 75 feet deep, within and adjacent to the test fills. The pilot study will occur over a six-month period. Following the completion of the pilot study, the test fills will be incorporated into the construction site approximately two years later. The adjacent installations (soil borings, CPTs, inclinometers, and extensometers) will be remediated immediately or within a year of the pilot study completion. Onsite personnel will manage the pilot studies.

2.2 Groundwater Testing and Monitoring.

Groundwater and other monitoring activities will be performed prior to, during, and after north Delta intake construction. A test well for pumping tests will be installed at each tunnel shaft and at each north Delta intake. At each north Delta intake, a surface water gauge will be installed to track the elevation of the adjacent river. For the tunnel alignment, vibrating wire piezometers will be installed in boreholes drilled along the tunnel alignment at a frequency of on average every third borehole, or approximately every 3,000 feet. The Project will include two test wells to be installed at the Bethany Reservoir Pumping Plant and Surge Basin, and at each of the two planned tunneled sections of the Bethany Reservoir Aqueduct. Pumping tests will be conducted in the test wells. Water levels before, during, and following the various tests will be monitored using automated data loggers, which will also record barometric pressure and the level of the river. The groundwater monitoring program (Condition of Approval 11.23) will be implemented to determine the seasonal variations in groundwater elevations, the constituents of the groundwater (including the nature and presence of dissolved gas), and the interrelation between groundwater and surface water levels for several years before construction. The groundwater monitoring program will be managed using remotely monitored instrumentation and on-site personnel.

2.2.1 Groundwater monitoring wells. Groundwater monitoring wells installed before construction may continue to be used during and following construction. Additional groundwater monitoring wells will be installed during construction if permanent easements or land ownership are not acquired before construction, or if initial monitoring results indicate the need for more detailed information related to groundwater elevation or water quality. Groundwater monitoring locations will be located at the north Delta intakes, tunnel shafts, and access roads. Monitors will be located at Bethany Complex. Monitoring wells will be located at approximately every two miles along the tunnel alignment between shafts.

2.3 Monument Installation.

Metal survey monuments will be installed at all construction sites and approximately every mile along the tunnel alignments to allow the remote monitoring of surface elevations prior to the start of construction. Monuments will be approximately 10 feet by 10 feet base and 3 feet high to be of adequate size to be visible from satellite-based Interferometric Synthetic Aperture Radar (inSar) used for remote monitoring. Concrete foundations will be installed for the monuments and monuments will be left in place for the duration of construction. Periodic monitoring of survey monuments will be conducted by security and onsite personnel.

2.4 Soil Boring and Cone Penetration Tests.

Soil boring and CPT investigations will be conducted within the first two years of the construction period, although they could extend throughout the duration of construction and commissioning. These investigations will be conducted at any location within the construction boundaries and will be used to confirm the suitability of construction means and methods planned by the Permittee's contractor.

2.5 Vibratory Testing of Dynamic Properties.

Vibratory testing of dynamic properties of peat will be conducted at the Lower Roberts Island RTM area and Union Island shaft for validation of peat soil response during earthquakes. The peat studies will occur within an approximate 100 feet by 100 feet work area. Within this area, an approximately 60 feet long by 30 feet wide soil work pad will be built for vibratory testing. The testing involves an oscillator or "eccentric mass shaker" that hits the ground to test the soil response. The peat studies will also consist of five on-land soil borings and 25 on-land CPTs at each of the two study locations. The study will take approximately five weeks at each site and will consist of setup (two weeks), drilling and testing (two weeks), and cleanup and equipment removal (one week). Following the completion of the study, the site will be incorporated into the overall construction site within two years.

2.6 Monitoring for Ground Movement During Construction.

Inclinometers and extensometers will be installed in vertical borings along levees at the north Delta intakes, along the Project's tunnel alignment, and at tunnel shafts. They will also be installed at King

Island, Lower Roberts Island, Upper Jones Tract, and Union Island; and along levees near bridge improvements along Hood-Franklin Road over Snodgrass Slough, the access road to Lower Roberts Island over Burns Cutoff and Turner Cut, and at the Bethany Complex. No instrumentation will be installed at the new levees. Inclinometers will be installed at 1000-feet centers along areas of levee improvements. Tilt meters, settlement plates, and survey monuments will be installed at all construction sites and approximately every mile along the tunnel alignment.

2.7 Validation of Ground Improvement Methods.

Ground improvement will consist of a combination of excavation of unsuitable soils and replacement with compacted suitable fill material, surcharging to induce consolidation before final construction, and in situ techniques such as Deep Mechanical Mixing (DMM) method to mix amendments (such as cement) into the foundation to add strength and resistance to liquefaction, including the installation of a grid of DMM soil shear walls with cement under the footprints of large structures. Final site-specific methods will be determined through future geotechnical investigations and test installations, especially on land with substantial deposits of peat and loose or soft soils. These activities will occur at the intakes, New Hope Tract, Canal Ranch Tract, Terminous Tract, King Island, Lower Roberts Island, Upper Jones Tract, and Union Island. These investigations will include trial mix and DMM construction programs to confirm appropriate area and volume replacement ratios, desired cement content, and testing to confirm in situ strength and lateral extent.

2.8 Land Reclamation.

As a part of construction, some areas will be disturbed but not needed for long-term operations of the Project (e.g., construction staging areas). Permittee will transfer this land to interested parties, as appropriate, to be consistent with local land uses, including agricultural production or open space/natural habitat. To be able to use land for these purposes after construction, the Project includes activities to reclaim this land.

Areas to be included in land reclamation are located at Intakes B and C, Twin Cities Complex, Lower Roberts Island double launch shaft, and Bethany Complex. Lands to be reclaimed will be those areas used during construction for material and equipment laydown and staging, material stockpiles, slurry/grout mixing plants, parking areas, and facilities/trailers. Permittee will acquire the land for construction and will conduct agronomic testing to help determine whether the disturbed site can be reclaimed and final reclamation methods. The main goal of the land reclamation efforts will be to restore the soil health and condition, to the extent practical, in these construction areas.

Construction activities, equipment, and material stockpiles may compact near-surface native soils or leave soils less suitable for agriculture or habitat. Initial reclamation tasks will include removal of all construction equipment and materials, demolition and removal of concrete slabs from temporary material storage areas, removal of temporary stockpiles/embankments, removal of temporary haul routes, and grading and leveling of the site to generally meet adjacent lands.

Initial soil treatments will depend on the actual disturbance, but for soils with more than minimal impact, the work will include ripping the soil and incorporating amendments (e.g., gypsum) to reduce compaction. This will be followed by spreading topsoil, cross disking, and fine grading/leveling to prepare the soil surface for future use. If the land transition will not occur prior to the winter rainy season, the areas will be drill seeded to provide erosion and dust control using a grass seed mix appropriate for the desired end use. Areas to be reclaimed to grassland will be seeded with native grass and flowering forb mix, whereas areas to be reclaimed to agricultural use will be seeded with an erosion control native seed mix.

Areas excavated to create borrow soil materials will be refilled to existing grade with soil or RTM from existing stockpiles at the end of construction. Treatments for reclamation using RTM base soil will be similar to those recommended for reclamation with native soils; however, additional treatments may be required to address soil conditions (for example, high or low pH). Lime and soil sulfur may be appropriate amendments for addressing soil pH; however, the actual amendments used will be based on soil tests performed at each of the sites postconstruction. Decisions on amendments to address nutrient deficiencies will be made in consultation with the end user. Topsoil will be spread to a depth of one foot over the RTM base soil. For agricultural uses, the top one foot of soil is typically most important and is where fertilizer application will be focused to address the specific needs of the crop.

Permanent RTM stockpiles will remain at the tunnel launch sites. These stockpiles will be elevated above the surrounding grades and will be planted with native grasses primarily for erosion control and to blend with the surrounding area when the stockpile is not being accessed for a soil material source. Treatments for permanent RTM stockpiles will include spreading topsoil, cross disking, and planting native grasses.

3. North Delta Intakes

The Project will include construction of two new intakes on the Sacramento River in the north Delta. The two north Delta intakes located on the east bank of the Sacramento River will divert water and convey it through a single main tunnel. Intake B is located north of Hood, and Intake C is located between Hood and Courtland.

At each north Delta intake, water will flow through cylindrical tee fish screens mounted on the intake structure to a sedimentation basin before reaching the intake outlet (tunnel inlet) shaft at each site (Attachment 1, Figure 2). The intake outlet shaft will serve as the TBM reception or maintenance shaft during construction and as the intake outlet shaft and maintenance access during operation. These shafts will have an inside diameter of 83 feet. From the intake outlet shaft, water will flow into a single-bore main tunnel that connects the north Delta intakes to the Twin Cities Complex, from which the tunnel route will extend south.

The north Delta intakes will include cylindrical tee fish screens, intake structures, sedimentation basins, sediment drying lagoons, flow control structures, intake outlet channel, and intake outlet shaft, embankments, and other appurtenant structures (Table 1). Intakes will also include associated facilities to support construction and operations of the intakes. These facilities are all located within the construction footprint as depicted in GIS files provided as part of the ITP Application and include fuel storage tanks with containment, access/haul roads, security fencing, office and vehicle storage, electrical substation, helicopter pad, drop gate logs, interim relocation and final location of State Route 160 and the jurisdictional levee, debris fender and log boom, flow meters, power facilities, and SCADA facilities. During construction, the intake footprints will contain areas for standby engine generators, staging and management of construction equipment and materials, and ground improvement and slurry cutoff wall material preparation areas. Standby engine generators will be permanently installed at the intakes. A debris fender and log boom will be provided at each intake to help protect the fish screens from damage by floating and near surface debris.

Construction access to the intake sites will be from new access/haul roads. The new intake haul road will be constructed from Lambert Road to Intake C and then continue from Intake C to Intake B. The new intake haul road will be located along the ground surface immediately to the west of the embankment constructed by the currently unused railroad and to the east of the intake sites to avoid construction traffic on State Route 160. The construction area for the new intake haul road will be approximately 60 acres and includes the construction of underground power adjacent to the intake haul road. These features are included in the overall project construction footprint.

Table 1. Summary of Intake Characteristics (Table 3.2-1 from ITP Application)

Feature*	**Intake B**	**Intake C**
Maximum physical capacity (cubic feet per second).	3,000	3,000
Total size of construction site (maximum), does not include haul road	242 acres	239 acres
Total size of postconstruction site (maximum), does not include haul road	123 acres	109 acres
Intake structure length	1,574 feet along river including training walls 964 feet along river for concrete structure only	1,528 feet along river including training walls 964 feet along river for concrete structure only
Cylindrical tee screen assembly	30 fish screen units	30 fish screen units
Area of cylindrical tee screen (including fish screen and manifold assembly and	Each unit: 8 feet in diameter and 30 feet long	Each unit: 8 feet in diameter and 30 feet long

Feature*	Intake B	Intake C
mounted on the face of the structure)		
Gantry Crane on top of Intake Structure	35 feet wide with a top elevation of 69 feet (40 feet above intake structure)	35 feet wide with a top elevation of 69 feet (40 feet above intake structure)
Discharge pipes from the intake structure to the outlet structures in the sedimentation basins	30 discharge pipes 60-inch diameter and approximately 255 feet long (including the gate box)	30 discharge pipes 60-inch diameter and approximately 260 feet long (including the gate box)
Sedimentation basin dimensions (basin would be divided into two cells by a turbidity curtain)	Each cell: 1,300 feet long and 650 feet wide at the top of the embankment; Each cell: 990 feet long and 500 feet wide at the bottom of the embankment; Water surface elevation would vary from about 3 to 27 feet	Each cell: 1,300 feet long and 645 feet wide at the top of the embankment; Each cell: 990 feet long and 495 feet wide at the bottom of the embankment; Water surface elevation would vary from about 3 to 26 feet
Sediment basin radial gate flow control structure at the junction with the outlet structure and intake outlet shaft	Four large radial gates: 30 feet wide and 40 feet tall, each; One small radial gate: 15 feet wide and 8 feet tall; Top elevation of flow control structure: 30.3 feet; Bottom elevation of flow control structure: - 8.8 feet	Four large radial gates: 30 feet wide and 40 feet tall, each; One small radial gate: 15 feet wide and 8 feet tall; Top elevation of flow control structure: 29.3 feet; Bottom elevation of flow control structure: - 9 feet
Sediment drying lagoons dimensions (four sediment drying lagoons at each intake)	Each approximately 146 feet wide and 350 feet long at the bottom of the embankment; Each approximately 15 to 18 feet deep, containing an average of 10 to 12 feet of water when in use	Each approximately 146 feet wide and 350 feet long at the bottom of the embankment; Each approximately 15 to 18 feet deep, containing an average of 10 to 12 feet of water when in use
Sediment drying lagoons outlet structure (to convey water from the lagoons to a pump to return any water to the sediment basin)	Each lagoon outlet structure: approximately 15 feet wide by 15 feet tall; Top elevation measured at the top of lagoon embankment. Bottom elevation 20 to 25 feet below top elevation	Each lagoon outlet structure = approximately 15 feet wide by 15 feet tall; Top elevation measured at the top of lagoon embankment. Bottom elevation 20 to 25 feet below top elevation

Feature*	Intake B	Intake C
Intake outlet channel from flow control structure to intake outlet shaft	Bottom and inside of embankment: 750 feet long and 146 feet wide	Bottom and inside of embankment: 750 feet long and 146 feet wide
Length of temporary State Route 160 levee	4,250 feet along the centerline	4,200 feet along the centerline
Length of permanent levee	7,600 feet along the centerline	6,200 feet along the centerline
Top elevation of permanent levee	30.3 feet (20 to 23 feet above toe of temporary levee fill)	29.3 feet (20 to 23 feet above toe of temporary levee fill)
Ground improvement under the levees and facilities embankments	Approximately 1.5 to 2.0 million cubic yards of DMM wall sections and approximately 250,000 to 350,000 tons of cement	Approximately 1.5 to 2.0 million cubic yards of DMM wall sections and approximately 250,000 to 350,000 tons of cement
Cofferdam	Length: 2,942 feet (including sheet piles and DMM wall); Elevation at the top of cofferdam: approximately 20 feet	Length: 2,897 feet (including sheet piles and DMM wall); Elevation at the top of cofferdam: approximately 20 feet
Cofferdam impact pile driving duration (total hours) (vibratory pile driving hours not included)	15 hours	14 hours
Onsite electrical substations facilities footprint	Facilities contained within a 75-foot-wide by 125-foot-long enclosure with a separate safety and security fence; Smaller transformers less than 10 feet wide by 10 feet long will be positioned at several locations around the site	Facilities contained within a 75-foot-wide by 125-foot-long enclosure with a separate safety and security fence; Smaller transformers less than 10 feet wide by 10 feet long will be positioned at several locations around the site
Standby engine generator/fuel tank—during construction and operation phases	1 megawatt standby engine generator with a 1528 horsepower engine, installed inside a fenced area of about 30 feet by 30 feet at each electrical building, including both the generator and the fuel tank	1 megawatt standby engine generator with a 1528 horsepower engine, installed inside a fenced area of about 30 feet by 30 feet at each electrical building, including both the generator and the fuel tank

Feature*	Intake B	Intake C
Log Boom	A log boom will consist of a series of 18- to 24-inch diameter pipe piles to guide its position. It will be installed immediately in front of the entire length of fish screens along the face of the structure. On the upstream end, the log boom will tie into and extend off the end of the debris fender. 32 log boom piles will be installed during the last in-river work window during the construction phase.	A log boom will consist of a series of 18- to 24-inch diameter pipe piles to guide its position. It will be installed immediately in front of the entire length of fish screens along the face of the structure. On the upstream end, the log boom will tie into and extend off the end of the debris fender. 32 log boom piles will be installed during the last in-river work window during the construction phase.
Appurtenant structures dimensions—during construction phase	Office trailers, showers/ washrooms, canteen and common area, and bus shelter: these structures will be 100 feet wide by 50 feet long and 15 feet tall or less (one story); other buildings for warehousing for materials and temporary work enclosures will be less than 20 feet tall	Office trailers, showers/ washrooms, canteen and common area, and bus shelter: these structures will be 100 feet wide by 50 feet long and 15-feet tall or less (one story); other buildings for warehousing for materials and temporary work enclosures will be less than 20 feet tall
Appurtenant structures dimensions—during operations phase	One of the construction buildings (maximum 100 feet wide by 50 feet long and 15 feet tall) will be converted for indoor storage of portable equipment and vehicles used for maintenance of all intakes	One of the construction buildings (maximum 100 feet wide by 50 feet long and 15 feet tall) will be converted for indoor storage of portable equipment and vehicles used for maintenance of all intakes
Land reclamation	Approximately 119 acres	Approximately 130 acres

*All values utilize the North American Vertical Datum of 1988 [NAVD88].

3.1 Cylindrical Tee Fish Screens.

The intake cylindrical tee fish screens are part of an overall intake facility that includes the screen units and an integrated screen cleaning system, piping, and flow control features. The “tee-shaped”

screen units will consist of two fish screen cylinders installed on either side of a center manifold that will be connected to the facility's intake opening. Each intake fish screen will extend about 12 feet from the vertical face of the north Delta intake structure into the river. During diversion operations, water will flow from the Sacramento River through the fish screens and a 60-inch diameter pipe and discharge into the sedimentation basins. Control gates will regulate the flow through each screen unit to the sedimentation basin.

Installing the intake facility will require construction of a temporary cofferdam for in-river portions of intake construction to divert water and aquatic organisms around the work site and create a dry work area. Portions of the cofferdam will consist of interlocking steel sheet piles installed using a combination of vibratory and impact pile driving. Each intake sheet pile construction period will be staggered by about one year.

3.2 Sedimentation Basins and Drying Lagoons.

Diverted water will contain sediment suspended in the river water, a portion of which will be collected in a sedimentation basin. Each north Delta intake will have one sedimentation basin divided into two cells by a turbidity curtain. Water will flow from the north Delta intake through the sedimentation basin and through a flow control structure with radial gates into the outlet channel and shaft structure that will be connected to the tunnel system. The screen and intake design will allow sufficient flow velocities in diversion pipes to sweep sediment into the sedimentation basin and prevent it from settling in the piping system. Once the diverted water enters the sedimentation basins, larger sand and silt sediment particles will settle while smaller silt and clay particles will be carried into the tunnel. A flow control structure with four large radial gates and one smaller gate will control the water level in the sedimentation basin and discharge flow into the intake outlet channel and outlet shaft. Tunnel and aqueduct velocity will be sufficient to transport these smaller particles to the Bethany Reservoir.

Each intake will have four concrete-lined sediment drying lagoons, each approximately 8 to 15 feet deep, containing an average of 10 to 12 feet of water within its embankments when in use. Once a year, during the summer months, the sedimentation basin will be dredged, one half at a time, and sediment slurry discharged to drying lagoons, dewatered, and allowed to dry naturally. The sediment is anticipated to be composed of large silt and sand particles with minimal organic material. During dredging operations, sediment is expected to accumulate to a depth of about one foot distributed over the floor of the drying lagoons. Water drained from the sediment drying lagoon outlet structures and underdrains will be pumped back into the sedimentation basin. The remaining sediment will be dried for two to six days, which will reduce the sediment moisture content to a point at which the sediment can be removed and transported without creating dust. If sediment is dried to a level that creates dust, the dust will be controlled by application of water from on-site supplies. The dried sediment will be removed by truck for disposal at a permitted disposal site or potentially used

for beneficial uses off-site. Any beneficial re-use of sediment off-site is speculative at this time and will need to be permitted separately.

The fill and drain/dry sequence will take seven to eight days, which will approximately match the dredged material filling rate so continuous operation of the sediment disposal process will be possible from the intakes. Each drying lagoon will be filled up to three times each year. The filling process will be part of the overall sediment removal and disposal process which will be conducted once per year. During the filling period, it will take about two days to move sediment from the sedimentation basin to each sediment drying lagoon, about two days to remove most of the water back to the sedimentation basin, and about three to four days to dry and remove sediment from the basin for a total duration of seven to eight days. Up to about 1,800 to 2,100 cubic yards of sediment will be removed from each lagoon each time this cycle occurs. The volume of sediment collected will depend upon the volume and flow rate of water diverted at the intake.

3.3 Temporary and Permanent Flood Control Levees and State Route 160.
Constructing the intakes along the riverbank will require relocating the federal jurisdictional levee (under U.S. Army Corps of Engineers [USACE] jurisdiction) and State Route (SR) 160 prior to building the north Delta intake structure and fish screens. The federal ("jurisdictional" or "project") levee was constructed as part of the Sacramento River Flood Control Project Levee program established by the USACE to provide flood management for surrounding lands. Altering a jurisdictional levee requires approval by USACE and the Central Valley Flood Protection Board (CVFPB) prior to undertaking any modifications and requires that conformance with flood control criteria be maintained continuously during construction of any modifications. A temporary jurisdictional levee will be built at the north Delta intake sites east of the existing levee to reroute SR 160 and maintain continuous flood protection during construction of the new north Delta intake facilities.

SR 160 is a State and County Scenic Highway that runs on top of the existing jurisdictional levee. The California Department of Transportation (Caltrans) is responsible for the state highway. The Permittee will collaborate with Caltrans to ensure the temporary relocation and subsequent permanent realignment of SR 160 at the intakes conform to all Caltrans highway design, construction, and safety standards.

The temporary jurisdictional levee will also facilitate construction sequencing of the permanent jurisdictional levee around the perimeter of each intake shaft and sedimentation basin. The level of flood control afforded by the existing levee will not be affected by the intake construction.

Between the temporary jurisdictional levee and the Sacramento River, a cofferdam will be constructed along the river side of the new temporary levee, approximately adjacent to the existing SR 160 to provide a dry workspace for construction of each north Delta intake. Following construction of the north Delta intake structures and the permanent levee system on the land side of the

temporary levee, the area to the east of the north Delta intake structures will be backfilled and SR 160 will be relocated on top of the backfill approximately parallel to the Sacramento River. The intake structures and the temporary and permanent levees, including the sedimentation basins, radial gate structures, and intake outlet channel embankments will be designed to protect the sites and surrounding areas from the 200-year flood event with climate change hydrology and sea level rise in the Sacramento River as defined in the *Memorandum: Preliminary Flood Water Surface Elevations*.[4] The final configuration of the levee embankment around the intake outlet channel and shaft will protect the channel and shaft opening from the 200-year peak flood elevations plus extreme sea level rise assumed for the year 2100 and three feet of freeboard during operations (Table 2).

Table 2. Water Surface and Flood Protection Levee Elevations* (Table 3.2-2 in ITP Application)

Intake	**River Mile**	**200- Year Max WSE +Climate Change + Sea Level Rise (feet)**	**Top of Levee (feet)**
B	39.4	27.3	30.3
C	36.8	26.3	29.3

Max = maximum; WSE = water surface elevation.
* North American Vertical Datum of 1988 [NAVD88].

3.4 On-Site Roads at the North Delta Intakes.

Permanent paved roads and gravel-surfaced roads and work areas will be constructed at intakes for use during construction and later operations. At Intake B, approximately 8,900 feet of 20-footwide paved permanent roads will be installed on the north Delta intake site toward the end of construction. Several 24-foot-wide paved internal roads will be constructed around the base of the intake outlet shaft area, along the top of the embankments, and on ramps up the side of the embankments. About 6,500 feet of 20-foot-wide gravel roads with chip seal will be constructed around the sediment drying lagoons, along the length of the sedimentation basin parallel to SR 160, and to provide access along the sediment loading areas. All construction access and the primary maintenance access to the intake site will be from the intake access road.

Intake C will have approximately 6,500 feet of 20-foot-wide gravel roads with chip seal around the same facilities as at Intake B. About 8,300 feet of paved permanent roads will be installed at Intake C during the last summer season of work, along with 24-foot-wide paved internal access roads around the base of the intake outlet shaft area, along the top of the embankments, and on ramps up the side

[4] California Department of Water Resources (2020). Memorandum: Preliminary flood water surface elevations (not for construction). California Natural Resources Agency, California Department of Water Resources, Delta Conveyance Office, Sacramento, CA. September 30, 2020.

of the embankments. All construction access and the primary maintenance access to the intake site will be from the intake access road.

4. Tunnels

The tunnel from the north Delta intakes to the Bethany Complex will have an inside diameter of 36 feet and outside diameter of about 39 feet and extend about 45 miles from the north Delta intakes to the surge basin at the Bethany Reservoir Pumping Plant. The bottom elevations of the tunnel from the north Delta intakes to the tunnel reception shaft at the Bethany Complex Surge Basin will range from -140 feet to -164 feet (North American Vertical Datum of 1988 [NAVD88]).

4.1 Tunnel Shafts.

Tunnel Boring Machines (TBMs) will be used to bore the tunnels. Tunnel shafts to launch, remove, and/or maintain the TBMs will be constructed at the north Delta intakes, along the alignment, and at the Bethany Complex. The TBM will be lowered into a launch shaft and bore horizontally toward a reception shaft. Maintenance shafts will be located approximately every four to six miles between launch and reception shafts to provide access for TBM maintenance, repair, access or evacuation, and logistical support in a free-air (not pressurized) environment. The northernmost intake shaft will serve as a reception shaft during construction. During operations, shafts at the north Delta intakes will serve as intake outlet shafts to convey water into the tunnel system as well as for maintenance access to the tunnel. Reception shafts will be used to remove the TBM from the tunnel at the end of each drive. All tunnel shafts will be maintained during operations to provide access, as needed. Most shafts will require construction of a shaft pad. Tunnel shaft pads will be constructed above the ground surface to an elevation approximately equal to the adjacent levee system on the island or tract. The height of the shaft pad will be sufficient to protect the tunnel and construction personnel from localized flooding but lower than the top of the shaft postconstruction to reduce the need for imported fill.

4.1.1 Tunnel Launch Shafts. Tunnel launch shafts will generally have a finished inside diameter ranging from 110 to 120 feet and 8-foot-thick walls. Tunnel launch shaft sites will include a shaft pad for the tunnel launch shaft with adjacent areas for equipment to excavate and support the shaft, cranes, and appurtenant items to move equipment into and out of the tunnel shaft, equipment holding areas, and areas to receive and manage the excavated RTM. Tunnel launch shaft sites will also include areas for tunnel liner segment storage, aggregate storage, slurry/grout mixing plants, electrical substation and electrical building, workshops and offices, water treatment tanks, access roads, and RTM handling, drying, and storage areas. Construction activities at the launch shafts will continue for up to 13 years.

4.1.2 Double Launch Shaft at Twin Cities Complex. The Project will include the double launch shaft at the Twin Cities Complex. The double launch shaft will be constructed in a figure eight configuration with each launch shaft having an inside diameter of 115 feet to allow TBMs to

excavate in both north and south directions. This double launch shaft will be part of a larger complex that houses other construction components to facilitate tunnel excavation at this site. The Twin Cities Complex will be located off Twin Cities Road approximately 0.5 miles northeast of the interchange with Interstate (I-) 5. Its northern boundary would fall between Dierssen and Lambert Roads, its eastern boundary along Franklin Boulevard, its western boundary offset from the I-5 embankment, and a majority of the southern boundary at Twin Cities Road. During construction, the Twin Cities Complex will occupy 586 acres. The permanent Twin Cities Complex will be 222 acres. The Twin Cities Complex construction site will be surrounded by a ring levee, with height varying from about 3.5 feet to 11.5 feet, designed to protect the facilities from the 100-year flood event with the Delta-specific Public Law 84-99 equivalent standards (i.e., 1.5 feet of freeboard above the 100-year Federal Emergency Management Agency flood elevation with 2:1 [horizontal to vertical; H:V] exterior slopes and 3H:1V interior slopes).

The Twin Cities Complex during construction will contain the double launch shaft, tunnel segment storage, a grout plant, shops and offices for construction crews, parking, material laydown and erection areas, access roads, RTM conveyor and handling facilities, a water treatment plant, emergency response facilities, and a helipad. Tunnel segments, TBM machinery, and other equipment will be delivered to the Twin Cities Complex by road. Excavated soil and RTM from the Twin Cities Complex will be used for constructing the on-site ring levee and tunnel shaft pad at the Twin Cities Complex and for constructing shaft pads on New Hope Tract, Canal Ranch Tract, Terminous Tract, and King Island. No ground improvement will occur for construction at the Twin Cities Complex because underlying soils have low compressibility and are not anticipated to be subject to liquefaction. Any long-term RTM storage stockpile will be planted with erosion-control seed mix to stabilize the stockpile and avoid dust generation.

4.1.3 Double Launch Shaft at Lower Roberts Island. The Project includes the double launch shaft at Lower Roberts Island. The double launch shaft will be constructed in a figure eight configuration with an inside diameter of 115 feet to allow TBMs to excavate in both north and south directions. Unlike the double launch shaft at Twin Cities Complex, the Lower Roberts double launch shaft will not be part of a larger complex. The double launch shaft at Lower Roberts Island will be located off SR 4 approximately 1.8 miles northeast of the interchange with I-5. It will make use of the existing levee roads and need new road developments. During construction, the double launch shaft at Lower Roberts Island will occupy 610 acres. The permanent site size will be 300 acres. Repairs and improvements are planned for portions of existing Lower Roberts Island levees to address areas that have insufficient freeboard and/or slopes that do not comply with PL84-99 Delta-Specific levee design standard (considered by the Federal Emergency Management Agency) and historical levee performance conditions that indicate potential existing vulnerabilities in the levee or foundation. Modifications to existing levees will occur along the Turner Cut eastern levee adjacent to West Neugerbauer Road. All of the modifications will occur on the land-side of the levees and an access road will be constructed

along the landside toe of the existing levee at current grade level. The levee improvements will remain following construction.

Ground improvement will occur for construction at the double launch shaft at Lower Roberts Island because underlying soils have high compressibility and are anticipated to be subject to liquefaction. Any long-term RTM storage stockpile will be planted with erosion-control seed mix to stabilize the stockpile and avoid dust generation.

4.1.4 Reception and Maintenance Shafts. Reception and maintenance shafts will have finished inside diameters of 70 feet except at the intakes where the inside diameter will be 83 feet. Tunnel reception and maintenance shaft sites will include areas for the tunnel shaft with adjacent areas for equipment to excavate the shaft, and cranes and appurtenant items to move equipment into and out of the tunnel shaft. Reception shaft sites will be larger than maintenance shaft sites because of the area needed to disassemble the TBM equipment prior to removal from the construction site. Construction activities at the maintenance and reception shaft sites will continue for approximately two years, and for another six to 12 months to allow TBM maintenance when the tunnel is constructed through the shaft. Reception and maintenance shaft sites will not require areas for storing tunnel liner segments or RTM handling. Shafts will have ready-mix concrete hauled in. These shafts will be powered by new power lines extending from existing, local distribution networks, and will not need an electrical substation.

4.1.5 Tunnel Shaft Maintenance. Tunnel shafts will be used for tunnel access postconstruction for inspections, repair, and maintenance activities. The maintenance work may range from maintaining the TBM, cleaning out the tunnel invert with a loader or possibly patching or repairing the tunnel lining. Areas to perform inspection and maintenance activities will be provided immediately adjacent to and on top of the shaft pads at each shaft location. Inspection and maintenance activities will comply with the confined space regulations in accordance with Occupational Safety and Health Administration requirements. There will be daily inspection and security checks at shaft sites. Ground maintenance will occur twice a year. All vegetation maintenance will be consistent with Condition of Approval 11.18. Repaving tunnel shafts will occur every 15 years.

4.2 Reusable Tunnel Material.

RTM will be generated at launch shafts as the TBMs bore the tunnel. RTM is the soil removed by the TBM boring the tunnel, mixed with conditioners, and lifted to the ground surface through the launch shaft. After RTM is removed from the tunnel, it will be tested for hazardous materials, managed on-site to dry naturally, then stockpiled and transported for reuse or permanently stored. RTM removed from the tunnel through the launch shafts will be transported by conveyor to handling and storage facilities near launch shaft sites. RTM excavation, testing, drying, and movement from the tunnel launch shaft sites during tunneling operations will occur year-round, 20 hours per day Monday

through Friday and 10 hours on Saturdays, allowing time for equipment maintenance. RTM movement from temporary storage to dry stockpile areas will occur five days per week from sunrise to sunset. Permanent RTM stockpiles will be elevated above the surrounding grades, covered with excavated topsoil, and planted with native seed mixes primarily for erosion control. Treatments for permanent RTM stockpiles will include spreading topsoil, cross disking, and planting native grasses. The planted vegetation will be managed as needed for wildfire prevention consistent with Condition of Approval 11.18.

4.2.1 Disposal of Reusable Tunnel Material. Excavated RTM will be placed in temporary wet stockpile areas and tested (up to twice a day) in accordance with the requirements of the Central Valley Regional Water Quality Control Board (CVRWQCB) and the Department of Toxic Substances Control for the presence of hazardous materials at concentrations above their regulatory threshold criteria. The contractor(s) will conduct chemical characterization of RTM and associated decant liquid prior to reuse or discharge, respectively, to determine whether it will meet requirements of the National Pollutant Discharge Elimination System and the CVRWQCB. All decant liquid will be collected and treated for direct on-site reuse or on-site storage to reduce water supply needs. While additives used to facilitate tunneling will be nontoxic and biodegradable, it is possible that some quantity of RTM will be deemed unsuitable for reuse and will be disposed of at a site approved for disposal of such material. This is expected to apply to approximately 1% to 5% of the total volume of excavated material.

As the TBM proceeds, several stockpiles will be developed to allow for testing. Each stockpile will be sized to accommodate up to one week of RTM production (about 1.5 acres each) and will be lined with impermeable lining material. Additional features of the long-term material storage areas will include berms and erosion protection measures to contain storm runoff as necessary and provisions for truck traffic during construction.

RTM will require drying for long-term stockpiling and storage. Natural drying (evaporation) will be utilized as the drying method. The dried RTM will be piled and moved by bulldozers and motor scrapers, and then deposited in the dry stockpile areas near the tunnel launch shaft sites. RTM permanently stored at launch sites will be graded and planted with erosion-control seed mix to avoid the need for future handling and dust generation. For natural drying, wet RTM will be spread over a broad area in relatively thin lifts (e.g., 18 inches) and allowed to dry and drain naturally over a period of up to one year. If portions of the RTM are identified as hazardous, that material will be transported in trucks licensed to handle hazardous materials to a disposal location licensed to receive those constituents. If the RTM is determined to be non-hazardous, the material will be moved by conveyor to a long-term on-site storage site.

A portion of the dried RTM generated at the Twin Cities Complex and Lower Roberts Island will be used to refill the areas excavated at the launch site to construct tunnel shaft pads, ring levee at

Twin Cities Complex, and levee modifications at Lower Roberts Island. The remaining dried RTM will be moved to a single on-site long-term storage area at each launch shaft work area and planted with erosion-control seed mix to stabilize the stockpile and avoid dust generation.

5. Bethany Complex

The Bethany Complex will be constructed southeast of CCF. The Bethany Reservoir Pumping Plant and Surge Basin will be located along Mountain House Road approximately 0.5 miles south of the intersection with Byron Highway. The Bethany Reservoir Aqueduct will extend approximately 2.8 miles from the pumping plant to a new discharge structure on the banks of the Bethany Reservoir. These facilities are described in the following sections and in Table 3. The Bethany Complex will be located on ground above the flood elevations for the 200-year flood event with sea level rise and climate change hydrology for year 2100, as defined by the Permittee. Vegetation management within Bethany Complex will occur twice a year. All vegetation maintenance will be consistent with Condition of Approval 11.18. Non-public paved roads within the Bethany Complex will be repaved periodically as needed, but no more than once a year.

Table 3. Description of Bethany Complex facilities. (Table 3.2-8 in the ITP Application)

Feature	Item	Quantities
Bethany Reservoir Pumping Plant and Surge Basin	Total size of construction site (approximately)	213 acres
	Total size of postconstruction site (approximately)	184 acres
	Land reclamation (approximately)	29 acres
	Pumping plant pad site	1,166 feet wide x 1,260 feet long
	Surge basin site	Surge basin size: 815 feet wide x 815 feet long; Overflow shaft diameter: 120 feet; Overflow weir wall diameter: 180 feet; Six 5 feet x 5 feet vertical sluice gates within the perimeter of the overflow weir will allow stored water from a surge event to drain into the overflow shaft
	Diaphragm walls	Pumping plant: Approximately 6 feet wide x 252 feet deep x 1,438 feet long; 5-feet wide x 100-feet deep x 1,750 feet long; and 5 feet wide x 252 feet deep x 630 feet long;

Feature	Item	Quantities
		Wet well inlet conduit: Approximately 6 foot wide x 252 feet deep x 800 feet long; and 5 foot wide x 100 feet deep x 160 feet long columns below foundation; Surge basin: Approximately 3 feet wide x 137 feet deep x 3,260 feet long with two levels of tiebacks
	Foundational Piles	Pumping plant: Approximately 53 drilled piers installed 50 feet deep below the pump discharge isolation gate valve gallery; Surge Basin: Approximately 2,530 drilled piers installed 60 feet deep below the surge basin base slab
	Pumping Plant Structure	Area of Structure: 412 feet wide x 503 feet long; Top of slab of wet well, wet well inlet conduit and pumping plant dry pit pump bays: 47 feet; Top of canopy structures on the north end of each pumping plant dry pit above pad: 74.5 feet
	Pumps	Pumping plant: 14 pumps at 500 cfs each, includes two standby pumps; Surge basin: 4 rail-mounted pumps at 100 cfs each, for dewatering surge basin 2 vertical submersible pumps at 60 cfs each, for dewatering main tunnel
	Surge tanks for aqueduct to Bethany Reservoir Discharge Structure	Area of tank: 75-foot diameter x 20 feet high; Total number of tanks: 4
	Bethany Reservoir Surge Basin Tunnel Reception Shaft	Shaft depth during construction: 209 feet (depth from existing ground surface prior to excavation or fill); Shaft depth during operations: 199 feet

Feature	Item	Quantities
	Concrete batch plants	2 batch plants in an area approximately 11.5 acres in size
Bethany Reservoir Aqueduct	Total size of construction site (approximately)	128 acres
	Total size of postconstruction site (approximately)	68 acres
	Land reclamation (approximately)	60 acres
	Aqueduct trench (excludes tunneled portions of aqueduct)	Aqueduct trench from the Bethany Reservoir Pumping Plant to the tunnel under Jones Penstock: 7,900 feet long; Aqueduct trench from the tunnel under Jones Penstock to the tunnel under the Bethany Reservoir Conservation Easement: 3,700 feet long; note that the tunnel underneath the Conservation Easement begins approximately 2,000 feet northeast of the Conservation Easement boundary. Each aqueduct trench approximately 115 feet wide at the bottom, to accommodate 4 pipes 180-inches in diameter and 30 feet on center; A 24-foot-wide permanent gravel-surfaced patrol road placed on the completed fill in the center of the aqueduct
	Tunneled portions of aqueduct	Tunnel under Jones Penstock: Four parallel tunnels (one per pipeline) 200 feet long with 20-foot diameter, separated by 40 feet between the center of each tunnel; Tunnel under Bethany Reservoir Conservation Easement: Four parallel tunnels (one per pipeline) 3,064 feet long with 20-foot diameter, separated by 40 feet between the center of each tunnel at the entrance portal end to about 80 feet at the shaft end

Feature	Item	Quantities
	CLSM processing area	2 batch plants, each 100 feet wide x 100 feet long x 50–75 feet high.
Bethany Reservoir Discharge Structure	Total size of construction site (approximately)	15 acres
	Total size of postconstruction site (approximately)	13 acres
	Land reclamation (approximately)	None anticipated
	Tunnel shaft connection to the Bethany Reservoir Discharge Structure	Each of the four tunnels would extend upward vertically through shafts to discharge water into the Bethany Reservoir Discharge Structure; No tunnel shafts between the tunnel portal and the discharge structure shafts (within the Bethany Reservoir Conservation Easement)
	Discharge structure channels	Four channels extending from the vertical shaft to the bank of the Bethany Reservoir, ranging in width from 80 feet at the vertical shaft to approximately 40 feet at the bank of the Bethany Reservoir

CLSM = controlled low strength backfill material

5.1 Bethany Reservoir Pumping Plant.

The Bethany Reservoir Pumping Plant will lift the water from the tunnel to Bethany Reservoir. The main tunnel from the intakes will terminate at a reception shaft within the surge basin on the north side of the Bethany Reservoir Pumping Plant. Water will enter the Bethany Reservoir Pumping Plant wet well via a box conduit connected to the tunnel reception shaft and be conveyed directly to Bethany Reservoir in a cement-mortar-lined, welded steel aqueduct system.

The Bethany Reservoir Pumping Plant will be a multilevel underground structure with its roof at grade. Flow capacity will range from a minimum of 300 cfs to a maximum of 6,000 cfs. Twelve 500-cfs pumps and two standby pumps combined would achieve the maximum flow of 6,000 cfs. In addition to the below-ground pumping plant and wet well, the site will include aboveground water storage tanks for hydraulic transient-surge protection of the discharge pipelines, electrical building with variable speed drives and switchgear, heating and air conditioning mechanical equipment yard, transformer yard, electrical substation adjacent to the electrical building, standby engine generator building with an isolated and fully contained fuel tank, equipment storage building with drive-through access, offices, welding shop, machine shop, storage area for spare aqueduct pipe sections

and accessories, and a walled enclosure/storage facility for bulkhead panel gates that will be used to isolate portions of the Bethany Reservoir Pumping Plant during maintenance procedures. The pumping plant will include two separate dry-pit pump bays adjacent to the wet well.

Electrical, generator, and maintenance buildings, an electrical substation, surge tanks, and protective canopies on the site will be aboveground structures. The finished site pad elevation of 46.5 feet above mean sea level, at about existing grade, will be above the elevation required to protect the facilities from surge events and the 200-year flood event including sea level rise in 2100, calculated to be a water surface elevation of 27.3 feet within the surge basin.

5.2 Bethany Reservoir Surge Basin.

The surge basin will be empty when the Bethany Reservoir Pumping Plant is in operation. The top of the surge basin will be at existing grade and the bottom will be about 35 feet below the ground surface. The tunnel shaft within the surge basin will accommodate portable submersible pumps for dewatering the tunnel, if necessary. The top of the tunnel shaft will be at the floor of the surge basin and will be surrounded by an overflow weir wall inside the basin. The natural ground elevation in this area varies from 38 to 40 feet above mean sea level. The 100-year flood event water surface elevation, including the effects of sea level rise and climate change, is approximately 10.3 feet. The flood event elevation was analyzed by the Permittee and determined to be above the potential flood stage. Therefore, Permittee will not construct a shaft pad at the surge basin reception shaft.

Under rare circumstances, potential transient-surge conditions could occur in the main tunnel between the intakes and Bethany Reservoir Pumping Plant or in the Bethany Reservoir Aqueduct. Along the main tunnel, the transient surge could occur if there was a simultaneous shutdown of the main raw water pumps in the pumping plant. The surge flows will discharge into the surge basin through the tunnel reception shaft. The circular weir wall around the top of the tunnel reception shaft will allow the overflows to enter the surge basin but prevent water that enters the surge basin from reentering the main tunnel unless Permittee operators open gates to allow the water to flow back in. The surge basin will also have pumps to remove the water more rapidly than gravity flow into the pumping plant to facilitate restarting the pumping plant after a surge event.

Transient-surge conditions in the Bethany Reservoir Aqueduct pipeline may also occur if there is a simultaneous shutdown of the Bethany Reservoir Pumping Plant pumps. Under this transient-surge scenario, water will flow from surge tanks located at the Bethany Reservoir Pumping Plant into the aqueduct pipelines and excess surge flows will be conveyed into Bethany Reservoir.

5.3 Bethany Reservoir Aqueduct.

The aqueduct system will consist of four 15-foot-diameter parallel pipelines that convey water from the Bethany Reservoir Pumping Plant to the Bethany Reservoir Discharge Structure, a distance of approximately 2.8 miles each. Each pipeline will have a maximum capacity of 1,500 cfs. The aqueduct

system's permanent footprint will be about 200 feet wide. Two separate aqueduct reaches will require parallel tunnels to carry each pipeline under existing features. The first reach will be under the Jones Pumping Plant discharge pipelines (about halfway from the Bethany Reservoir Pumping Plant to the discharge structure); at this location pipelines will run about 50 feet below ground surface for about 200 feet. Tunnels will also be needed under the existing Bethany Reservoir Conservation Easement adjacent to Bethany Reservoir (at the last downstream reach of the aqueduct; Attachment 1, Figure 3) for about 3,064 feet, ranging from 45 to 180 feet below ground surface.

The aqueduct pipelines will terminate near the bottom of four 55-foot-inside-diameter below-ground vertical shafts at the Bethany Reservoir Discharge Structure. The pipelines will make a 90-degree bend upward inside the shafts, ending at the floor of the discharge structure and flowing through a concrete channel into Bethany Reservoir. Bethany Reservoir serves several purposes: a forebay for the South Bay Pumping Plant (the start of the South Bay Aqueduct of the SWP), an afterbay for Banks Pumping Plant, a conveyance facility for the California Aqueduct, and a recreational facility. The reservoir does not serve as a storage reservoir.

5.3.1 Staging Areas, Controlled Low-Strength Backfill Material Batch Plants, and Ancillary Facilities. In addition to pipelines and tunnels, the aqueduct construction site will include contractor staging areas, CLSM batch plants, and ancillary facilities. The CLSM will be used to improve the strength of soil placed under the aqueduct pipelines installed in the trenches located outside of the Bethany Reservoir Conservation Easement, and possibly to fill the space between the inside wall of the tunnel and the outside of the pipeline wall for the tunnels constructed to carry the pipelines below the Jones discharge pipelines and the Bethany Reservoir Conservation Easement adjacent to Bethany Reservoir. A CLSM processing area along the open-cut portion of the aqueduct will include two side-by-side CLSM batch plants for trench work, each 100 feet wide by 100 feet long and 50 to 75 feet tall. CLSM production will also require 2.75 acres for soil storage of up to 30,000 cubic yards of soil up to seven feet deep; two 30-foot-diameter, 10-foot-tall water storage tanks mounted on 8-foot-tall platforms and holding a total of 100,000 gallons of water; and cement storage silos 50 to 75 feet tall on a site 50 feet wide by 100 feet long.

5.3.2 Aqueduct Tunnels. The aqueduct tunnels to carry the pipelines under the Jones discharge pipelines and the Bethany Reservoir Conservation Easement will be constructed using a different tunneling method than used for the main tunnel between the intakes and the Bethany Reservoir Pumping Plant. For the Jones pipeline crossing, a digger shield outfitted with an excavator arm will be used for the anticipated ground conditions. To avoid surface and underground disturbance of sensitive habitat areas within the Bethany Reservoir Conservation Easement crossing, Permittee has selected a road header excavation method. Using a road header, soil material will be moved out of the tunnels at the entry portals. The excavation will be supported with rock reinforcement and/or steel ribs or lattice girders and shotcrete depending on the ground

conditions. Construction of the aqueduct tunnel under the Bethany Reservoir Conservation Easement will avoid surface disturbance within the conservation easement.

The portion of the aqueduct pipelines will be laid in trenches constructed by open-cut methods up to a point approximately 2,000 feet northeast of the Conservation Easement boundary; then the tunnel will continue underneath the Bethany Reservoir Conservation Easement to the Bethany Reservoir Discharge Structure. The tops of the pipes will extend above the existing ground surface and be covered by a minimum of six feet of soil that will form a single mound of earth above the four pipelines; the mound will extend approximately 45 feet on either side of the aqueduct. Excavated material from the Bethany Reservoir Aqueduct trenches and tunnels will be used for backfill of the trenches and also used to make CLSM for pipe bedding and zone material. The Bethany Reservoir Aqueduct tunneling machines (e.g., digger shield outfitted with an excavator arm and road header) will not need additives; therefore, the excavated soil will not need to undergo the extensive drying that will be required for RTM from the TBMs on the main tunnel. Materials excavated from the aqueduct tunnels that are too wet or otherwise unsuitable for CLSM of backfill will be transported to the permanent excavation stockpile located adjacent to the Bethany Reservoir Pumping Plant and dried as part of final disposal.

Tunneling under the Jones discharge pipelines will require excavation of a large cut to establish entry and exit portals. The entry portal will be located on the east side of the Jones discharge pipeline crossings. Excavation of these tunnels will end at the exit portal about 200 feet away on the west side of the Jones pipelines. Major facilities at the site will include mobile cranes, construction shops and offices, parking, material laydown and erection area, equipment staging, tunnel ventilation system housing, temporary electrical substation, and storage for topsoil stripping. Construction activities will include clearing and grubbing, water quality protection, ground improvement, and other activities as needed.

Tunneling under the Bethany Reservoir Conservation Easement will require tunnel entry portals on the east side and tunnel exit shafts on the west side of the 3,064-foot crossing. The entry portals will be located approximately 2,000 feet northeast of the Bethany Reservoir Conservation Easement and to the west of the existing high voltage power lines, outside of the Bethany Reservoir Conservation Easement boundary. Excavation of these tunnels will end at the vertical shafts located on the east side of the Bethany Reservoir Discharge Structure.

5.4 Bethany Reservoir Discharge Structure.

The Bethany Reservoir Discharge Structure on the bank of the Bethany Reservoir comprises the aqueduct conservation easement tunnel vertical exit shafts, contractor staging areas, and ancillary facilities. The discharge structure site is on a narrow strip of land between the Bethany Reservoir Conservation Easement and Bethany Reservoir; a buffer (Condition of Approval 9.16.1) will separate the disturbance area from the Bethany Reservoir Conservation Easement. Significant grading will be

required to build the structure on the site above reservoir surface water level, which varies considerably in elevation. Constructing a temporary cofferdam within the water near the shore in the reservoir will allow excavation, concrete, and backfill work to be completed on the reservoir bank within an area of dry ground excavated as much as 25 feet below the reservoir water surface.

The discharge structure will occupy 13 acres postconstruction. It will be divided into four separate channels, with a total width of approximately 327 feet encompassing the four 55-foot-wide aqueduct shafts with approximately 81.5-foot center-to-center spacing. Each channel of the discharge structure will range from about 81 feet wide at the top of the aqueduct shafts to approximately half of that width at the bank of the Bethany Reservoir. The concrete floor of the discharge structure at elevation 227 feet above mean sea level will end near the reservoir bank, and a layer of riprap will be placed between the structure and the temporary cofferdam to help stabilize and protect the bank and bed of the reservoir from the energy of the water being discharged, which is expected to be minor, given the relatively low discharge velocity. The top of the discharge structure will be approximately at the same elevation as the existing California Aqueduct Bikeway that will traverse through and over the structure.

The Bethany Reservoir Discharge Structure will cross the existing California Aqueduct Bikeway, which is also used as a maintenance road. A 32-foot-wide bridge will span the four Bethany Reservoir Discharge Structure channels to maintain access for bikes and maintenance vehicles. Each of the four channels will be divided into two 21-foot-wide bays with radial gates and stop logs to prevent backflow in an emergency and double isolate the aqueduct system from Bethany Reservoir. A 16-foot-wide service deck will be installed on the opposite (reservoir) side of the gate and stop log area to facilitate operations and maintenance of the gates and installation and removal of stop logs. The bridge will include applicable openings for stop log installation and removal through traffic-rated hatches. Similarly, stop logs will be installed in open stop log grooves adjacent to the service deck. The radial gates will automatically close under pressure loss conditions in the aqueduct pipelines to prevent water from Bethany Reservoir from flowing into the aqueduct pipelines during the unlikely event of a pipeline break or valve malfunction. Due to the critical control nature of this facility, a standby engine generator will be provided for backup power in case of a power outage. A storage yard for isolation bulkhead gates will also be included at the site.

6. Access Roads

Constructing the Project will require substantial transportation facility improvements to serve the construction and material delivery processes. Construction will require temporary relocation and realignment of SR 160 at the intakes (Attachment 1, Figure 4), and new or improved access roads to intakes, tunnel shafts, and the Bethany Complex. Pavement conditions on existing county and local roads in the Project Area are predominantly classified as marginal to unacceptable. State routes are generally in good condition although pavement condition data were not available for all State routes at the time of the Permittee's needs assessment.

Permittee will conduct preconstruction pavement and roadway analyses of access roadway segments on local and county roads to determine whether they need improving. Road improvement activities will include pavement remediation (e.g., fill potholes, asphalt cracking, and slurry seals), widening to a minimum of 12 feet, roadway design to serve construction traffic with new roads, and constructing new bridges or widening existing bridges. Where road and bridge improvements are undertaken, wider shoulders to meet bicycle lane standards will be included when necessary; design standards for each state or local entity that operates roads and bridges will be followed for all improvements on the existing respective roadways. Some Project Area bridges rated as structurally deficient or functionally obsolete are scheduled to be replaced or rehabilitated by their respective jurisdictions.

Modifications to existing roadways during Project construction will be completed in accordance with Caltrans or county criteria, depending on the owner of the roadway. Future roadway projects under consideration by local or state agencies were reviewed to potentially coordinate road improvements. Improvements to State Routes will be designed and constructed in collaboration with Caltrans. Project roadway improvements to existing State Routes, local roadways, and bridges will remain after construction.

Roads used for material hauling, construction equipment access, and employee access will consist of existing State Routes and two-lane roadways in the Delta, new gravel (with chip seal) or paved roadways constructed from existing roads to construction sites, and new roads within facility construction sites. Permittee will adhere to minimum requirements for truck routes of 12-foot-wide lanes and 4-foot-wide shoulders. Interstate, state, and local roads will also provide direct access to Project work sites. Construction access roads will remain postconstruction for maintenance access to Project facilities.

SR 160 near the north Delta intakes will be temporarily rerouted east of its existing alignment during the intake construction process and then relocated through the intake facility in the vicinity of the current SR 160 alignment. Lambert Road will be widened from Franklin Boulevard to the eastern side of the bridge over Snodgrass Slough.

A new 3.8-mile paved intake access/haul road will be constructed along the west side of the abandoned railroad embankment to a new dedicated haul road east of the intakes. Approximately 180 feet of the existing bridge over Snodgrass Slough at Hood-Franklin Road will be widened. The haul road will eliminate the need for construction traffic to travel through the main portion of the Town of Hood and on SR 160; it will not be a public road. All access for construction, plus most operations access, will use the haul road to enter the intake sites.

A new 0.3-mile access road to the shaft site on New Hope Tract maintenance shaft will be constructed from Blossom Road. To access the Terminous Tract maintenance shaft site, a new

uncontrolled interchange with longer acceleration and deceleration lanes along SR 12 will be built and 2.3 miles of SR 12 from I-5 to the tunnel shaft site will be improved. Access to the Lower Roberts Island double launch shaft will involve building a new 1.2-mile access road from West Fyffe Street to a new bridge; a new road and railroad bridges over Burns Cutoff from Port of Stockton; a new 3.2-mile access road and rail lines along West House Road from the new bridge; and a new 1.6-mile access road on Lower Roberts Island. One mile of Dierssen Road between Franklin Boulevard and I-5 will be widened, and 0.48 mile of Franklin Boulevard will be widened between locations 0.22 miles north of Dierssen Road and 0.25 mile south of Dierssen Road. Twin Cities Road will be widened for 1 mile from a location 0.83 miles west of Franklin Boulevard to a location 0.17 mile east of Franklin Boulevard. Access to the Lower Roberts Island double launch shaft site will involve 1.2 miles of new paved road on Rough and Ready Road on Port of Stockton, a new bridge over Burns Cutoff from Port of Stockton, 2 miles of new paved road to West House Road with widening 1.2 miles of West House Road, and 1.3 miles of new paved road from West House Road to North Holt Road with a new bridge over Black Slough.

Construction will start with clearing, grubbing, and moving utilities. Existing drainage facilities either within the construction site or adjacent to construction sites will be rerouted to not affect overland drainage flows or groundwater seepage flows prior to construction. During and after completion of construction at each Project construction site, the condition of paved access roads will be analyzed and re-paved as necessary to return the facility to the condition that the Permittee constructed.

7. Rail-Served Materials Depots

Rail access to serve major construction sites will reduce truck use of local roads and highways. The UPRR and BNSF Railway serve the Project Area. Rail-served materials depots with rail sidings will be constructed and used to transport certain large volume construction materials. The rail siding will be designed to allow the train to leave or pick up rail cars, hold the rail cars, and offload or load the rail cars. The depot will include areas where trains move off the main line to deposit the rail cars and areas to transfer the materials to trucks.

The Project will have a rail-served materials depot at Lower Roberts Island. Rail access to Lower Roberts Island will be provided from an extension of an existing short haul line at the Port of Stockton. Rail access will be extended over a new bridge over Burns Cutoff and continue to the launch shaft site and RTM storage area.

8. Soil Balance

Project construction will require large amounts of fill material at many facility sites and will also generate extensive amounts of excavated soils and RTM. Roads will require imported materials from commercial sources. Construction will occur over a period of years at most sites, but not simultaneously at all sites. To optimize the movement of fill material and reduce the need for import,

disposal, and stockpiling, an earthwork balance model[5, 6] was prepared by Permittee to understand the total amount of soil fill required and produced at the various construction sites relative to the Project schedule. The earthwork model analyzed soil fill material including structural and nonstructural fill, topsoil, peat, and imported specialty materials including gravel or aggregate base. Model results showed the volume of fill material produced on-site from excavation (including both RTM and surface soils), the volume needed on-site as structural fill, and where import material will be sourced from if a deficit occurs or where excess material will be stockpiled or disposed of if a surplus occurs. It is expected that soils excavated on-site at intakes will balance on-site soil needs and no significant import or export of structural fill will be necessary. However, some imported fine-grained levee embankment core material may be required if on-site soils do not meet regulatory requirements for construction. Soil excavated at the Twin Cities Complex will be used for the on-site ring levee and shaft pad at Twin Cities Complex and shaft pads on New Hope Tract. RTM generated at launch shafts at the Twin Cities Complex and Lower Roberts Island will be used for backfilling of borrow areas on-site. Soil excavated at the Twin Cities Complex will also be used for shaft pads on New Hope Tract, Canal Ranch Tract, Terminous Tract, and King Island. RTM from the Twin Cities Complex will be used to backfill excavations at the Twin Cities Complex to generally raise the soil to previous ground surface elevation. Soils excavated at the Lower Roberts Island double launch shaft site will be used for the shaft pads on Lower Roberts Island, Union Island, and Upper Jones Tract, and RTM generated on-site would be used to backfill borrow areas on Lower Roberts Island.

9. Electrical Facilities

Power supplies will be needed at construction sites for the intakes, tunnel shafts, Bethany Complex facilities, concrete batch plants, and park-and-ride lots (Attachment 1, Figure 5). Power supplies will also be needed during operations of the north Delta intakes, Bethany Reservoir Pumping Plant and Surge Basin, and Bethany Reservoir Discharge Structure, plus lights, security, and minor operations and maintenance loads at all locations.

Power demand during construction will include support for large equipment, such as cranes and ground improvement machines, TBMs and associated equipment including ventilation, conveyors and pumps, small tools, and construction-support facilities. Support facilities will include, but not be limited to, construction trailers, temporary lighting, and electric vehicle charging stations. Some of this equipment may be powered by on-site generators or internal combustion engines; however, electrical grid service to the sites, if available, will be more efficient, use less petroleum-based fuels, and produce fewer emissions.

[5] Delta Conveyance Design and Construction Authority (2022). Soil balance (Final Draft). Technical Memorandum. Sacramento, CA. May 27, 2022.

[6] Delta Conveyance Design and Construction Authority (2022). Soil balance and reusable tunnel material supplement-Bethany Reservoir Alternative (final draft). Technical Memorandum. Sacramento, CA. May 27, 2022.

Power for construction and operation of the conveyance facilities will be delivered on existing power lines to the extent possible, but the location or required load of some facilities will require either new aboveground power towers or poles with lines or underground conduit to serve those specific areas. Some existing lines will require adding new towers or poles to extend service to conveyance facilities. Some power will also be abandoned or relocated, and some overhead lines, such as those crossing the intake haul road, will be moved underground to address overhead height constraints. For any above-ground power towers, poles, or lines that are new, non-specular materials will be used. Transmission and distribution line construction for the Project will consist of underground construction (which requires surface disturbance for trench digging), overhead construction of new lines, and overhead construction of a new line on existing poles. Underground electrical lines are associated with the north Delta intakes; maintenance, reception, and launch shafts; and the Bethany Reservoir Pumping Plant and Surge Basin with Reception Shaft. There is one new overhead electrical line that will be strung on existing poles east of the north Delta intakes along Franklin Boulevard. Lastly, there are four new overhead lines associated with the Bethany Complex: two 230 kilovolt (kV) lines associated with the Bethany Reservoir Pumping Plant and Surge Basin with reception shaft; one 11 kV line associated with the Bethany Reservoir Aqueduct; and one 11 kV line associated with the Bethany Reservoir Discharge Structure.

All permanent underground transmission lines will be treated as a permanent impact within the 25-foot-wide easement that will be established above the line. No agriculture requiring cultivation will be allowed in this easement and no woody vegetation (e.g., riparian) will be allowed to reestablish in the easement. Underground transmission lines for facilities used during construction only, such as park-and-ride lots, will have long-term temporary impacts considered permanent for purposes of this ITP; lines will be de-energized and abandoned in-place after construction. Lines will be installed using open-cut trenches and directional drilling to go underneath existing infrastructure (e.g., highways and railroads) and waterways.

Overhead construction of a new electrical line on an existing transmission line will be required to power the north Delta intakes and the Twin Cities Complex. The Project will attach an additional power line on an existing SMUD line that follows Franklin Boulevard from around Hood-Franklin Road south to Lambert Road. This new line will be a short segment (approximately 4 miles) constructed in parallel (i.e., at the same elevation) to the existing power lines on these poles. All construction activity will be done from the existing roadway and shoulder and will not result in any permanent or temporary ground disturbance. At the Bethany Complex, one 11 kV overhead line will require both stringing lines on existing poles and new poles. The second 11kV line will require new poles.

Construction of the two new 230 kV overhead transmission lines for the Bethany Complex will take place over more than one year. The design consists of a 150-foot-wide corridor where construction-related disturbance is anticipated to take place. To estimate impacts of the new 230 kV overhead transmission lines on terrestrial Covered Species, Permittee assumed construction of lattice towers with four footings requiring 7.5 square feet of impact per footing for an impact total of 30 square feet. For towers in agricultural areas, no agricultural production will be possible beneath or

immediately adjacent to the towers. For agricultural areas, it is assumed that 900 square feet of agricultural land will be affected per tower. Towers are assumed to be spaced 1,250 feet apart. Work areas around each tower are assumed to affect 40,000 square feet and will be in use for more than one year.

10. SCADA Facilities

SCADA systems and associated data communication systems enable remote monitoring and control of the performance and operation of the system, including video security cameras. The new Project facilities will need to be integrated into SWP's existing SCADA system to allow for coordinated operations.[7, 8] The communications network will connect three major operations centers, two north Delta intakes, and four remote data sites for the Bethany Complex. The major data centers will be at the existing DWR Project Control Center, DWR Operations and Maintenance Area Control Center at the Delta Field Division, and Bethany Reservoir Pumping Plant. It will provide real-time performance data at north Delta intakes, tunnel launch shafts, and the Terminous tract reception shaft, and the Bethany Complex facilities. The communications aspects of the SCADA system will be used during construction to facilitate internet applications at the launch shaft sites, the north Delta intakes, and the Bethany Reservoir Pumping Plant.

The SCADA system will consist of SCADA equipment and communications links based upon fiberoptic cables that will be installed within and connect to new structures. Whenever possible, the construction of fiber-optic based communications systems for the Project will use existing telecommunications infrastructure, dedicated conduits within Project road modifications, and termination panels installed inside or on the buildings or structures. Wherever possible, underground routes will be located along existing roads and Project access routes (Attachment 1, Figure 6). Overhead fiber installation will be limited to alignments with existing power pole corridors. The fiber cables will look similar to cable television cables. SCADA fiber-optic cables serving the Bethany Reservoir Discharge Structure will be installed within the open cut and tunneled portion of the Bethany Reservoir Aqueduct; all construction and maintenance will take place from within the tunnels accessed from outside of the Bethany Reservoir Conservation Easement.[9]

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[7] Delta Conveyance Design and Construction Authority (2022). SCADA/communications routing and basic design approach—Bethany Reservoir alternative (final draft). Technical Memorandum. In Attachment: *Technical Memoranda, Volume 1: Delta Conveyance Final Draft Engineering Project Report—Bethany Reservoir Alternative*. Sacramento, CA. May 2022.

[8] Delta Conveyance Design and Construction Authority (2023). Delta Conveyance final draft engineering project report update, Bethany Reservoir alternative. Sacramento, CA. November 2023.

[9] Delta Conveyance Design and Construction Authority (2022). SCADA/communications routing and basic design approach—Bethany Reservoir alternative (final draft). Technical Memorandum. In Attachment: *Technical Memoranda, Volume 1: Delta Conveyance Final Draft Engineering Project Report—Bethany Reservoir Alternative*. Sacramento, CA. May 2022.

Fiber optic cables that are part of the SCADA facilities will be installed throughout the Project Area. SCADA lines will be both underground and overhead and construction for both types will take less than one year in a given location.

Underground SCADA lines are assumed to require a 25-foot-wide temporary construction area along the length of the line and there will be no permanent restrictions on activities above these lines (i.e., prohibitions on cultivation or vegetation management). In most areas, SCADA lines are situated within existing or planned roads, but there are some instances where they are outside of roadways. Construction will involve open-cut trenches and directional drilling to go beneath existing infrastructure (e.g., highways and railways) and waterways.

Overhead SCADA lines will be attached to existing poles but may require permanent impacts associated with pole upgrades. SCADA lines are assumed to be hung below existing power lines and in parallel with existing communications lines.

11. Fencing and Lighting

Construction site security for major work sites will include security guards stationed at the main entry and exit gates for 24-hour site access management and surveillance. Security personnel will be on-site with regular inspection rounds. Cameras will also be used at key locations. Once construction is complete, permanent security fencing will be in place, and cameras will be installed with either local recording devices or transmission capabilities. These cameras will be located where permanent power and SCADA facilities are proposed. Security personnel will monitor the sites periodically.

During construction, park-and-ride lots will use downcast lighting. Permanent lighting at Project facility sites will be downcast, cut-off type fixtures with non-glare finishes and controlled by photocells and motion sensors, depending on the location. Construction and maintenance lighting will be similar except for a few necessary nighttime work activities that will require higher-illumination safety lighting of the work sites. Lights will provide good color with natural light qualities and minimum intensity with adequate strength for security, safety, and personnel access. The lights will comply with the Illuminating Engineering Society industry standards for light source and luminaire measurements and testing methods.

During construction, night lighting at park-and-ride lots will be controlled by motion detectors. During operations, the lights at the north Delta intakes, tunnel shafts, and Bethany Complex will be motion activated to minimize light and glare to adjacent properties.

12. Park-and-Ride Lots

Park-and-ride lots will be established near major commute routes, where workers can park and ride shuttle buses or vans to construction sites. The employee shuttles will be electric-powered, and the

park-and-ride lots will be equipped with electric vehicle charging stations. Trucks arriving late at night can use these lots to park overnight to minimize nighttime deliveries to construction sites. Park-and-ride lots will be lit with nighttime security lighting with motion detectors. Park-and-ride lots will be removed after construction unless local communities are interested in maintaining these lots in the future. Lots will be established at the following sites.

- *Hood-Franklin Park-and-Ride Lot*. Parking for employees at north Delta intakes. This lot will be located along the south side of Hood-Franklin Road immediately east of I-5. The total construction area will be 4.1 acres.
- *Charter Way Park-and-Ride Lot*. Parking for employees at tunnel shafts on Lower Roberts, New Hope Tract, Canal Ranch Tract, Terminous Tract, and King Island. This lot will be located along the south side of Charter Way at the southwest corner of the I-5 overpass, on the south side of SR 4, just west of I-5. The total construction area will be 2.4 acres. The land is currently a private truck parking lot and will only require upgrade or replacement of pavement and lighting systems.

Limited on-site parking will be provided at the north Delta intakes and Lower Roberts Island double tunnel launch shaft. On-site parking for all workers will be provided at the Twin Cities Complex and the Bethany Complex. Employees at all other maintenance and reception shaft sites, and Lower Roberts Island will use the Charter Way park-and-ride lot. After construction, these facilities will be removed.

13. Contra Costa Water District Interconnection Facilities

The CCWD-related Project facilities consist of an interconnection pump station with water intake from the Project's Union Island Maintenance Shaft, and a new 1.6-mile conveyance pipeline that extends from the pump station and connects to the existing CCWD Victoria Island Pipeline just downstream of the CCWD's existing Middle River Intake and Pumping Plant. The CCWD interconnection pipeline will be installed in a trench with open cut-and-cover construction along existing roadways and within agricultural fields. The pipeline construction easement will be 100 feet wide for the entire length of the trench, including a 30-foot temporary construction easement around the 70-foot permanent easement. Dewatering may occur along the open trench, with flows collected, treated, and reused on-site. The portion of the interconnection pipeline that crosses Victoria Canal will be microtunneled. Launch and retrieval pits, approximately 35 feet wide by 50 feet long, will be placed within the 100-foot open trench construction easement on Union Island and Victoria Island to launch and receive microtunneling equipment. A permanent 70-foot-wide easement will be maintained along the length of the pipeline in Union Island and Victoria Island. Air valves, blow offs, and access manways will be placed along the pipeline within the permanent easement. Pumped flow from the new Interconnection Pump Station will convey raw water from the Project's Union Island shaft to CCWD's existing Transfer Pumping Station through the new conveyance pipeline and subsequently though CCWD's existing Victoria Island and Old River Pipelines. During periods when CCWD's existing Middle River and Old River Pumping Plants are in

simultaneous operation with the Interconnection Pump Station, a maximum combined pumped flow of up to 250 cfs will be conveyed through the Victoria Island Pipeline and a maximum combined flow of up to 320 cfs will be conveyed through the Old River Pipeline.

14. Other Construction Support Facilities

14.1 Concrete Batch Plants.

Concrete batch plants will be located at Lambert Road at the intersection with Franklin Boulevard, and at the Bethany Reservoir Pumping Plant and Surge Basin construction site. The Lambert Road batch plant will be used for concrete delivery to the north Delta intakes, the Twin Cities Complex and the other tunnel shafts on New Hope Tract, Canal Ranch Tract, and King Island. Concrete for tunnel shaft sites on Terminous Tract, Lower Roberts Island, Upper Jones Tract, and Union Island will be provided from existing batch plants in Lodi and Stockton which are located in close proximity of these sites. The Bethany Complex concrete batch plants at the Bethany Reservoir Pumping Plant and Surge Basin site will be north of Kelso Road and the new Bethany access road east of Mountain House Road. These batch plants are sited to allow a central delivery location for cement and aggregate and site for distribution of concrete around the Bethany Complex area.

The concrete batch plant sites will vary in size depending on location. They will include three bulk cement storage silos; a portable cement silo (trailer 10 feet tall by 60 feet long); a 500-square-foot batch trailer; four propane tanks; a 6,800-square-foot concrete block casting area; a 2,000- to 4,000-gallon diesel fuel tank; a 120,000-gallon water system consisting of six 20,000 gallons storage tanks and related collection facilities for stormwater and wash water; an admixing area that will include a pump house, admixture storage tanks, and secondary containment barriers; an aggregate storage area; a wash area for concrete mixing trucks and related returned concrete collection facilities; and parking for concrete trucks and employee vehicles. The concrete batch plant will include batcher, silo, and truck mixer dust collectors to minimize particulates in the surrounding air. Materials collected in the air filter bags will be hauled to licensed off-site disposal locations or added to the raw materials used to produce concrete. Concrete batch plant structures and equipment will be removed following construction.

14.2 Emergency Response.

Primary emergency response services will be provided by the construction contractors. As needed on a site-specific basis, the contractors will be required to prepare a Project Emergency Response Plan with detailed information regarding emergency services, access to construction sites, and emergency response times to Delta communities. Each Project Emergency Response Plan requires on-site emergency response facilities and services at primary work sites during construction. Evaluations and discussions with local agencies will be conducted to determine the most appropriate method to coordinate between Project contractor-provided emergency response services at the construction sites and integration with local agencies. Additionally, Permittee will enter into mutual aid agreements with emergency services agencies in the Project Area. Emergency response facilities at

construction sites may be removed during construction demobilization depending on Permittee's decision for need during operations.

14.3 Standby Engine Generators.
Standby engine generators will be used during construction at the intakes, the Twin Cities Complex, Lower Roberts Island Double Tunnel Launch Shaft site, Bethany Reservoir Pumping Plant and Surge Basin, each of the Bethany Reservoir Aqueduct tunnel portals, and Bethany Reservoir Discharge Structure.

During operations, the intakes, Bethany Reservoir Pumping Plant, and Bethany Reservoir Discharge Structure will each have permanent standby engine generators with isolated and fully contained fuel tanks. The standby engine generators will be installed inside a fenced area on the top of site embankments, with the fuel tank. The fuel will be provided by a diesel tank with suitable containment, or a propane tank set above ground. The permanent standby engine generators will provide energy to operate the valves and gates, including the ability to stop diversions at the intake structure.

14.4 Local Water Supply, Drainage, and Utilities.
Construction and operation of the Project will require services of power, water, telecommunications, and SCADA utilities.

Project features will be designed to not increase peak runoff flows into adjacent storm drains, drainage ditches, or rivers and sloughs. At the intakes and tunnel shafts, water from dewatering activities and stormwater runoff on the construction site will be collected, treated, and stored on-site to reduce the need for off-site water sources. On-site reuse and storage will be maximized to reduce peak runoff rate from the site and the need to purchase water. If additional stored water is not needed, the treated stormwater runoff flows will be discharged to adjacent waterbodies in a manner that will not increase peak flow rates. Use of the treatment and storage facilities will avoid increased peak stormwater runoff flow rates from Project construction sites.

Water supplies in the vicinity of the construction sites will be provided by the collected and treated on-site dewatering flows and stormwater flows, on-site groundwater, and existing riparian or appropriative surface water diversions related to the parcels acquired for the Project. During construction, at the Bethany Reservoir Pumping Plant and Surge Basin, some water will be supplied from the California Aqueduct. Water will be purchased from permitted water supplies to fill water trucks for roadway modifications.

Most construction sites contain local irrigation and drainage facilities installed by existing or previous private landowners or reclamation districts. These systems may serve parcels that will be acquired for the Project and adjacent parcels. Most of these existing facilities are buried and therefore not visible

in aerial photographs. When Permittee can acquire access to specific parcels, these buried facilities will be mapped for each site. If the facilities used by adjacent properties to move water from the existing diversion are located on a parcel to be used for a Project feature, pipelines, or canals will be installed to maintain service to the adjacent properties.

Wastewater service for structures near the Project construction sites consist of individual septic systems with septic tanks and leach fields. Regional wastewater facilities are provided to the communities of Courtland and Walnut Grove by the Sacramento Area Sewer District. Interceptor pipelines extend between these communities and a regional pumping plant at the Rio Cosumnes Correctional Center (near the Franklin Field along Bruceville Road). The Rio Cosumnes Correctional Center pumping plant lifts the wastewater into another interceptor that extends to the Sacramento Regional County Sanitation District wastewater treatment plant near the community of Elk Grove. Permittee will design the Project to avoid conflicts with these features.

All Project construction sites will be provided with portable restrooms. Septic systems will also be constructed at the intakes, Twin Cities Complex, Lower Roberts Island, and at Bethany Reservoir Pumping Plant and Surge Basin site. Because of high groundwater and/or low soil permeability at these sites, the leach fields will be sized larger than locations with more favorable soil conditions, in accordance with the applicable county regulations.

Conveyance Facility Operations

15. Existing State Water Project Facilities

The existing Delta and Suisun Marsh SWP facilities described in Section 15-15.6 provide for delivery of water supply to areas within and immediately adjacent to the Delta, and to regions south of the Delta. This information is provided for context, however incidental take authorization for long-term operations of existing Deta and Suisun Marsh SWP facilities as of issuance of this ITP is provided by ITP No. 2081-2023-054-00 (2024 ITP). The existing Delta SWP facilities include the Harvey O. Banks Pumping Plant (Banks Pumping Plant), the John E. Skinner Delta Fish Protective Facility (Skinner Fish Facility), the CCF, the Barker Slough Pumping Plant (BSPP), Suisun Marsh Facilities including the Suisun Marsh Salinity Control Gates (SMSCG), the Roaring River Distribution System (RRDS), the Morrow Island Distribution System (MIDS), and Goodyear Outfall Gates (GYSO), Georgiana Slough Salmonid Migratory Barrier, South Delta Temporary Barrier Project, and San Luis Reservoir. In the Project Area, the SWP is also operated to enhance flood management, to provide recreational opportunities, and to deliver water consistent with state and federal environmental laws. Within the Project Area, Permittee holds contracts with public water agencies in the Feather River Area, North Bay Area, and South Bay Area. Water stored in the Oroville facilities provides water supply to the Feather River Service Area (i.e., Butte County, Yuba City, and Plumas County Flood Control and Water Conservation District) and is diverted through the Delta, along with available water in the Delta, for delivery to north-of-Delta contractors in Solano and Napa Counties and south-of-Delta SWP long-

term water contractors (SWP water contractors) in the Bay Area and south beyond Project boundaries.

15.1 Harvey O. Banks Pumping Plant (Banks Pumping Plant).

Banks Pumping Plant, located 12.87 km (8 miles) northwest of Tracy, marks the upstream end of the California Aqueduct. The plant discharges into five pipelines that convey water into a roughly 1.6-km-long (1-mile-long) canal, which in turn conveys water to Bethany Reservoir.[10] The Banks Pumping Plant consists of 11 pumps—two rated at 375 cubic feet per second (cfs) capacity, five at 1,130 cubic feet per second (cfs) capacity, and four at 1,067 cfs capacity—that provide the initial lift of water 74.37 meters (m; 244 feet) from the CCF into the California Aqueduct. The rated capacity of the Banks Pumping Plant is 10,668 cfs; however, Banks Pumping Plant's maximum daily pumping rate is controlled by a combination of the State Water Resources Control Board's (State Water Board) Water Right Decision 1641 (D-1641) and permits issued by the USACE that regulate the rate of diversion of water into the CCF, as well as restrictions on reverse flows in Old and Middle rivers (OMR) to protect listed fish species covered under the federal Endangered Species Act and the 2024 ITP. D-1641 defines SWP exports as the daily inflow to CCF minus the withdrawal from CCF for Byron-Bethany Irrigation District and includes a maximum SWP export limit of 10,350 cfs on a daily average.

15.2 John E. Skinner Delta Fish Protective Facility (Skinner Fish Facility).

The Skinner Fish Facility is west of the CCF, about 3.22 km (2 miles (3.22 kilometers [km]) upstream from the Banks Pumping Plant. The Skinner Fish Facility guides fish away from entering the pumps that convey water into the California Aqueduct. Large fish and debris are directed away from the facility by a 118-meter-long (388-foot-long (118-meter-long) trash boom. Smaller fish are diverted from the intake channel into bypasses by a series of metal louvers. These smaller fish pass through a secondary system of screens, louvers, and pipes into seven holding tanks, where a subsample is counted and recorded. The salvaged fish are then returned to the Delta in oxygenated tank trucks. During normal south Delta SWP operations, salvaged fish are transported approximately 30 km (19 miles) and released at one of six SWP and Central Valley Project (CVP) release sites near the confluence of the Sacramento and San Joaquin rivers. Until recently, most fish hauls from the Skinner Fish Facility and the CVP Tracy Fish Facility have been released at either the SWP Horseshoe Bend Release Site or the SWP Curtis Landing Release Site on an alternating basis. Since 2020 Permittee has re-operated the release site rotation schedule to incorporate four fish release sites including two new sites (Little Baja and Manzo Ranch located on Sherman Island). In 2022, Permittee also entered into an agreement with the U.S. Bureau of Reclamation (Reclamation) to utilize their release sites at Antioch and Emmaton on a cooperative basis. The SWP Horseshoe Bend Release Site is no longer used.

[10] California Department of Water Resources and U.S. Bureau of Reclamation (2019). Technical information for parties preparing proposals for water transfer requiring Department of Water Resources or Bureau of Reclamation approval. Prepared by California Department of Water Resources and U.S. Bureau of Reclamation, Mid-Pacific Region. December 2019.

15.3 Clifton Court Forebay .

The Clifton Court Forebay (CCF) is located near the city of Byron in the south Delta. The Banks Pumping Plant pumps water diverted from the CCF via the intake channel past Skinner Fish Facility. A set of five radial gates are located at the CCF inlet near the confluence of the Grant Line Canal and West Canal. They are operated so that they can be closed during critical periods of the ebb/flood tidal cycle to maintain appropriate water levels for local agricultural water users in the south Delta. The gates are operated on the tidal cycle to reduce approach velocities, prevent scour in adjacent channels, and minimize fluctuations in water elevation in the south Delta by taking water in through the gates at times other than low tide.

Banks Pumping Plant pumping rates are constrained operationally by limits on CCF diversions from the Delta. The typical maximum daily diversion limit from the Delta into the CCF is 13,870 acre feet (AF) per day (6,993 cfs/day) and the maximum averaged diversion limit over any three days is 13,250 AF per day (6,680 cfs/day). In addition to these requirements, currently Permittee may increase diversions from the Delta into the CCF by one-third of the San Joaquin River flow at Vernalis from mid-December through mid-March when flows at Vernalis exceed 1,000 cfs. These limits are listed in USACE 1981 *Public Notice 5820A Amended*.[11]

From July through September, the maximum daily diversion limit from the Delta into the CCF may be increased from 13,870 AF per day (6,993 cfs/day) to 14,860 AF per day (7,492 cfs/day), and the maximum averaged diversion limit over any three days is increased from 13,250 AF per day (6,680 cfs/day) to 14,240 AF per day (7,179 cfs/day). These increases are for the purpose of recovering water supply losses incurred earlier in the same year to protect fish species listed under the federal and state Endangered Species Acts.

15.4 Barker Slough Pumping Plant.

The BSPP diverts water from Barker Slough into the North Bay Aqueduct (NBA) for delivery to Napa and Solano counties. The NBA intake is located approximately 16 km (10 miles) from the mainstem Sacramento River at the end of Barker Slough. In accordance with salmon screening criteria, each of the aqueduct's 10 pump bays are individually screened with a positive barrier fish screen consisting of a series of flat, stainless-steel, wedge-wire panels with a slot width of 0.238 centimeters (cm; 3/32 inch). This configuration is designed to exclude and prevent the entrainment of fish measuring approximately 2.54 cm (1 inch) or larger. The bays tied to the two smaller units have an approach velocity of about 0.2 foot per second (ft/sec). The larger units were designed for a 0.5 ft/sec

[11] U.S. Army Corps of Engineers (1981). Public Notice No. 5820A Amended. U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA. October 13, 1981.

approach velocity, but actual approach velocity is about 0.44 ft/sec. The screens are routinely cleaned to prevent excessive head loss, minimizing increases in localized approach velocities.

The first two bays have small pump unit (nominally 14 cfs), and seven bays have larger pump units (nominally 28 cfs). The last bay does not have a pump. The maximum pipeline capacity is 175 cfs, but currently the normal pumping rate is between 0 cfs and 130 cfs because the maximum pipeline capacity cannot be reached due to biofilm accumulation in the pipe. Fish screen cleaning, sediment removal, and aquatic weed removal at the BSPP is needed year-round to maintain operation of the BSPP.

15.5 Suisun Marsh Facilities.

The Suisun Marsh Preservation Agreement (SMPA) among Permittee, Reclamation, CDFW, and Suisun Resource Conservation District contains provisions for Permittee and Reclamation to mitigate the impacts on Suisun Marsh channel water salinity from SWP and CVP operations and other upstream diversions. The SMPA requires Permittee and Reclamation to meet salinity standards in accordance with D-1641, sets a timeline for implementing the *Plan of Protection for the Suisun Marsh*[12] and delineates monitoring and mitigation requirements.

There are two primary physical mechanisms for meeting salinity standards set forth in D-1641 and the SMPA: (1) the implementation and operation of physical facilities in the Marsh and (2) management of Delta outflow (i.e., facility operations are driven largely by salinity levels upstream of Montezuma Slough, and salinity levels are highly sensitive to Delta outflow). Physical facilities (described below) have been operating since the 1980s and have proven to be a highly reliable method for meeting standards.

Physical facilities in the Suisun Marsh and Bay include the SMSCG, the RRDS, the MIDS, and the GYSO. The location and operation of these facilities are described below.

15.5.1 *Suisun Marsh Salinity Control Gates*. The SMSCG are located on Montezuma Slough about 3.22 km (2 miles) downstream from the confluence of the Sacramento and San Joaquin rivers, near Collinsville. The objective of SMSCG operation is to decrease the salinity of the water in Montezuma Slough. The gates control salinity by restricting the flow of higher-salinity water from Grizzly Bay into Montezuma Slough during incoming tides and retaining lower-salinity Sacramento River water from the previous ebb tide. Operation of the gates in this fashion lowers salinity in Suisun Marsh channels and results in a net movement of water from east to west through Suisun Marsh.

[12] California Department of Water Resources (1984). Plan of protection for the Suisun Marsh including environmental impact report. California Department of Water Resources, Central District. February 1984.

The SMSCG are operated during the salinity control season, which spans from October to May. Operational frequency is affected by salinity at D-1641 compliance stations, hydrologic conditions, weather, Delta outflow, tide, fishery considerations, and other factors. The boat lock portion of the gate is now held partially open during SMSCG operation to allow an opportunity for continuous salmon passage but could be closed temporarily to stabilize flows to facilitate safe passage of watercraft through the facility.

15.5.2 *Roaring River Distribution System.* The RRDS was constructed to provide lower-salinity water to 5,000 acres of private and 3,000 acres of CDFW-managed wetlands on Simmons, Hammond, Van Sickle, Wheeler, and Grizzly islands. The RRDS includes a 40-acre intake pond that supplies water to Roaring River Slough. Water is diverted through a bank of eight 152.4 cm (60 - inch) diameter culverts equipped with fish screens into the Roaring River intake pond on high tides to raise the water surface elevation in the RRDS above the adjacent managed wetlands. The intake to the RRDS is screened to prevent entrainment of fish larger than approximately 25 millimeters (mm). After the listing of DS, RRDS diversion rates have been controlled to maintain a maximum average approach velocity of 0.2 ft/sec at the intake fish screen except during the period from September 14 through October 20, when RRDS diversion rates are controlled to maintain a maximum average approach velocity of 0.7 ft/sec for fall flood-up operations.

15.5.3 *Morrow Island Distribution System.* The GYSO connects the south end of Goodyear Slough to Suisun Bay. Prior to construction of the outfall, Goodyear Slough was a dead-end slough. The GYSO was designed to increase circulation and reduce salinity in Goodyear Slough to provide higher water quality to the wetland managers who flood their ponds with Goodyear Slough water. GYSO has a series of four passive intakes that drain to Suisun Bay. The outfall is equipped with slide gates on the interior of the outfall structure to allow Permittee to close the system for maintenance or repairs. The intakes and outfall of GYSO are unscreened but are equipped with trash racks to prevent damage. Because the GYSO is an open system, any fish that entered the system would be able to leave via the intake or the outfall.

15.6 Georgiana Slough Salmonid Migratory Barrier.

As required by the 2024 ITP, Permittee will install and operate a salmonid migratory barrier at Georgiana Slough annually during the juvenile salmonid migratory period to reduce the likelihood of emigrating salmonid entrainment in the central and south Delta. A salmonid migratory barrier at Georgiana Slough is expected to provide a higher probability of survival for emigrating juvenile winter-run and spring-run Chinook Salmon (*Oncorhynchus tshawytscha*, CHNWR and CHNSR) that encounter the Sacramento River-Georgiana Slough junction and reduce entrainment of emigrating juveniles into the central and south Delta. Annual installation of the barrier is covered by a separate ITP (ITP No. 2081-2021-102-03) and initial study and mitigated negative declaration under the California Environmental Quality Act (CEQA, State Clearinghouse Number 2021100009).

15.7 Existing SWP Water Service Contracts.
Permittee has signed long-term contracts with 29 water agencies statewide to deliver water supplies developed from the SWP system. These contracts are with both municipal and industrial water users and agricultural water users. The contracts specify the charges that will be paid by the water agency for both (1) water conservation and (2) conveyance of water. The foundation allocation of water to each contractor is based on their respective "Table A" entitlement, which is the maximum amount of water that the agency may request from the SWP on an annual basis. Permittee allocates Table A water as an annual supply made available for scheduled delivery throughout the year. Table A contracts total 4,173 thousand acre-feet (TAF), with more than 3 million acre-feet (MAF) for San Joaquin Valley and Southern California water users.

The State of California entered into long-term water supply contracts with water agencies in the 1960s. Under the contract terms, Permittee provides water service to these public agencies from the SWP in exchange for payments. Current contracts are set to expire starting in 2035. SWP contract extension has been initiated, including the development of CEQA documentation.

Article 21 of the long-term SWP water supply contracts provides an interruptible water supply made available only when certain conditions exist: (1) The SWP share of San Luis Reservoir is physically full or is projected to be physically full; (2) other SWP reservoirs south of the Delta are at their storage targets or the conveyance capacity to fill these reservoirs is maximized; (3) the Delta is in excess conditions; (4) current Table A demand is being fully met; and (5) Banks Pumping Plant has export capacity beyond that which is needed to meet current Table A and other SWP operational demands. Permittee proposes to operate the SWP, with the Project, in accordance with contracts with senior water rights holders (sometimes referred to as "settlement contractors") in the Feather River Service Area (approximately 983 TAF).

15.8 SWP Settlement Agreements.
Permittee has water rights settlement agreements to provide water supplies with entities north of Oroville, along the Feather River and Bear River and in the Delta. These agreements provide users with water supplies that they were entitled to prior to the construction of the SWP's Oroville Complex. Collectively, these agreements with more than 60 riparian diverters along the Feather, Yuba, and Bear rivers provide water for diversion.

15.9 SWP Allocation and Forecasting.
At the beginning of each new water year, significant uncertainty exists regarding hydrologic conditions and water supplies that will be allocated by the SWP to its water contractors. In recognition of this uncertainty, Permittee plans the operations of the SWP by projecting monthly on a 12-month look-ahead cycle. The initial allocation for SWP deliveries is made by December 1 of each year with a conservative assumption of future precipitation to avoid over-allocating water before the hydrologic conditions are well defined for the year. The forecasting water supply allocation process is

updated monthly and incorporates known conditions in the Central Valley watershed to date, as well as forecasts of future hydrologic conditions to provide an estimate of SWP water supplies that can be delivered to SWP contractors as the water year progresses.

Another water supply consideration is the contractual ability of SWP contractors to "carry over" allocated but undelivered Table A supplies from the previous year to the next if space is available in San Luis Reservoir. The carryover storage is often used to supplement an individual contractor's current year Table A allocations if conditions are dry. Carryover supplies left in San Luis Reservoir by SWP contractors can result in higher storage levels in San Luis Reservoir. As SWP pumping fills San Luis Reservoir, the contractors are notified to take, or lose, their carryover supplies. Carryover water not taken, after notice is given to remove it, then becomes water available for reallocation to all contractors in a given year.

Article 21 (surplus to Table A) water, which is delivered early in the calendar year, may be reclassified as Table A water later in the year depending on final allocations, hydrology, and contractor requests. Reclassification will not affect the amount of water carried over in San Luis Reservoir, nor will it alter pumping volumes or schedules.

15.10 SWP Daily Operations.

After the allocations and forecasting process, Permittee and Reclamation coordinate SWP and CVP operations on a daily basis under the Coordinated Operations Agreement as amended in 2018[13] (COA) between the federal government and the State of California (authorized by Public Law 99 546). The CVP is operated by Reclamation and its facilities include Shasta Dam and Reservoir on the Sacramento River, Folsom Reservoir on the American River, and the Jones Pumping Plant in the Delta. Some factors Permittee and Reclamation consider when coordinating their joint operations include required in-Delta flows, Delta outflow, water quality, schedules for the joint use facilities, pumping and wheeling arrangements, and any facility limitations. Additionally, both the SWP and CVP must meet the flood obligations of individual reservoirs. CVP operations must also consider flows at Wilkins Slough and associated pump intake elevations. Additionally, Reclamation may use existing SWP facilities via (1) direct export at Banks Pumping Plant using Joint Point of Diversion (JPOD) provisions in D-1641; or (2) through the use of the DCI and pumping water directly into the California Aqueduct for conveyance to CVP storage and water uses.

The COA (further described in Section 17 below) defines balanced and excess water conditions as:

[13] U.S. Bureau of Reclamation and California Department of Water Resources (2018). Addendum to the agreement between the United States of America and the Department of Water Resources of the State of California for coordinated operation of the Central Valley Project and the State Water Project. December 2018.

Balanced Water Conditions: "The COA defines balanced water conditions as periods when it is mutually agreed that releases from upstream reservoirs plus unregulated flows approximately equal the water supply needed to meet Sacramento Valley in-basin uses plus Delta exports."

Excess Water Conditions: "Excess water conditions are periods when it is mutually agreed that releases from upstream reservoirs plus unregulated flows exceed Sacramento Valley in-basin uses plus Delta exports."

Process to Determine Balanced vs. Excess Water Conditions: "Reclamation's Central Valley Operations Office and DWR's SWP Operations Control Office jointly decide when balanced or excess water conditions exist. During excess water conditions, when sufficient water is available to meet all beneficial needs, the CVP and SWP are not required to supplement the supply with additional releases from storage."

During balanced water conditions, Permittee and Reclamation maintain a daily water accounting of SWP and CVP obligations. This accounting allows for flexible operations and avoids the need to change reservoir releases made several days in advance (due to travel time from the Delta). Therefore, adjustments can be made "after the fact," using actual observed data rather than using predictions of reservoir inflow, storage withdrawals, and in-basin uses. This iterative process of observation and adjustment results in a continuous trueing up of the running COA account. If either the SWP or CVP is "owed" water (i.e., the project that provided more or exported less than its COA-defined share), each may request the other to adjust its operations to reduce or eliminate the accumulated account within a reasonable time.

The COA provides the mechanism for determining SWP and CVP responsibility for meeting in-basin use, but real-time conditions dictate real-time actions. Conditions in the Delta can change rapidly. For example, weather conditions combined with tidal action can quickly affect Delta salinity conditions and, therefore, the Delta outflow required to maintain joint salinity standards under D-1641.

Increasing or decreasing SWP or CVP exports can achieve changes to Delta outflow immediately. Imbalances in meeting each other's initial shared obligations are captured by the COA accounting and balanced out later.

When more reaction time is available, reservoir release changes are used to adjust to changing in-basin conditions and are coordinated with Reclamation. Permittee's Lake Oroville releases require about three days to reach the Delta, while water released from Reclamation's Shasta Reservoir requires five days to travel from Keswick Reservoir to the Delta, and Folsom Reservoir water requires one day to travel to the Delta. Each occurrence is evaluated on an individual basis and appropriate action is taken based on multiple factors.

The duration of balanced water conditions varies from year to year. Balanced conditions never occur in some very wet years, while very dry years may have long continuous periods of balanced conditions, and still other years may have several periods of balanced conditions interspersed with excess water conditions. Account balances continue from one balanced water condition through the

excess water condition into the next balanced water condition. When either the SWP or CVP enters into flood control operations, the accounting is zeroed out for that project.

Permittee and Reclamation staff meet daily to discuss and coordinate SWP and CVP system operations. Several items are discussed at this daily meeting, including:

- Current reservoir conditions;
- Pumping status and current outages (for both the SWP and the CVP and how they are affecting combined operations);
- Upcoming planned outages (SWP and CVP) and what that means for future operations;
- Current reservoir releases and what changes may be planned;
- Current regulatory requirements and compliance status; and
- Delta conditions to determine if SWP and CVP pumping make use of all available water.

Permittee and Reclamation also coordinate with hydrosystem controllers and area offices to ensure that, if necessary, personnel are available to make the desired changes. Once Permittee and Reclamation each decide on a plan for that day and complete all coordination, the respective agencies issue change orders to implement the decisions, if necessary. Permittee and Reclamation are co-located in the Joint Operations Center. The California Data Exchange Center (CDEC), California-Nevada River Forecast Center, and the Permittee's Flood Management Group are also co-located in the Joint Operations Center. This enables efficient and timely communication, particularly during flood events.

16. Coordinated Operations Agreement

Permittee operates its respective facilities in accordance with the COA. The COA defines the existing project facilities and their water supplies, sets forth procedures for coordinating operations, and identifies formulas for sharing joint responsibilities for meeting Delta standards and other legal uses of water. The COA further identifies how unstored flow is shared, sets up a framework for exchange of water and services between the SWP and CVP, and provides for periodic review of the agreement. In 2018, Reclamation and Permittee amended four key elements of the COA to address changes since the COA was signed: (1) in-basin uses; (2) export restrictions; (3) CVP use of Banks Pumping Plant up to 195,000 acre-feet per year; and (4) periodic review. The COA sharing percentages for meeting Sacramento Valley in-basin uses now vary from 80% responsibility of the United States and 20% responsibility of the State of California in wet year types to 60% responsibility of the United States and 40% responsibility of the State of California in critical year types. In a dry or critical year following two dry or critical years, the United States and State of California will meet to discuss additional changes to the percentage sharing of responsibility to meet in-basin uses. When exports are constrained and the Delta is in balanced conditions, Reclamation may pump up to 65% of the

allowable total exports with Permittee pumping the remaining capacity. In excess conditions, these percentages change to 60%/40%.

17. Existing Regulations

17.1 USFWS and NMFS Biological Opinions on the Coordinated Long-Term Operation of the Central Valley Project and State Water Project.

The USFWS (2019) and NMFS (2019) Biological Opinions (BOs) under the ESA determined that coordinated operations of the CVP and State Water Project (SWP) are not likely to jeopardize the continued existence of Delta Smelt, Sacramento River Winter-run Chinook Salmon, Central Valley Spring-run Chinook Salmon, California Central Valley Steelhead, Southern Resident Killer Whale, or the Southern Distinct Population Segment of Green Sturgeon, or destroy or adversely modify critical habitat for these species. The 2019 BOs authorized operations until 2030.

The 2019 USFWS and NMFS BOs and 2020 Record of Decision (ROD) were challenged in federal court.[14] In those cases, the court granted voluntary remand of the 2019 USFWS and NMFS BOs and the 2020 ROD without vacatur and approved an Interim Operations Plan for SWP and CVP operations in 2022, 2023, and 2024.[15]

In 2021, Reclamation, in coordination with Permittee, requested reinitiation of consultation on the long-term operation of the CVP and SWP with both the USFWS and NMFS to address the review of agency actions required by Executive Order 13990 and to voluntarily reconcile CVP operating criteria with operational requirements of the SWP under CESA. Permittee and Reclamation transmitted a final Proposed Action to USFWS and NMFS on October 23, 2024. The new USFWS BO was issued on November 8, 2024 and the NMFS BO was issued on December 6, 2024. They include incidental take statements for Delta Smelt, Longfin Smelt, Sacramento River Winter-run Chinook Salmon, Central Valley Spring-run Chinook Salmon, California Central Valley Steelhead, Southern Resident Killer Whale, and the Southern Distinct Population Segment of Green Sturgeon. These BOs were formally adopted on December 19, 2024, when Reclamation signed its Record of Decision.

17.2 CDFW Incidental Take Permit for Long-Term Operation of the State Water Project in the Sacramento-San Joaquin Delta (2024).

On November 4, 2024, CDFW issued the 2024 ITP (ITP No. 2081-2023-054-00), pursuant to Section 2081 of the California Fish and Game Code, for the ongoing and long-term operation of the SWP's

[14] *Pacific Coast Federation of Fishermen's Associations et al. v. Ross et al*., Case No. 1:20−cv−00431-JLT-EPG, U.S. Dist. Court, Eastern District of California, case filed December 2, 2019; *California Natural Resources Agency et al. v. Ross et al*., Case No. 1:20-cv-00426-JLT-EPG, U.S. Dist. Court, Eastern District of California, case filed February 20, 2020.

[15] *See, e.g., Pacific Coast Federation of Fishermen's Associations v. Raimondo et al.,* No. 1-20-cv-00426-JLT-EPG, Doc. 337 (December 29, 2023) and *California Natural Resources Agency et al. v. Raimondo et al*., No. 1:20-cv-00426-JLT-EPG, Doc. 358 (April 2, 2024).

existing facilities in the Delta and Suisun Marsh. The 2024 ITP includes operations of the following facilities: Banks Pumping Plant (including water transfers), CCF (including herbicide and algaecide application and mechanical aquatic weed removal), Skinner Fish Facility, South Delta Temporary Barriers Project, Georgiana Slough Salmonid Migratory Barrier, BSPP (including fish screen cleaning, sediment removal, and aquatic weed removal), and Suisun Marsh Facilities that include the SMSCG, the RRDS, the MIDS, and GYSO. The 2024 ITP covers aquatic species listed under CESA, or candidate for listing, that are subject to incidental take from long-term operation of the SWP (i.e., Delta Smelt, Longfin Smelt, Sacramento River Winter-run Chinook Salmon, Central Valley Spring-run Chinook Salmon, and White Sturgeon).

17.3 State Water Resources Control Board Water Rights and Decision 1641.
Permittee and Reclamation operate the SWP and the CVP in accordance with the joint obligations under State Water Board Water Rights and Decision 1641 (D-1641), which provides protection for fish and wildlife, municipal and industrial water quality, agricultural water quality, and Suisun Marsh salinity. D-1641 granted Permittee and Reclamation the ability to use or exchange either SWP or CVP diversion capacity capabilities to maximize the beneficial uses of the SWP and CVP. The State Water Board conditioned the use of joint point of diversion capabilities based on staged implementation and conditional requirements for each stage of implementation.

17.4 Healthy Rivers and Landscapes Program.
The California Natural Resources Agency and the California Environmental Protection Agency are leading an effort to negotiate voluntary agreements to increase flows for the environment, create 60,000 acres of new and restored habitat, and provide over $5 billion in new funding for environmental improvements and science, as an approach to implement the State Water Board Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary (Bay-Delta Plan). In March 2022, a Memorandum of Understanding was signed that outlines terms for an 8-year program that would provide new flows for the environment to help recover salmon and other native fish, create new and restored habitat for fish and wildlife, and provide significant funding for environmental improvements and water purchases, the Healthy Rivers and Landscapes Program (HRL). It also outlines a governance and habitat monitoring framework with clear metrics and goals to allow state, federal and local partners to analyze progress, manage adaptively and decide whether the program should be continued, modified or ended after eight years. The HRL is subject to ongoing discussion and has neither been finalized nor adopted by the State Water Board and their implementation is not a Covered Activity of this ITP.

18. Existing Delta Operations Criteria

Operations of the existing Delta SWP and CVP facilities will be governed by the applicable existing and relevant future regulatory requirements. The operations of the SWP will remain consistent with these existing and future regulatory requirements, which include but are not limited to the following:

18.1 Old and Middle River Flows.

The Old and Middle River (OMR) flow criteria chiefly serve to constrain the magnitude of reverse flows in the Old and Middle Rivers to limit fish entrainment into the south Delta. The OMR criteria defined in the regulatory baseline are applicable to operations of the Delta SWP facilities during both Phases 1 and 2.

18.2 State Water Resources Control Board Decision 1641.

18.2.1 Delta Cross Channel Gate Operations Criteria. The operational criteria for the Delta Cross Channel Gates are as specified by State Water Board D-1641. Additional requirements for days closed from October 1 through January 31 were included in the 2019 NMFS Biological Opinion for Long-term Operations of the CVP and SWP and the 2024 NMFS BO (closed based on fish migration from October 1 through December 14 unless adverse water quality conditions). Specifically, D-1641 requires:

- November – January: 45 days of gate closure
- February–May 20: Delta Cross Channel Gates closed
- May 21 – June 15: 14 days of gate closure

18.2.2 Rio Vista Minimum Instream Flow Criteria. Rio Vista minimum instream flow criteria are as specified in the State Water Board D-1641. In order to meet health and safety needs, critical refuge supplies, and obligations to senior water rights holders, the combined CVP and SWP export rates at Jones Pumping Plant and Banks Pumping Plant will not be required to drop below 1,500 cfs and combined SWP export rates at the existing south Delta facilities and new north Delta intakes will not be required to drop below 600 cfs.

18.2.3 Delta Outflow Criteria. Delta outflow criteria are defined in the regulatory baseline, which include the State Water Board D-1641. Delta outflow requirements established under D-1641 will apply to the Project unless the outflow requirements in Conditions of Approval in this ITP are more restrictive.

18.2.4 Export to Inflow Ratio. Export to inflow (E:I) ratio requirements specified in State Water Board D-1641 are applicable to the Project. In computing the E:I ratio, the Sacramento River inflow is measured at Freeport upstream of the north Delta intakes and diversions at north Delta intakes are included in the total export calculation.

19. North Delta Intake Operations and Maintenance

The north Delta intakes will operate in conjunction with the existing SWP and potentially CVP intakes in the south Delta. Operations of the existing SWP facilities, and in coordination with CVP operations pursuant to the COA, will be governed by the applicable regulatory requirements specified under D-1641, the State Water Board Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary (Bay-Delta Plan) and assigned to the SWP in the applicable water right decision, applicable biological opinions under ESA, applicable ITP(s) under CESA, and USACE Clifton Court diversion limits. The operations of the north Delta intakes will remain consistent with these existing and future regulatory requirements. Diversions at the north Delta intakes will be consistent with the criteria described in Conditions of Approval of this ITP and occur in two phases: Phase 1 Operations and Phase 2 Operations. As described in Condition of Approval 11.110 Phase 1 Operations include the Bethany Reservoir Pumping Plant Contractor's Test (Section 19.2.1), the Intake B and C Operational Performance Testing (Section 19.2.2), and Pump Maintenance Activities (Section 19.4). Phase 2 Operations include the Systemwide Commissioning Test (Section 19.2.3), Pump Maintenance Activities (Section 19.4), and subsequent full operations.

19.1 Integration of North Delta Intakes with South Delta Facilities.
The north Delta intakes will operate in conjunction with the existing Banks Pumping Plant and Bethany Reservoir facilities. The north Delta intakes will improve the flexibility of the SWP operations to meet existing regulatory requirements, such as D-1641 Delta salinity requirements. Upstream of Delta facilities will continue to be operated to meet regulatory, environmental, and contractual obligations consistent with existing operations. The Project will not increase the total quantity of water permitted for diversion under Permittee's existing water rights.

During excess conditions in the winter and spring:

- The SWP will first use south Delta facilities to export water up to what is permitted under the existing water rights and all applicable state and federal law and regulations. If operators determine water is available in excess of the amount required to meet state and federal law and regulations consistent with the COA, the north Delta intakes will be used to capture these additional flows. SWP operations will be consistent with existing water rights for total SWP exports (i.e. the existing 10,350-cfs limitation in Permittee's water right will remain and govern combined north and south Delta SWP diversions).
- There will be conditions when diversions through the north Delta intakes are not maximized even when the bypass flow requirements identified in this ITP allow greater diversions. For example, this could occur when operational criteria in other regulatory authorizations are controlling SWP operations, or when south of Delta storage is full.

During balanced conditions in the late spring, summer, and fall, when the SWP is typically operating to meet D-1641 salinity requirements in the Delta:

- Both the existing south Delta intakes and the north Delta intakes will be operated together to meet the D-1641 salinity requirements.
- Some level of combined SWP and CVP south Delta exports will be needed to manage salinity in the Old River and Middle River corridor. If the combined SWP and CVP south Delta exports are less than 3,000 cfs, SWP water will not be diverted through the north Delta diversions.
- Permittee will balance and adjust south Delta exports and the north Delta diversions to meet the State Water Board D-1641 salinity requirements at the western Delta stations on the Sacramento and San Joaquin rivers (e.g., increasing salinity at Jersey Point would cause a shift in diversions from south Delta to north Delta, whereas increasing salinity at Emmaton would cause a shift from north Delta to south Delta). This operation is expected to result in a system operation where less water may be required to meet the same water quality standards and will be studied as required by Condition of Approval 10.21.8.
- Upstream SWP storage operations will continue to be managed under the existing and future regulatory and contractual obligations of the SWP in determining the amount of stored water available for exports.

Shifting from south Delta intakes to north Delta intakes is associated with trade-offs and may be conducted when there is an operational advantage to do so (e.g., to provide additional real-time south Delta fish protections; or to reduce salinity at Jersey Point) and will be consistent with Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114 in this ITP and as informed by Condition of Approval 10.21.8.

19.2 Startup and Commissioning Tests.

19.2.1 Bethany Reservoir Pumping Plant Contractor's Functional Test. The Contractor's Functional Test will occur when the Project's main conveyance tunnel is not yet connected to the Bethany Reservoir Pumping Plant (BRPP), during Phase 1 Operations. Each BRPP discharge aqueduct pipeline will be filled with water either from the Bethany Reservoir or the Bethany Complex construction water pumping station. Permittee will operate the main pumps within the BRPP, recirculating pump discharge flows from the aqueduct back into the BRPP wet well. The Contractor's Functional Test will consist of running each main BRPP pump for six hours, up to three times each. The time to complete this test will be about 13 days total. No more than the volume of the four aqueduct pipelines (approximately 400 acre-feet) of water will be used. Filling of the aqueducts will be performed by the aqueduct contractor as part of leak testing for the pipelines. The Contractor's Functional Test will also be performed consistent with requirements in Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114.

19.2.2 Intake B and C Operational Performance Testing. The Intake B and C Operational Performance Test will occur once the BRPP is connected to the main Project conveyance tunnel and Intakes B and C, during Phase 1 Operations. Performance testing is needed for each intake and pumping plant as part of the construction contract(s) and will be performed concurrently. During each performance test Permittee will operate the pumping plant and intake facilities for up to 28 consecutive days without a major failure occurring within each facility. Should a major failure occur during this test, the facility component that failed will be repaired, adjusted, or replaced and Permittee will restart the test, where the failure occurred from the beginning of the 28-day period. Permittee will operate the pumping plant and Intakes B and C together until successful completion of each 28-day performance test has been achieved for each intake.

For these tests, Sacramento River diversion flows will be used to fill the sedimentation basins at Intakes B and C, the main Project conveyance tunnel, and the BRPP's wet well area. Once the Project system is filled, performance testing of the intakes and pumping plant will occur over a 28-day period at the same 500 cfs constant diversion flow rate, if possible. If mechanical failures occur, the time needed for correctional shutdowns and restarts associated with the BRPP equipment and controls due to major failures plus the time required to initially fill the Project system is estimated to be 7 days. The fourteen BRPP main pumps, each with a flow capacity of 500 cfs, will be operated sequentially, and one at a time (with 48 hours of continuous operation per pump), over the total test period. Pumped flows will discharge into the Bethany Reservoir. Diversion periods for this testing must be scheduled when river sweeping velocities are not expected to fall below operational requirements and be consistent with operational criteria in this ITP (see Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114).

19.2.3 Systemwide Commissioning Tests. Permittee will conduct systemwide commissioning tests within the warranty period of the Project construction contracts, during Phase 2 operations, as described in this ITP. A two-year commissioning period, with Sacramento River diversions available to perform all the testing, is necessary for this testing to be completed. As a result, full systemwide commissioning tests may extend beyond the term of this ITP and necessitate further CESA authorization for additional years of operations to complete. All diverted flows associated with commissioning will be discharged into the Bethany Reservoir. It is expected that Sacramento River diversions up to 6,000 cfs, will occur for short durations during the systemwide commissioning tests, and will be subject to operational criteria in this ITP (see Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114).

Commissioning testing of the Project will be performed to accomplish the following, while maintaining compliance with Conditions of Approval in this ITP (including Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114):

A. Demonstrate hydraulic performance compliance with the fish screen facilities criteria at Intakes B and C, in collaboration with fisheries agencies. Average diversions from the north Delta intakes for testing of the fish screens will range between 1,500 and 3,000 cfs to adequately conduct full system performance conditions. Testing will be limited to 8 - 10 hours per day and conducted over a period of two to three weeks per intake. Permittee will perform these tests over a range of river flow and stage conditions. Because individual screens may be lifted to the surface frequently between performance monitoring and because watercraft and diver activities may be occurring during these tests, fisheries monitoring may not be advisable during these hydraulic testing periods.

B. Operate north Delta intakes to establish and maintain north Delta intake diversion flow capacities to flush sediment within the Project main conveyance tunnel. A minimum diversion rate of 3,000 cfs for a period of seven days is required to flush the tunnel. Permittee will coordinate flushing the Project conveyance tunnel with hydraulic compliance testing of the fish screens at Intakes B and C.

C. Conduct operational sequencing of the BRPP main pumps and connect pumping equipment and controls within the BRPP to demonstrate they correctly and reliably function as required and identify and perform all warranty work required under the construction contract(s). Testing will include full-time operation of the main BRPP pumps when diversions from the north Delta intakes are allowed. Pumps will be sequenced such that all pumps receive a similar operating duration over the entire commissioning period, to the extent possible.

D. Conduct operational sequencing of the fish screens, control and isolation sluice gates systems, radial gates, and control systems at Intakes B and C to demonstrate they correctly and reliably function as required and identify and perform all warranty work required under the construction contract(s).

E. Confirm all control time delays and related set-points to operate the Project correctly. Perform adjustments and testing as required, and as much as possible, during commissioning.

Items C, D and E above are expected to take approximately three to six months. However, a 2-year period could be needed for the overall commissioning period because the activities would not necessarily be contiguous depending on the seasonal ability to divert higher flows. The range of north Delta diversions (total divisions from both Intake B and C, collectively referenced as NDD) for these tests will be 500 to 6,000 cfs and will conform to operational criteria as set forth in Conditions of Approval in this ITP (see Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114). Commissioning testing will require diversion volumes of 270 to 540 TAF to complete the series of systemwide commissioning tests (over an assumed two-year period). For

this commissioning period it is assumed that NDD of up to 4,500 cfs will be available for 8-10 hours per day over a total of 14 non-consecutive days and NDD of up to 6,000 cfs will be available for 8-10 hours per day over a total of 4 non-consecutive days.

19.3 Intake Maintenance Activities.

Permittee will conduct maintenance activities at the intakes at varying frequencies during Phase 1 and Phase 2 operations. Daily maintenance activities will include inspections, security checks, and operations oversight. Less frequent maintenance activities include operability testing, cleaning, sediment removal, dewatering, and repaving. The cylindrical tee fish screens and panels will be regularly inspected and maintained by manual cleaning to remove algae and other biofouling not cleaned by the automatic cleaning system. The screens will be raised out of the water and power washed with a high-pressure power washer approximately every six months. Permittee will sediment jet the apron area below the screens at the base of the screen structure in the water to help keep sediment from accumulating on an hourly or daily basis, depending on needs. Permittee will inspect the screens and panels while in place and operating once or twice per year, often in conjunction with manual screen cleaning activities and consistent with Conditions of Approval 10.28 and 10.29.

The debris fender at the upstream end of the log boom and the log boom will require maintenance to prevent corrosion and related deterioration. Debris will be removed manually from the top deck of the structure, by workers on boats, or by divers. Sedimentation basins will be dredged once per year using a portable floating hydraulic suction dredge. Dredging will occur May through September to maximize natural drying in the sediment drying lagoons. The dredge will discharge a sediment slurry into the sediment drying lagoons where it will follow the same process utilized for treating sediment derived from the water column and obtained from the water diverted from the north Delta intakes (see Section 3.2 Sedimentation Basins and Drying Lagoons).

19.4 Pump Maintenance Activities.

Maintenance diversions may be necessary on approximately a monthly basis throughout the year to perform routine maintenance and testing of the main water supply pumps during Phase 1 and Phase 2 operations. The maintenance flow diversion rate is one-half of a pump's rated capacity for one day per month per unit (up to a maximum of 300 cfs). Maintenance diversions will meet the approach and velocity requirements and operating criteria described in Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114. If the pumps in the BRPP are not able to operate at least once a month during normal operations, maintenance diversions may be needed. If Permittee is operating the system for water supply, maintenance diversions and the associated maintenance activities will already be occurring during operations.

20. Operational Decision-Making Process

The operations criteria (Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114) are intended to minimize the impacts of operating the north Delta intakes. Real-time discussions

specific to the north Delta intake operations will incorporate review of real-time abiotic and fish monitoring data and ensure proposed weekly, daily, and sub-daily operations are consistent with the Conditions of Approval in this ITP.

20.1 Studies and Monitoring to Inform Phase 2 Operations.
During the time from ITP issuance through Phase 1 Operations, Permittee will conduct studies as required by Conditions of Approval in this ITP. The required studies and monitoring will gather additional information and be used consistent with Conditions of Approval 10.18.

20.2 Real-Time Decision-Making Framework.
Under the 2024 ITP, during periods of fishery concern for Delta SWP operations, operators and fishery biologists meet frequently (typically weekly). Forecasted conditions and projected operations for the week ahead are presented to Salmon, Smelt and White Sturgeon technical monitoring teams and are considered in real-time while taking into account fish monitoring data and other relevant information. With this weekly outlook, any potential concerns or real-time operational considerations are developed and presented to a Water Operations Management Team comprised of representatives from six agencies: CDFW, Permittee, Reclamation, USFWS, NMFS, and State Water Board. This general process will continue during Phase 1 and Phase 2 operations as follows:

- **Daily**—During the winter and spring period, Permittee and CVP operators (schedulers) will assess the hydrologic and Delta conditions to determine if excess flows are present (e.g., flows exceeding what is required to meet applicable state and federal regulatory requirements). If additional flows are available, Permittee will schedule a daily diversion volume from the north Delta intakes, consistent with the Project operational criteria (Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114). Permittee's combined existing south Delta and north Delta diversions will not exceed total SWP export limits permitted under existing water rights (Condition of Approval 11.114). Scheduled diversion volumes from the north Delta intakes will be coordinated with other SWP and CVP operations.

- **Sub-Daily**—Permittee will operate the north Delta intakes within the physical constraints at each intake and consistent with Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114, including minimum sweeping velocities and allowable approach velocities.

- **Delta Monitoring Workgroup** - Permittee will convene the Delta Monitoring Workgroup (DMW) each week that the North Delta Diversion Monitoring Team (NDDMT) meets to discuss risk assessments and available modeling and hydrologic and biological data. Interested parties as a part of the DMW may provide information and supporting documentation for Permittee WOMT representative to share with CDFW WOMT representative. If WOMT representatives

do not reach consensus on an operational outcome, interested party supporting documentation will be provided to the Directors for consideration of their final decision.

20.2.1 Real-Time Actions.

Near Field: Permittee will adhere to fish screen performance criteria, including facility performance in meeting approach velocity compliance and sweeping velocity necessary to minimize entrainment and impingement impacts and consistent with requirements in Conditions of Approval 10.27, 10.27.1, 10.27.2, 10.27.3, 10.28, and 11.109.

- Permittee will provide and monitor real-time flows through each of the north Delta intake screen units to demonstrate approach velocity compliance. Intake design will incorporate computational modeling to demonstrate compliance with operating criteria. Permittee will conduct field measurements and baffle adjustments during commissioning and Phase 1 and Phase 2 operations consistent with Conditions of Approval 10.27 and 10.28, to ensure compliance with Project operating criteria (Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114). Individual intake screen unit flows will also be quantified and summed to determine the full diversion flow at each intake.

- Permittee will provide and monitor a velocity/flow gage upstream of each intake facility. Additionally, a flow gage downstream of Intake C will be installed and maintained consistent with Condition of Approval 10.20.1 in this ITP. All flow gages installed upstream and downstream of intakes will be used to demonstrate sweeping velocity performance.

    - Permittee will install and maintain velocity/flow gages (i.e., Acoustic Doppler Current Profilers) downstream of each intake facility, along with an additional acoustic fish monitoring station (similar to side-scan sonar technology as described below in Far Field), to investigate fish distribution within the river's flow/velocity field. Permittee will also install a new velocity/flow gage downstream of Intake C consistent with Condition of Approval 10.20.1. Gages and fish acoustic monitoring stations will be installed and operated consistent with Conditions of Approval 10.19.1, 10.19.3, and 10.20.1 in this ITP. In conjunction with the intake facility flow measurements, these velocity/flow gauges will be used during facility operations to demonstrate screen sweeping-velocity performance. For example, following planned full-facility velocity performance evaluations, the average downstream river velocity will be correlated to each intake facility's sweeping-velocity performance and diversions adjusted as needed to meet criteria.

- Permittee will calculate flow variables necessary to implement operating criteria in Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114 according to the plan per Conditions of Approval 10.20.1 and 11.109.

- As part of compliance monitoring, Permittee will conduct sub-sampling at each intake to assess the level of protection provided by fish screens for Covered Fish Species[16] consistent with Project design/assumptions and Condition of Approval 10.21.3.

- Permittee will use side-scan sonar technology (e.g., biosonic) to estimate presence and movement of migrating juvenile Chinook Salmon-sized fish.

Far Field: Permittee will implement information sharing to facilitate communication regarding north Delta diversion operations as follows.

Weekly, Permittee will provide the following to CDFW for the previous week:

- Daily and 3-day average Wilkins Slough, Freeport, and bypass flows including the daily NDD rates.
- Identification of the operating criteria in effect on each day.
- Modeled Chinook salmon through-Delta survival values.
- Fish monitoring data (e.g., Knight's Landing Rotary Screw Traps catch index) in addition to CHNWR and CHNSR juvenile production estimate and migration status (e.g., estimated fraction of population upstream, in Delta, past Chipps).

Weekly, Permittee will provide the following to CDFW for the upcoming week:

- Forecasted range of daily average Wilkins Slough and Freeport flows.
- Estimated range of NDD rates.
- NDD criteria that will likely be in effect.
- Modeled through-Delta survival estimates for the likely bypass flows.
- Data from side-scan sonar technology (e.g., biosonic) to estimate presence and movement of migrating juvenile Chinook salmon-sized fish.

21. The Following Components Are Not Included as Covered Activities.

Activities not covered by this ITP and its take authorization include, but are not limited to, the following:

- Flood control.
- Execution of SWP contracts.

[16] This ITP uses "Covered Fish Species" to reference DS, LFS, CHNWR, CHNSR, and WS.

- Any previously identified or potential future habitat restoration.
- SWP south Delta facilities, operations, and agreements.
- SWP Curtis Landing Release site and SWP little Baja and Manzo Ranch Release Sites.
- SWP Barker Slough Pumping Plant fish screen cleaning, sediment removal, and / or aquatic weed removal.
- CVP facilities, operations, and agreements.
- Existing ongoing monitoring programs or modifications to existing ongoing monitoring programs.
- Operations and maintenance activities beyond the term of this ITP.
- Use of rodenticides within the Project Area during any Project Phase, including preconstruction, construction, maintenance, or operation (Condition of Approval 11.5).
- CCWD operations or operations of the Rock Slough Intake.
- Actions to abandon or relocate wells identified through the underground well detection plan (Condition of Approval 11.24).
- Oroville Dam and Feather River operations.
- Road modifications or subsequent actions on roads where asphalt overlays are planned. These locations include W. Peltier Road, W. Eight Mile Road, the 0.2-mile segment of Dierssen Road west of the Twin Cities Complex, the portions of SR 160 outside of the north Delta intake construction footprint, Bonetti Road, Clifton Court Road, Hood Franklin Road, and Port of Stockton Expressway.
- Initial mitigation sites identified for Project Activities and their impacts expected to cause incidental take of Covered Species.

V. Covered Species Subject to Take Authorization Provided by this ITP:

This ITP covers the following species:

Name	CESA/NPPA Status[17]
1. California tiger salamander (*Ambystoma californiense*)	Threatened[18]
2. Giant garter snake (*Thamnophis gigas*)	Threatened[19]
3. Swainson's hawk (*Buteo swainsoni*)	Threatened[20]
4. Tricolored blackbird (*Agelaius tricolor*)	Threatened[21]

[17] Under CESA, a species may be on the list of endangered species, the list of threatened species, or the list of candidate species. Under the NPPA, a plant species may be designated as endangered or rare.
[18] See Cal. Code Regs. tit. 14 § 670.5, subd. (b)(3)(G)
[19] See Cal. Code Regs. tit. 14 § 670.5, subd. (b)(3)(E)
[20] See Cal. Code Regs. tit. 14 § 670.5, subd. (b)(5)(A)
[21] See Cal. Code Regs. tit. 14 § 670.5, subd. (b)(5)(H)

5. Crotch bumble bee (*Bombus crotchii*) Candidate[22]
6. Mason's lilaeopsis (*Lilaeopsis masonii*) Rare[23]
7. Delta smelt (*Hypomesus transpacificus)* Endangered[24]
8. Longfin smelt (*Spirinchus thaleichthys*) Threatened[25]
9. Winter-run Chinook salmon (*Oncorhynchus tshawytscha*) Endangered[26]
10. Spring-run Chinook salmon (*Oncorhynchus tshawytscha*) Threatened[27]
11. White sturgeon (*Acipenser transmontanus*) Candidate[22]

These species and only these species are the "Covered Species" for the purposes of this ITP.

VI. Impacts of the Taking on Covered Species:

Project activities described above are expected to result in the incidental take of individuals of the Covered Species. Project activities described above expected to result in incidental take of individuals of the Covered Species include the following: Project preconstruction activities including field investigations, geotechnical explorations, and on-site restoration; Project construction activities including construction of and improvements to access roads, construction and maintenance of electrical and SCADA facilities, construction of the north Delta intakes, tunnel conveyance and facility construction and maintenance, construction and maintenance of the Bethany Complex, construction and maintenance of support facilities, construction of the CCWD interconnection facilities, construction and maintenance of wildlife exclusion fencing, RTM placement and storage, and site reclamation; Project operations including facility maintenance activities, startup and commissioning tests (Phase 1), and full project operations (Phase 2) including intake and pump maintenance activities as well as facilities maintenance activities.

Impacts of the authorized taking also include adverse impacts to the Covered Species related to temporal losses, increased habitat fragmentation and edge effects, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include stress resulting from

[22] Take of this species is prohibited, unless otherwise authorized by the Department, during the period that the Fish and Game Commission considers a petition seeking its listing as an endangered or threatened species and determines whether the petitioned action is warranted. (See Cal. Reg. Notice Register 2019, No. 45-Z p. 1986 [Crotch bumble bee] and Cal. Reg. Notice Register 2024, No. 28-Z p. 591 [White sturgeon].) The status of either species may change following the decision of the Fish and Game Commission to designate the species as threatened or endangered but if there is such a designation, the species will remain a Covered Species.

[23] See Cal. Code Regs. tit. 14 § 670.2, subd. (c)(3)(A)

[24] See Cal. Code Regs. tit. 14 § 670.5, subd. (a)(2)(O)

[25] See Cal. Code Regs. tit. 14 § 670.5, subd. (b)(2)(E)

[26] See Cal. Code Regs. tit. 14 § 670.5, subd. (a)(2)(M)

[27] See Cal. Code Regs. tit. 14 § 670.5, subd. (b)(2)(C)

noise and vibration from construction activities, capture and relocation, and long-term effects due to increased pollution, displacement from preferred habitat, increased competition for food and space resources, and increased vulnerability to predation, food entrainment, and water quality degradation.

The areas where authorized take of the Covered Species is expected to occur include Project components located in Sacramento County, San Joaquin County, Alameda County, and Contra Costa County, and all fish-bearing waterways within the legal Delta and Suisun Marsh, including rivers, sloughs, and other channels (collectively, the Project Area).

1. California tiger salamander (*Ambystoma californiense*)

Project activities and their resulting impacts are expected to result in the incidental take of California tiger salamander (CTS) individuals. The Covered Activities expected to result in incidental take of CTS individuals include Project preconstruction activities, construction, maintenance, and operational activities including: 1) field investigations and geotechnical exploration, 2) tunnel conveyance and facility construction and maintenance, 3) construction and maintenance of the Bethany Complex, 4) construction and maintenance of construction support facilities, 5) construction or improvement of access roads, 6) construction and maintenance of electrical and SCADA facilities, 7) construction and maintenance of wildlife exclusion fencing, and 8) site reclamation. These activities specifically include initial site preparation; heavy equipment movement and operations; groundwater testing and monitoring; site and soil clearing; grubbing, dredging, grading, drilling, boring, excavating, trenching, and backfilling; in-water and on-land pile driving; soil compaction, tilling, and rotation; minor bridge construction; overland vehicle and foot traffic; installation and/or removal of cutoff walls, equipment, and other structures; handling of stockpiles, stored materials, and placement of fills; utility potholing; tower and pole construction; line stringing; nighttime lighting; construction and operational facility spoil removal, maintenance, and repair; vegetation clearing and maintenance (mowing, trimming, application of herbicides or pesticides); access road widening, paving, repaving, and/or grading; dewatering; and capture, handling, and relocation of CTS.

Incidental take of CTS in the form of mortality (“kill“) may occur as a result of heavy equipment strikes, materials or spoils placement, and/or vegetation maintenance (entombment, crushing, and/or suffocation); burrow collapse associated with earthwork (e.g., trenches or open pipelines, operation of geotechnical exploration), vegetation removal, herbicide or pesticide exposure, rodent control, and vehicle and foot traffic (entombment, crushing of individuals or burrows, or suffocation); equipment laydown, clearing, excavations, grading, grubbing, drilling, trenching, laying of foundations, backfilling, pile driving, planting (direct contact with sharp objects and/or blunt-force trauma); entanglement in erosion control materials, exclusion fencing, or construction staging materials (desiccation, strangulation, immobility, vulnerability to predation); increased light, noise, and vibration (inappropriate emergence from burrows, energetic expenses, exposure to predation and elements); and poisoning from construction-related contaminants such as fuels, oil, and steering

fluid (suffocation, immobility, injury, reduction in prey resources). Incidental take of CTS individuals may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so of the Covered Species from salvage, collection for identification, and/or relocation out of harm's way as required by this ITP.

Impacts of the authorized taking also include adverse impacts to CTS individuals related to temporal losses, increased habitat fragmentation and edge effects, lighting at night, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include: stress resulting from human or equipment presence (visual disturbance), odor, noise, and/or vibrations from ground disturbance, light disturbance, equipment operation, and traffic (inappropriate emergence from burrow, energetic expenses, increased vulnerability to predation and elements); stress resulting from noise and vibrations from capture and relocation; increased exposure or stress from disorientation; introduction or spread of invasive species (competition for food and space, introduction to disease and parasites); loss of burrowing habitat used for shelter, reproduction, and escape cover (increased vulnerability to predation and elements); direct or secondary poisoning from construction or operation-related contaminants, contaminated substrates, hazardous materials, and vehicle and equipment fuels and fluids (illness or injury, habitat degradation, water quality degradation); and long-term effects due to displacement from preferred habitat, barriers to movement, and increased travel distance to breeding habitat (decreased reproductive output, energetic expenses, exposure to predation and elements), changes in drainage patterns (favoring different vegetative growth), and/or increased pollution, fugitive dust, or release of other contaminants affecting the long-term survival of CTS. Lastly, a fire sparked as a result of a battery or other equipment could result in burning or loss of habitat (change in vegetation composition) and food supply (change in prey resources). Individuals displaced due to habitat loss and degradation may be unable to survive in adjacent areas if these areas are at carrying capacity or are unsuitable for colonization.

The Project is expected to cause the permanent loss of 0.20 acres of CTS aquatic habitat and 68.37 acres of suitable CTS upland habitat on non-CDFW lands. On CDFW lands, the Project is expected to cause the permanent loss of 4.04 acres of suitable upland habitat. The Project is also expected to cause the temporary loss of 18.21 acres of temporary suitable upland habitat on non-CDFW lands and 0.87 acres of suitable upland habitat on CDFW lands. There will be no temporary loss of CTS aquatic habitat. Consistent with the expected Project footprint for preconstruction field investigations, the 100-foot corridor along the surface of the conveyance tunnels is considered a permanent impact where it crosses CTS habitat, due to the continued need for site access from Project vehicle and foot traffic for monitoring and maintenance activities for a duration greater than one year. Authorized take of CTS individuals is expected to occur within the Project components located in Alameda County and Contra Costa County.

2. Giant garter snake (*Thamnophis gigas*)

Project activities and their resulting impacts are expected to result in the incidental take of giant garter snake (GGS) individuals. The Covered Activities expected to result in incidental take of GGS individuals include Project preconstruction activities, construction, maintenance, and operational activities including: 1) field investigations and geotechnical explorations, 2) construction of the north Delta intakes, 3) tunnel conveyance and facility construction and maintenance, 4) construction and maintenance of the Bethany Complex, 5) construction and maintenance of construction support facilities, 6) construction and maintenance of the CCWD interconnection facilities, 7) RTM placement and storage, 8) construction or improvement of access roads, 9) construction and maintenance of electrical and SCADA facilities, 10) construction and maintenance of wildlife exclusion fencing, and 11) site reclamation. These activities specifically include initial site preparation; heavy equipment movement and operations; groundwater testing and monitoring; site and soil clearing; grubbing, dredging, grading, drilling, boring, excavating, trenching, and backfilling; in-water and on-land pile driving; soil compaction, tilling, and rotation; levee, railroad spur, and minor bridge construction; overland vehicle and foot traffic; installation and/or removal of cutoff walls, equipment, and other structures; handling of stockpiles, stored materials, and placement of fills; utility potholing; tower and pole construction; line stringing; limited nighttime lighting; construction and operational spoil removal, maintenance, and repair; vegetation clearing and maintenance (mowing, trimming, application of herbicides or pesticides); access road widening, paving, repaving, and/or grading; dewatering; and capture, handling, and relocation of GGS.

Incidental take of GGS individuals in the form of mortality (“kill“) may occur as a result of heavy equipment strikes, materials or spoils placement, and/or vegetation maintenance, (crushing or entombment of individuals or burrows); burrow collapse associated with earthwork (e.g., trenches or open pipelines, operation of geotechnical exploration), vegetation removal, herbicide or pesticide exposure, rodent control, and vehicle and foot traffic (entombment, crushing, or suffocation); construction disturbance from clearing, excavating, grading, grubbing, drilling, trenching, laying of foundations, backfilling, pile driving, vehicle and foot traffic (direct contact with sharp objects and/or blunt-force trauma, entombment); entanglement or entrapment in erosion control materials, exclusion fencing, construction staging materials, excavated steep-wall holes, trenches, construction materials (e.g., pipes, culverts), and construction debris (strangulation, immobility); increased light, noise and vibration (inappropriate emergence from burrows/refugia, energetic expenses, exposure to predation and elements); and poisoning from construction-related contaminants such as fuels, oil, and steering fluid (suffocation, immobility, injury). Incidental take of GGS individuals may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so of the Covered Species from salvage, collection for identification, and/or relocation out of harm's way as required by this ITP.

Impacts of the authorized taking also include adverse impacts to GGS related to temporal losses, increased habitat fragmentation and edge effects, lighting at night, and the Project's incremental

contribution to cumulative impacts (indirect impacts). These impacts include: stress and displacement resulting from human or equipment presence (visual disturbance), odor, noise, and/or vibrations from ground disturbance, light disturbance, equipment operation, and traffic (inappropriate emergence from burrow, energetic expenses, exposure to predation and elements); stress resulting from noise and vibrations from capture and relocation; increased exposure or stress from disorientation; introduction or spread of invasive species (competition for food and space, introduction to disease and parasites); loss of burrowing habitat and other refugia used for shelter, shedding, digestion, reproduction, thermoregulation, and escape cover (increased vulnerability to predation and elements); increased exposure to direct or secondary poisoning from construction and operation related contaminants in water (e.g., methylmercury, CHABs, selenium), contaminated substrates, hazardous materials, and vehicle and equipment fuels and fluids (illness or injury, habitat degradation, water quality degradation); and long-term effects due to displacement from preferred habitat, barriers to movement, and increased travel distance to breeding habitat (decreased reproductive output, energetic expenses, exposure to predation and elements); changes in drainage patterns (degradation of water quality, changes favoring different vegetative growth); and/or increased pollution, fugitive dust, or release of other contaminants affecting the long-term survival of GGS. Lastly, a fire sparked as a result of a battery or other equipment could result in burning or loss of habitat (change in vegetation composition) and food supply (change in prey resources). Individuals displaced due to habitat loss and degradation may be unable to survive in adjacent areas if these areas are at carrying capacity or are unsuitable for colonization.

The Project is expected to cause the permanent loss of 22.83 acres of suitable GGS aquatic habitat and 96.29 acres of suitable GGS upland habitat on non-CDFW lands. On CDFW lands, the Project is expected to cause the permanent loss of 0.83 acres of suitable aquatic habitat and 1.59 acres of suitable upland habitat. The Project is also expected to cause the temporary loss of 13.70 acres of suitable aquatic habitat and 37.36 acres of suitable upland habitat on non-CDFW lands, and 0.18 acres of suitable aquatic habitat and 0.34 acres of suitable upland habitat on CDFW lands. Consistent with the expected Project footprint for preconstruction field investigations, the 100-foot corridor along the surface of the conveyance tunnels is considered a permanent impact where it crosses GGS habitat, due to the continued need for site access from Project vehicle and foot traffic for monitoring and maintenance activities for a duration greater than one year. Authorized take of GGS individuals is expected to occur within the Project components located in Sacramento County, San Joaquin County, Alameda County, and Contra Costa County.

3. Swainson's hawk (*Buteo swainsoni*)

Project activities and their resulting impacts are expected to result in the incidental take of Swainson's hawk (SWHA) individuals. The Covered Activities expected to result in the incidental take of SWHA individuals include Project preconstruction activities, construction, maintenance, and operational activities including: 1) field investigations and geotechnical explorations, 2) construction of the north Delta intakes, 3) tunnel conveyance and facility construction and maintenance, 4)

construction and maintenance of the Bethany Complex, 5) construction and maintenance of construction support facilities, 6) construction of the CCWD interconnection facilities, 7) RTM placement and storage, 8) construction or improvement of access roads, 9) construction and maintenance of electrical and SCADA facilities, 10) construction and maintenance of no activity buffers, and 11) site reclamation. These activities specifically include initial site preparation; heavy equipment movement and operations; groundwater testing and monitoring; site and soil clearing; grubbing, grading, drilling, boring, excavating, trenching, and backfilling; in-water and on-land pile driving; soil compaction, tilling, and rotation; levee, railroad spur, and minor bridge construction; overland vehicle and foot traffic; installation and/or removal of cutoff walls, equipment, and other structures; handling of stockpiles, stored materials, and placement of fills; utility potholing; tower and pole construction; line stringing; nighttime lighting; construction and operational spoil removal, maintenance, and repair; vegetation clearing and maintenance (mowing, trimming, application of herbicides or pesticides); access road widening, paving, repaving, and/or grading; and capture, handling, and relocation of injured SWHA or abandoned nestlings.

Incidental take of SWHA individuals in the form of mortality ("kill**"**) during the breeding season (February 28 - September 15) may occur in SWHA nesting habitat within 0.5 miles of construction activities, or during facilities operations and/or maintenance activities as a result of collisions/strikes with vehicles, equipment, or transmission lines (crushing individuals and foraging resources); electrocutions from transmission lines and transmission line poles; construction disturbance from clearing, excavating, grading, grubbing, drilling, trenching, laying of foundations, backfilling, pile driving, vehicle and foot traffic, helicopters, light disturbances (nest abandonment and exposure to predation and the elements, energetic expenses, foraging and nesting behavior disruption, nesting habitat quality reduction); tree trimming or tree removal (nest disturbance, abandonment, damage, or destruction); vehicles, equipment, and workers approaching nest trees too closely or touching/disturbing a nest tree (nest abandonment, eggs and nestlings exposure to predation and elements); and poisoning from construction-related contaminants such as fuels, oil, and steering fluid, herbicides or pesticides (suffocation, immobility, illness or injury, reduction in prey resources). Incidental take of individuals of the Covered Species may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so when obtaining/trapping an injured SWHA or abandoned nestling.

Impacts of the authorized taking also include adverse impacts to SWHA related to temporal losses, increased habitat fragmentation and edge effects, lighting at night, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include: the removal of nest trees during the nonbreeding season (September 16 – February 27); competition for suitable, protective nest sites; stress and displacement resulting from human or equipment presence (visual disturbance), traffic, odor disturbance, noise, and/or vibrations from ground disturbance, light disturbance, and equipment operation causing potential displacement from preferred habitat to less protective habitat and interference with breeding (energetic expenses, habitat degradation, loss of

fitness in dependent young from interruptions to brooding and/or feeding schedules); disturbances, alterations, or removal of foraging habitat (starvation, energetic expenses from further foraging distances); stress resulting from capture and relocation; increased exposure or stress from disorientation; direct or secondary poisoning from construction-related contaminants in contaminated water, contaminated substrates, hazardous materials, and vehicle and equipment fuels and fluids (illness or injury, habitat degradation); introduction or spread of invasive species (increased interaction, competition for food and space); increased pollution, fugitive dust, or release of other contaminants affecting the health and long term survival of SWHA. Lastly, a fire sparked as a result of a battery or other equipment could result in burning or loss of habitat (change in vegetation composition) and food supply (change in prey resources). Individuals displaced due to habitat loss and degradation may be unable to survive in adjacent areas if these areas are at carrying capacity or are unsuitable for colonization.

The Project is expected to cause the permanent loss of 1,916.41 acres of suitable SWHA foraging habitat and 22.01 acres of suitable SWHA nesting habitat on non-CDFW lands. On CDFW lands, the Project is expected to cause the permanent loss of 4.17 acres of suitable foraging habitat and 2.38 acres of suitable nesting habitat. The Project is also expected to cause the temporary loss of 161.81 acres of suitable foraging habitat and 8.09 acres of suitable nesting habitat on non-CDFW lands, and 0.90 acres of suitable foraging habitat and 0.51 acres of suitable nesting habitat on CDFW lands. Consistent with the expected Project footprint for preconstruction field investigations, the 100-foot corridor along the surface of the conveyance tunnels is considered a permanent impact where it crosses SWHA habitat, due to the continued need for site access from Project vehicle and foot traffic for monitoring and maintenance activities for a duration greater than one year. Authorized take of SWHA individuals is expected to occur within the Project components located in Sacramento County, San Joaquin County, Alameda County, and Contra Costa County.

4. Tricolored blackbird (*Agelaius tricolor*)

Project activities and their resulting impacts are expected to result in the incidental take of tricolored blackbird (TRBL) individuals. The Covered Activities expected to result in the incidental take of TRBL individuals include Project preconstruction activities, construction, maintenance, and operational activities including: 1) field investigations and geotechnical explorations, 2) construction of the north Delta intakes, 3) tunnel conveyance and facility construction and maintenance, 4) construction and maintenance of the Bethany Complex, 5) construction and maintenance of construction support facilities, 6) construction of the CCWD interconnection facilities, 7) RTM placement and storage, 8) construction or improvement of access roads, 9) construction and maintenance of electrical and SCADA facilities, 10) construction and maintenance of no activity buffers, and 11) site reclamation. These activities specifically include initial site preparation; heavy equipment movement and operations; groundwater testing and monitoring; site and soil clearing; grubbing, grading, drilling, boring, excavating, trenching, and backfilling; in-water and on-land pile driving; soil compaction, tilling, and rotation; levee, railroad spur, and minor bridge construction; overland vehicle and foot

traffic; installation and/or removal of cutoff walls, equipment, and other structures; handling of stockpiles, stored materials, and placement of fills; utility potholing; tower and pole construction; line stringing; nighttime lighting; construction and operational spoil removal, maintenance, and repair; vegetation clearing and maintenance (mowing, trimming application of herbicides or pesticides); access road widening, paving, repaving, and/or grading; dewatering; and capture, handling, and relocation of injured TRBL or abandoned nestlings.

Incidental take of TRBL individuals in the form of mortality ("kill") may occur as a result of construction equipment or vehicle strikes and/or materials placement (crushing individuals, occupied nest colonies, and foraging resources); collisions/strikes and/or electrocutions from transmission lines and transmission line poles; construction disturbance from clearing, excavating, grading, grubbing, drilling, trenching, laying of foundations, backfilling, pile driving, vehicle and foot traffic, helicopters (nest crushing and/or abandonment and exposure to predation and the elements, energetic expenses, foraging and nesting behavior disruption, nesting habitat quality reduction); entanglement in erosion control materials and/or exclusion fencing (strangulation, immobility); vegetation removal (nest exposure to predation and elements); and poisoning from construction or operation-related contaminants such as fuels, oil, and steering fluid, herbicides or pesticides. Incidental take of individuals of the Covered Species may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so when TRBL individuals or abandoned eggs/nestlings are salvaged, collected for identification, and/or relocated out of harm's way as required by this ITP.

Impacts of the authorized taking also include adverse impacts to TRBL related to temporal losses, increased habitat fragmentation and edge effects, lighting at night, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include: stress and displacement resulting from human or equipment presence (visual disturbance), noise, odor disturbance, vibrations from ground disturbance, light disturbance, equipment operation, and traffic causing potential displacement from preferred habitat to less protective habitat and interference with breeding (energetic expenses, habitat degradation; loss of fitness in dependent young from interruptions to brooding and/or feeding schedules); removal or disturbance of roosting habitat impacting protective roosting opportunities; ground vibrations; stress resulting from capture and relocation; direct or secondary poisoning from construction and operation-related contaminants (e.g., methylmercury, CHABs, selenium), contaminated substrates, hazardous materials, and vehicle and equipment fuels and fluids (illness or injury, habitat degradation, water quality degradation); changes in drainage patterns (degradation of water quality, changes favoring different vegetative growth); increased exposure or stress from disorientation; vegetation removal causing a loss or alteration in suitable nesting and roosting substrate or displaced nesting to less protective habitat; introduction or spread of invasive species (increased interaction, competition for food and space); introduction of perching substrate for predators at transmission line poles and towers (increased vulnerability to predation); loss of foraging habitat that affects survival, or TRBL juvenile mortality

due to reduced foraging opportunities (starvation); and increased pollution, fugitive dust, or release of other contaminants affecting the health and long term survival of TRBL. Lastly, a fire sparked as a result of a battery or other equipment could result in burning or loss of habitat (change in vegetation composition) and food supply (change in prey/foraging resources). Individuals displaced due to habitat loss and degradation may be unable to survive in adjacent areas if these areas are at carrying capacity or are unsuitable for colonization.

The Project is expected to cause the permanent loss of 1,725.32 acres of suitable TRBL breeding foraging habitat, 1,725.32 acres of suitable TRBL nonbreeding foraging habitat, and 7.98 acres of suitable TRBL nesting habitat on non-CDFW lands. On CDFW lands, the Project is expected to cause the permanent loss of 7.27 acres of suitable breeding foraging habitat, 7.27 acres of suitable nonbreeding foraging habitat, and 0.62 acres of suitable nesting habitat. The Project is also expected to cause the temporary loss of 180.05 acres of breeding foraging habitat, 180.05 acres of nonbreeding foraging habitat, and 1.88 acres of nesting habitat on non-CDFW lands, and 1.57 acres of breeding foraging habitat, 1.57 acres of nonbreeding foraging habitat, and 0.13 acres of nesting habitat on CDFW lands. Consistent with the expected Project footprint for preconstruction field investigations, the 100-foot corridor along the surface of the conveyance tunnels is considered a permanent impact where it crosses TRBL habitat, due to the continued need for site access from Project vehicle and foot traffic for monitoring and maintenance activities for a duration greater than one year. Authorized take of TRBL individuals is expected to occur within the Project components located in Sacramento County, San Joaquin County, Alameda County, and Contra Costa County.

5. Crotch bumble bee (*Bombus crotchii*)

Project activities and their resulting impacts are expected to result in the incidental take of Crotch bumble bee (CBB) individuals. The Covered Activities expected to result in incidental take of individuals of the Covered Species include Project preconstruction activities, construction, maintenance, and operational activities including: 1) field investigations and geotechnical explorations, 2) construction of the north Delta intakes, 3) tunnel conveyance and facility construction and maintenance, 4) construction and maintenance of the Bethany Complex, 5) construction and maintenance of construction support facilities, 6) construction of the CCWD interconnection facilities, 7) construction or improvement of access roads, 8) construction and maintenance of electrical and SCADA facilities, 9) construction and maintenance of no activity buffers, and 10) site reclamation. These activities specifically include initial site preparation; groundwater testing and monitoring; heavy equipment operation; site and soil clearing; grubbing, grading, drilling, boring, excavating, trenching, and backfilling; in-water and on-land pile driving; soil compaction; levee, railroad spur, and minor bridge construction; overland vehicle and foot traffic; installation and/or removal of cutoff walls, equipment, and other structures; handling of stockpiles, stored materials, and placement of fills; utility potholing; tower and pole construction; line stringing; nighttime lighting; construction and operational spoil removal, maintenance, and repair; vegetation

clearing and maintenance (mowing, trimming, application of herbicides or pesticides); access road widening, paving, repaving, and/or grading; and capture, handling, and relocation of CBB.

Incidental take of CBB individuals in the form of mortality ("kill") may occur as a result of equipment or vehicle strikes and/or materials placement (crushing individuals, nest colonies, and foraging resources); burrow collapse associated with earthwork, vegetation removal and/or vehicle passage (entombment, crushing, suffocation, foraging habitat degradation); equipment laydown, clearing, excavating, grading, grubbing, drilling, trenching, laying of foundations, backfilling, pile driving, planting (direct contact with sharp objects and/or blunt-force trauma); placement of spoils and/or fill materials (entombment, crushing, and/or suffocation); entanglement in erosion control materials and/or exclusion fencing (strangulation, immobility); and poisoning from construction or operation-related contaminants such as fuels, oil, and steering fluid, herbicides or pesticides. Incidental take of individuals of the Covered Species may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so of the Covered Species from salvage, collection for identification, and/or relocation out of harm's way as required by this ITP.

Impacts of the authorized taking also include adverse impacts to CBB individuals related to temporal losses, increased habitat fragmentation and edge effects, lighting at night, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include: construction disturbance causing potential displacement from preferred habitat to less protective habitat; secondary poisoning from construction-related contaminants (illness or injury, habitat degradation); decreased food supply through changes in composition of floral nectar resources (starvation); increased interaction with pathogens, non-native honey bees, or other invasive species (competition for food and space, introduction to disease, introduction of parasites); stress and/or displacement from human or equipment presence (visual disturbance), odor, noise, and/or vibrations from ground disturbance, light disturbance, equipment operation, and traffic (inappropriate emergence from nest, energetic expenses, exposure to predation and elements); stress resulting from capture; and increased pollution, fugitive dust, or release of other contaminants affecting the long-term survival of CBB individuals. Lastly, a fire sparked as a result of a battery or other equipment could result in burning or loss of habitat (change in vegetation composition) and food supply (change in foraging resources). Individuals displaced due to habitat loss and degradation may be unable to survive in adjacent areas if these areas are at carrying capacity or are unsuitable for colonization.

The Project is expected to cause the permanent loss of 129.64 acres of suitable CBB habitat on non-CDFW lands and 7.25 acres of suitable CBB habitat on CDFW lands. The Project is also expected to cause the temporary loss of 49.17 acres of suitable CBB habitat on non-CDFW lands and 1.57 acres of suitable CBB habitat on CDFW lands. Consistent with the expected Project footprint for preconstruction field investigations, the 100-foot corridor along the surface of the conveyance tunnels is considered a permanent impact where it crosses CBB habitat, due to the continued need for site access from Project vehicle and foot traffic for monitoring and maintenance activities for a

duration greater than one year. Authorized take of CBB individuals is expected to occur within the Project components located in Sacramento County, San Joaquin County, Alameda County, and Contra Costa County.

6. Mason's lilaeopsis (*Lilaeopsis masonii*)

Project activities and their resulting impacts are expected to result in the incidental take of Mason's lilaeopsis (MALI) individuals. The Covered Activities expected to result in the incidental take of MALI individuals include Project preconstruction activities, construction, maintenance activities, and operational activities including: 1) field investigations and geotechnical explorations, 2) construction of the north Delta intakes, 3) tunnel conveyance and facility construction and maintenance, 4) construction and maintenance of the Bethany Complex, 5) construction or improvement of access roads, 6) construction and maintenance of electrical and SCADA facilities, 7) construction and maintenance of no-activity buffers, and 8) site reclamation. These activities specifically include initial site preparation; heavy equipment movement and operations; groundwater testing and monitoring; site and soil clearing; grubbing, dredging, grading, drilling, boring, trenching, excavating, and backfilling; in-water and on-land pile driving; soil compaction; levee, railroad spur, and minor bridge improvements or construction; overland vehicle and foot traffic; installation and/or removal of cutoff walls, equipment, and other structures; handling of stockpiles, stored materials, and placement of fills; utility potholing; tower and pole construction; line stringing; nighttime lighting; construction and postconstruction operational spoil removal, maintenance, and repair; vegetation clearing and maintenance (mowing, trimming, application of herbicides or pesticides); access road widening, paving, repaving, and/or grading; dewatering; and handling and transplanting of MALI.

Incidental take of MALI individuals in the form of mortality ("kill") may occur as a result of equipment, land and marine vehicles, or foot traffic strikes (crushing seeds, emergent, and mature plants); vegetation control and clearing activities (spraying, clearing, grubbing, and grading); equipment staging, laydown, clearing, excavating, grading, grubbing, drilling, trenching, laying of foundations, backfilling, pile driving, planting (direct contact with sharp objects, crushing and removing MALI); ground disturbing activities (growth inhibition, life cycle changes); sedimentation and erosion (loss of suitable habitat, crushing MALI); altered surface water flows (reduction of habitat suitability); placement of spoils and/or fill materials (crushing); and poisoning from construction and operation-related contaminants such as fuels, oil, and steering fluid, herbicides or pesticides. Incidental take of individuals of the Covered Species may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so when individuals of the Covered Species are collected for identification, and/or transplanted out of harm's way as required by this ITP.

Impacts of the authorized taking also include adverse impacts to the Covered Species related to temporal losses, increased habitat fragmentation and edge effects, lighting at night, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include stress resulting from sedimentation, erosion, and/or vibrations from ground disturbance, light disturbance,

equipment laydown and operation, and traffic (loss of seed bank, growth inhibition and life cycle change, exposure to the elements); change in water flows (degraded water quality, life cycle change, loss of suitable habitat); introduction or spread of nonnative invasive species (competition for nutrients and space, introduction to disease and parasites); direct or secondary contamination from construction-related pollutants in contaminated water, contaminated substrates, hazardous materials, and vehicle and equipment fuels and fluids (disease, habitat degradation); stress resulting from capture and transplantation; and long-term effects due to displacement from preferred habitat, changes in drainage patterns (degradation of water quality, changes favoring different vegetative growth), and/or increased pollution, fugitive dust, or release of other contaminants affecting the long-term survival of MALI. Lastly, a fire sparked as a result of a battery or other equipment could result in burning or loss of habitat (change in vegetation composition).

The Project is expected to cause the permanent loss of 2.12 acres of suitable MALI habitat on non-CDFW lands and 0.05 acres of suitable MALI habitat on CDFW lands. The Project is also expected to cause the temporary loss of 0.42 acres of suitable MALI habitat on non-CDFW lands and 0.01 acres of suitable MALI habitat on CDFW lands. Consistent with the expected Project footprint for preconstruction field investigations, the 100-foot corridor along the surface of the conveyance tunnels is considered a permanent impact where it crosses MALI habitat, due to the continued need for site access from Project vehicle and foot traffic for monitoring and maintenance activities for a duration greater than one year. Authorized take of MALI individuals is expected to occur within the Project components located in Sacramento County, San Joaquin County, Alameda County, and Contra Costa County.

7. Delta smelt (*Hypomesus transpacificus*) and longfin smelt (*Spirinchus thaleichthys*)

Project construction activities and their resulting impacts are expected to result in the incidental take of individuals of Delta smelt (DS) and longfin smelt (LFS). The Covered Activities described above that are expected to result in incidental take of individuals of DS and LFS include: construction activities at the north Delta intakes such as pile driving and placement of riprap, cofferdams installation, and barge and tugboat operations.

Incidental take of DS and LFS individuals in the form of mortality ("kill") may occur as a result of construction Covered Activities. Exposure to underwater noise associated with impact pile driving may lead to direct mortality. Exposure to other underwater noise generated by cofferdam installation, riprap placement, dredging, and barge operations may impair survival through behavioral responses, physiological stress, temporary and permanent hearing loss, and tissue damage (auditory and non-auditory). Increased turbidity and suspended sediment associated with cofferdam installation, dredging, pile driving, and barge operations may result in burial of DS and LFS eggs and embryos. Resuspension of sediment associated with cofferdam installation, dredging, pile driving, and barge operations may lead to lethal exposure of DS and LFS individuals to contaminants. Contaminant spills associated with cofferdam installation and barge operations may damage gill

tissue leading to asphyxiation and may inhibit growth and survival as a result of increased stress or reduced feeding. Direct mortality of DS and LFS may occur as a result of stranding during installation of cofferdams; direct contact with equipment or materials including falling rock (riprap), sheetpiles, dredges, or barge propellers in open waters; exposure to violent "prop wash" conditions associated with barge operations; and stranding due to vessel wake action. Incidental take of individuals of DS and LFS may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so as the result of minimization measures involving fish collection, handling, transportation and release.

Impacts of the authorized taking also include adverse impacts to DS and LFS related to migration disruption, increased habitat fragmentation, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include non-lethal stress due to underwater noise and vibrations from pile driving, barge operations, dredging, increased turbidity and sedimentation, long-term effects due to increased contamination, loss of food resources from construction disturbances, and displacement from habitat. The creation of new predator habitat from the Covered Activities at the north Delta intakes and barge landings has the potential to lead to an increased vulnerability of DS and LFS to predation mortality.

Construction of the Project will result in reduced habitat extent and reduced habitat access for smelt species. The overall footprint of construction activities is approximately 1.55 acres of temporary impact and approximately 5.57 acres of permanent impact to tidal perennial habitat. In addition, adult DS migration to access shallow water for spawning upstream of the north Delta intakes may be permanently blocked or impeded by the presence of cofferdams and subsequent intake construction, restricting access to lower velocity, nearshore habitat for migrating adult DS. Project construction may permanently impede smelt access to an estimated footprint of 500.6 acres of upstream shallow water spawning habitat. DS utilize tidal surfing to move upstream to shallow water habitats during migration and require low velocity channel margin habitat to continue their migration when tidal influence becomes negligible. Although LFS are potentially stronger swimmers than DS, they have also been detected historically upstream of the north Delta intakes and are susceptible to construction effects. Project construction impedes migration to spawning habitat through the affected reach of the Sacramento River from behavioral responses to construction activity and from loss of low velocity shoreline habitat.

The areas where authorized take of DS and LFS is expected to occur due to Covered Activities are: north Delta intakes B and C (the east bank of the Sacramento River between Clarksburg and Courtland at river miles 39.4 and 36.8), Snodgrass Slough, and Burns Cut. Barge operation routes originating from the Port of Stockton and transiting through the Sacramento and Stockton deepwater ship channels, the Sacramento River channel above Rio Vista, the San Joaquin River, the Mokelumne River system, Snodgrass Slough, Potato Slough, Middle River, and Old River to reach terminal barge locations. Waterbody intersections with TBM routes at Beaver Slough (1 intersection),

Disappointment Slough (1 intersection), Hayes Slough (1 intersection), Hog Slough (1 intersection), Middle River (1 intersection), Mokelumne River (1 intersection), Old River (2 intersection), San Joaquin River (1 intersection), Snodgrass Slough (2 intersection), Sycamore Slough (1 intersection), Victoria Canal (1 intersection), West Canal (1 intersection), Whiskey Slough (1 intersection), White Slough (2 intersection).

The Project activities associated with operations and maintenance described within this ITP and their impacts are expected to result in the incidental take of DS and LFS. The Covered Activities included in this ITP that are expected to result in incidental take of DS and LFS include operations and maintenance of the north Delta intakes.

North Delta Intakes- Incidental take of all life stages of DS and LFS in the form of mortality ("kill") may occur as a result of operations and maintenance of the north Delta intakes both through near field effects and far field effects.

Near field effects from operations and maintenance include mortality from impingement and screen contact as DS and LFS swim by the north Delta intakes. Additionally, north Delta intakes can entrain both DS and LFS larvae as they migrate downstream and also entrain food web resources, such as zooplankton and phytoplankton, for both DS and LFS. Near field effects also include increases in predation mortality due to the intake pipes acting as a refuge for predators and also changes in turbidity levels from sediment jetting at the base of the screen structure and sediment entrainment that may make DS and LFS more vulnerable to predation and less effective in locating prey. Maintenance activities at the north Delta intakes also have the potential to impact near field water quality through the release of sediment and vegetation from cylindrical tee screens washing and sediment jetting.

Far field effects from the north Delta intakes include adverse impacts to DS and LFS from incremental contribution to cumulative impacts (indirect impacts). Project NDDs will result in limited access to spawning habitat upstream of the north Delta intakes by acting as a barrier to migration. Project NDDs will also reduce downstream habitat quality from reduced Sacramento River flows below the intakes. Reduced Sacramento River flows, as indexed by lower Delta outflow and more upstream X2 position, can decrease food web resources throughout the Delta, reduce the recruitment of LFS, decrease the habitat extent and quality of the low salinity zone used by DS, exacerbate harmful algal blooms in rearing habitat downstream of Rio Vista, and increase selenium levels due to a shift in San Joaquin River flows.

In addition to startup and commissioning operations (Phase 1) and associated impacts, Phase 2 operations include comprehensive operations that will occur in coordination with south SWP Delta facilities and CCWD facilities. Analyses of comprehensive operations show an increase in the frequency with which X2 is upstream of 80 km from June through September in wet, above normal,

and below normal water year types, reducing DS low-salinity zone habitat in the summer and fall. Phase 2 operations are also expected to decrease LFS juvenile survival as a result of a reduction in Delta outflow as shown through modeled LFS Fall Midwater Trawl Index changes from baseline conditions, where baseline is considered south Delta export facility operations only.

The additional areas where authorized take of the Covered Species is expected to occur include: the Sacramento River downstream of the Feather River confluence, the Delta, Suisun Marsh, and Suisun Bay.

8. Winter-run Chinook salmon and Spring-run Chinook salmon (*Oncorhynchus tshawytscha*)

Project construction activities and their resulting impacts are expected to result in the incidental take of Winter-run Chinook salmon (CHNWR) and Spring-run Chinook salmon (CHNSR) individuals. The Covered Activities described within this ITP that are expected to result in incidental take of CHNWR and CHNSR include: construction activities at the north Delta intakes such as pile driving and placement of riprap, cofferdams installation, geotechnical investigations, barge and tugboat operations.

Incidental take of CHNWR and CHNSR individuals in the form of mortality ("kill") may occur as a result of Covered Activities. Exposure to underwater noise associated with impact pile driving may lead to direct mortality. Exposure to other underwater noise generated by cofferdam installation, riprap placement, geotechnical investigations, dredging, TBM activities and barge operations may impair survival through behavioral responses, physiological stress, temporary and permanent hearing loss, and tissue damage (auditory and non-auditory). Resuspension of contaminated sediment associated with geotechnical exploration, riprap placement, cofferdam installation, levee clearing and grading, dredging, pile driving, and barge operations may lead to lethal exposure of CHNWR and CHNSR individuals. Contaminant spills associated with geotechnical exploration, cofferdam installation, levee clearing and grading, and barge operations may damage gill tissue leading to asphyxiation and may inhibit growth and survival as a result of increased stress or reduced feeding. Direct mortality of CHNWR and CHNSR may occur as a result of stranding during installation of cofferdams; direct contact with equipment or materials including falling rock (riprap), sheet piles, dredges, or barge propellers in open waters; exposure to violent "prop wash" conditions associated with barge operations; and stranding due to vessel wake action. Incidental take of individuals of CHNWR and CHNSR may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so as the result of minimization measures involving fish collection, handling, transportation and release.

Impacts of the authorized taking also include adverse impacts to CHNWR and CHNSR related to temporal losses and increased habitat fragmentation, through the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include stress resulting from underwater noise and vibrations from pile driving, barge operations, dredging, increased turbidity and

sedimentation, capture and relocation, long-term effects due to increased contamination, and displacement from habitat. The creation of new predator habitat at the north Delta intakes may increase juvenile CHNWR and CHNSR vulnerability to predation.

Construction of the Project will result in reduced habitat extent and reduced habitat access for CHNWR and CHNSR. The overall footprint of construction activities is approximately 1.55 acres of temporary impact and approximately 5.57 acres of permanent impact to tidal perennial habitat. The footprint effect on channel margin habitat in the Sacramento River is approximately 494 linear feet of temporary impact and approximately 3,124 linear feet of permanent impact.

The areas where authorized take of CHNWR and CHNSR is expected to occur due to Covered Activities include: north Delta intakes B and C (the east bank of the Sacramento River between Clarksburg and Courtland at river miles 39.4 and 36.8), Snodgrass Slough and Burns Cut; barge operation routes originating from the Port of Stockton and transiting through the Stockton and Sacramento deepwater ship channels, the Sacramento River channel above Rio Vista, the San Joaquin River, the Mokelumne River system, Snodgrass Slough, Potato Slough, Middle River, and Old River to reach terminal barge locations; waterbody intersections with TBM routes at Beaver Slough (1 intersection), Disappointment Slough (1 intersection), Hayes Slough (1 intersection), Hog Slough (1 intersection), Middle River (1 intersection), Mokelumne River (1 intersection), Old River (2 intersection), San Joaquin River (1 intersection), Snodgrass Slough (2 intersection), Sycamore Slough (1 intersection), Victoria Canal (1 intersection), West Canal (1 intersection), Whiskey Slough (1 intersection), White Slough (2 intersection).

The Project activities associated with operations and maintenance as described in this ITP and their impacts are expected to result in the incidental take of CHNWR and CHNSR. The Covered Activities included in this ITP which are expected to result in incidental take of individuals of CHNWR and CHNSR include operations and maintenance of the north Delta intakes.

North Delta Intakes - Incidental take of CHNWR and CHNSR in the form of mortality ("kill") may occur as a result of operations and maintenance of the north Delta intakes by means of entrainment, impingement, and screen contact. North Delta Diversions (NDDs) from the intakes may also result in reduced through-Delta survival via reduced flow volume and velocity below the north Delta intakes that impact suitable rearing and migration habitat. Operation and maintenance activities of the north Delta intakes are anticipated to alter water quality near the intake structures, potentially impacting habitat conditions, routing, and survival within the intake reach.

Impacts of the authorized taking associated with Project operations and maintenance also include indirect impacts to CHNWR and CHNSR related to temporal losses, increased habitat fragmentation, and the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include increased migration time of emigrating fry, parr, and smolts leading to increased vulnerability

to predation, other sources of mortality and injury, and greater risk of entry into migration routes with higher mortality such as Georgiana Slough. Risk of entry into the interior Delta, where mortality rates of juvenile salmonids are relatively higher, is expected to increase with operations of the Project because reduced net flow downstream of the NDDs would result in greater tidal influence and, therefore, more reverse flow at the Sacramento River junction with the Delta Cross Channel (DCC) and Georgiana Slough. Vulnerability to predation is expected to increase in the vicinity of the north Delta intakes due to the creation of new predator habitat related to the in-water intake structures. The areas where authorized take of the CHNWR and CHNSR is expected to occur include: the location of the north Delta intakes at the east bank of the Sacramento River between Clarksburg and Courtland at RMs 39.4 and 36.8 and the Delta downstream of the NDDs.

In addition to startup and commissioning operations (Phase 1) and associated impacts, impacts of Phase 2 operations will include increased exposure to entrainment of juvenile and adult CHNWR and CHNSR from the Sacramento River into unfavorable habitats through increased frequency and duration of reverse flows in the Sacramento River as well as the Old and Middle rivers and increased juvenile vulnerability to predation as a result of NDD operations that analyses show may exacerbate existing impacts of Banks Pumping Plant operations.

The additional areas where authorized take of the Covered Species is expected to occur include: the Sacramento River downstream of the Feather River confluence, the Delta, Suisun Marsh, and Suisun Bay.

9. White Sturgeon (*Acipenser transmontanus*)

Project construction activities and their resulting impacts are expected to result in the incidental take of White sturgeon (WS) individuals. The Covered Activities described above that are expected to result in incidental take of WS include: construction activities at the north Delta intakes such as pile driving and placement of riprap, cofferdams installation, geotechnical investigations, barge and tugboat operations.

Incidental take of WS individuals in the form of mortality (“kill”) may occur as a result of Covered Activities. Exposure to underwater noise associated with impact pile driving may lead to direct mortality. Exposure to other underwater noise generated by cofferdam installation, riprap placement, geotechnical investigations, dredging, tunnel boring machine (TBM) activities, and barge operations may impair survival through behavioral responses, physiological stress, temporary and permanent hearing loss, and tissue damage (auditory and non-auditory). Resuspension of contaminated sediment associated with geotechnical exploration, riprap placement, cofferdam installation, levee clearing and grading, dredging, pile driving, and barge operations may lead to lethal exposure of WS individuals. Contaminant spills associated with geotechnical exploration, cofferdam installation, levee clearing and grading, and barge operations may damage gill tissue leading to asphyxiation and may inhibit growth and survival as a result of increased stress or reduced

feeding. Direct mortality of WS may occur as a result of stranding during installation of cofferdams; direct contact with equipment or materials including falling rock (riprap), sheet piles, dredges, or barge propellers in open waters; exposure to violent "prop wash" conditions associated with barge operations; stranding due to vessel wake action; and boat strikes by increased exposure to barges for construction activities. Incidental take of individuals of WS may also occur from the Covered Activities in the form of pursue, catch, capture, or attempt to do so as the result of minimization measures involving fish collection, handling, transportation and release.

Impacts of the authorized taking also include adverse impacts to WS related to temporal losses and increased habitat fragmentation, through the Project's incremental contribution to cumulative impacts (indirect impacts). These impacts include stress resulting from underwater noise and vibrations from pile driving, barge operations, dredging, increased turbidity and sedimentation, capture and relocation, long-term effects due to increased contamination, and displacement from habitat. The creation of new predator habitat at the north Delta intakes may increase juvenile WS vulnerability to predation.

Construction of the Project will result in reduced habitat extent and reduced habitat access for WS. The overall footprint of construction activities is approximately 1.55 acres of temporary impact and approximately 5.57 acres of permanent impact to tidal perennial habitat. The footprint effect on channel margin habitat in the Sacramento River is approximately 494 linear feet of temporary impact and approximately 3,124 linear feet of permanent impact.

The areas where authorized take of WS is expected to occur due to Covered Activities are: north Delta intakes B and C (the east bank of the Sacramento River between Clarksburg and Courtland at river miles 39.4 and 36.8), Snodgrass Slough and Burns Cut. Barge operation routes originating from the Port of Stockton and transiting through the Stockton and Sacramento deepwater ship channels, the Sacramento River channel above Rio Vista, the San Joaquin River, the Mokelumne River system, Snodgrass Slough, Potato Slough, Middle River, and Old River to reach terminal barge locations. Waterbody intersections with TBM routes at Beaver Slough (1 intersection), Disappointment Slough (1 intersection), Hayes Slough (1 intersection), Hog Slough (1 intersection), Middle River (1 intersection), Mokelumne River (1 intersection), Old River (2 intersection), San Joaquin River (1 intersection), Snodgrass Slough (2 intersection), Sycamore Slough (1 intersection), Victoria Canal (1 intersection), West Canal (1 intersection), Whiskey Slough (1 intersection), White Slough (2 intersection).

The Project activities associated with operations and maintenance as described in this ITP and their impacts are expected to result in the incidental take of WS. The Covered Activities included in this ITP which are expected to result in incidental take of individuals of WS include operations and maintenance of the north Delta intakes.

North Delta Intakes - Incidental take of larval, young-of-year (YOY), and juvenile WS in the form of mortality ("kill") may occur as a result of operations and maintenance of the north Delta intakes through entrainment, impingement, and screen contact. NDDs may also result in reduced survival of juvenile and YOY WS resulting from reduced flow volume and velocity below the north Delta intakes that impact juvenile and YOY recruitment success.

Impacts of the authorized taking associated with Project operations and maintenance include adverse impacts to WS related to the Project's incremental contribution to cumulative impacts (indirect effects). Project NDDs will cause hydrodynamic effects that will result in impacts to all life stages of WS. These impacts include increased larvae and juvenile vulnerability to predation in the Delta, reduction in habitat quantity and quality for rearing fish, impaired feeding opportunities, entrainment of food web resources. Additionally, reduction in Delta outflow resulting from Project operation of the north Delta intakes, particularly in wetter years and those immediately succeeding wetter years, reduces the frequency of conditions required for WS to have successful spawning, larval rearing, and juvenile recruitment.

In addition to startup and commissioning operations (Phase 1) and associated impacts, impacts of Phase 2 operations will include increased exposure to entrainment of larval, juvenile, and subadult WS from the Sacramento River into unfavorable habitats through increased frequency and duration of reverse flows in the Sacramento River as well as the Old and Middle rivers and increased larval and juvenile vulnerability to predation as a result of NDD operations that analyses show may exacerbate existing impacts of Banks Pumping Plant operations.

The additional areas where authorized take of the Covered Species is expected to occur include: the Sacramento River downstream of the Feather River confluence, the Delta, Suisun Marsh, and Suisun Bay.

VII. Incidental Take Authorization of Covered Species:

This ITP authorizes incidental take of the Covered Species and only the Covered Species. With respect to incidental take of the Covered Species, CDFW authorizes the Permittee, its employees, contractors, and agents to take Covered Species incidentally in carrying out the Covered Activities, subject to the limitations described in this section and the Conditions of Approval identified below. This ITP does not authorize take of Covered Species from activities outside the scope of the Covered Activities, take of Covered Species outside of the specified construction and operational Project component areas (located within the Project Area), take of Covered Species resulting from violation of this ITP, or intentional take of Covered Species except for surveying, capture, management, and relocation of Covered Species as authorized by this ITP.

VIII. Conditions of Approval:
Unless specified otherwise, the following measures apply to all Covered Activities within the Project Area. CDFW's issuance of this ITP and Permittee's authorization to take the Covered Species are subject to Permittee's compliance with and implementation of the following Conditions of Approval:

1. **Legal Compliance:** Permittee shall comply with all applicable federal, state, and local laws in existence on the effective date of this ITP or adopted thereafter.

2. **CEQA Compliance:** Permittee shall implement and adhere to the mitigation measures related to the Covered Species in the Biological Resources section of Final Environmental Impact Report (SCH No.: 2020010227) certified by DWR on December 21, 2023 as lead agency for the Project pursuant to CEQA (Pub. Resources Code, § 21000 et seq.).

3. **LSA Agreement Compliance:** Permittee shall implement and adhere to the mitigation measures and conditions related to the Covered Species in any Lake and Streambed Alteration Agreement (LSAA) for the Project executed by CDFW pursuant to Fish and Game Code section 1600 et seq.

4. **ESA Compliance:** Permittee shall consult with CDFW regarding any USFWS Biological Opinion or NMFS Biological Opinion for construction or operation of the Delta Conveyance Project pursuant to the Federal Endangered Species Act (ESA), as described in Condition of Approval 8. For purposes of this ITP, where the terms and conditions for the Covered Species in the federal authorization are less protective of the Covered Species or otherwise conflict with this ITP, the conditions of approval set forth in this ITP shall control.

5. **ITP Time Frame Compliance:** Permittee shall fully implement and adhere to the conditions of this ITP within the time frames set forth below.

6. **Phase Authorizations for Pre-implementation and Construction Activities:** Permittee may not begin any Phase of construction for the Project until Permittee has obtained authorization (Construction Phase Authorization) from CDFW, as described below in Conditions of Approval 6.1 and 6.2. For the purposes of this ITP, a Construction Phase is defined as any combination of the preconstruction or construction-related Covered Activities described in sections 1 through 14 of the Project Description and includes any maintenance activities that are to be completed within a period of 13 years, or other timeframe if agreed upon by CDFW in writing.

6.1 Pre-implementation Phase Authorization Package.
Prior to initiation of any Covered Activity, Permittee shall submit a complete Pre-implementation Phase Authorization Package for CDFW's review and approval. The Pre-implementation Phase Authorization Package shall include a completed Phase Authorization Form (ITP Attachment 6), monitoring and management plans as described in this ITP (e.g., Conditions of Approval 10.17,

11.19.1,11.23, 11.24, 11.30, 11.31.1, 11.34, 11.36) and final protocol-level species and habitat survey methodology for CTS, GGS, SWHA, TRBL, CBB, and MALI consistent with Condition of Approval 11.38. Permittee shall submit the completed Pre-implementation Phase Authorization Package no less than one year before initiation of preconstruction activities, regardless of whether preconstruction activities will have temporary or permanent impacts.

6.1.1 CDFW Review Timelines. CDFW will have 60 calendar days from receipt of the Pre-implementation Phase Authorization Package to determine if the Pre-implementation Phase Authorization Package is consistent with this ITP. If CDFW determines the Pre-implementation Phase Authorization Package is not consistent with this ITP and Permittee resubmits the package, CDFW will have an additional 60 days to review from the date of resubmittal. If Permittee, on its own initiative, revises or otherwise changes and resubmits the Pre-implementation Phase Authorization Package during CDFW's review, CDFW will have an additional 60 days to review from the date of resubmittal. Permittee must receive a copy of the Pre-implementation Phase Authorization Package signed by CDFW prior to commencing any Covered Activities including any preconstruction activities.

6.2 Construction Phase Authorization Package.

For each Construction Phase of the Project, including all stages of construction (preconstruction including field investigations, geotechnical exploration, and on-site restoration; construction or improvements of access roads; construction and maintenance of electrical and SCADA facilities; tunnel conveyance and facility construction and maintenance; construction and maintenance of the north Delta intakes; construction and maintenance of the Bethany Complex; construction and maintenance of construction support facilities; construction and maintenance of CCWD interconnection facilities; RTM placement and storage; and site reclamation), Permittee shall submit a complete Construction Phase Authorization Package for CDFW's review and approval 90 days prior to the commencement of Covered Activities defined in that Phase. The Construction Phase Authorization Package shall be submitted to WBSWPPermitting@wildlife.ca.gov. This process ensures appropriate minimization measures are identified and implemented as Permittee develops and undertakes specific Covered Activities and Project details are better known. The Construction Phase Authorization Package shall include:

- A completed Phase Authorization Form (ITP Attachment 6), including an annual schedule of the specific Covered Activities to be implemented, their locations, and expected permanent and temporary impacts on Covered Species and their habitats associated with the proposed Construction Phase as well as calculations of the amounts of compensatory mitigation due for that Phase.

- A biological report assessing the Construction Phase Project Site(s) and describing the methodology used to conduct site specific surveys, as approved in the Pre-implementation

Phase Authorization, including a discussion of any CDFW-approved plans or protocols as applicable.

- A habitat delineation showing both land cover types and the specific Covered Species habitats that will be impacted within the Construction Phase Project Site(s). The delineation shall also identify where specific Covered Activities will occur and include any areas where maintenance activities may occur within the Construction Phase or succeeding it.

- Baseline preconstruction species survey results (Conditions of Approval 11.42, 11.56, 11.71, 11.84, 11.96, 11.97, 11.105) completed in accordance with the CDFW-approved Pre-implementation Phase Authorization (Condition of Approval 6.1).

- An engineering plan showing all activities to occur within the Construction Phase Project Sites. Engineering plans shall be at 95% design complete, unless otherwise agreed upon by CDFW in writing.

- Any required site-specific plans for management and/or monitoring required by this ITP (e.g., Conditions of Approval 10.8, 10.11, 11.21, 11.22, 11.25, 11.26, 11.29, 11.30, 11.33, 11.34, 11.35, 11.37, 11.51, 11.67, 11.73, 11.80, 11.92, 11.98, 11.102, 11.108, 12.3.3, 12.4).

- A complete description of all avoidance, minimization, and mitigation measures that are applicable to the Phase, including site specific information as required by Conditions of Approval in this ITP, identification and justification for site-specific deviation from species avoidance measure(s) (e.g., Conditions of Approval 11.40, 11.49,11.55, 11.60, 11.82, 11.95) or buffer zone(s) (e.g., 11.57, 11.62, 11.83, 11.97, 11.98, 11.106)as a result of property and/or Project access limitations, calculation of necessary compensatory mitigation acreages or other actions in response to impacts of the Phase activities, and schedules that will be implemented to ensure that compensatory mitigation measures required by Condition of Approval 12 are implemented in accordance with time limitations in this ITP, and updated estimated costs of minimization and mitigation implementation.

The Phase Authorization Form shall remain in substantially the same form as the template in Attachment 6. Any changes to the Phase Authorization Form shall be approved by CDFW, in writing.

6.3 CDFW Review of the Construction Phase Authorization Package.
CDFW will review the Construction Phase Authorization Package provided by Permittee to confirm: (1) the Phase falls within the scope of Covered Activities authorized by this ITP, (2) all applicable ITP Conditions of Approval have been included in the Construction Phase Authorization Package, and (3) the Phase, if implemented in accordance with the Construction Phase Authorization Package, would be consistent with this ITP.

6.3.1 CDFW Review Timelines. CDFW will have 60 calendar days from receipt of the Construction Phase Authorization Package to determine if the Construction Phase Authorization Package is consistent with this ITP. If CDFW determines the Construction Phase Authorization Package is not consistent with this ITP and Permittee resubmits the package per Condition of Approval 6.4, CDFW will have an additional 60 days to review. If Permittee, on its own initiative, revises or otherwise changes and resubmits the Construction Phase Authorization Package during CDFW's review, CDFW will have an additional 60 days to review. Permittee must receive a copy of the Construction Phase Authorization Package signed by CDFW prior to commencing any Covered Activities under the applicable Phase under this ITP.

6.3.2 Consistency with ITP. CDFW will review and sign the Phase Authorization Form for the Construction Phase submitted if it finds that all requirements and processes in ITP Conditions of Approval 6.1 and 6.2 have been met. Unless CDFW determines that an amendment is required, CDFW will not add additional Conditions of Approval in the Construction Phase Authorization that are not contained within this ITP. CDFW will provide Permittee with the CDFW-signed Phase Authorization Form which signifies CDFW's determination that the Construction Phase, if implemented as detailed in that Construction Phase Authorization Package, is consistent with this ITP.

6.4 Resubmittal of Construction Phase Authorization Package.

If CDFW finds that a proposed Phase as described in the Construction Phase Authorization Package is inconsistent with this ITP, CDFW will provide written notice to Permittee and explain the actions necessary to address any inconsistency. If a Construction Phase Authorization Package is determined to be inconsistent or Permittee withdraws the Construction Phase Authorization Package, then Permittee will have no incidental take authorization for the Phase under this ITP. Permittee may resubmit a Construction Phase Authorization Package that has previously been found to be inconsistent with this ITP after attempting to address in writing any deficiencies identified by CDFW. Permittee may also request amendment to this ITP to identify changes to the Project or modified or additional minimization or mitigation measures, if necessary.

6.4.1 Additional Information Required. If CDFW finds that a proposed Phase as described in the Construction Phase Authorization Package does not contain enough information to determine if the Phase is consistent with this ITP, CDFW will respond in writing to Permittee with the additional information that is necessary to determine the Construction Phase Authorization Package is consistent with this ITP. Once the Construction Phase Authorization Package is resubmitted to CDFW, the 60-calendar day timeline will begin as described in Condition of Approval 6.3.1.

6.5 Amendment of Construction Phase Authorization Package.

Following signature from CDFW confirming that the Construction Phase Authorization Package is consistent with this ITP, the Construction Phase Authorization Package will be automatically

incorporated by reference into this ITP. Any amendments or other types of changes to the CDFW-signed Construction Phase Authorization Package, including extensions, will be processed by CDFW in accordance with Condition of Approval 8 and Section IX of this ITP, CESA's implementing regulations, and other applicable law.

7. Phase Authorizations for Operations Activities:

Permittee shall not begin Phase 2 Operations until Permittee has obtained authorization (Phase 2 Authorization) from CDFW, as described below in Conditions of Approval 7.1 and 7.2. For the purposes of this ITP, Phase 2 Operations are defined as any operations by the Project resulting in diversions from the north Delta intakes greater than diversions authorized as a part of Phase 1 Operations and as described in Section 19 of the Project Description and includes long-term Project maintenance activities associated with permanent access roads, electrical and SCADA facilities, tunnel conveyance and facilities, intake facilities, and the Bethany Complex.

7.1 Phase 2 Authorization Package.

No more than 120 days before the initiation of Phase 1 Operations Permittee shall submit a complete Phase 2 Authorization Package for CDFW's review and approval. The Phase 2 Authorization Package shall be submitted to WBSWPPermitting@wildlife.ca.gov. The Phase 2 Authorization Package shall include:

- A completed Phase Authorization Form (ITP Attachment 6), including an annual schedule of the specific Covered Activities to be implemented, their locations, and expected permanent and temporary impacts on Covered Species and their habitats associated with Phase 1 and Phase 2 operations and any ongoing facilities maintenance as well as calculations of the amounts of compensatory mitigation due for Phase 1 and Phase 2 operations, and maintenance activities through the duration of the ITP.

- Biological Modeling for Covered Fish Species: Models shall include, but are not limited to DS, LFS, CHNWR, CHNSR, and WS life cycle models and species-specific models needed to assess compliance with Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, 11.117).

- Joint Operations Modeling: CalSim and subsequent biological modeling conducted as required by Condition of Approval 10.21.8 that evaluates joint north and south Delta SWP facility operations, considering CVP coordinated operations, and incorporates updated hydrology and regulatory conditions.

- Covered Fish Species Science and Monitoring Requirements: Information and analysis in final CDFW-approved reports as required by Conditions of Approval 10.18, 10.19, 10.20, and 10.21, along with Permittee's characterization of baseline conditions and analysis of the potential

effect of Phase 2 Operations on Covered Fish Species including potential uncertainties in results.

- Preconstruction Engineering Studies: All final reports required by Conditions of Approval 10.23, 10.24, 10.25, and 10.26.

- Operations Monitoring Studies: Information, data and analyses of results of operations monitoring studies conducted as required by Conditions of Approval 10.27, 10.28, 10.29, and 10.30.

- Final Project Engineering Design: Permittee shall provide documentation describing one hundred percent (100%) Project design with sufficient detail to enable assessment of the feasibility of compliance with Conditions of Approval in this ITP.

- A complete description of all applicable avoidance, minimization, and mitigation measures and any site-specific plans that are applicable to Phase 1 and Phase 2 operations and any ongoing facilities maintenance (e.g., Conditions of Approval 11.21, 11.22, 11.25, 11.26, 11.29, 11.51, 11.67, 11.80, 11.92, 11.98, 11.102, 11.108), including schedules that will be implemented to ensure that compensatory mitigation measures required by Condition of Approval 12 are implemented in accordance with time limitations in this ITP.

Permittee shall work collaboratively with CDFW throughout Phase 1 Operations to share data collected promptly following QA/QC and coordinate regarding data analyses. Permittee shall submit additional data collected during Phase 1 Operations, and associated reports, no less than 90 days prior to initiation of Phase 2 Operations to augment information contained in the Phase 2 Authorization Package. The Phase Authorization Form shall remain in substantially the same form as the template in Attachment 6. Any changes to the Phase Authorization Form shall be approved by CDFW, in writing.

7.2 CDFW Review of the Phase 2 Authorization Package.
CDFW will review the Phase 2 Authorization Package provided by Permittee to confirm: (1) Phase 2 Operations fall within the scope of Covered Activities authorized by this ITP, (2) all applicable ITP Conditions of Approval have been addressed by the Phase 2 Authorization Package, and (3) Phase 2 Operations including any ongoing facilities maintenance activities, if implemented in accordance with the Phase 2 Authorization Package, would be consistent with this ITP.

7.2.1 CDFW Review Timelines. CDFW will have 180 calendar days from receipt of the Phase 2 Authorization Package to determine if the Phase 2 Authorization Package is complete and consistent with this ITP. If CDFW determines the Phase 2 Authorization Package is not complete or consistent with this ITP and the package is resubmitted per Condition of Approval 7.2.2, CDFW

will have an additional 60 days to review the package once resubmitted. If Permittee, on its own initiative, revises or otherwise changes and resubmits the Phase 2 Authorization Package, CDFW will have an additional 60 days to review the package once resubmitted. Permittee must receive a copy of the Phase 2 Authorization Package signed by CDFW prior to commencing the Phase 2 Operations.

7.2.2 Consistency with ITP. CDFW will review and sign the Phase Authorization Form for Phase 2 if it finds that all requirements and processes in ITP Condition of Approval 7.1 have been met. Unless CDFW determines that an amendment is required, CDFW will not add additional Conditions of Approval in the Phase 2 Authorization that are not contained within this ITP. CDFW will provide Permittee with the CDFW-signed Phase 2 Authorization Form which signifies CDFW's determination that Phase 2, if implemented as detailed in the Phase 2 Authorization Package, is consistent with this ITP.

7.3 Resubmittal of Phase 2 Authorization Package.

If CDFW finds that the Phase 2 Authorization Package is incomplete, or that operations as described in the Phase 2 Authorization Package would be inconsistent with this ITP, including the Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117), CDFW will provide written notice to Permittee and explain the actions necessary to address any deficiency. If the Phase 2 Authorization Package is determined to be incomplete or inconsistent, or Permittee withdraws the Phase 2 Authorization Package, then Permittee will have no incidental take authorization for Phase 2 Operations under this ITP. Permittee may resubmit a Phase 2 Authorization Package that has previously been found to be incomplete or inconsistent with this ITP after attempting to address in writing any deficiencies identified by CDFW.

7.3.1 Additional Information Required. If CDFW finds that operations and/or maintenance activities as described in the Phase 2 Authorization Package do not contain enough information to determine if Covered Activities under Phase 2 Operations are consistent with this ITP, CDFW will respond in writing to Permittee with the additional information that is necessary to determine if Phase 2 Operations are consistent with Covered Activities in this ITP. Once the Phase 2 Authorization Package is resubmitted to CDFW, the 90-calendar day timeline will begin as described in Condition of Approval 7.2.1.

7.4 Amendment of Phase 2 Authorization Package.

Following signature from CDFW, the Phase 2 Authorization Package shall be automatically incorporated by reference into this ITP. Any amendments or other changes to the CDFW-signed Phase 2 Authorization Package, including extensions, or if amendment is necessary to modify the Project Description or Conditions of Approval of this ITP during Phase 2 Operations to ensure consistency with this ITP, will be processed by CDFW in accordance with Condition of Approval 8 and Section IX of this ITP, CESA's implementing regulations, and other applicable law.

7.5 Phase 2 Project Operations Report.
No more than six months after the initiation of Phase 2 Operations, Permittee shall provide CDFW with a Phase 2 Project Operations Report which shall include, at a minimum: (1) a summary of all Monthly Compliance Reports and all ASRs; and (2) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; (3) all available information about Project-related incidental take of the Covered Species; (4) information about other Project impacts on the Covered Species; (5) beginning and ending dates of Covered Activities; (6) an assessment of the effectiveness of this ITP's Conditions of Approval in minimizing Project impacts of the taking on Covered Species; (7) recommendations on how mitigation measures might be changed to more effectively minimize take of future projects on the Covered Species; and (8) any other pertinent information.

8. Consultation Regarding Amendment:

Without limiting the generality of California Code of Regulations, section 783.6, subdivision (c), this permit may require an amendment if any one of the following conditions occur:

- Modification of the Project or its impact analysis, based on the outcome of studies conducted as required by the Conditions of Approval in this ITP.
- Modification or replacement of the 2024 Long-term Operations of the State Water Project Incidental Take Permit (ITP No. 2081-2023-054-00), or any subsequent ITP addressing the long-term operations of the State Water Project.
- Modification to the COA (see Project Description Section 16, Coordinated Operations Agreement).
- Modification, reinitiation or replacement of the 2024 USFWS BO for DS and LFS or the 2024 NMFS BO for CHNWR and CHNSR, or any subsequent BO addressing the coordinated operations of the CVP and SWP.
- Issuance, modification, reinitiation, or replacement of a USFWS or NMFS BO for construction or operations of the Project.
- Modification to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary or water rights decisions by the State Water Board affecting operations of the Project, or execution of a binding Healthy Rivers and Landscapes Program adopted by the State Water Board as a means of implementing the Water Quality Control Plan that modifies the context on which the Covered Activities are undertaken.
- Completion of water rights process for the Project or the Sites Reservoir Project.

- Modifications to the Project description, monitoring, studies, or Project operational criteria.

- An unanticipated emergency condition arises that imposes a serious threat to public health or safety.

- CDFW determination that a Construction Phase Authorization Package is inconsistent with this ITP.

- CDFW determination that the Phase 2 Authorization Package is inconsistent with this ITP.

- Uplisting or change in candidacy status of a Covered Species.

Permittee shall notify CDFW if any of the conditions listed above occur. Permittee shall consult with CDFW if any of the conditions listed above occur to determine whether an amendment is necessary for reasons including but not limited to an increase in the anticipated extent of the taking of Covered Species or the impacts on the Covered Species that result from the Covered Activities, or modifications to the necessary and appropriate measures to minimize and fully mitigate the impacts of the taking. Permittee and CDFW acknowledge that conditions listed above may occur after the issuance of this ITP and prior to operational Covered Activities occurring. If CDFW has notified Permittee that an amendment is required before Phase 1 or Phase 2 operations Covered Activities commence, Permittee may request to delay amendment of this ITP in response to the occurrence of one or more of these conditions, to efficiently address multiple changed circumstances. If CDFW provides its written approval to such a request, Permittee shall not commence Phase 1 or Phase 2 operations Covered Activities until such amendment has been considered and issued by CDFW. Permittee shall submit an application and supporting information to CDFW if it requests an amendment, in compliance with the California Code of Regulations, section 783.6, subdivision (c)(1). CDFW will follow the amendment process outlined in the California Code of Regulations, section 783.6, subdivision (c) to determine whether any proposed amendment is major or minor and whether additional or modified measures are necessary. This condition does not modify CDFW's authorities or obligations pursuant to CESA, including the obligation to amend this permit as required by law.

9. General Provisions:

9.1 Designated Representative.

Before starting Covered Activities, Permittee shall designate a representative (Designated Representative) responsible for communications with CDFW and overseeing compliance with this ITP. Permittee shall notify CDFW in writing before starting Covered Activities of the Designated Representative's name, business address, and contact information, and shall notify CDFW in writing if

a substitute Designated Representative is selected or identified at any time during the term of this ITP.

9.2 Designated Biologist(s), Fisheries Biologist(s), Biological Monitor(s).
Permittee shall submit to CDFW in writing the name, qualifications, business address, and contact information of the Designated Biologist(s), Fisheries Biologist(s), and Biological Monitor(s) using the Biologist Resume Form (Attachment 3) or another format containing the same information at least 30 days before starting Covered Activities for each Project Phase. Permittee shall provide a list prior to January 31 each year thereafter seeking annual reapproval of Designated Biologist(s), Fisheries Biologist(s), and Biological Monitor(s) Resume Forms indicating any changes pertaining to the qualifications, roles, and/or responsibilities of the Designated Biologist(s), Fisheries Biologist(s), and/or Biological Monitor(s) being utilized for all ongoing Project Phases. If the Designated Biologist(s), Fisheries Biologist(s), or Biological Monitor(s) must be changed for a given Project Phase, after initiation of Covered Activities, the Permittee shall obtain CDFW approval at least five business days in advance of the new individual undertaking biological monitoring activities.

The Designated Biologist(s), Fisheries Biologist(s), and Biological Monitor(s) shall be responsible for monitoring Covered Activities to help minimize and fully mitigate or avoid the incidental take of individual Covered Species to minimize disturbance of the Covered Species' habitat. The Designated Biologist(s) Fisheries Biologist(s), and/or Biological Monitor(s) shall be on-site during all construction activities that may result in the take of Covered Species as required by Conditions of Approval in this ITP.

9.2.1 Designated Biologist(s) and Fisheries Biologist(s). A Designated Biologist and Fisheries Biologist is an individual who shall have a minimum of five years of academic training and professional experience in biological sciences and related resource management activities with experience monitoring, surveying for, collecting, and handling of Covered Species. The Designated Biologist(s) and Fisheries Biologist(s) will be approved by CDFW on a species-specific basis, and in those cases will only be authorized to complete surveys, monitoring, capture and handling of the Covered Species for which they are specifically approved. The Designated Biologist(s) and Fisheries Biologist(s) shall be knowledgeable and experienced in the biology, natural history, collecting and handling of the Covered Species. The Designated Biologist(s) and Fisheries Biologist(s) shall be responsible for conducting and/or overseeing all activities specific to a Covered Species as prescribed in this ITP and any handling or other actions necessary if individuals of Covered Species are found in the Project Area where Covered Activities are being conducted including temporary staging areas and access routes in Covered Species habitat. The Designated Biologist(s) and Fisheries Biologist(s) shall monitor Covered Activities or supervise Biological Monitor(s) in areas identified in the approved Project Phase Authorization Package and species/habitat surveys as having special-status fish, wildlife, and plant species or their habitats, designated critical habitat, and sensitive natural communities as required by Conditions of

Approval in this ITP. The intent of the biological monitoring is to confirm that avoidance, minimization, and mitigation are being implemented correctly during Project implementation and are working appropriately and as intended for the protection of Covered Species and Covered Species habitat. The Designated Biologist(s) and Fisheries Biologist(s) shall be responsible for supervising the Biological Monitor(s).

9.2.2 Biological Monitor(s). A Biological Monitor is an individual who shall have a minimum of four years of academic and professional experience in biological sciences and related resource management activities relevant to this project, has a minimum of six months' experience with construction level biological monitoring, has training and the ability to recognize the Covered Species in the Project construction area, and who is familiar with the habitats and behavior of the Covered Species. Biological Monitor(s) may be used instead of Designated Biologist(s) for general monitoring activities and habitat delineation within each Project construction site after initial surveys have been completed and exclusion fencing has been placed by the Designated Biologist (s) or Fisheries Biologist(s), and initial ground disturbance activities have occurred, under the supervision of the Designated Biologist(s) or Fisheries Biologist(s).The Biological Monitor(s) shall receive training and direction from the Designated Biologist(s) or Fisheries Biologist(s) for each task performed, and shall communicate daily with the Designated Biologist(s) or Fisheries Biologist(s) and immediately report any occurrence of Covered Species within the Project construction site, as well as any apparent non-compliance with any provision of this ITP. If a Covered Species is observed in an active work area, the Biological Monitor(s) will adhere to the requirements in the Conditions of Approval of this ITP.

9.3 Designated Biologist(s), Fisheries Biologist(s), and Biological Monitor(s) Authority.
To ensure compliance with the Conditions of Approval of this ITP, the Designated Biologist(s), Fisheries Biologist(s), and/or Biological Monitor(s) shall immediately stop any activity that does not comply with this ITP and/or order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species. Permittee shall provide unfettered access to the Project Site and otherwise facilitate the Designated Biologist in the performance of his/her duties. If the Designated Biologist(s) and/or Biological Monitor(s) is unable to comply with the ITP, then the Designated Biologist(s) and/or Biological Monitor(s) shall notify the CDFW Representative immediately. Permittee shall not enter into any agreement or contract of any kind, including but not limited to non-disclosure agreements and confidentiality agreements, with its contractors and/or the Designated Biologist(s), Fisheries Biologist(s), and/or Biological Monitor(s) that prohibit or impede open communication with CDFW, including but not limited to providing CDFW staff with the results of any surveys, reports, or studies or notifying CDFW of any non-compliance or take. Failure to notify CDFW of any non-compliance or take or injury of a Covered Species as a result of such agreement or contract may result in CDFW taking actions to prevent or remedy a violation of this ITP.

9.4 Education Program.

Permittee shall conduct an education program for all persons employed or otherwise working in the Project Area before performing any work. The training shall consist of a presentation from the Designated Biologist(s), Fisheries Biologist(s), or Biological Monitor(s) that includes:

- Important timing windows for Covered Species, including information about the biology, general behavior, distribution and habitat needs of the Covered Species (i.e., timing of Covered Species migration, reproduction, and rearing).
- Sensitivity of the Covered Species to human activities.
- Conditions of Approval that will be implemented during Covered Activities.
- Protocols for identifying relevant take minimization measures based on the nature, timing, and location of Covered Activities.
- CESA-listed species potentially present within a Project construction area that are not covered by this ITP, Species of Special Concern, federally listed species, and natural communities of concern that may be present on the construction site but are not Covered Species.
- Boundaries of the construction site and demarcation of disturbance-free zones.
- Covered Species habitat avoidance commitments.
- Exclusion and construction fencing installation and monitoring.
- Staking methods to protect resources.
- Roles and responsibilities of workers, managers, Designated Representative(s), Designated Biologist(s), Designated Fisheries Biologist(s), and Biological Monitor(s).
- Measures to take when encountering Covered Species and what to do when Covered Species are found dead, injured, stressed, or entrapped, including emergency procedures.
- Covered Species status pursuant to CESA and NPPA (including legal protection), recovery efforts, and penalties for violations and Project-specific protective measures described in this ITP.

Permittee shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for all workers to carry in the Project Area. Permittee shall provide interpretation for non-English speaking workers, and the same instruction shall be provided to any new workers before

they are authorized to perform work in the Project Area. Upon completion of the program, employees shall sign a form stating they attended the program and understand all protection measures. This training shall be repeated at least once annually for long-term and/or permanent employees that will be conducting work in the Project Area.

9.5 Construction Monitoring Documentation.
The Designated Biologist(s), Fisheries Biologist(s), or Biological Monitor(s) shall maintain construction-monitoring documentation on-site in either hard copy or digital format throughout the construction period, which shall include a copy of this ITP with attachments and a list of signatures of all personnel who have successfully completed the education program. Permittee shall ensure a copy of the construction-monitoring documentation is available for review at each Project construction site upon request by CDFW.

9.6 Trash Abatement.
Permittee shall initiate a trash abatement program before starting Covered Activities and shall continue the program for the duration of the Project. Permittee shall ensure that trash and food items are contained in animal-proof containers and removed, ideally at daily intervals but at least once a week, to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.

9.7 Erosion Control.
Erosion and sediment control measures shall be installed prior to earth-moving Covered Activities consistent with requirements of Conditions of Approval 11.25, 11.26, and 11.27. Permittee shall utilize erosion and sediment control measures throughout all phases of the Project where sediment runoff from exposed slopes could leave the Project construction site and/or enter an existing drainage, stream, or ponded area. No phase of the Project that may cause the introduction of sediments into a drainage, stream, or ponded area may be started if that phase and its associated erosion control measures cannot be completed prior to the onset of a storm (rainfall exceeding 0.5 inch during a 24-hour period). The Designated Biologist(s) and/or Biological Monitor(s) shall monitor each Project construction site before, during, and after each storm event and Permittee shall repair, and/or replace ineffective measures immediately.

9.8 Delineation of Property Boundaries.
Before starting Covered Activities within a Project construction site, Permittee shall clearly delineate the boundaries of the Project construction site with highly visible fencing, stakes, or flags, in each portion of the area that is safely accessible on foot. Permittee shall restrict all Covered Activities to within the Project construction site boundary. Permittee shall maintain the visible boundary until the completion of Covered Activities in that area and include the Project construction boundary in the Project construction plans (Condition of Approval 6.2). No Project-related construction activities shall occur outside of the delineated Project construction sites unless approved by CDFW prior to initiation of Covered Activities.

9.9 Delineation of Habitat.
Permittee shall clearly delineate avoidable habitat of the Covered Species within Project construction sites with highly visible posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize the disturbance of Covered Species' habitat. Covered Species' habitat, known populations of the Covered Species, and jurisdictional waters shall be clearly indicated on the Project construction plans (Condition of Approval 6.2). Permittee shall inspect and maintain all fencing, stakes, and flags until the completion of Covered Activities in that area and include the location of the fenced, staked, or flagged areas. Status of the fencing shall be verified and documented by the Designated Biologist(s), Fisheries Biologist(s), or Biological Monitor(s) within the Monthly Compliance Report (Condition of Approval 10.15).

9.10 Project Access.
All Project personnel shall access the Project construction site and any Project maintenance area using existing and established routes identified in the Project Description and shall not cross Covered Species' habitat outside of or enroute to the Project construction site or maintenance area unless authorized by CDFW through Conditions of Approval in this ITP. All ingress/egress at the Project construction site shall be restricted to those routes identified in the Project Description. Cross-country access routes shall be clearly marked in the field with appropriate flagging and signs. Permittee shall restrict Project-related vehicle traffic to established roads, staging, and parking areas. If Permittee determines construction of routes for travel are necessary outside of the Project construction site, the Designated Representative shall contact CDFW for written approval before carrying out such an activity. CDFW may require an amendment to this ITP, among other reasons, if additional take of Covered Species will occur as a result of the Project modification.

9.11 Staging Areas.
Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project construction site using, to the extent possible, previously disturbed areas such as paved or previously cleared areas. Staging areas shall be identified within the appropriate Project Phase Authorization Package. Permittee shall store equipment, supplies, and vehicles, and conduct vehicle and equipment services within the Project construction site at least 200 feet from suitable Covered Species aquatic habitat and/or other designated staging/storage areas. Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project construction site unless authorized by CDFW consistent with Condition of Approval 9.10. Locations of proposed Project-related activities including but not limited to parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities within staging areas shall be provided as part of the appropriate Construction Phase Authorization Package.

9.12 Vehicle and Equipment Inspection.
Permittee shall inspect all equipment, including marine vessels, used for construction and habitat creation, enhancement, and management for invasive terrestrial and aquatic plant and animal species prior to entering work areas, when moving from one work area to another, and when entering Covered Species terrestrial and aquatic habitats. Permittee shall remove mud and/or accumulated soils from equipment and vehicles to the maximum extent practicable. Vehicles and equipment shall be cleaned or washed before entering a new Project construction site. Permittee shall keep a log for each work site that documents each cleaning or washing of vehicles or equipment prior to entering each new Project construction site. Vehicles and equipment shall be visually inspected by the Designated Biologist(s), Fisheries Biologist(s), and/or Biological Monitor(s) before being moved if they have been idle and/or unoccupied for 30 minutes or longer. If an individual of a Covered Species is present, the worker shall wait for the Covered Species to move unimpeded to a safe location. Alternatively, the Designated Biologist(s) or Fisheries Biologist(s) shall be contacted to determine if the individual may be safely moved consistent with the requirements of Conditions of Approval of this ITP.

9.13 Refueling and Maintenance.
Any equipment or vehicles driven and/or operated in or adjacent to Project construction sites shall be checked daily and maintained in good working order to prevent the release of contaminants that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat. If a vehicle is found to be leaking fluids of any kind, it shall be placed into secondary containment immediately. Vehicles shall be kept away from all sensitive areas and positioned over drip pans or other suitable secondary containment prior to refueling. Vehicles or equipment maintenance or refueling shall not occur within 200 feet of any surface waters or other sensitive habitats, such as wetlands, and refueling shall only occur when employees are present with approved pumps, hoses, and nozzles. All reserve fuel supplies shall be stored only within the confines of the designated staging areas, a minimum of 200 feet from surface waters and other sensitive habitats, such as wetlands. Fuel transfers shall take place a minimum of 200 feet from surface waters and other sensitive habitats, such as wetlands, and absorbent pads shall be placed under the fuel transfer operation. All disconnected hoses shall be placed in containers to collect residual fuel from the hoses; and vehicle engines shall be shut down during refueling. In addition, when refueling is completed, the service truck shall leave the Project construction site.

9.14 Hazardous Waste.
Permittee shall immediately stop and, pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so. Permittee shall implement the CDFW approved hazardous materials management plan (Condition of Approval 11.21) for each Project construction site and Project Phase.

9.15 CDFW Access.
Permittee shall provide CDFW staff with reasonable access to the Project and mitigation lands under Permittee control and shall otherwise fully cooperate with CDFW efforts to verify compliance with the Project Description, evaluation of effects on Covered Species and their habitats, and compliance with or effectiveness of minimization and mitigation measures set forth in this ITP.

9.16 Conservation Easements and CDFW Managed Lands.
During the entirety of the Project's preconstruction, construction, and operations phases, Permittee shall not disturb the surface ground of CDFW's existing conserved and managed lands, namely the Bethany Reservoir Conservation Easement, Woodbridge Ecological Reserve, Cosumnes River Ecological Reserve, or any adjacent lands protected by CDFW such as Christensen Road Burrowing Owl Site.

9.16.1 Conservation Easement Buffer Requirement. Permittee shall implement a minimum buffer of no less than 50 feet between Covered Activities within the Bethany Complex and adjacent conservation easements to minimize impacts to Covered Species.

9.17 Refuse Removal.
Upon completion of Covered Activities, Permittee shall remove from the Project construction site and properly dispose of all temporary fill and construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.

9.18 Wildfire Prevention.
Permittee shall keep basic fire suppression supplies on site at all times during construction of the Bethany Complex or while undertaking maintenance activities within the Bethany Complex.[28] Hand removal of vegetation and/or weed whacking are the authorized methods for vegetation removal along access roads, staging areas, and work areas within the Bethany Complex prior to allowing heavy equipment and vehicles to access these project sites after Covered Species preconstruction surveys and installment of wildlife exclusion barriers. Mowing may be permitted with CDFW approval following preconstruction surveys. Disking and/or tilling shall not be permitted for fire prevention without prior written approval from CDFW. Non-living vegetative debris shall be cleared from around the immediate work footprint.

[28] The Bethany Complex falls within a Fire Hazard Severity Zone as identified on the Fire Hazard Severity Zones in State Responsibility Area web map accessed: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones.

10. Monitoring, Notification, Science, and Reporting Provisions:

10.1 Notification Before Commencement.
The Designated Representative shall notify CDFW 14 calendar days before starting Covered Activities within a Project construction site in an approved Phase (Condition of Approval 6.2) or Project operations (Condition of Approval 7.2).

10.2 Notification of Non-compliance.
The Designated Representative shall immediately notify CDFW if the Permittee is not in compliance with any Condition of Approval of this ITP, including but not limited to any actual or anticipated failure to implement measures within the time periods indicated in this ITP and/or the MMRP. The Designated Representative shall follow up within 24 hours with a written report to CDFW describing, in detail, any non-compliance with this ITP and suggested measures to remedy the situation.

10.3 Tracking Suitable Habitat Feature Disturbances, Map Updating, and Reporting.
Permittee shall maintain Geographic Information System (GIS) shapefile layers and associated maps depicting: 1) mapped areas of all land disturbances within each Project construction site; and 2) mapped areas of disturbed identified habitat features suitable for Covered Species (see Condition of Approval 10.4 for habitat features) within the Project construction site. Permittee shall maintain the GIS layers and metadata for those maps and update the GIS layers and maps if there are any new detections of Covered Species or their habitat features. Within each Project construction site, Permittee shall track, in real time, acreages of identified habitat features suitable for Covered Species disturbed by Covered Activities. Permittee shall maintain this tracking formatted in GIS that includes photo documentation of the habitat feature that was conducted no more than 14 days prior to initiation of Covered Activities. The photo documentation shall provide a visual representation of the Project construction site and include a minimum of five photographs showing each distinct habitat area: one taken each from the North, South, East, and West and facing the habitat area. Permittee shall include separate photo documentation of each habitat area within the Project construction site suitable for each Covered Species. The Permittee shall document the total disturbed acreage of habitat for each Covered Species compiled from the real-time tracking and compare the documented disturbance in each Project construction site to the Baseline Species Maps shown in Attachment 5. Permittee shall provide GIS layers and the associated metadata (description and purpose of each dataset or layer, creation and last updated dates, geoprocessing history/GIS methodology to create the data layer, descriptions of unclear attribute fields, data layer, data quality (if applicable), contact information, and any other pertinent information), to CDFW attached to the Monthly Compliance Report (Condition of Approval 10.12). Permittee shall also provide up-to-date GIS layers of the identified habitat features suitable for Covered Species with the Monthly Compliance Report. Permittee shall also maintain maps for each Covered Species separately and shall include updates to any of the maps along with a summation of all disturbance to identified habitat features annually at the time of Annual Status Report submission (Condition of Approval 10.13).

10.4 Suitable Habitat Monitoring.

Permittee shall track suitable habitat for the Covered Species in each Project construction site and surrounding species-specific buffers. Suitable habitat shall include but not be limited to the following habitat features. These features may be modified with written approval from CDFW:

Species	Habitat type	Habitat features included
California tiger salamander	Aquatic Aquatic continued	• Vernal pools • Natural and artificial swales • Seasonal ponds • Seasonal wetland/vernal pool complex • Perennial ponds such as stock ponds • Other ephemeral or permanent waterbodies that support inundation during winter rains and hold water a minimum of 12 weeks/year in a year of average rainfall
	Upland	• Grassland: native, ruderal, or annual grasses, weeds, and forbs • Pasture • Undisked barren • Undisked fallow field • Degraded vernal pool complex • Alkali seasonal wetland complex • Within 1.3 miles of suitable aquatic breeding habitat • No impermeable barriers to CTS movement between the potential upland refugia and suitable aquatic habitat • Contains burrows, cracks, crevices, or other habitat (or presence of ground squirrels or gophers) that CTS depend on for food, shelter, and protection from elements
Giant garter snake	Aquatic (active season)	• Freshwater perennial aquatic – all types • Freshwater emergent wetland • Marshes, sloughs, ponds, small lakes, low gradient streams, wetlands, other waterways • Rice fields • Managed wetland ◦ Emergent, herbaceous wetland vegetation (e.g., cattails, bulrushes) • Agricultural ditches and irrigation canals

	Upland (active and inactive seasons – year-round)	• Within 200 feet of suitable aquatic habitat
		• Contains burrows, cracks, or crevices within any of the following habitat types
		  ◦ Non-irrigated pasture
		  ◦ Annual or native grasslands and forbs

Species	Habitat type	Habitat features included
		• Seasonal wetland • Vernal pool complex • Levee rock riprap • Vegetated banks and levees • Dune scrub • Managed wetland • Low-canopy riparian

Swainson's hawk	Nesting
	
	Nesting continued
		• Suitable nest trees: 20-ft minimum height in any of the following features
		  • Riparian including valley oak, Fremont cottonwood, willow, sycamore
		  • Isolated trees, small groves, or tree rows including oak, walnut, locust, conifers, or *Eucalyptus*

	Foraging	• Grassland: native, ruderal, or annual grasses, weeds, and forbs • Pasture or open rangeland • Barren fields • Fallowed fields • Irrigated field crops; including alfalfa and other hay, grains, sunflower, corn, safflower • Managed row crops; including tomatoes, beets, peppers, beans, lettuce, broccoli, asparagus, carrots, melons, squash, cucumbers, onions, garlic, berries • Shrub/sage • Managed or seasonal wetlands
Tricolored blackbird	Nesting and roosting	**Nesting:** Any of the following habitat features within 5 miles of an observed or historic breeding colony, within 3 miles of suitable foraging habitat, and within 0.3 miles of any open water source (canals, lakeshores, residual water in seasonal watercourses and farm ponds, etc.): • In any healthy freshwater emergent wetland (cattail/tule) • In any flooded riparian TRBL nesting habitat, including small willows thickets and cottonwoods, cattail/tule, giant reed, giant cane (*Arundo* spp.), desert olive, mulefat scrub, coyote bush, tamarisk, elderberry, buttonwillow, poison oak, or other riparian species • The Designated Biologist(s) and/or Biological Monitor(s) shall also conduct preconstruction surveys for breeding colonies (Condition of Approval 11.83) in the following alternative nesting substrates: • Agricultural fields, such as dairy silage (triticale), fava beans, wheat, barley, rice, alfalfa, or safflower

Species	Habitat type	Habitat features included
		• Large weedy fields at least 30 feet wide, such as wild mustard/mustard radish, foxtail, and mallow • In any of the following armored plant habitat: thistle; blackberry or raspberry, particularly Himalayan blackberry; nettle; prickly lettuce; wild rose fence rows; wild grape; poison hemlock; or other thorny parts **Roosting:** • Managed wetland • Tidal freshwater and brackish emergent wetland • Nontidal freshwater emergent wetland • Riparian; including blackberry, elderberry, and willows
	Foraging Foraging continued	• Grasslands – all types • Pasture • Weedy fields • Seasonal wetlands • Vernal pool complex • Dry and irrigated pasture • Sage/scrub • Hay crops including alfalfa and silage • Grain crops; including wheat, oats, and millet • Field crops; including sunflower, corn, and rice • Idle or fallowed croplands • Stored grain and livestock feed lots • Dairies • Farmsteads
Crotch bumble bee	All life stages	• Grasslands, meadows – all types • Chaparrals, gardens, urban parks • Alkaline seasonal wetlands • Vernal pool complex • Seasonal wetlands • Agricultural field margins • Habitat with floral sources not limited to the following: *Baccharis salicifolia, Salix, Ceanothus, Arctostaphylos, Salvia, Pentemon, Asclepias, Lupinus, Eriogonum, Grindelia, Solidago, Agastache, Monardella, Diplacus, Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, Eriogonum, Cordylanthus, Chaenactis* • Forage plant families: *Fabaceae, Rosaceae, Asteraceae, Rhamnaceae, Apocynaceae, Lamiaceae, Hydrophyllaceae, Plantaginaceae, Onograceae, Papaveraceae, Polygonaceae* • Overwintering: riparian, woody forest edges

Species	Habitat type	Habitat features included
Mason's lilaeopsis	All life stages	• Estuarine wetlands • Tidal perennial aquatic habitat • Banks of tidal sloughs, rivers, and creeks • Mudflats • Tule marshes; including California tule, whorled marsh pennywort; low bulrush, three-ribbed arrowgrass, hardstem bulrush, water iris, marshpepper, giant reed, nutsedge, iris-leaved rush, common buttonbush, red willow, smooth beggartick, water pygmyweed, Himalayan blackberry, common reed, sneezeweed, Pacific aster, Santa Barbara sedge, common rush, seep monkey flower, dallis grass, and hedge false bindweed
Covered Fish Species	Migration, Rearing, Foraging, and Spawning	• Temperature • Turbidity • Salinity • Food abundance/productivity • Predator abundance • Tidal wetland proximity

10.5 Reporting Approved Maps.
Permittee shall document the cumulatively disturbed acreages of identified habitat suitable for each Covered Species within the Project Area, as well as acreages of identified habitat features anticipated to be disturbed over the succeeding 30 days, using the data maintained according to Condition of Approval 10.4. Permittee shall provide the above information to CDFW with the Monthly Compliance Report (Condition of Approval 10.12) and the Annual Status Report (Condition of Approval 10.13).

10.6 Photo Monitoring.
Photo monitoring stations shall be established to provide representative views of Project elements resulting in temporary impacts and the subsequent on-site restoration. Photo monitoring stations shall contribute to CDFW's assessment that impacts are temporary; therefore, Permittee shall ensure that photo monitoring stations numbers and locations are sufficient to document temporary impacts and subsequent restoration success. A minimum of one photo monitoring station shall be established to document impacts and subsequent restoration of each habitat area for which a temporary impact will occur. Project elements with temporary impacts include but are not limited to preconstruction areas with temporary impacts, temporary RTM storage and stockpile areas, construction and removal of temporary cofferdam(s), temporary relocation and/or realignment of access roads, temporary SCADA line construction areas, and the CCWD interconnection pipeline temporary construction easement. Photo monitoring shall be conducted as follows:

(1) Stations should be located in areas that allow for unobstructed views and a field of vision of approximately 2,000 feet.

(2) At least one photograph shall be taken at all stations prior to construction activities, and each month thereafter until construction and initial restoration is complete. Photo documentation of restoration success as defined in the Restoration and Revegetation Plan (Condition of Approval 12.3.3) shall occur every three months following the initial restoration until restoration success is reached.

(3) Photo monitoring station images shall be provided to CDFW in a geographic format with the coordinate system identified.

(4) If CDFW or the Designated Biologist(s) determines that additional monitoring stations are necessary, the locations shall be added to the inventory of photo monitoring stations.

(5) During each photo monitoring cycle, all stations shall be visited within two days.

Photo monitoring obtained for Project elements resulting in temporary impacts shall be provided for each calendar month with the Monthly Compliance Report (Condition of Approval 10.12) and all photo monitoring shall be included with the Annual Status Report (Condition of Approval 10.13).

10.7 Species Observations Outside of Mapped Habitat.
If a Covered Species occurrence(s) is observed within a Project construction site outside of the modeled habitat areas shown in Attachment 5, all avoidance and minimization requirements that are applicable to the Covered Species shall apply and Permittee shall consult with CDFW regarding the need for additional avoidance, minimization, or mitigation measures. Any sightings of Covered Species throughout the entirety of the Project construction site before or during construction work, including dewatering, shall be reported to CDFW via email within one working day of the discovery.

10.8 Habitat Evaluation.
The Designated Biologist(s) shall conduct a field survey and identify suitable habitat for each Covered Species in areas within the planned Project construction site and within 1,300 feet from the Project construction site consistent with the largest no-disturbance buffer for Covered Species (see Condition of Approval 11.85), where accessible. Suitable habitat shall be defined by Condition of Approval 10.4. Any suitable habitat not included in the species' modeled habitat within the Project construction site that will be impacted by Covered Activities shall be subject to the same avoidance and minimization requirements for the Covered Species. Permittee shall include all initial preconstruction field survey results to CDFW in the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) and identify the spatial extent of suitable habitat for each Covered Species as well as the total area surveyed by the Designated Biologist(s).

10.9 Tracking Impacts.
Permittee shall track temporary and permanent impacts accumulated as a result of Covered Activities within each Project Phase. Permittee shall notify CDFW if the level of impacts as tracked in the

Annual Status Report (Condition of Approval 10.13) is likely to exceed the expected permanent and temporary impacts for each Covered Species as approved by CDFW in the appropriate Construction Phase Authorization Package (Condition of Approval 6) and/or Phase 2 Authorization Package (Condition of Approval 7). Permittee shall submit an appropriately revised Project Phase schedule (see Conditions of Approval 6.2 and7.1) within 10 business days of the notification to ensure temporary impacts remain within the temporary impact criteria according to Conditions of Approval 11.66 and 12.3.

10.10 Daily Compliance Monitoring.

The Designated Biologist(s) and/or Biological Monitor(s) shall be present at each Project construction site and during each maintenance activity, each day, to conduct compliance inspections at a minimum of one inspection daily, after periods of inactivity prior to initiating work, and after clearing, grubbing, and grading are completed. The Designated Biologist(s) and/or Biological Monitor(s) shall conduct compliance inspections to:

(1) Minimize incidental take of Covered Species.

(2) Prevent unlawful take of Covered Species.

(3) Check for compliance with all measures of this ITP.

(4) Obtain photo documentation of individual Project construction sites.

(5) Check all exclusion zones.

(6) Ensure that signs, stakes, and fencing are intact, and that Covered Activities are only occurring in the Project construction site.

The Designated Representative or Designated Biologist(s) shall prepare daily written observation and inspection records, including photo-documentation records (Condition of Approval 10.6), summarizing oversight activities and compliance inspections, observations of Covered Species and their sign, survey results, dates of Covered Activity and inactivity, and monitoring activities required by this ITP. These shall include the date; the surveying Designated Biologist(s); Project information including the ITP number; location(s) where Covered Activities are occurring; Project impacts and acres impacted; surveying information including time of day, temperature at start and end of survey (including ambient temperature, temperature at ground level, and at approximately three inches above ground level), weather conditions (including wind conditions and cloud cover), and number of acres or square feet surveyed; and a general site description including, at a minimum, habitat types surveyed, habitat characteristics (e.g., if burrows/potential hibernacula, nest trees, or nesting substrate present), amount and type of cover present, if prey species or food resources are present, and other species observed; if any Covered Species are present, including number of individuals, whether they are juveniles or adults if that can be determined, location(s) of occurrences, description of behavior and activities, and description of the overall site minimization and avoidance measures

implemented as well as any difficulties implementing measures and the subsequent corrective measures taken.

10.11 Environmental Compliance Monitoring Plan.
Permittee shall develop an Environmental Compliance Monitoring Plan (ECMP) for each Project construction site and include any proposed Project facilities maintenance activities to monitor, enforce, and document measures to protect Covered Species and their habitats, designated critical habitat, and sensitive natural communities. The ECMP shall be provided as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) and include the following elements:

(1) Reference to or inclusion of the Stormwater Pollution Prevention Plan (see Condition of Approval 11.25).

(2) Summaries or copies of planning and preconstruction surveys (if applicable) for natural communities and Covered Species.

(3) Description of mitigation measures to be implemented, including a description of site or activity-specific BMPs or additional measures not otherwise included in the Project Description.

(4) Descriptions of monitoring parameters (e.g., turbidity), including the specific activities to be monitored (e.g., dredging, grading activities) and monitoring frequency and duration as well as parameters and reporting criteria (e.g., turbidity is not to exceed 10 NTUs (Nephelometric Turbidity Units) above background). Exceedances shall be reported to CDFW, and the contractor must identify and correct the cause).

(5) Description of roles and responsibilities of the monitors and protocols for notifying CDFW.

(6) The CDFW-approved wildlife rehabilitation or veterinary facility to which any injured or damaged individual of the Covered Species will be taken, if identified.

(7) A daily compliance monitoring log template to be populated by the monitor to document each day's construction activities, consistent with requirements of Condition of Approval 10.10.

10.12 Monthly Compliance Report.
The Designated Representative or Designated Biologist shall compile the observation and inspection records identified in Condition of Approval 10.10 into a Monthly Compliance Report and submit it to CDFW along with a copy of the MMRP table with notes showing the current implementation status of each mitigation measure. Monthly Compliance Reports shall be submitted to the CDFW offices listed

in the Notices section of this ITP and via e-mail to CDFW's Water Branch Representative at wbswppermitting@wildlife.ca.gov and Headquarters CESA Program at CESA@wildlife.ca.gov. CDFW may at any time change the timing and number of compliance inspections and reports required under this provision depending upon the results of previous compliance inspections. If CDFW determines the reporting schedule must be changed, CDFW will notify Permittee in writing of the new reporting schedule.

10.13 Annual Status Report.
Permittee shall provide CDFW with an Annual Status Report no later than January 31 of every year beginning the year after issuance of this ITP and continuing until CDFW accepts the Final Mitigation Report identified below. Each Annual Status Report shall include, at a minimum: (1) a summary of all Monthly Compliance Reports for that year identified in Condition of Approval 10.12; (2) a general description of the status of the Project Area and Covered Activities, including actual or projected completion dates, if known for each Project construction site and or Project Phase; (3) a copy of the table in the MMRP (ITP Attachment 2) with notes showing the current implementation status of each minimization and mitigation measure; (4) an assessment of the effectiveness of each completed or partially completed minimization and mitigation measure in avoiding, minimizing, and mitigating Project impacts; (5) all available information about Project-related incidental take of the Covered Species; (6) an accounting of the number of acres subject to both temporary and permanent disturbance, both for the prior calendar year, and a total since ITP issuance; (7) documentation showing that the ratio of cumulative HM lands protection and restoration for each Covered Species remains at least 10 percent (10%) greater than the cumulative impact to each Covered Species' habitat; and (8) information about other Project impacts on the Covered Species including an evaluation of current species distribution and /or suitable habitat conditions as measured through applicable species-specific surveys identified through Conditions of Approval within this ITP, compared to preconstruction (baseline) survey results.

10.14 CNDDB Observations.
The Designated Biologist(s) and/or Biological Monitor(s) shall submit all observations of Covered Species to CDFW's California Natural Diversity Database (CNDDB) during preconstruction, construction, operations, and maintenance activities within 60 calendar days of the observation and the Designated Biologist(s) and/or Biological Monitor(s) shall include copies of the submitted forms with the next Monthly Compliance Report (Condition of Approval 10.12) or Annual Status Report (Condition of Approval 10.13), whichever is submitted first relative to the observation.

10.15 Final Mitigation Report.
Permittee shall provide CDFW with Final Phase Mitigation Reports no later than 45 days after completion of Covered Activities and all mitigation measures for each Project Phase and after Covered Activities and all mitigation measures for all Project Phases are complete. The Designated Biologist(s) and/or Biological Monitor(s) shall prepare each Final Phase Mitigation Report which shall

include, at a minimum: (1) a summary of all Monthly Compliance Reports and all Annual Status Reports prepared during the applicable Project Phase; (2) a copy of the table in the MMRP (ITP Attachment 2) with notes showing when each of the mitigation measures was implemented; (3) all available information about Project-related incidental take of the Covered Species that occurred during the applicable Project Phase; (4) information about other Project impacts on the Covered Species during the applicable Project Phase; (5) beginning and ending dates of Covered Activities for that Project Phase; (6) an assessment of the effectiveness of this ITP's Conditions of Approval in minimizing and mitigating Project impacts of the taking on Covered Species; (7) recommendations on how mitigation measures might be changed to more effectively mitigate for the impacts of future projects on the Covered Species; and (8) any other pertinent information.

10.15.1 Mitigation Status Report. Ninety days prior to the expiration of this ITP, Permittee shall provide CDFW with a Mitigation Status Report. The Designated Biologist(s), Fisheries Biologist(s), and/or Biological Monitor(s) shall prepare the Mitigation Status Report which shall include, at a minimum: (1) a summary of all Final Phase Mitigation Reports which will include the Monthly Compliance Reports and all ASRs; (2) a copy of the table in the MMRP (ITP Attachment 2) with notes showing when each of the mitigation measures was implemented; (3) all available information about Project-related incidental take of the Covered Species; (4) information about other Project impacts on the Covered Species; (5) beginning and ending dates of Covered Activities; (6) an assessment of the effectiveness of this ITP's Conditions of Approval in minimizing and mitigating Project impacts of the taking on Covered Species; (7) recommendations on how mitigation measures might be changed to more effectively mitigate for the impacts of future projects on the Covered Species; and (8) any other pertinent information.

10.16 Notification of Take or Injury/Damage.

Permittee shall immediately notify the Designated Biologist(s), Fisheries Biologist(s), and/or Biological Monitor(s) if a Covered Species is taken or injured/damaged by a Covered Activity, or if a Covered Species is otherwise found dead or injured/damaged within the vicinity of the Project. The Designated Biologist(s) or Permittee's Designated Representative shall provide initial notification to CDFW by calling the CDFW Bay-Delta Region Stockton Office at (209) 234-3420. The initial notification to CDFW shall include information regarding the location, date, time of the incident or of the discovery, the species, number of animals/plants taken or injured/damaged, the type or extent of injury or likely cause of death, information for the facility where injured species is rehabbing if appropriate, any other pertinent information, as well as the ITP number. The location of the incident shall be recorded using GPS and the coordinates provided to CDFW. Following initial notification, Permittee shall send CDFW a written report within two business days. The report shall include the date and time of the finding or incident, location of the animal/plant or carcass, rehabilitation facility if applicable, and if possible, provide a photograph, explanation as to cause of take or injury/damage, and any other pertinent information.

10.17 Subsurface Vibratory Testing and Monitoring Study for Fossorial Covered Species.
Permittee shall develop, in coordination with CDFW, a draft Subsurface Testing and Monitoring Study Plan to investigate thresholds and effects of subsurface vibrations on fossorial species (CTS, GGS, and CBB) behavior and overall health, prior to the initiation of Covered Activities. The draft Study Plan shall be submitted to CDFW for review and approval as part of the Pre-implementation Phase Authorization Package (Condition of Approval 6.1) and shall include actions to measure and monitor surface and subsurface vibrations in CTS, GGS, and CBB habitats. Permittee shall work collaboratively with CDFW to incorporate comments into the draft Study Plan and submit the final Study Plan to CDFW for review and approval a minimum of one year prior to initiating any ground-disturbing activities within fossorial Covered Species habitat. Permittee shall implement the CDFW-approved Study Plan prior to initiating Covered Activities within a Project site containing CTS, GGS, or CBB suitable habitat and shall submit the results of the Study with suggested vibratory monitoring protocols for fossorial Covered Species to CDFW as part of the appropriate Construction Phase Authorization Package.

10.18 Covered Fish Species Monitoring and Scientific Studies.
To improve understanding of DS, LFS, CHNWR, CHNSR, and WS abundance, distribution, habitat use, and impacts of Covered Activities and Project-related stressors, Permittee shall fund, initiate, and implement Covered Fish Species monitoring and science identified in Conditions of Approval 10.18.3, 10.19, 10.20, and 10.21. Permittee shall initiate Covered Fish Species monitoring and science activities prior to Project in-water construction and shall continue Covered Fish Species monitoring and science activities throughout Project construction and operations (Phase 1 Operations and Phase 2 Operations). Covered Fish Species monitoring and science activities shall span a range of hydrologic conditions and will be used to investigate uncertainties regarding the effects of operations on Covered Fish Species, before Project operations shift from Phase 1 to Phase 2 Operations, and in potential future long-term Project operations (Condition of Approval 10.18.2). Outcomes of these monitoring and science activities will also be used to evaluate whether there is a need for an amendment of any terms to this ITP, pursuant to Condition of Approval 8 and Section IX of this ITP. Permittee shall include assessments of aquatic conditions in each monitoring time period described below in the Phase 2 Operations Authorization Package (Condition of Approval 7.1) and the Final Mitigation Report following completion of Phase 2 Operations (Condition of Approval 10.15) to facilitate CDFW evaluation of changes in aquatic conditions throughout Project construction and operations.

Within twelve months of permit issuance, Permittee shall, in coordination with CDFW, initiate development of a draft Covered Fish Species Monitoring and Science Plan for CDFW review. Permittee shall work collaboratively with CDFW to incorporate CDFW comments on the draft plan. Permittee shall submit a final draft plan to CDFW for review no less than six months prior to the first

deadline established in the plan and no less than five years before initiation of in-water construction Covered Activities. The final Covered Fish Species Monitoring and Science Plan shall be subject to CDFW approval. Studies within the Covered Fish Species Monitoring and Science Plan shall not be initiated until after approval of the final plan.

Studies that Permittee shall incorporate into the plan include, but are not limited to, the following: 1) Fisheries Evaluation Studies (Condition of Approval 10.19); 2) Water Quality Evaluation Studies (Condition of Approval 10.20); 3) Ecological Response Evaluation Studies (Condition of Approval 10.21); 4) North Delta Intake Hydraulic Modeling (Condition of Approval 10.25); 5) Operations Hydraulic Data Plan (Conditions of Approval 10.20.1 and 11.109), and 6) Hydraulic Testing for Velocity Requirements (Condition of Approval 10.27). Permittee shall ensure that the study plans are consistent with existing ongoing monitoring and studies to leverage resources and improve overall efficiency, enhance statistical power, and maximize the value of the data collected. The plan shall include descriptions of monitoring and studies, including timelines for planning, reporting, and implementation, conducted across four phases of Project implementation: 1) In-water Preconstruction Baseline Monitoring; 2) In-water Construction Monitoring; 3) Phase 1 Operations Monitoring; and 4) Phase 2 Operations Monitoring.

1. **In-water Preconstruction Baseline Monitoring:** Permittee shall initiate monitoring studies to establish baseline aquatic conditions and shall conduct a minimum of five years of monitoring prior to initiation of Project in-water construction activities (except preconstruction in-water activities described in sections 1 and 2 of the Project Description). These baseline aquatic conditions shall be compared to aquatic conditions measured during subsequent monitoring time periods to facilitate CDFW evaluation of changes in aquatic conditions throughout Project construction and operations.

2. **In-water Construction Monitoring:** During Project in-water construction activities, and prior to initiation of Phase 1 Operations, Permittee shall continue to conduct monitoring studies initiated during In-water Preconstruction Baseline Monitoring to further evaluate aquatic conditions. Information collected during In-Water Construction Monitoring will identify changes in aquatic conditions from In-water Preconstruction Baseline Monitoring trends, and support analyses to refine understanding of potential Project effects on Covered Fish Species, including those that were identified through prior environmental review. Permittee shall complete In-water Construction Monitoring before initiating Phase 1 Operations.

3. **Phase 1 Operations Monitoring:** During Phase 1 Operations Monitoring, Permittee shall continue monitoring studies initiated during preconstruction and in-water construction monitoring to evaluate any changes in aquatic conditions resulting from Phase 1 Operations.

4. **Phase 2 Operations Monitoring:** During Phase 2 Operations Monitoring, Permittee shall continue monitoring studies initiated during preconstruction, in-water construction, and Phase 1 Operations monitoring to evaluate any changes in aquatic conditions resulting from Phase 2 Operations.

10.18.1 Covered Fish Species Monitoring and Scientific Study Document Review, Revision and Finalization Process. To support implementation of monitoring and science required by this ITP, Permittee shall adhere to the following procedures to facilitate the review, revision, and finalization of the CDFW-approved Covered Fish Species Monitoring and Science Plan and all plans and reports required in Conditions of Approval 10.18, 10.19, 10.20, 10.21, 10.23, 10.24, 10.25, 10.26, 10.27, 10.29, 10.30, and 11.109.

Required plans:

- Permittee shall submit draft plans to CDFW for review according to the timelines in the CDFW-approved Covered Fish Species Monitoring and Science Plan, and as specified in each Condition of Approval.
- Draft plans shall include requirements for the timing of study initiation, interim study reports, study duration, and final reports.
- Permittee shall work collaboratively with CDFW to incorporate CDFW comments into draft plans and develop final draft plans.
- Within six (6) months of receiving comments from CDFW on a draft plan, Permittee shall submit a revised final draft plan to CDFW.
- All plans shall be subject to CDFW approval.
- Following CDFW approval, Permittee shall implement the plan according to the timelines outlined in the final plan and associated Conditions of Approval.

Required reports:

- Permittee shall submit interim study reports and final study reports describing results of required monitoring and studies according to deadlines established in the CDFW-approved Covered Fish Species Monitoring and Science Plan.
- Permittee shall submit draft reports summarizing the results of each CDFW-approved study plan to CDFW according to the deadlines described in the CDFW-approved Covered Fish Species Monitoring and Science Plan, and as specified in each Condition of Approval.
- Permittee shall work collaboratively with CDFW to incorporate comments into draft reports and develop revised reports.
- Within six (6) months of receiving comments from CDFW on a draft report, Permittee shall submit a revised draft report to CDFW.
- All reports shall be subject to CDFW approval.

Following CDFW approval, reports shall be included in the Phase 2 Operations Authorization Package (Condition of Approval 7.2) and the Phase 2 Operations Report (Condition of Approval 7.5).

10.18.2 Long-term Purpose of Covered Fish Species Monitoring and Scientific Studies. Conditions of Approval 10.18, 10.19, 10.20, 10.21, 10.26, and 10.27 describe required Covered Fish Species Monitoring and Scientific Studies, Fisheries Evaluation Studies, Water Quality Evaluation Studies, Ecological Response Evaluation Studies, Ecological Response Evaluation Studies,, Hydraulic Studies, and associated monitoring that are needed to establish baseline biological and environmental conditions before impacts associated with specified Covered Activities begin. Science and monitoring that is required before the initiation of in-water construction Covered Activities is necessary to establish a baseline before impacts of Project construction begin. Science and monitoring that is required before the initiation of Phase 1 Operations is necessary to establish a baseline before impacts associated with Project operations begin.

It is necessary to conduct science and monitoring to establish a baseline before impacts of Covered Activities occur to ensure that impacts of Covered Activities can be accurately assessed using subsequent, longer-term studies and monitoring. The results of science and monitoring shall be used during the term of this ITP to evaluate the ability of the Project to meet the Covered Fish Species Biological Criteria described in Conditions of Approval 11.115, 11.116, 11.117 and, if necessary, to identify alternative approaches to minimize and fully mitigate impacts on Covered Fish Species if the Project does not meet Covered Fish Species Biological Criteria.

The timeframe of Project construction extends beyond ten years. Given the scale and complexity of the north Delta intake facilities and Project operations, there are uncertainties regarding the form and magnitude of potential Project impacts on Covered Fish Species during Phase 2 Operations and anticipated long-term operations of the Project. Permittee shall work collaboratively with CDFW to use the results from science and monitoring required in Conditions of Approval 10.18, 10.19, 10.20, 10.21, 10.26, and 10.27 to 1) ensure that impacts to Covered Fish Species during Phase 2 Operations do not exceed Covered Fish Species Biological Criteria, and 2) prepare for future regulatory processes that may address long-term authorizations for Project operations. As a part of this process Permittee, in collaboration with CDFW, shall:

- Further refine understanding of Project impacts on Covered Fish Species;
- Evaluate potential changes in minimization measures in this ITP to integrate new science and information as it becomes available;
- Evaluate the ability of the Project to meet the Covered Fish Species Biological Criteria; and
- If necessary and appropriate, develop new minimization and mitigation measures for consideration in future permitting processes for long-term Project operations after the completion of Phase 2 Operations and expiration of this ITP.

10.18.3 Evaluate Alternative Operating Criteria for the Ascending or Descending Limb of the Hydrograph During Real-time Operations. By 2030, Permittee shall, in coordination with CDFW, use best available science and information gained from studies required by this ITP (Conditions of Approval 10.18, 10.19, 10.20, and 10.21) to evaluate differences in impacts to Covered Fish Species in January and February between ascending and descending limbs of the Sacramento River hydrograph. Based on the results of the study, Permittee may develop an alternative approach to minimizing impacts to Covered Fish Species as a result of Phase 1 and 2 operations, during times in January and February when the Sacramento River hydrograph is ascending or descending, modifying Conditions of Approval 11.111 and 11.112. The alternative approach could allow between 10-15% of Sacramento River flow to be diverted when bypass flows are greater than 35,000 cfs, provided that compliance with the Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117) is maintained. Permittee shall consult with CDFW if it seeks to amend the ITP (Condition of Approval 8) to modify Conditions of Approval 11.111 and 11.111.2.

10.19 Fisheries Evaluation Studies.

Permittee shall conduct Fisheries Evaluation Studies to characterize baseline conditions and uncertainties regarding the effects of Covered Activities (construction, operations, and maintenance) on Covered Fish Species. Information derived from these studies shall inform Phase 2 Operations, including any changes to operations, and long-term Project operations (Condition of Approval 10.18.2). Timelines for each Fisheries Evaluation Study shall be described in the CDFW-approved Covered Fish Species Monitoring and Science Plan (Condition of Approval 10.18).

Because of the size and scope of the Project, monitoring and science required to assess effects of Project construction and operations has been organized by spatial scale as near-field effects (vicinity of the north Delta intakes) and far-field effects (beyond the immediate area of the north Delta intakes, both upstream and downstream to Chipps Island).

10.19.1 Migration and Survival Study. Permittee shall, in collaboration with CDFW, develop a Migration and Survival Study Plan to 1) assess the baseline behavior and survival of CHNWR, CHNSR, and WS in river reaches potentially impacted by Project construction and operation and 2) evaluate changes to baseline conditions established during In-water Preconstruction Baseline Monitoring as the Project is implemented during In-water Construction Monitoring, Phase 1 Operations Monitoring, and Phase 2 Operations Monitoring. Permittee shall fund and initiate the CDFW-approved study plan as informed by the final Covered Fish Species Monitoring and Science Plan (Condition of Approval 10.18).

Permittee shall use telemetry data to establish a baseline and to quantify Project impacts on CHNWR, CHNWR, and WS behavior and survival through the Delta and past key routing junctions over a wide range of hydrologic and environmental conditions. As a part of the study, Permittee

shall collect and synthesize additional data including hydrodynamics, fish health, and other abiotic factors that are relevant at the near-field and far-field scales. Permittee shall measure abiotic factors (e.g., flow, dissolved oxygen, temperature, and turbidity) using a new real-time monitoring station downstream of the north Delta intakes (Condition of Approval 10.20.1) and throughout the Delta using available monitoring stations. Data generated during the study may also be used to inform related studies (e.g. Predatory Fish Distribution, Predation Rate, Abundance and Distribution, and Refugia Design).

Near-Field Behavior and Survival Element: The purpose of this study element is to evaluate the impacts of Project construction and operations on:

1) The horizontal and vertical density distribution of juvenile CHNWR, CHNSR, and WS in the vicinity of the north Delta intakes;
2) Fine-scale movement patterns of juvenile CHNWR, CHNSR, and WS in the vicinity of the north Delta intakes; and
3) Survival of juvenile CHNWR, CHNSR, and WS moving past the north Delta intakes.

This study element will be used to analyze baseline behavior and near-field survival characteristics for juvenile CHNWR, CHNSR, and WS in reaches surrounding the north Delta intakes. Permittee shall fund and install the following equipment to support implementation of this study:

- Enhanced telemetry arrays at each north Delta intake and in control reaches. Each array shall consist of 9 to 12 telemetry receivers (depending on reach length) positioned to determine three-dimensional (3D) distribution patterns near the north Delta intakes; and
- Side-looking horizontal acoustic Doppler current profilers along reaches encompassing each north Delta intake to measure surface water velocity fields and evaluate entrainment zones by delineating the critical streaklines associated with varying Sacramento River flows and NDD rates.

Additionally, to support implementation of this study, Permittee shall fund and secure a source of natural-origin or hatchery-origin Chinook salmon and WS from the Sacramento River basin and acoustically tag them prior to release in the Sacramento River between December and May.

Using a combination of the 3D acoustic telemetry array and streakline delineation, this study element is expected to quantify potential entrainment when juvenile CHNWR, CHNSR, and WS have moved beyond the streakline.

Far-Field Routing and Survival Element: The purpose of this study element is to evaluate the impact of the north Delta intakes and Project operations on:

1) Route entrainment of juvenile CHNWR, CHNSR, and WS at key Delta junctions (Sutter, Steamboat, and Georgiana sloughs and the Delta Cross Channel Gates); and
2) Reach-scale and regional-scale survival of juvenile CHNWR, CHNSR, and WS.

This study element will be used to analyze route entrainment and migration survival conditions for juvenile CHNWR, CHNSR, and WS by reach within the lower Sacramento River and through the Delta during baseline, in-water construction, Phase 1 Operations, and Phase 2 Operations monitoring.

Permittee shall fund and install the following equipment to enable quantification of baseline conditions and maintain the equipment from installation through Phase 2 Operations Monitoring:

- Enhanced telemetry arrays at each north Delta intake and at each key Delta junction. Receivers shall be positioned upstream and downstream of each location/junction to determine route entrainment and reach-scale and regional-scale survival.

Permittee shall coordinate implementation of this study element with ongoing outmigration studies in the area to leverage efficiency and maximize the collection of spatial and temporal data as well as utilize the supplemental acoustically tagged juvenile Chinook Salmon and sturgeon from the near-field behavior and survival study element (see above). If existing studies and associated telemetry equipment meet the needs of this study, they may be incorporated into the Migration and Survival Study Plan. Tag selection and array installation shall be consistent with other routing studies coordinated through the Interagency Ecological Program (IEP) ITAG.

10.19.2 Predation Study. Permittee shall, in collaboration with CDFW, develop a Predation Study Plan to assess the baseline risk of predation to DS, LFS, CHNWR, CHNSR, and WS in river reaches potentially impacted by Project construction and operations, including areas immediately adjacent to the north Delta intakes. The Predation Study Plan shall also be used to evaluate changes to baseline conditions established during In-water Preconstruction Baseline Monitoring from Covered Activities that occur during In-water Construction Monitoring, Phase 1 Operations Monitoring, and Phase 2 Operations Monitoring. Permittee shall fund and initiate the CDFW-approved study plan according to the timelines in the CDFW-approved Covered Fish Species Monitoring and Science Plan and continue to implement the study plan for the duration of the ITP, through Phase 2 Operations.

Permittee shall use predation demographic and rate data to establish a baseline and quantify Project impacts on predation over a wide range of hydrologic and environmental conditions. Data

shall be collected and synthesized on a range of factors that contribute to predation risk at the near-field scale, including flow, dissolved oxygen, temperature, and turbidity. Covariates expected to contribute to predation risk shall be measured using a new real-time monitoring station downstream of the north Delta intakes (Condition of Approval 10.20.1) and at other locations throughout the Delta using existing monitoring stations. Data generated during the study may also be used to inform related studies (e.g., Predation Rate, Refugia Design).

Predatory Fish Distribution Element: The purpose of this study element is to evaluate the impact of the north Delta intakes and Project operations on:

1) Predator demographics, including species composition, relative and absolute abundance, size class distribution, and diet of predatory fish in the vicinity of the north Delta intakes;
2) Predatory fish habitat use, distribution, and density in the vicinity of the north Delta intakes; and
3) Predation risk associated with habitat features and hydraulic conditions.

This study element shall be used to characterize baseline predator demographics and habitat use in reaches surrounding the north Delta intakes. This study element shall focus on predatory fishes that are known to prey on adult DS and LFS, juvenile CHNWR and CHNSR, and juvenile WS (e.g., black bass, catfish, Sacramento pikeminnow, striped bass).

Permittee shall employ several methods, as approved by CDFW, to capture predatory fish and retain a subsample for diet analysis. Permittee shall tag predatory fish with acoustic transmitters compatible with the dominant concurrently installed acoustic array within the Delta and pursuant to the Migration and Survival Study. Permittee shall process data along with the Migration and Survival Study data, and incorporate the findings into predatory fish population and bioenergetics models.

Additionally, Permittee shall fund mobile and fixed echo sounders and install fixed echo sounders (or comparable technology, including Dual-Frequency Identification Sonar [DIDSON] or Adaptive Resolution Imaging Sonar [ARIS]) prior to initiation of in-water construction Covered Activities, and fund long-term maintenance through Phase 2 Operations. Permittee shall conduct mobile and fixed echo sounder surveys to estimate near-field and far-field relative abundance, biomass, and size distribution of predatory fish throughout the study reach. The study shall identify different habitat features and hydraulic conditions that influence predator behavior and increase probability of Covered Fish Species encountering predators.

Over the course of the study, results of each capture method shall be evaluated for potential use in future predator reduction near the north Delta intakes, if needed. Permittee shall provide

interim and final reports summarizing the predator demographics for each method and evaluate the best capture methods for dominant predatory species.

Predation Rate Element: The purpose of this study element is to evaluate the impact of the north Delta intakes and Project operations on:

1) Predation rate for DS, LFS, CHNWR, CHNSR, and WS in the vicinity of the north Delta intakes.

Permittee shall use results from this study element to analyze baseline predation rates for DS, LFS, CHNWR, CHNSR, and WS in reaches surrounding and immediately adjacent to the north Delta intakes and changes in baseline predation rates from in-water construction, Phase 1 Operations, and Phase 2 Operations. Permittee shall use these results of this study to identify the environmental factors that are most associated with predation (e.g., flow, temperature, turbidity, habitat variables).

Permittee shall use the following approaches to measure predation, unless otherwise approved in writing by CDFW:

- Deploy floating predation event recorders to measure direct predation across seasonal variability to account for all life stages of Covered Fish Species exposure;
- Acoustic tag data from tagged juvenile Chinook salmon and sturgeon released for the Migration and Survival Study shall be assessed for predation events; and
- DIDSON or ARIS surveys to assess fine-scale predatory fish abundance and behavior at control sites and in the vicinity of the north Delta intakes.

10.19.3 Abundance and Distribution Study. Permittee shall, in collaboration with CDFW, develop a Covered Fish Species Abundance and Distribution Study Plan to assess the baseline densities and seasonal and geographic distribution of all life stages of DS, LFS, CHNWR, CHNSR, and WS in river reaches potentially impacted by Project construction and operations, and evaluate changes to baseline conditions (In-water Preconstruction Baseline Monitoring) resulting from Covered Activities (In-water Construction Monitoring, Phase 1 Operations Monitoring, Phase 2 Operations Monitoring). Permittee shall fund and initiate the CDFW-approved study plan after installation of the new real-time monitoring station (Condition of Approval 10.20.1) and continue implementation through Phase 2 Operations.

Permittee shall use survey data to establish a baseline and quantify Project impacts on abundance and distribution of Covered Fish Species over a wide range of hydrologic and environmental conditions. Some Covered Fish Species, including DS, have very low abundance, and lack of detection in monitoring does not accurately determine absence in an area. Permittee shall incorporate additional survey methods for DS, and additional Covered Fish Species as requested by CDFW, to effectively assess potential habitat use and presence in the area.

Permittee shall use the additional survey methods to assess quantity of DS spawning habitat. Permittee shall collect and synthesize data to characterize a range of factors that contribute to abundance and distribution of Covered Fish Species at both the near-field and far-field scales. Permittee shall measure abiotic factors (e.g., dissolved oxygen, temperature, and turbidity) using a new monitoring station downstream of the north Delta intakes (Condition of Approval 10.20.1) and throughout the Delta using existing monitoring stations.

Near-Field Abundance and Distribution Element: The purpose of this study element is to evaluate the impact of the north Delta intakes and Project operations on abundance and fine-scale distribution of DS, LFS, CHNWR, CHNSR, and WS within the water column and laterally across the channel in the vicinity of the north Delta intakes.

These baseline abundance and fine-scale distribution data will be established during In-water Preconstruction Baseline Monitoring and compared to abundance and fine-scale distribution during Project construction and Phase 1 and Phase 2 operations in the same reaches, so that changes can be detected.

Permittee shall fund and initiate abundance and fine-scale distribution studies according to timelines established in the Covered Fish Species Monitoring and Science Plan (Condition of Approval 10.18) and continue implementation annually through Phase 2 Operations Monitoring. Permittee shall use a combination of acoustic telemetry (as detailed in the Migration and Survival Study), side-scan sonar, and DIDSON or ARIS imaging (as detailed in the Predation Study) to evaluate fine-scale Covered Fish Species abundance and distribution in the vicinity of the north Delta intakes and nearby reaches. Given the inability to accurately identify species using side-scan sonar and DIDSON or ARIS imaging, results may focus on the density and distribution of all fish within specified size categories. The density and distribution of each size category may be analyzed separately to evaluate the impacts of north Delta intake construction, structure, and operation.

Far-Field Abundance and Distribution Element: The purpose of this study element is to evaluate the impact of the north Delta intakes and Project operations on:

1) Demographics of DS, LFS, CHNWR, CHNSR, and WS in the vicinity of the north Delta intakes and sites upstream and downstream; and

2) Seasonal and geographic abundance and distribution of DS, LFS, CHNWR, CHNSR, and WS in the vicinity of the north Delta intakes and sites downstream.

This study element will be used to analyze baseline demographics and seasonal and geographic distribution of DS, LFS, CHNWR, CHNSR, and WS in reaches surrounding the north Delta intakes. Some Covered Fish Species, including DS, have very low abundance, and lack of detection in

monitoring does not accurately determine absence in an area. Permittee shall incorporate additional survey methods for DS, and additional Covered Fish Species as requested by CDFW, to effectively assess potential habitat use and presence in the area. Permittee shall include additional surveys to assess quantity of DS spawning habitat. These baseline demographics and seasonal and geographic distribution data shall be established during In-water Preconstruction Baseline Monitoring and compared to demographics and seasonal and geographic distribution data during In-water Construction Monitoring and Phase 1 and Phase 2 Operations Monitoring in the same reaches, so that changes can be detected.

Permittee shall use a combination of existing IEP Delta monitoring programs (e.g., CDFW Summer Townet Survey, Fall Midwater Trawl Survey, Smelt Larval Surveys; USFWS Enhanced Delta Smelt Monitoring Program and Delta Juvenile Fish Monitoring Program; CDFW and USFWS Kodiak Trawl and 20 mm Trawl) and night sampling, as approved by CDFW and USFWS. Permittee shall also supplement existing IEP Delta monitoring programs and night sampling, by including environmental DNA (eDNA) transects and echo sounder transects (as detailed in the Predation Study) to verify and calibrate catch detections with less-invasive sampling techniques.

10.20 Water Quality Evaluation Studies.

Permittee shall conduct Water Quality Evaluation Studies to characterize baseline conditions and uncertainties regarding the effects of Covered Activities (construction, operations, and maintenance) on Covered Fish Species. Information derived from these studies shall inform Phase 2 Operations, including any changes to real-time operations, and long-term Project operations (Condition of Approval 10.18.2). Timelines for each Water Quality Evaluation Study shall be described in the CDFW-approved Covered Fish Species Monitoring and Science Plan (Condition of Approval 10.18).

10.20.1 Installation of New Real-time Monitoring Station. Permittee shall fund, install, and maintain a new real-time monitoring station downstream of the north Delta diversion Intake C before initiation of In-Water Preconstruction Baseline Monitoring. The new station shall include equipment consistent with the current CDEC station at Sacramento River at Hood and include sensors for water temperature (degrees Fahrenheit [˚F]), turbidity (Formazin Nephelometric Units [FNU]), dissolved oxygen (milligram per liter [mg/L]), electrical conductivity (microsiemens per centimeter [µS/cm]), pH (millivolt [mV]), salinity (parts per million [ppm]), flow (cubic feet per second [cfs]), chlorophyll (relative fluorescence units [RFU]), phycocyanin (relative fluorescence units [RFU]), fluorescent dissolved organic matter (relative fluorescence units [RFU]), and water velocity (feet per second [ft/sec]). Permittee shall provide data to CDFW in-real time, measured in 15-minute increments. Data collected at the new real-time monitoring station shall be used in coordination with Fisheries Evaluation Studies, Water Quality Evaluation Studies, and Ecological Response Evaluation Studies to detect changes to baseline conditions from construction and operations Covered Activities. Permittee shall work collaboratively with CDFW to develop a Hydraulic Data Plan to use the data obtained from this new real-time monitoring station, in

addition to upstream monitoring stations described in Section 20.2.1 of the Project Description and existing stations, to implement operating criteria described in Conditions of Approval 11.109 and 11.111. The plan shall take into consideration non-Project diversions that may occur between the north Delta intakes and the location of the station used to calculate bypass flows. The plan shall also take into account accuracy of equipment used for real time measurements of Sacramento River flow and diversions, and physical constraints associated with pump operations and intake screens. This plan shall be subject to CDFW approval.

10.20.2 Sediment and Turbidity Monitoring. Operations of the NDD could entrain up to 5% of the sediment load entering the Delta from the Sacramento River, which could have negative effects on turbidity and DS habitat. Permittee shall, in collaboration with CDFW, develop a Sediment and Turbidity Monitoring Study Plan to:

1) Assess the baseline sediment transfer in river reaches potentially impacted by Covered Activities (construction and operations);

2) Evaluate changes to baseline conditions established during In-water Preconstruction Baseline Monitoring occurring from Covered Activities measured during In-water Construction Monitoring, and Phase 1 and Phase 2 Operations Monitoring; and

3) Establish sediment and turbidity monitoring performance criteria to ensure the sediment load entering the Delta does not decrease compared to baseline sediment transfer levels established through preconstruction monitoring and turbidity levels upstream at Freeport, while considering water year type, natural variance, and seasonality, and establish a Sediment Reintroduction Plan to minimize impacts to Covered Fish Species from Project effects on sediment and turbidity to be implemented should sediment transfer levels decrease.

Permittee shall initiate the CDFW-approved study plan after installation of the new real-time monitoring station (Condition of Approval 10.20.1), and shall continue implementation through Phase 2 Operations. Permittee shall determine methods for estimating sediment entrainment and performance criteria during the plan development phase. Methods shall include measurement of suspended sediment concentration and flow in the Sacramento River upstream and downstream of the north Delta diversion, as well as in the water diverted by each north Delta intake.

If results of the Sediment and Turbidity Monitoring Study indicate that performance criteria will not be met, Permittee shall develop a Sediment Reintroduction Plan to reintroduce sediment and create conditions in the Project Area that meet performance criteria. Sources of sediment to be reintroduced may include proposed facilities (e.g., the intake sediment lagoons), existing facilities (e.g., Clifton Court Forebay), or locations unrelated to the Project, and will account for factors such as sediment composition to meet performance criteria (e.g., fine particles for turbidity) and

reintroduction location. Permittee shall use modeling to optimize sediment reintroduction locations relative to performance criteria to be achieved. Permittee shall implement the final Sediment Reintroduction Plan following CDFW approval.

10.20.3 Harmful Algal Blooms Monitoring. Before initiation of Phase 1 Operations, Permittee shall develop and implement a Harmful Algal Bloom Plan to monitor baseline frequency, duration, and intensity of harmful algal blooms in river reaches potentially impacted by Project operations using a combination of field surveys and hydrodynamic modeling of residence time. Monitoring shall be conducted for at least five years to capture variation in hydrologic and environmental conditions. The identification of river reaches potentially impacted by Project operations is subject to CDFW approval. Permittee shall coordinate implementation of this study with ongoing monitoring programs and studies in the area to leverage efficiency. If existing studies and monitoring meet the needs of this study, they may be incorporated into the Harmful Algal Bloom Plan. The Harmful Algal Bloom Plan shall include an adaptive element that will expand effort if impacts as a result of Covered Activities are detected during initial monitoring. Permittee shall continue to monitor the frequency, duration, and intensity of harmful algal blooms in river reaches potentially impacted by Project operations during Phase 1 and Phase 2 Operations Monitoring to determine if Project operations change residence time within river reaches impacted by Project operations, and if that leads to an increase in harmful algal bloom frequency, duration, and/or intensity. Permittee shall evaluate results from this study using Covered Fish Species life cycle models to generate a refined understanding of Project impacts on Covered Fish Species and consider impacts in the context of Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117).

10.20.4 Selenium Bioaccumulation Monitoring. Before initiation of Phase 1 Operations, Permittee shall develop and implement a Selenium Bioaccumulation Study Plan to evaluate the effect of Covered Activities on selenium bioaccumulation in DS and LFS. The study shall include monitoring of baseline conditions throughout the Project Area, including selenium concentrations within the water, food web resources, and fish tissue from a species that can serve as a suitable proxy for Osmerids. Permittee shall coordinate implementation of this study with ongoing monitoring programs and studies in the area to leverage efficiency. If existing studies and monitoring meet the needs of this study they may be incorporated into the Selenium Bioaccumulation Study Plan. The Selenium Bioaccumulation Study Plan shall include an adaptive element that will expand effort if impacts as a result of Covered Activities are detected during initial monitoring. Permittee shall continue to implement the Selenium Bioaccumulation Study during Phase 1 and Phase 2 Operations Monitoring to assess potential impacts to Covered Fish Species as a result of the interaction between Project operations and selenium bioaccumulation. Permittee shall evaluate any increases in selenium bioaccumulation using both the Covered Fish Species life cycle models to assess impacts on population growth rates and consider impacts in the context of Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117).

10.20.5 Mercury Monitoring Study. Permittee, in collaboration with CDFW, shall develop and implement a Mercury Monitoring Study Plan to evaluate changes in mercury concentrations in the ecosystem from Covered Activities (construction and operations). As a part of the Mercury Monitoring Study, measurements of mercury concentrations within the water, food web resources, and fish tissue (using a proxy species for Covered Fish Species) shall be conducted over a wide range of hydrologic and environmental conditions during In-Water Preconstruction Baseline Monitoring, In-Water Construction Monitoring, and Phase 1 and 2 Operations Monitoring. Permittee shall coordinate implementation of this study with ongoing monitoring programs and studies in the area to leverage efficiency. If existing studies and monitoring meet the needs of this study to establish baseline and evaluate impacts as a result of Project construction and operations they may be incorporated into the Mercury Monitoring Study Plan. The Mercury Monitoring Study Plan shall include an adaptive element that will expand effort if impacts as a result of Covered Activities are detected during initial monitoring. Permittee shall evaluate any increases in mercury loading from baseline conditions and use lifecycle models for Covered Fish Species to assess impacts on survival and population growth rates and consider impacts in the context of the species-specific biological criteria (Conditions of Approval 11.115, 11.116, and 11.117). If Project impacts exceed Covered Fish Species Biological Criteria, Permittee shall develop methylmercury management approaches and implement them consistent with the *Sacramento-San Joaquin Delta Estuary Total Maximum Daily Load (TMDL) for Methylmercury* and *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin Delta Estuary*.[29, 30]

10.21 Ecological Response Evaluation Studies.

Permittee shall conduct Ecological Response Evaluation Studies to characterize baseline conditions and uncertainties regarding the effects of Covered Activities (construction, operations, and maintenance) on Covered Fish Species. Information derived from these studies shall inform Phase 2 Operations, including any changes to real-time operations, and long-term Project operations (Condition of Approval 10.18.2 and 10.18.3). Timelines for each Ecological Response Evaluation Study shall be described in the CDFW-approved Covered Fish Species Monitoring and Science Plan (Condition of Approval 10.18).

[29] Central Valley Regional Water Quality Control Board (2010). Sacramento-San Joaquin Delta Estuary TMDL for methylmercury. Staff Report. Rancho Cordova, CA. April 2010. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/archived_delta_hg_info/april_2010_hg_tmdl_hearing/apr2010_tmdl_staffrpt_final.pdf.

[30] Central Valley Regional Water Quality Control Board (2010). Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the control of methylmercury and total mercury in the Sacramento-San Joaquin Delta Estuary. Staff Report. Rancho Cordova, CA. April 2010. Available: https://www.waterboards.ca.gov/centralvalley/ water_issues/tmdl/central_valley_projects/delta_hg/archived_delta_hg_info/april_2010_hg_ tmdl_hearing/apr2010_bpa_staffrpt_final.pdf.

10.21.1 Hydrodynamics at Georgiana Slough Monitoring. Permittee shall develop a Hydrodynamics at Georgiana Slough Monitoring Study Plan to monitor the timing, magnitude, frequency, and duration of Sacramento River reverse flows at the Georgiana Slough junction and evaluate changes to baseline conditions from Covered Activities (construction and operations) through Phase 2 Operations. CDFW will use the results of this study to establish a baseline during In-water Preconstruction Baseline Monitoring and In-water Construction Monitoring. Permittee shall continue to implement the Hydrodynamics at Georgiana Slough Monitoring Study Plan during Phase 1 and Phase 2 Operations Monitoring to assess potential changes as a result of Project operations.

10.21.2 Covered Fish Species Life Cycle Models. The purpose of this study element is to use best available science to continue to support and refine life cycle models for Covered Fish Species, and verify them with field data collection, as a quantitative tool to characterize the effects of abiotic (including climate change) and biotic factors on Covered Fish Species populations. Permittee shall 1) fund the development and refinement of the following life cycle models; and 2) provide data to consider in life cycle model updates to quantify the effects of Covered Activities (construction, operations, and maintenance) through Phase 2 Operations and ensure compliance with Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117):

- Delta Smelt Life Cycle Model and Individual-Based Model developed by the USFWS;
- Longfin Smelt Life Cycle Model in development by an interagency team lead by USFWS, and required by the 2024 ITP;
- Spring-run Chinook Salmon Life Cycle Model in development by an interagency team lead by Permittee, and required by the 2024 ITP;
- Winter-run Chinook Salmon Life Cycle Model developed by the Southwest Fisheries Science Center in the National Oceanic and Atmospheric Administration; and
- White Sturgeon Life Cycle Model in development by CDFW and Permittee, and required by the 2024 ITP.

10.21.3 Food Web and Larval Fishes Entrainment Study. The purpose of this study is to evaluate the effects of Project operations on Covered Fish Species food web resources and the potential entrainment of larval and juvenile Covered Fish Species. Permittee, in collaboration with CDFW, shall develop and implement a Food Web and Larval Fishes Entrainment Study Plan to evaluate both near-field direct entrainment of food web resources from Project operations and far-field effects on food web resources due to changes in hydrology from Project operations using a combination of survey data and modeling approaches. Permittee shall implement studies during In-water Preconstruction Baseline Monitoring and In-water Construction Monitoring to establish a baseline. Permittee shall continue to implement studies during, Phase 1 and Phase 2 Operations Monitoring to assess changes as a result of Project operations.

Studies during In-water Preconstruction Monitoring and In-water Construction Monitoring: The purpose of this study element is to establish baseline conditions of food web resources within the Sacramento and San Joaquin rivers. Permittee shall use existing monitoring surveys, such as 20mm Survey, Environmental Monitoring Program, Fall Midwater Trawl Survey, Summer Townet Survey, the Fish Restoration Program, and new monitoring surveys near the north Delta intakes to quantify the distribution and abundance of Covered Fish Species food web resources in river reaches potentially impacted by Project operations. Permittee shall conduct surveys for at least five years before commencing Phase 1 Operations.

Studies during Phase 1 and Phase 2 Operations Monitoring: The purposes of this study element are to 1) quantify entrainment of Covered Fish Species and food web resources through the north Delta intake fish screens and 2) quantify potential far-field effects of Project operations on Covered Fish Species food web resources within the Sacramento and San Joaquin rivers. Permittee shall monitor behind the north Delta intake fish screens to quantify the abundance of food web resources, DS and LFS larvae and juveniles, WS larvae and juveniles, and CHNWR and CHNSR fry being entrained into the north Delta intakes. Permittee shall sample for the Covered Fish Species annually during Project operations during the time when Covered Fish Species may be present in the vicinity of the north Delta intakes. Permittee shall also continue to implement studies initiated during In-water Preconstruction Baseline Monitoring and In-water Construction Monitoring to assess far-field effects of Project operations on food web resources. The final study plan may include construction of a sampling platform to collect water samples behind the north Delta intake fish screens.

Permittee shall incorporate near-field and far-field impacts from changes in food web resources and Covered Fish Species entrainment into Covered Fish Species life cycle models to evaluate effects of Project operations on DS, LFS, CHNWR, CHNSR, and WS populations and ensure compliance with the Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117).

10.21.4 Tidal Wetland Restoration Efficacy Study. The purpose of this study is to quantify the benefits of tidal habitat restoration required by Conditions of Approval 12.6.1, 12.6.2, 12.6.4, 12.7.1, 12.7.2, 12.8.1, and 12.8.2 in this ITP on Covered Fish Species. Before Phase 1 Operations begin, Permittee shall develop a Tidal Wetland Restoration Efficacy Study Plan that uses monitoring data from the Fish Restoration Program, and potentially other data sources, to analyze the efficacy of restored tidal wetlands in producing food web resources. Permittee shall incorporate results of the Tidal Wetland Restoration Efficacy Study into Covered Fish Species life cycle models to evaluate benefits of restoration required by this ITP to offset impacts to Covered Fish Species and ensure compliance with the Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117).

10.21.5 Delta Smelt and Longfin Smelt Spawning Habitat Study. At least one year before initiating in-water construction Covered Activities, Permittee shall, in collaboration with CDFW, fund and implement a study to evaluate the impact of Covered Activities (construction, operations, and maintenance) on DS and LFS spawning habitat as part of the Abundance and Distribution Study (Condition of Approval 10.19.3). Permittee shall use both new and existing monitoring programs, such as the Delta Juvenile Fish Monitoring Program, and experimental studies to determine:

- Locations where DS and LFS spawn within the Sacramento River;
- The percentage of the total population of adult DS and LFS spawn in the areas upstream of the NDD intakes;
- The relative use of right-bank, left-bank and low velocity bottom habitats for adult DS and LFS upstream migration and downstream larval and juvenile DS and LFS migration;
- The overall impact on DS and LFS migration from Project construction; and
- Habitat characteristics, such as substrate type, velocity, and salinity, that are associated with spawning habitat of DS and LFS.

10.21.6 Refugia Design and Field Study. The purpose of this study is to integrate laboratory and field data into the process to design and optimize refugia from predation or other Project operations stressors at the north Delta intakes. Construction of fish refugia has been identified as a potential non-operations based management response if impacts from Project operations, which can be quantified through the Fisheries Evaluation Studies (Condition of Approval 10.19), show greater than expected deleterious effects of Covered Activities on CHNWR and CHNSR. Permittee shall develop a Refugia Design and Field Study Plan to implement a study to inform the design and optimization of fish refugia at the north Delta intakes. Permittee shall use existing monitoring and available In-water Preconstruction Baseline Monitoring to develop a baseline. All available monitoring data shall be used during the process to design refugia before and during construction of the north Delta intakes. Permittee shall evaluate characteristics of refugia for Covered Fish Species throughout the engineering design refinement process such that refugial designs are considered prior to design refinements that would prohibit them. Permittee shall utilize results from the Predation Study (Condition of Approval 10.19.2) to guide the placement or refinement of refugia in areas where predators congregate or where predation occurs.

10.21.7 Sacramento River Flow Reversal and Routing Minimization. By adhering to the requirements in Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114 Permittee shall manage diversions at the north Delta intakes at all times to minimize increases in the timing, magnitude, frequency, or duration of flow reversals in the Sacramento River at the Georgiana Slough junction above pre-Project levels. Managing diversions to minimize flow reversals will minimize increases in entrainment of juvenile CHNWR and CHNSR into Georgiana Slough as compared to baseline and contribute to achieving the Winter- and Spring-run Chinook Salmon Biological Criteria (Condition of Approval 11.116). Permittee shall assess changes in CHNWR and CHNSR route entrainment by reach within the lower Sacramento River and through

the Delta between baseline conditions established during In-water Preconstruction Baseline Monitoring and In-water Construction Monitoring, and Phase 1 and Phase 2 Operations Monitoring using the Hydrodynamics at Georgiana Slough Monitoring Study and the Far-field Routing and Survival Study (Conditions of Approval 10.21.1 and 10.19.1). Key junctions in the route entrainment analysis shall include Sutter Slough, Steamboat Slough, and Georgiana Slough (see Far-Field Routing and Survival Study in Condition of Approval 10.19.1).

10.21.8 Optimization Study to Inform Joint Operations of State Water Project North Delta Intakes and South Delta Export Facilities. Operations of existing SWP and CVP south Delta export facilities exert a strong influence over Delta hydrology, Delta outflow, and salinity in Suisun Marsh and Suisun Bay. As a result, these facilities have impacts on the Bay-Delta ecosystem and Covered Fish Species that reside there for part, or all, of their lifespan. The influence of these existing facilities on Covered Fish Species has been studied extensively, evaluated in many peer-reviewed reports and scientific publications, described in CEQA and NEPA processes led by Permittee and Reclamation, and documented in regulatory authorizations by USFWS, NMFS, and CDFW, among other agencies. However, the potential hydrologic, biological, and ecological interactions that may occur as a result of concurrent operations of SWP and CVP south Delta export facilities and Project north Delta intakes are much less well understood. Early analyses of prior iterations of the Project have demonstrated potential benefits to the Bay-Delta ecosystem and Covered Fish Species if a balanced approach to joint operations of SWP south and north Delta export facilities is used to restore a more natural flow pattern in the Delta. Analyses of Project operations in the ITP application[31] demonstrated the value of limiting shifts in diversions from the south to the north when there was a carriage water savings. This limitation on shifting is required by Conditions of Approval 11.112 and 11.113.

During In-water Preconstruction Monitoring, Permittee shall convene a team of biologists and hydrologic engineers to collaboratively develop a Joint Operations Optimization Study Plan that will describe a series of modeling studies, informed by empirical data, to evaluate a wide range of possible joint operations scenarios, including approaches to balancing diversions between north and south for carriage water savings, and associated implications for Delta biotic and abiotic conditions, including minimization of impacts to Covered Fish Species. The team shall include representatives from CDFW and Permittee, and shall allow for participation by Reclamation, NMFS, and USFWS. Permittee shall submit the draft study plan to CDFW for review no more than 18 months after convening the team. Permittee shall work collaboratively with CDFW to integrate comments into a final draft plan and submit the final draft plan to CDFW within six months of

[31] California Department of Water Resources (2024). DCP ITPA supplemental materials in response to comments 7/02/2024 updated CalSim and CalSim based bio-modeling. Email correspondence between California Department of Water Resources and California Department of Fish and Wildlife received on July 2, 2024.

receiving CDFW comments on the draft study plan. The final plan shall be subject to CDFW approval. Following CDFW approval of the final Joint Operations Optimization Study Plan, Permittee shall work collaboratively with CDFW and other team members to implement the required studies according to the timelines specified in the final plan. Timelines in the final study plan shall allow time for CDFW and Permittee to inform potential changes in Conditions of Approval in this ITP, which may require amendments to this ITP, prior to initiation of Phase 2 Operations.

Permittee shall ensure that Covered Fish Species Biological Criteria are met during Phase 1 and Phase 2 operations (Conditions of Approval 11.115, 11.116, and 11.117). Based on current analyses and information available, CDFW has identified that adhering to operating criteria in this ITP would meet Covered Fish Species Biological Criteria. Jointly operating the north Delta intakes with existing SWP south Delta facilities in a way that further reduces impacts to Covered Fish Species from south Delta diversions, is also likely to meet Covered Fish Species Biological Criteria. SWP south Delta facilities are not Covered Activities of this ITP. Based on the outcomes of the studies required by this ITP, Permittee may seek an amendment to this ITP that includes a joint operations approach, or other modifications to minimization measures, to ensure that Project operations meet Covered Fish Species Biological Criteria.

Permittee shall include a final report documenting results of the studies and demonstrating the Project's ability to meet Covered Species Biological Criteria as a part of the Phase 2 Authorization Package (Condition of Approval 7.1). Any necessary amendments to this ITP will be processed in accordance with Condition of Approval 8 and Section IX of this ITP, CESA's implementing regulations, and other applicable law.

10.21.9 Modeling Needed to Implement Real-time Operations. Permittee shall collaborate with CDFW throughout In-water Preconstruction and In-water Construction Monitoring to evaluate the ability of existing modeling tools to implement Covered Fish Species Biological Criteria as a part of real-time operations (Conditions of Approval 11.115, 11.116, and 11.117). Permittee shall collaborate with CDFW to refine existing modeling tools, or develop new modeling tools, to ensure that Covered Fish Species Biological Criteria can be evaluated in real-time and support the development of risk assessments and collaborative decision-making during Phase 1 and 2 operations.

10.21.10 Studies to Evaluate Differences Between Ascending and Descending Limbs of the Hydrograph. By adhering to the requirements in Condition of Approval 11.111 Permittee shall manage diversions at the north Delta intakes to minimize impacts to Covered Fish Species as a result of Phase 1 and Phase 2 operations. Covered Fish Species are known to migrate in response to flow pulses. As a result, the relationship between flow and Covered Fish Species ecology may differ between ascending and descending limbs of the hydrograph. Permittee shall work

collaboratively with CDFW to utilize new information gained from Conditions of Approval 10.18, 10.19, 10.20, and 10.21 in this ITP to conduct new modeling and evaluate differences in impacts to Covered Fish Species as a result of Project operations during times when the Sacramento River hydrograph is ascending or descending. The results of this modeling may be used in conjunction with Condition of Approval 10.18.3 to develop an alternative approach to minimizing impacts to Covered Fish Species as a result of Phase 1 and 2 operations in January and February, that refines Conditions of Approval 11.111 and 11.111.2.

10.22 Personnel Conducting Studies and Monitoring.
Permittee shall ensure that all Covered Species Monitoring and Scientific Studies which may result in take of DS, LFS, CHNWR, CHNSR, and WS are conducted by a person or entity with necessary state and federal scientific collecting permits and take authorizations.

Preconstruction Engineering Studies

10.23 Sacramento River Bathymetric Surveys.
Permittee shall conduct bathymetric surveys focused on sections of the Sacramento River adjacent to each north Delta intake to understand annual changes in river bottom conditions. The spatial extent of the surveys shall include the Sacramento River upstream of Intake B in the vicinity of Scribner Bend, through one mile downstream of Intake C. Permittee shall provide reports documenting the results of surveys within 120 days of completion of each survey. Surveys shall be conducted so that they follow at least five Sacramento River high flow events, with bypass flows greater than 35,000 cfs. Permittee shall conduct surveys no less than four times prior to initiation of Phase 1 Operations. This study is intended to evaluate whether sediment deposition or scour have occurred in proximity of the intakes which could change the stage discharge relationship, thus impacting the accuracy of bypass flow and sweeping velocity calculations.

10.24 Mathematical Model Development.
Permittee shall provide copies of the final models described in Conditions of Approval 10.24.1 and 10.24.2 and associated reports to CDFW before completing 30% Project design.

10.24.1 Sacramento River Hydraulic Model. Permittee shall complete Sacramento River hydraulic modeling to support improved understanding of hydrological effects using a 3D model of river flow, stream trajectories, and velocities under various Sacramento River flows, stages, and diversion rates. The model boundary shall be at least the length of an intake structure upstream and downstream of each intake site. Permittee shall complete the hydraulic model before completing 30% Project design.

10.24.2 Sediment Transport Model. Permittee shall complete a Sacramento River sediment transport model focused on areas adjacent to each north Delta intake to estimate potential sediment erosion and deposition around the intake structure. The sediment transport model will

be used in conjunction with bathymetric survey data to identify necessary scour protection measures for the permanent intake structure at each site. This model shall also be used in conjunction with Condition of Approval 10.29 to ensure that sediment transport does not impact fish screen performance. Permittee shall complete the model before finalizing 30% Project design.

10.25 North Delta Intake Hydraulic Modeling.
Permittee shall provide copies of the final model and associated reports described in Condition of Approval 10.25.1 before completing 30% Project design. Permittee shall provide copies of the final models described in Conditions of Approval 10.25.2, 10.25.3, and 10.25.4 and associated reports, to CDFW before completing 60% Project design.

10.25.1 Intake Structure Hydraulic Model – Mathematical. Permittee shall complete an intake structure hydraulic model, which will be a 3D model of the intake structure and tee screen hydraulic performance from the Sacramento River to the sedimentation basin, for the purpose of confirming the hydraulic performance and to recommend any refinements to the configuration prior to completion of physical modeling. Permittee shall complete the model before finalizing 30% Project design.

10.25.2 Intake Structure Hydraulic Modeling – Physical. Permittee shall complete a physical reduced-scale model of intake structure and tee screen hydraulic performance from the Sacramento River to the sedimentation basin for the purpose of confirming the hydraulic performance and to identify any refinements to the configuration to be incorporated during the final design phase. The model shall be informed by results of the 3D hydraulic modeling (Condition of Approval 10.25.1). The hydraulic model scale and evaluation shall also be informed from the 3D (computational fluid dynamics) modeling. Permittee shall complete the model before finalizing 60% Project design.

10.25.3 Intake Tee screen hydraulic model – Mathematical. Permittee shall complete a 3D hydraulic model of intake tee screens (including baffle cylinders) to refine baffle configuration and facilitate uniform fish screen approach velocity. Permittee shall complete the model before finalizing 60% Project design.

10.25.4 Intake Tee Screen hydraulic model – Physical. Permittee shall develop a physical reduced-scale lab model of one intake tee screen for the purpose of refining baffle configuration and to facilitate uniform fish screen approach velocity. The scale and extent of this physical model shall be informed by the 3D modeling described in Condition of Approval 10.25.3. Permittee shall develop the model before finalizing 60% Project design.

10.26 Incorporation of Fish Guidance System into the North Delta Intake Structures.

Permittee shall convene a working group comprised of representatives from Permittee, CDFW, Reclamation, USFWS, and NMFS to evaluate the potential to include a fish deterrence and/or guidance system, i.e., a non-physical barrier, into the north Delta intake structure designs at least two years prior to completion of 30% Project design. The goal of fish deterrence and/or guidance systems is to minimize interactions between juvenile CHNWR and CHNSR and the intake structures and fish screens. Permittee shall ensure that the new working group coordinates with the Guidance Structure Evaluation Working Group (GSEWG), which developed and implemented the Georgiana Slough Salmonid Migratory Barrier and evaluated options for fish guidance systems on Sutter and Steamboat sloughs under the 2020 and 2024 SWP ITPs. Permittee shall also ensure that the new working group consults with manufacturers and leading experts on fish guidance technology regarding potential designs and applications of fish guidance and/or deterrence systems. The new working group may use information gathered by the GSEWG to inform the design of possible fish deterrence and/or guidance systems for the north Delta intakes. The working group may use a combination of literature-based evaluation and/or field studies to inform the potential use of a non-physical barrier on the north Delta intakes.

Permittee shall use input from the working group to develop a Fish Guidance System Study Plan for CDFW review. Permittee shall complete implementation of the CDFW-approved study plan and provide a recommended approach to CDFW no less than one year prior to finalization of 30% Project design to ensure that the results are available to inform Project design refinements for the north Delta intakes. The results of this study shall be used consistent with Condition of Approval 10.18.2.

Operations Monitoring Studies

10.27 Hydraulic Testing for Velocity Requirements.

Permittee shall prepare a Hydraulic Testing Plan to demonstrate that the north Delta intake fish screens are operating within CDFW and NMFS fish screening criteria as specified in Condition of Approval 11.109. Permittee shall submit a draft Hydraulic Testing Plan to CDFW no less than six months prior to initiation of Phase 1 Operations. Permittee shall work collaboratively with CDFW to incorporate CDFW comments on the draft plan. Permittee shall submit a final plan to CDFW for approval no less than one month before initiating Phase 1 Operations and implement the plan during Phase 1 and Phase 2 Operations.

The Hydraulic Testing Plan shall include a minimum of three tests during Phase 1 or Phase 2 operations: one test during a low river flow, another during a high diversion flow event, and the third during a “normal” operating condition. All hydraulic tests are subject to north Delta intake operating criteria described in Conditions of Approval 11.109, 11.110, 11.111, 11.112, 11.113, and 11.114. Permittee shall also inspect fish screens visually during these tests to assess fish activity at the screen face and quantify Covered Fish Species impingement and injury rates consistent with Condition of

Approval 10.30. Results of this testing will be used by CDFW to assess north Delta intake fish screen performance relative to final fish screen design criteria (Condition of Approval 11.109).

Permittee shall conduct additional hydraulic testing following each qualifying event as defined below:

- Changes to Project facilities or operations affecting fish screen operations, as determined by CDFW.
- Channel morphology changes in the vicinity of the north Delta intake fish screens that may affect water diversions, fish screen performance, and the associated facilities at the north Delta intakes.
- Changes or adjustments to the north Delta intake fish screens that may affect fish screen function, such as, tuning baffle adjustments or replacement of fish screen units.
- Additional qualifying events identified by Permittee or CDFW in the Hydraulic Testing Plan with the potential to increase maximum uniform approach velocity (V_a) above CDFW and NMFS fish screening criteria described in Condition of Approval 11.109.

All hydraulic testing associated with qualifying events shall be initiated within two months of the completion of the qualifying event, or as approved by CDFW.

10.27.1 Hydraulic Testing Procedures. Permittee shall conduct all north Delta intake fish screen hydraulic testing using guidance provided in the NMFS 2023 *Performing Hydraulic Evaluations*[32] to ensure water passing through the cylindrical screens is distributed uniformly over all wetted surfaces. Permittee shall provide detailed descriptions of the methods, procedures, and parameters for hydraulic testing in the Hydraulic Testing Plan. The Hydraulic Testing Plan shall include, but not be limited to:

- Diagrams of the overall intake structure with dimensions;
- Detailed description of the flow control baffle system, including the method used for adjusting the baffles, if applicable;
- Equipment to be used in the study, including:
    - The type of probe(s) to be used that are capable of measuring water velocities in two or three dimensions simultaneously,
    - Details of the jig for positioning the probe(s) at each measurement location, showing how the probe(s) will be held in the correct orientation with respect to the fish screen,

[32] National Marine Fisheries Service (2023). Performing hydraulic evaluations. Appendix E of *Anadromous salmonid passage design manual*. National Marine Fisheries Service, National Oceanic and Atmospheric Administration, West Coast Region. February 2023.

    - Boats or other equipment necessary to access the screen, if applicable,
    - Computer software to be used for data organization and analysis;
- Proposed study methods to be used, including:
    - An explanation of the order in which velocity measurements will be recorded and how long data will need to be recorded for each measurement,
    - A detailed diagram showing where velocity measurements will be made on each screen panel (or screen unit),
    - Identification of the range of diversion rates to be used during the evaluation,
    - A list of environmental conditions that may restrict the implementation of the hydraulic evaluation plan;
- An explanation of how head loss across the screen will be measured using existing instrumentation or survey equipment; and
- Acceptance criteria used to identify how the evaluator will know when the screen is tuned such that it meets CDFW and NMFS fish screening criteria.

10.27.2 Approach Velocity Testing Compliance. Permittee shall provide all hydraulic testing data to CDFW within 72 hours of each north Delta intake fish screen hydraulic test. If testing data determines non-compliance with the CDFW and NMFS fish screening criteria, Permittee shall conduct baffle adjustments within seven days of a non-compliant hydraulic test, and Permittee shall retest within seven days of the baffle adjustment and provide the subsequent hydraulic testing data to CDFW within 72 hours. In the event baffle adjustments and/or retesting cannot occur within the timeline specified, Permittee shall contact CDFW within 72 hours of the initial fish screen hydraulic test to determine next steps. CDFW shall determine whether baffle adjustment and retesting has demonstrated compliance, and if additional baffle adjustments and testing are required. Permittee shall employ additional actions such as the decrease of diversion rates at the north Delta intakes, as needed, to maintain V_a. If V_a cannot be maintained under the CDFW and NMFS fish screening criteria (Condition of Approval 11.109). Permittee shall describe all retesting in the subsequent Hydraulic Testing Report (Condition of Approval 10.27.3).

10.27.3 Hydraulic Testing Reports. Permittee shall submit hydraulic testing reports within thirty days of completion of each hydraulic test described in Condition of Approval 10.27. The reports shall include, at minimum:

- The date(s), times and total duration of each testing session;
- The testing methods employed;
- The condition of the screen during testing (percent of screen damaged, percent fouled, etc.);
- Time since automated cleaning equipment last operated;
- The date of the last manual cleaning of the screen(s);
- A detailed account of any difficulties encountered during testing that prevented measurement or affected V_a or V_s at one or more locations on the screens;

- A detailed account of fish screen tuning baffle positions before any adjustments made for testing, all tuning baffle adjustments made before testing, and all readjustments and re-testing performed;
- The water surface elevation at the screen face during testing;
- The mean bypass flow and diversion rate during testing;
- The fish screen panel tested, and exact location of each measurement point on each panel; and
- Each measured V_a and V_s for north Delta intake B and C fish screens.

Permittee shall submit all data in long format (one row per observation) in a .csv file. Permittee shall submit all hydraulic testing reports and data files for each screen in the same format for data accessibility and analysis purposes.

10.28 Visual Inspections.
Permittee shall perform visual inspections of the north Delta intake screens at least several times per year (using a diver and/or underwater inspection surveillance) to evaluate screen integrity, the effectiveness of the cleaning mechanism, and potential impingement of Covered Fish Species. Permittee shall use results of the inspection to adjust cleaning intervals as needed to achieve compliance with CDFW an NMFS fish screening criteria (Condition of Approval 11.109). Permittee shall remove fish screens from the river and clean them approximately every six months.

10.29 Sediment Management.
Permittee shall conduct inspections to quantify sediment deposition in front of the tee screen bases at both north Delta intakes at least annually after initiating Phase 1 Operations to evaluate the effectiveness of sediment management devices and demonstrate that sediment is not impacting fish screen performance. Permittee shall conduct sediment inspections in conjunction with screen inspections described in Condition of Approval 10.28. Permittee shall use these inspections in conjunction with Condition of Approval 10.24.2 to ensure that sediment transport does not impact screen performance. Within 30 days of each inspection Permittee shall provide estimates of sediment deposition and an assessment of 1) the effectiveness of sediment management devices and 2) potential impacts to fish screen performance to CDFW.

10.30 Screen Impingement Study.
As a part of Visual Inspections (Condition of Approval 10.28) Permittee shall develop a study plan to collect data on impinged fish, including fork length, to better understand the sizes of Covered Fish Species exposed to screen impacts. The study shall also evaluate seasonal variation in impingement, and measure environmental covariates (i.e. velocity, turbidity, dissolved oxygen, temperature) to inform potential environmental causes of variation in screen impingement. Permittee shall submit a draft study plan to CDFW no less than six months before initiating Phase 1 Operations. Permittee shall work collaboratively with CDFW to incorporate CDFW comments into the study plan and submit

a final study plan to CDFW no less than one month before initiating Phase 1 Operations and implement the plan during Phase 1 and Phase 2 Operations.

11. Take Minimization Measures.
The following requirements are intended to ensure the minimization of incidental take of Covered Species and related impacts of the taking in the Project Area during Covered Activities. Conditions of Approval 11.1 through 11.108 are intended to minimize impacts from Covered Activities associated with preconstruction, construction, and facilities maintenance, as described in this ITP for Covered Species. Permittee shall implement and adhere to the following conditions to minimize take of, and impacts of the taking to, Covered Species:

Multi-Species Measures

11.1 Covered Species Observations.
During all phases of Project construction, operations, and maintenance, Permittee shall direct all workers to inform the Designated Biologist(s), Fisheries Biologist(s), or Biological Monitor(s) if they encounter any Covered Species within or near the Project site. All Covered Activities with potential to take Covered Species shall cease until the animal moves from the Project site on its own accord. If the animal is found within a fenced Project construction site and cannot move of its own volition, the Designated Biologist(s) shall move the animal outside of the area of construction according to their species-specific relocation or transplantation plans described in this ITP for each Covered Species. Capture and relocation of trapped or injured special-status wildlife may only be performed by the Designated Biologist(s) and Fisheries Biologist(s). Covered Species sightings shall be recorded with a GPS (including datum and horizontal accuracy in feet) and the Designated Biologist(s), Fisheries Biologist(S), or Biological Monitor(s) shall report Covered Species observed locations to CDFW within one business day of the observation.

11.2 Covered Species Injury.
If a Covered Species is injured as a result of Covered Activities, the Designated Biologist shall immediately take it to a CDFW-approved wildlife rehabilitation or veterinary facility specific to the injured individual. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. The Permittee shall notify CDFW of the injury to the Covered Species immediately by telephone and e-mail followed by a written incident report as described in Condition of Approval 10.16. Notifications shall include the name of the facility where the animal was taken.

11.3 Covered Species Capture, Handling, and Reporting.
The Designated Biologist(s) shall be responsible for and direct efforts to capture and handle Covered Species. The Designated Biologist(s) shall ensure their hands are free of soaps, oils, creams, lotions, insect repellants, solvents or other potentially harmful chemicals and if not single use, nitrile or other hypo-allergenic gloves (non-latex) will be used for handling special-status fish or wildlife. The Designated Biologist(s) shall maintain monitoring records that include, but are not limited to: (1) the

beginning and ending time the capture and relocation effort, (2) a statement identifying the Covered Species encountered, (3) the time of discovery, by whom, and the condition of the Covered Species, (4) the capture and release locations of each Covered Species individual, (5) photographs of each Covered Species individual, (6) measurements of each Covered Species individual if doing so will not cause undue stress or harm, (7) a description of all actions taken, and (8) any other pertinent information. See Condition of Approval 11.35 for handling protocols specific to special-status fish species. Methods for capture and handling focused on individual Covered Species are described further below in Conditions of Approval 11.50, 11.67.1, 11.80, 11.92, and 11.108 for each Covered Species shall be used to capture and handle Covered Species.

11.4 Pesticide, Fungicide, and Herbicide Use.

Permittee shall not use pesticides, including herbicides, insecticides, or fungicides, within the Project Area (including during preconstruction activities, construction, postconstruction maintenance, and operations), without prior consultation with and written approval from CDFW. Through this consultation, CDFW may approve limited use of herbicides or pesticides through targeted spray (e.g., backpack sprayer) at a buffer from Covered Species habitat. Permittee shall only apply sprays via ground application when wind speed measures less than three miles per hour. If approved by CDFW, all use (mixing, application, and clean-up) shall be conducted in accordance with federal, state, and county regulations, as directed by the manufacturer, and shall be applied by a California state-licensed pesticide applicator. Use of neonicotinoid pesticides will not be approved by CDFW within the Project Area.

If herbicides are required to control invasive species, the Permittee shall prepare an Herbicide Application Plan and submit it to CDFW for review and approval for each calendar year that herbicides will be used, and no later than 60 days prior to the first intended application. If approved, the application of herbicides shall follow local, state, and federal laws related to herbicide selection and application. Additionally, the Herbicide Application Plan shall consider current research related to toxicity of herbicides on Covered Species and an appropriate herbicide or combination of herbicides shall be used to prevent or limit contamination and/or toxic exposure. Herbicides shall not be used within or near 300 feet of Covered Species aquatic habitats or no-activity buffers and ESAs and shall only be applied by an applicator holding a valid license issued by the California Department of Pesticide Regulation. Herbicide application shall be in accordance with the CDFW-approved Herbicide Application Plan and shall not occur without prior CDFW approval.

If pesticides are required, the Permittee shall prepare a Pesticide Application Plan and submit it to CDFW for review and approval for each calendar year that pesticide will be used, and no later than 60 days prior to the first intended application. If approved, the application of pesticides shall follow local, state, and federal laws related to herbicide selection and application. Additionally, the Pesticide Application Plan shall consider current research related to toxicity of pesticides on Covered Species

and an appropriate pesticide or combination of pesticides shall be used to prevent or limit contamination and/or toxic exposure. Pesticides shall not be used within or near 300 feet of Covered Species aquatic habitats or no-activity buffers and ESAs and shall only be applied by an applicator holding a valid license issued by the California Department of Pesticide Regulation. Pesticide application shall be in accordance with the CDFW-approved Herbicide Application Plan and shall not occur without prior CDFW approval.

11.5 Prohibition of Rodenticide and Poison Use.
Permittee shall not use rodenticides, other poisons, or broadcast baiting used to control rodents in the Project Area (including during construction, postconstruction maintenance, and operations).

11.6 Fertilizer Use.
Permittee shall not use fertilizers (or similar soil additives, hereby referred to as "fertilizer") within the Project Area, unless Permittee requests and receives a written approval from CDFW. To request written approval for fertilizer application, no less than 60 days prior to the proposed application, Permittee shall submit to CDFW for review and approval a Fertilizer Application Plan. The Fertilizer Application Plan shall detail the type of fertilizer proposed to be used, method of application, amount of fertilizer to be used, spatial extent and timing of proposed application, impact assessment of application specific to Covered Species, measures to reduce impacts to Covered Species, and justification for the need of fertilizer application.

11.7 Daily Work Restrictions.
Covered Activities shall cease 30 minutes before sunset and shall not resume until 30 minutes after sunrise, unless Permittee obtains approval by CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2). In the appropriate Construction Phase Authorization Package, Permittee shall detail the type of Covered Activity proposed for nighttime work, assess the impact of the Covered Activity specific to Covered Species within the Project construction site where the nighttime work is being proposed, identify measures that will be implemented to reduce impacts to Covered Species, and provide a justification for the need of nighttime work. Permittee shall use sunrise and sunset times established by the U.S. Naval Observatory Astronomical Applications Department for each geographic area. See Condition of Approval 11.8 for requirements for necessary nighttime lighting. Any vehicle traffic necessary during nighttime hours associated with emergency response, security, or operations and maintenance activities subsequent to construction shall be conducted with extra caution to minimize impacts to nocturnal Covered Species. Covered Activities subsequent to construction shall not occur at night for non-emergency work in CTS habitat at any time of the year unless otherwise authorized by CDFW.

11.8 Artificial Lighting at Night.
If nighttime work is required within a Project construction site, and approved by CDFW as part of the Construction Phase Authorization Package (Condition of Approval 6.2), Permittee shall not use

permanent or temporary, fixed, exterior lighting, including motion-triggered security lighting that casts light on Covered Species habitat beyond the Project construction site between sunset and sunrise. Project-related lighting shall not result in significant illumination beyond the immediate Project construction site. Nighttime lighting during all Covered Activities shall be shielded and oriented downward to minimize effects on any nearby Covered Species. All lights, including portable lighting, shall be operated at the lowest number of lights needed and the lowest feasible wattage and height. Nighttime lighting shall be screened and directed downward toward work activities and away from the night sky and Covered Species habitat to the maximum extent possible. Lights shall not be directed into any waters. All construction lighting used within 500 feet of Covered Species suitable habitat shall be yellow or orange lighting. Lighting shall be operated at the lowest feasible number of lights, wattage, and height.

11.9 Lighting on Intake Structure.
Permittee shall not permanently mount any lighting on the north Delta intake structure or buildings associated with the north Delta intake structures that will produce lux in the direction of the Sacramento River, to minimize predation effects on juvenile CHNWR and CHNSR from artificial lighting at night. Permanent lighting shall not be positioned such that lux can intersect the river channel at any angle regardless of vertical angle of the light source. Temporary lighting on the north Delta intake structure or buildings associated with the north Delta intakes may be utilized for CDFW approved construction phase nighttime Covered Activities. Temporary lighting for worker safety during approved construction phase Covered Activities shall not be positioned such that lux can intersect the river channel, to the greatest extent possible. All lights along the river channel shall comply with U.S. Coast Guard criteria and regulations.

11.10 Visual Barriers Along Access Routes for Nighttime Activities.
Permittee may install a temporary (e.g., chain link with privacy slats) or semi-permanent (e.g., a roadway median barrier or architectural concrete wall system) barrier retrofitted using a CDFW-approved visual screen along portions of access routes where screening would prevent excessive light spill that could provide a continuous surface impenetrable by light. The visual barriers shall not be installed within 300 feet of CTS and GGS upland habitats. The Designated Biologist(s) and/or Biological Monitor(s) shall assess the locations of the identified access roads prior to the installation of any visual barriers.

11.11 Speed Limits.
Project vehicles shall observe a maximum speed limit of 10 miles per hour on unpaved non-public Project access roads and in construction and maintenance sites. Vehicles on paved, non-public Project access roads shall observe a maximum speed limit of 30 miles per hour. Speeds limits shall be enforced and posted in both directions. Wildlife crossing signs and signage requiring extra caution shall be posted in both directions on all Project access roads that overlap with CTS and GGS aquatic and upland habitat during Project construction, operations, and maintenance. Project vehicles shall

observe a nighttime speed limit of 10 miles per hour in Project construction sites within the Bethany Complex between October 16 through July 14 (i.e., outside the "dry season" defined as July 15-Oct 15) to avoid potential vehicle strikes of CTS. Project vehicles shall observe a 10 mile per hour speed limit on paved, non-public access roads where they occur within 200 feet of GGS habitat during the active season (May 1 – October 1) except where exclusion fencing has been installed, in which case Project vehicles may observe a speed limit of up to 30 miles per hour.

11.12 Wildlife Road-crossing Structures.

Permittee shall construct roadways that are within Covered Species habitat such that there are no steep curbs, berms, dikes, or median barriers (e.g., k-cuts) that could prevent Covered Species from crossing or exiting the roadway. If curbs are necessary for safety and/or surface runoff, Permittee shall design and construct them to allow Covered Species to walk over them. Large culverts shall be installed for wildlife road under-crossings, to the extent possible, every 500 feet on new access roads to minimize road mortality and isolation on amphibian and reptile Covered Species. Permittee shall provide the number and approximate location(s) of proposed culverts designed for wildlife road under-crossings within the appropriate Construction Phase Authorization Package for CDFW-approval. Unless otherwise approved by CDFW due to site-specific constraints, Permittee shall construct road culvert under-crossings using concrete with a natural substrate bottom such as sand, dirt, or gravel. A minimum under-crossing culvert size of six inches shall be used to ensure Covered Species and other wildlife may move across active roadways. Culvert under-crossing tunnels shall use "windows" for new roads within GGS suitable habitat as diurnal snakes are less likely to utilize culvert crossings that mimic burrows. Windows may be made of steel grates or other materials and shall be intermittent in placement. Steel grate windows shall not be placed directly in vehicle wheel pathways, as this would produce a "flashing" of light to dark for the species using the culvert under-crossing and would dissuade the use of the culvert tunnel.[33, 34]

11.13 Precipitation Work Limit.

For preconstruction activities, construction activities, and maintenance activities including transmission line construction, transmission line maintenance, ground-disturbing work activities, and facilities maintenance within 100 feet of rivers, streams, sloughs, ponds, or vernal pools, Permittee shall restrict Covered Activities to periods of low rainfall (less than 0.25 inches per 24-hour period) and periods of dry weather (with less than a 30% chance of rain). Permittee shall initiate all erosion control measures prior to all storm events. Permittee and Designated Biologist(s) shall monitor the National Weather Service (http://www.nws.noaa.gov) 72-hour forecast for each Project Site. Such Covered Activities may continue 24 hours after the rain ceases if there is 0% chance of precipitation

[33] Jochimsen, D.M., C.R. Peterson, K.M. Andrews, and J.W. Gibbons (2004). A literature review of the effects of roads on amphibians and reptiles and the measures used to minimize those effects. Prepared by Museum of Natural History, Idaho State University, University of Georgia for Idaho Fish and Game Department, and USDA Forest Service.

[34] Alvarez, J. (2009). General recommendations for the exclusion, or redirection of reptiles, turtles, and amphibians. The Wildlife Project.

in the 72-hour forecast. The Designated Biologist(s) shall survey each Project construction site before Covered Activities resume, using the CDFW-approved preconstruction survey protocol (Condition of Approval 11.38). Weather forecasts shall be documented upon request by CDFW. This condition will not apply to Covered Activities inside enclosed structures, such as pumping plant, shafts, intake structure cofferdam, intake structures, tunnel boring, and areas enclosed by ring levees.

11.14 Daily Entrapment Inspections.
All construction equipment, or construction materials left overnight in areas that may be occupied by wildlife shall be inspected by the Designated Biologist(s) and/or Biological Monitor(s) prior to initiation of any Covered Activity within a Project construction site, to prevent inadvertent entrapment of Covered Species during construction.

The Designated Biologist(s) and/or Biological Monitor(s) shall ensure that all excavated areas, steep-walled holes, pumps, or trenches more than six inches deep, with the exception of shaft excavation, will be covered at the close of each working day with plywood or similar material and shall ensure the cover is sealed with rock bags or other methods to prevent animals from reentering or provided with one or more escape ramps constructed of earth fill or wooden planks at no more than a 30° angle. Prior to shaft construction, the Designated Biologist(s) and/or Biological Monitor(s) shall ensure that vertical shafts have suitable exclusion barriers placed around the shaft opening to prohibit entry of Covered Species into the shaft. Excavated pits shall be inspected by the Designated Biologist(s) and/or Biological Monitor(s) prior to initiation of any Covered Activities each day. Before such holes or trenches are filled, the Designated Biologist(s) and/or Biological Monitor(s) shall thoroughly inspect them for trapped animals and be present when holes or trenches are being covered or filled to ensure there is no entrapment of Covered Species and that the cover is secure. If a Covered Species or other animal is encountered in excavated pits, holes, or trenches during Covered Activities, Permittee shall divert Covered Activities away from the Covered Species until Project personnel contact the Designated Biologist(s). The Designated Biologist(s) shall relocate the animal consistent with Conditions of Approval in this ITP and determine any further actions to be taken.

11.15 Pipes, Culverts, and Other Materials Inspections.
Pipes, culverts, debris piles, or similar structures stored in the open have the potential to attract, injure, or entrap Covered Species. All pipes, culverts, and similar structures with a diameter of 0.25 inches or greater that are stored in Project construction sites for one or more overnight periods shall be thoroughly inspected by the Designated Biologist(s) and/or Biological Monitor(s) for Covered Species prior to the initiation of any Covered Activity and when these materials are subsequently buried, capped, or otherwise used or moved in any way. Debris piles shall be kept to a minimum and removed regularly after thorough inspection by the Designated Biologist(s) and/or Biological Monitor(s). If Project personnel detect Covered Species or other wildlife within a pipe, culvert, debris pile, or similar structure, they shall notify the Designated Biologist(s) and/or Biological Monitor(s) and allow the animal to safely escape or be relocated by the Designated Biologist(s) outside of the Project

construction site before moving, capping, burying, or utilizing the structure. If necessary, under the direct supervision of the Designated Biologist(s) and/or Biological Monitor(s), Project personnel may move a structure up to one time to isolate it from Project construction activities until the Covered Species moves from the structure on its own volition or for the Designated Biologist(s) to relocate the individual outside of the Project construction site. Once the Covered Species has moved or been relocated from the moved structure, Project personnel under direct supervision of the Designated Biologist(s) or Biological Monitor(s) shall securely cap the ends of the structure to prevent the Covered Species from entering, immediately after inspection.

11.16 Disposal of Spoils, Reusable Tunnel Material, and Dredged Material.
Before finalizing Project engineering design, Permittee shall coordinate with CDFW to develop a spoils disposal plan for the storage of spoils, RTM, and dredged materials. The spoils disposal plan shall describe, but not be limited to, the size, locations, and required characteristics of designated storage sites; storage site preparation and dewatering; excavation of contaminated material; and chemical characterization, drainage, and treatment.

The spoils disposal plan shall include protocols for sampling and analysis of dredged materials, spoils, and RTM that shall address, at a minimum: handling and disposal of hazardous material; the presence and concentration of contaminants (i.e. mercury, selenium, and organochlorine pesticides); potential discharge of contaminants that would affect surface water or ground water (e.g., instream discharges during dredging, effluent discharge from the disposal site; leachate from the disposal site); sediment analyses; chemical analyses; a protocol to reduce and/or eliminate the release of contaminated sediment; and best management practices to be implemented during handling and disposal of any potentially hazardous dredged or excavated material (see Condition of Approval 11.22).

Permittee shall size the designated storage sites to accommodate all RTM, dredge material, or spoils expected to be generated by Covered Activities and shall size and locate the sites to minimize the impact or encroachment on environmentally sensitive areas within the Project Area. Permittee shall set aside a portion of each designated storage site for topsoil storage. Permittee shall immediately haul vegetative material off site for disposal or place the material in piles at least 200 feet from Covered Species habitat to be left undisturbed. Permittee shall not place materials where soil could pass into Covered Species habitat (i.e. CTS breeding pools); and shall not locate storage sites where materials may be washed back into a watercourse and pass into any other waters, in accordance with Fish and Game Code section 5650. Permittee shall use appropriate best management practices to protect storage sites and prevent soil erosion. Permittee shall not chip, stockpile, and spread vegetative material over the topsoil unless such material does not contain seeds of invasive nonnative species, and it is chipped and spread immediately. Permittee shall use rocks and other inorganic material grubbed from storage sites to backfill borrow pits at that site or shall remove these materials from the site.

Permittee shall conduct discharges from RTM draining operations in such a way as not to cause erosion at the discharge point. If RTM liquid requires chemical treatment, Permittee shall ensure chemical treatment of RTM liquid is nontoxic to aquatic organisms.

11.17 Electrical Power Line Support Placement.
Permittee shall coordinate with electric utilities to design and construct power transmission and distribution lines and the locations of necessary structures such as supports and substations, to avoid Covered Species terrestrial habitats by 200 feet and aquatic habitats by 300 feet. Where Covered Species habitat cannot be avoided, disturbance shall be minimized to the greatest degree feasible and all disturbed areas shall be returned to preconstruction conditions or better (see Condition of Approval 11.66) by reestablishing surface conditions through carefully grading and reconstructing Covered Species habitat features such as irrigation and drainage facilities, and replanting vegetation and crops (see Condition of Approval 12.3.3).

11.17.1 Transmission Line Strikes. Permittee shall construct new power transmission and distribution lines using bird strike diverters to minimize the potential for bird strikes. Permittee shall install bird strike diverters on existing power transmission lines equal in length to the length of new permanent and temporary overhead transmission lines, except where new transmission lines replace existing transmission lines. Permittee shall space the diverters along the lines in accordance with the Avian Powerline Interaction Committee's guidance on *Reducing Collisions with Power Lines.*[35] Permittee shall use the most effective and appropriate diverter for minimizing strikes, according to the best available science and as approved by CDFW. Permittee shall install bird strike diverters in a configuration that research indicates would reduce bird strike risk by 60% or more. Permittee shall inspect bird strike diverters annually and replace malfunctioning or lost diverters until or unless the transmission lines are removed.

11.18 Vegetation Management.
Disturbance or removal of vegetation shall be kept to the minimum necessary to complete Covered Activities. Permittee shall not remove vegetation within established Covered Species no-disturbance buffers. Vegetation marked for protection may only be trimmed with hand tools limited to string trimmers (e.g., weed whackers) to the extent necessary to gain access to work sites or for facility maintenance, to minimize potential of crushing burrows or impacting the ground. Other mowing equipment requested for use by the Permittee in locations away from Covered Species refugia and burrow complexes shall be subject to CDFW written approval once site-specific Covered Species surveys have been conducted. Where permitted, Permittee shall set mower blade heights no lower than four inches, and no lower than six inches in suitable GGS habitat, unless otherwise approved by CDFW. The Designated Biologist(s) and/or Biological Monitor shall be on site during vegetation

[35] Avian Power Line Interaction Committee (2012). Reducing collisions with power lines: The state of the art in 2012. Edison Electric Institute and Avian Power Line Interaction Committee. Washington, D.C.

management activities to monitor for any fossorial Covered Species. Permittee shall ensure, to the extent feasible that mowing only occurs when Covered Species are dormant or less active on the surface and during dry conditions (no rain within the past 24 hours).

11.19 Prevention of Spread of Invasive Species.
Permittee shall ensure that pre-Project baseline conditions are established for documenting type, location, and general abundance of invasive plant species within each Project construction site. These baseline conditions will be used for postconstruction monitoring of restored areas (see Condition of Approval 12.3.4). The Designated Biologist(s) qualified to do botanical surveys and approved by CDFW shall submit the sampling methodology to CDFW as part of the appropriate Phase Authorization Package (Condition of Approval 6.1 and 6.2). The baseline survey shall include both a qualitative and quantitative assessment of target species within the Project construction site. Permittee shall ensure that baseline sampling is conducted consistent with the CDFW approved sampling methodology prior to the start of any Covered Activity within the Project construction site. Permittee shall ensure the same CDFW approved sampling methodology is conducted annually thereafter by a Designated Biologist(s). The pre-Project baseline condition survey results and subsequent annual surveying shall be utilized by the Permittee in the Invasive Plan Species Monitoring, Management, and Control Plan (IPSMMCP Condition of Approval 11.19.1) and reporting provided to CDFW in the Annual Status Report (Condition of Approval 10.13).

Permittee shall conduct Covered Activities in a manner that prevents the introduction, transfer, and spread of invasive species, including plants, animals, and microbes (e.g., algae, fungi, parasites, bacteria, etc.) from one Project construction site and/or water body to another. Prevention best management practices and guidelines for invasive plants can be found on the Cal-IPC's website (http://www.cal-ipc.org/ip/prevention/index.php). Prevention best management practices and guidelines for invasive mussels and aquatic species can be found at the Stop Aquatic Hitchhikers website (http://www.protectyourwaters.net/). Permittee shall not reintroduce any removed invasive aquatic plant species or parts thereof into waters of the State. Permittee shall incorporate best management practices approved by CDFW as part of the appropriate Project Phase Authorization Package (Condition of Approval 6.1 and 6.2) to minimize risk of introduction and/or spread of molds such as *Phythophthora spp*. within the Project Area as introduction or exacerbation in the Project Area may reduce viability of restoration plantings and already occurring native plant species.

Any bullfrogs (*Rana catesbeiana*) encountered during construction or monitoring shall be permanently removed from the wild. Pursuant to Fish and Game Code section 6854, it is unlawful to take bullfrogs using firearms of any caliber or type. BB or pellet guns are prohibited.

11.19.1 Invasive Plant Species Monitoring, Management, and Control Plan. Permittee shall consult with CDFW and local invasive species experts such as the California Invasive Plant Council to develop a draft invasive plant species monitoring, management, and control plan

(IPSMMCP) prior to starting Covered Activities that ensures invasive plant species and populations are kept below preconstruction distribution levels. The draft IPSMMCP shall be included in the Pre-implementation Phase Authorization Package (Condition of Approval 6.1). The IPSMMCP shall incorporate the CDFW-approved sampling methodology and include (1) documentation of pre-Project conditions; (2) annual monitoring to document percent cover of native and nonnative invasive plant species throughout each Project site; (3) the type, location, and quantity of all observed invasive plant species for the year prior to commencement of Covered Activities, the current monitoring year, and any prior monitoring years during construction and operations; and (4) best management practices utilized to avoid introduction of control invasive plant species. Permittee shall submit a completed final IPSMMCP to CDFW for each Construction Phase Authorization Package, and submit related reporting as part of the Annual Status Report (Condition of Approval 10.13).

11.19.2 Invasive Plant Species Management. The Designated Biologist(s) and/or Biological Monitor(s) shall oversee invasive terrestrial and aquatic plant species management utilizing best management practices such as hand removal in seeding and planting areas during vegetation restoration (see Condition of Approval 12.3.3). The Designated Biologist(s) and/or Biological Monitor(s) shall ensure that weed removal does not result in damage to root systems of the installed plants. Woody (tree or shrub) invasive plant species may require more aggressive methods to remove the roots, and the Designated Biologist(s) and/or Biological Monitor(s) shall employ techniques such as hand tools and small mechanical equipment such as hand trowels or garden spades for this purpose.

11.20 Hazards to Covered Species.

Permittee shall not permit pets, campfires, or firearms in Project construction sites and site access routes, except firearms carried by authorized security personnel or local, state, or federal law enforcement officials. To avoid attracting predators, Permittee shall ensure Project personnel dispose of all food-related trash items such as packaging, cans, bottles, and food scraps in enclosed containers. Permittee shall ensure trash is removed from the construction site and taken to an appropriate facility at least once a week from the construction or Project site (see Condition of Approval 9.6). All contracts with contractors shall include language reminding them of the obligations to abide by the laws related to litter within work areas and while traveling along public roads within Project construction sites and/or Project maintenance areas. Vehicles carrying trash shall have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties.

11.21 Hazardous Materials Management Plans.

Permittee shall develop and implement a hazardous materials management plan (HMMP) prior to initiating Covered Activities. HMMPs shall be prepared for site-specific Project construction activities to address hazardous materials present on site and known historic site contamination. A database

on known historic instances of contamination and results of any field inspections regarding the presence of hazardous materials shall be maintained. The HMMPs shall provide detailed information on the types of hazardous materials used or stored at all sites; phone numbers of applicable city, county, state, and federal emergency response agencies; primary, secondary, and final cleanup procedures; emergency-response procedures in case of a spill of toxic chemicals or other hazardous waste (see Condition of Approval 11.22); a specific protocol for the proper handling and disposal of hazardous materials; and other applicable information that shall be implemented during Project construction and enforced by Permittee. The HMMPs shall address the following measures or practices: storage of fuel, oil, and other petroleum products at designated sites for hazardous materials; clear labeling, handling, and safety instructions, and emergency contact information on hazardous material containers; use or transfer of hazardous materials near wet or dry streams consistent with Fish and Game Code section 5650 and with permission from CDFW; Material Safety Data Sheets provided to all Project site personnel; prohibition of the accumulation and temporary storage of hazardous materials exceeding 90 days; segregation, containment, and removal of contaminated soils to the approved disposal site; site-specific emergency spill containment and spill kits at every work site; and handling and disposal of roadway materials. Permittee shall submit the HMMPs to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for CDFW's review and confirmation of consistency with this ITP prior to initiating Covered Activities.

11.22 Spill Prevention, Control, and Countermeasure Plans.
Permittee shall ensure compliance with all construction stormwater permitting requirements and shall develop and implement a Spill Prevention, Control, and Countermeasure Plan (SPCCP) at each Project construction site to control short-term and long-term effects associated with construction-generated stormwater runoff. Each SPCCP shall address site-specific actions used to prevent spills and actions that will be taken should any spills occur, including emergency notification procedures. The SPCCPs shall be developed and implemented to minimize effects from spills of oil or oil-containing products (i.e., gasoline, diesel fuel, motor oil, hydraulic fluid, aviation fuel, oil-based paint, oil-based paint thinner, roofing tar, and petroleum-based solvents) during Project construction and operation.

The SPCCPs shall include, but not be limited to, the following: procedures for routine handling of products; discharge or drainage controls such as secondary containment and procedures for discharge control; countermeasures for discharge discovery, response, and cleanup; methods of disposal or recovered materials; personnel training in emergency response and spill containment techniques; storage of petroleum products in non-leaking containers at impervious storage sites from which an accidental spills cannot escape; storage of concrete, wash water, and other contaminants in watertight containment structures; storing and maintaining spill containment materials such as absorbent pads, pillows, socks, booms, and other spill containment materials in non-leaking sealed containers at the hazardous materials storage sites until transport to an

appropriate disposal facility; using spills containment materials under transfer areas when transferring oil or other hazardous materials from trucks to storage containers; daily inspection of equipment for oil, grease, and other petroleum products if equipment is in contact with water; cleaning of external petroleum products off of equipment prior to its contact to water; use of oil-absorbent booms for equipment used in or adjacent to water; containment of contaminants in staging areas designed so that should an accidental spill occur, contaminants do not drain toward receiving waters or storm drain inlets; and staging of all stationary equipment in appropriate staging areas and positioned over drip pans. In the event of an accidental spill, personnel shall identify and secure the source of the discharge and contain the discharge with sorbents, sandbags, or other material from spill kits and shall contact CDFW and other appropriate regulatory authorities within 24 hours. Permittee shall submit the SPCC plans to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for CDFW's review and confirmation of consistency with this ITP prior to initiating Covered Activities.

11.23 Groundwater Testing and Monitoring Plan.
Permittee shall develop a Groundwater Testing and Monitoring Plan to be submitted to CDFW as part of the Pre-implementation Phase Authorization Package (Condition of Approval 6.1) for CDFW's review and confirmation of consistency with this ITP, prior to the initiation of Covered Activities within the Project Area including the preconstruction, construction, or monitoring Phase(s). The Groundwater Testing and Monitoring Plan shall include but not be limited to the number and location of proposed test wells, groundwater monitoring wells, and vibratory wire piezometers; identification of instruments and related installation methods; description of monitoring methodology and discussion of the associated impact to Covered Species suitable habitat (e.g., frequency of site visits, duration of testing, total area of impact per monitoring technique); and identification of Covered Species' habitats that will be affected with identified minimization actions, referencing Conditions of Approval within this ITP, to be applied on a site specific basis.

11.24 Detection of Underground and Natural Gas Wells.
Permittee shall develop an Underground Well Detection Plan that will be used for the evaluation of the suitability of geophysical techniques to detect buried and abandoned wells. Permittee shall submit the Underground Well Detection Plan to CDFW as part of the Pre-implementation Phase Authorization Package (Condition of Approval 6.1) for CDFW's review and confirmation of consistency with this ITP prior to the initiation of preconstruction Covered Activities. The Underground Well Detection Plan shall include but not be limited to the identification of the location(s) for the proposed evaluation and associated Covered Species habitat(s) potentially impacted by the evaluation, description of the methodology to be utilized for the evaluation including the frequency and duration of site visits, access roads or pathways to be utilized, and any potential ground-disturbing activity. Any buried or abandoned wells identified through implementation of the Underground Well Detection Plan shall be disclosed within the appropriate

Construction Phase Authorization Package (Condition of Approval 6.2). Remediation of any underground natural gas wells detected is not covered by this ITP.

11.25 Stormwater Pollution Prevention Plans.
Permittee and its contractors shall ensure compliance with all construction stormwater permitting requirements and shall prepare a stormwater pollution prevention plan (SWPPP) to control short-term and long-term effects associated with construction-generated stormwater runoff to Covered Species, prevent sediment from entering sensitive habitats, and reduce erosion, dust, and other deleterious aspects of Covered Activities. The SWPPP shall include all applicable SWRCB and Central Valley RWQCB requirements regarding construction-generated stormwater collection, detention, treatment, and discharge that will be in place throughout the duration of Covered Activities. The SWPPP shall include measures that address erosion and sediment control (Condition of Approval 11.26), management of construction materials, waste management measures, water pollution control measures, site dewatering and pipeline testing, accidental spill prevention and response, hazardous materials management plan (Condition of Approval 11.21), site inspection and monitoring, and measures to prevent non-stormwater discharges from reaching surface waters. Non-stormwater discharge examples include washing vehicles, cleaning streets, or applying erodible landscape material during rain. The SWPPP shall also describe site topographic, soil, and hydrologic characteristics; construction activities and schedules; construction materials to be used, including sources of imported fill material and other potential polluting sources; housekeeping BMPs; BMP site, implementation, and inspection schedules; and ongoing personnel training requirements. The SWPPP shall also specify the forms and records that must be uploaded to the State Water Board online [Stormwater Multiple Application and Report Tracking System (SMARTS)] at https://smarts.waterboards.ca.gov, such as quarterly non-stormwater inspection and annual compliance reports. Permittee shall submit the SWPPP to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for CDFW's review and confirmation of consistency with this ITP prior to initiating Covered Activities.

11.26 Erosion and Sediment Control Plans.
Permittee shall submit the erosion and sediment control plans to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for CDFW's review and confirmation of consistency with this ITP prior to initiating Covered Activities. Permittee shall implement erosion and sediment control measures during Covered Activities to facilitate visibility during monitoring of the Covered Species by the Designated Biologist(s) and/or Biological Monitor(s). Each site-specific plan shall take into account conditions such as proximity to surface water, erosion potential, drainage, etc. The erosion and sediment control plan(s) shall include best management practices such as: physical erosion control stabilization (see Condition of Approval 11.27); maintaining emergency erosion control supplies at all times during construction and

replacing used emergency materials within 48 hours; minimal disturbance of the terrain and natural land features; diverting runoff away from steep, denuded slopes or other critical areas with barriers, berms, ditches, or other facilities; retaining trees and vegetation where practicable to stabilize hillsides, retain moisture, and reduce erosion; limiting ground disturbance to areas of proven stability; using sequence clearing of native vegetation and soil disturbance to minimize overall time of soil disturbance; implementing construction management and site inspections before, during, and after rain events; scheduling measures to mitigate erosion from rainfall events, runoff, or flooding at construction sites; installing runoff and drainage control features (e.g., berms and swales, slope drains); installing wind erosion control features (e.g., application of hydraulic mulch or bonded fiber matrix); and use of watertight forms and other containment structures to prevent spills or discharge of raw concrete, wash water, and other contaminants from entering surface waters and other sensitive habitats.

Sediment control measures shall include measures to retain sediment transported by on-site run-on or runoff; collect and direct surface runoff at non-erosive velocities to common drainage courses for storage and reuse; use sediment and turbidity areas where ground disturbance is adjacent to surface waters or wetlands; prevent mud tracking; and deposit or store excavated materials away from drainage courses and keep them covered when stored over five days or within 48 hours of a forecasted rain event. Additional replacement of or upgrades to drainage facilities shall be implemented to avoid and minimize erosion. Paved areas damaged by construction activities shall be repaved to avoid erosion due to pavement damage.

11.27 Erosion Control Stabilization Prohibitions.
Permittee shall submit proposed erosion control stabilization measures to CDFW as part of the Erosion and Sediment Control Plan (Condition of Approval 11.26) or separately within the appropriate Construction Phased Authorization Package (Condition of Approval 6.2) for review and written approval prior to initiating Covered Activities. Permittee shall not use plastic monofilament netting or similar material such as nylon or netting with cross joins that are bound or stitched (such as straw wattles, fiber rolls, or erosion-control blankets) in the Project Area for erosion control to avoid entanglement, strangling, or entrapment of Covered Species. Permittee shall not use products that use photodegradable or biodegradable synthetic netting. Any geo-textile material or filter fabric used within Project construction sites shall not contain any petroleum-based products without prior written approval from CDFW. Acceptable materials include natural fibers such as jute matting, coconut, twine, or other similar fibers or tackified hydroseeding compounds with native seed mix. All material used within or adjacent to Project construction sites shall be free of invasive plant propagules. No geotextile fabrics shall be placed where they may be exposed to water flows. Permittee shall bury the edge of erosion control materials in the ground to prevent reptiles and amphibians from crawling underneath them.

Permittee shall communicate this measure to Project contractor(s) throughout specifications or special provisions included in the construction bid solicitation package. Permittee shall consult 72-hour weather forecasts from the National Weather Service prior to startup of Covered Activities within a construction site that may result in sediment runoff to any source of water. Permittee may not start Covered Activities within a construction site that may cause the introduction of sediments into a waterway if the erosion control measures applicable to that construction site cannot be completed prior to the onset of a rain event (rainfall exceeding 0.25 inches during a 24-hour period). The Designated Biologist(s) and/or Biological Monitor(s) shall monitor erosion control measures before, during, and after each rain event, and Permittee shall repair and/or replace ineffective measures immediately.

11.28 Monofilament Netting.
Permittee shall prohibit the use of plastic monofilament netting (erosion control matting) or similar material on the Project Site for exclusionary fencing, non-disturbance buffers, environmentally sensitive areas (ESAs), erosion control (see Condition of Approval 11.27), or any other purpose, to avoid entanglement hazards to Covered Species.

11.29 Fugitive Dust Control.
Permittee shall implement fugitive dust control measures and enhanced dust control measures at all construction and staging areas to reduce construction-related fugitive dust. Measures shall be consistent with Air Quality Management District (AQMD) guidelines and requirements for each region. Permittee shall identify measures within a Fugitive Dust Control and Monitoring Plan and submit the Plan to CDFW as part of the appropriate Construction Phase Authorization Package(s) (Condition of Approval 6.2). Permittee shall implement dust control measures during Covered Activities to facilitate visibility for monitoring of the Covered Species by the Designated Biologist(s) and/or Biological Monitor(s). Fugitive dust control measures shall address: applying water to all exposed surfaces such as soil piles, graded areas, excavation areas, demolition sites, unpaved parking areas, staging areas, and access roads to prevent visible dust from leaving construction sites; covering and maintaining at least two feet of freeboard space on trucks and rail cars transporting soil, sand, and other loose material; using wet power vacuum street sweepers to remove visible track-out of mud or dirt; enclosing all mechanical dryers and conveyors; limiting vehicle speeds on unpaved roads to 10 miles per hour; graveling and covering all onsite vehicle un-graveled access routes with chip-seal or dust suppressants; applying and maintaining an organic biopolymer tackifier on all stockpiles during active use; installing wind breaks; planting and watering vegetative ground cover (native grass/plant seed) in disturbed areas (including stockpiles) after construction is completed; completing paving projects and laying construction pads as soon as possible after grading; promptly finishing and/or protecting and maintaining all disturbed areas in a manner to control fugitive dust (e.g., using mulch, dust palliative, soil binders, or other measures in inactive areas); installing rattle plates, stabilized construction entrances/exits at construction exits where feasible; installing tire wash facilities at construction sites with entrances and exits where feasible; and posting a publicly visible

sign with the telephone number and person to contact regarding dust complaints. Permittee shall keep the amount of water used to the minimum amount needed and shall not allow water to form puddles.

11.30 Construction Mercury Management and Monitoring Plan.
Permittee shall develop in coordination with CDFW a draft Mercury Management and Monitoring Plan (MMMP) and submit it for CDFW review and approval as part of the Pre-implementation Phase Authorization Package (Condition of Approval 6.1). Permittee shall work collaboratively with CDFW to incorporate comments into the draft plan and submit the final MMMP to CDFW for review and approval a minimum of one year prior to initiating any in-water Covered Activity. Permittee shall implement the CDFW-approved MMMP prior to initiating any in-water Covered Activity and submit the preconstruction MMMP (i.e., baseline conditions) information as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2). The MMMP shall include but not be limited to methodology to evaluate baseline water quality conditions prior to construction to characterize mercury sources and concentrations of mercury, methylmercury, organic carbon, iron, and sulfate at the Project construction site and include mercury monitoring measures to be implemented during in-water Covered Activities to evaluate any changes resulting from Covered Activities. In addition to the preconstruction evaluation, implementation of the MMMP shall occur each year in-water Covered Activities are expected to occur. Information obtained through implementation of the MMMP shall be reported in the Monthly Compliance Report (Condition of Approval 10.12) and summarized in the Annual Status Report (Condition of Approval 10.13).

11.31 In-Water Work Windows.

11.31.1 Preconstruction Geotechnical Exploration. Permittee shall submit a description of all over-water geotechnical exploration activities to CDFW as part of the Pre-implementation Phase Authorization Package (Condition of Approval 6.1) to be reviewed and approved prior to the initiation of preconstruction activities. Information provided to CDFW shall include the description of the activities to be undertaken, number of exploratory sites, spatial extent of over-water activities, exploration depth for each exploration, and minimization measures for over-water exploratory activities specific to Covered Species. Permittee shall restrict in-water exploratory activities associated with preconstruction activities to the following work windows:

- Permittee shall only conduct over-water geotechnical exploration from August 1 – October 31.
- Permittee shall terminate all in-water exploratory activities 30 minutes before sunset and shall not resume until 30 minutes after sunrise, consistent with Condition of Approval 11.32.

11.31.2 Construction Work Windows. Permittee shall restrict the times of year when in-water Covered Activities are conducted to minimize impacts to Covered Species, including Covered Fish Species, as described in this Condition of Approval.

Permittee shall restrict in-water Covered Activities associated with Project construction to the following in-water work windows:

- Permittee shall only conduct in-water Covered Activities associated with construction or modification of bridges over Snodgrass Slough at Hood-Franklin Road and at Burns Cut near Port of Stockton from June 1 – October 31 and shall not exceed the limits on pile driving described in this Condition of Approval, and as approved by CDFW in the pile driving plan (Condition of Approval 11.34).

- Permittee shall only conduct barge operations to existing barge landings from June 1 – October 31.

- Permittee shall only conduct in-water work at north Delta intakes from June 1 – October 31.

- Permittee may conduct in-water impact pile installation at any time of year if it occurs 1) within a cofferdam, or 2) behind the sheet pile training walls, and in either case, only if Permittee conducts in-channel acoustic monitoring to verify that generated sound thresholds do not exceed the 150-decibel (dB) behavioral criterion at 10 meters from the cofferdam or sheet pile training walls, as described in the CDFW-approved underwater sound abatement plan provided in Condition of Approval 11.33, and ceases the activity immediately if thresholds are exceeded.

- Permittee shall not exceed the limits on pile driving identified in Tables 4 - 6 below and as approved by CDFW in the pile driving plan (Condition of Approval 11.34).

Table 4. Limits for impact pile driving at a single intake site (Intake B) for the test pile program (Table 4.1-1 in ITP Application)

Variable	**Sheet Pile Pair**	**Steel Pipe Pile**	**H Pile**
Number of piles	1	1	1
Number of piles per day	1	1	1
Number of days of pile driving	1	1	1
Number of strikes per pile	19	19	19
Number of strikes per day	19	19	19

Table 5. Limits for impact pile driving at each intake for construction of cofferdams and training walls (Table 4.1-2 in ITP Application)

Variable	Intake B	Intake C
Number of piles (pairs)	420	410
Number of piles (pairs) per day	20	20
Number of days of pile driving	21	21
Number of strikes per pile	19	10
Number of strikes per day	380	200

Table 6. Limits for impact pile driving at each intake for construction of log booms (Table 4.1-3 in ITP Application)

Variable	Intake B	Intake C
Number of piles (pairs)	32	32
Number of piles (pairs) per day	10	10
Number of days of pile driving	4	4
Number of strikes per pile	504	66
Number of strikes per day	5,040	660

- Permittee may conduct in-water impact pile driving (i.e., outside of a cofferdam or sheet pile walls) at the north Delta intakes from May 16 – May 31 and November 1 – November 15 if bubble curtains or other measures for noise attenuation demonstrate that an equivalent level of protection can be achieved as during the June 1 – October 31 work window and real-time monitoring of Covered Species demonstrates absence in the work area, and as approved in writing by CDFW. In-channel acoustic monitoring is required to verify that generated sound thresholds do not exceed the disturbance threshold of 150 dB at 10 meters from source.

Permittee shall provide information regarding planned in-water pile driving, including the site location(s), schedules, work activities, anticipated effects to water quality or Covered Species, and communications with other agencies and organizations with site-specific details regarding any temporary partial channel closures within the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for CDFW review and written approval, prior to initiating in-water Covered Activities. After construction, Permittee shall notify CDFW 60 days before beginning any in-water maintenance activities and provide information including the site location(s), schedules, work activities, anticipated effects to water quality or Covered Species, and communications with other agencies and organizations with site-specific details regarding any temporary partial channel closures, and obtain CDFW's written approval before proceeding.

11.32 Daily In-Water Work Restriction.

Permittee shall terminate all in-water Covered Activities during all Project phases (i.e., preconstruction, construction, and maintenance) 30 minutes before sunset and shall not resume until

30 minutes after sunrise. Permittee shall use sunrise and sunset times established by the U.S. Naval Observatory Astronomical Applications Department for the geographic area. Additionally, pile driving shall not occur before 7:00 a.m. or after 7:00 p.m.

11.33 Underwater Sound Abatement Plan.
Permittee shall coordinate with CDFW to develop an underwater sound abatement plan outlining specific measures to avoid and minimize the effects of underwater construction noise on Covered Fish Species. The underwater sound abatement plan shall be provided to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for review and written approval prior to initiating Covered Activities. Permittee shall not initiate in-water Covered Activities until the final underwater sound abatement plan is approved in writing by CDFW. A CDFW-approved underwater sound abatement plan shall be implemented though all Project phases to minimize impacts to Covered Fish Species during in-water work.

The underwater sound abatement plan shall evaluate methods to minimize the potential effects of underwater noise on Covered Species in the context of established underwater noise thresholds for disturbance and injury of fish. Minimization methods shall include, but are not limited to, restricting the time of activities beyond Condition of Approval 11.32, operations protocol for Project personnel, and equipment that will be used. Equipment to minimize underwater noise generated by impact pile driving shall include using vibratory rather than impact pile driving equipment where feasible; noise attenuation with pile caps (e.g., wood or micarta), bubble curtains, air-filled fabric barriers, or isolation piles; or installation of piling-specific cofferdams. Operational protocols to minimize the effects of impact pile driving on Covered Species shall include the following:

- Monitoring the in-water work area for fish that may be showing signs of distress or injury as a result of pile driving activities and stopping work when distressed or injured fish are observed, for example, if injured fish are seen floating near the surface.

- Initiating impact pile driving with a “soft-start” where feasible, such that pile strikes are initiated at reduced impact and increase to full impact over several strikes to provide fish an opportunity to move out of the area. Specifically, “soft-start” requires Permittee to initiate pile driving at less than full impact force for a period of 15 seconds followed by 30 seconds of no activity for all in-water piles or piles that occur within 200 linear feet of the water’s edge. This action shall be repeated two additional times and impact shall be gradually brought up to full force blows to reduce the initial sound level and provide warning blows to allow fish adequate time to leave the area.

- Restricting impact pile driving activities to specific times of the day and for a specific duration to be determined through coordination with CDFW, NMFS, and USFWS and subject to CDFW approval.

- If more than one pile driving rig is employed, ensuring pile driving activities are initiated in a way that provides an escape route to avoid "trapping" fish between pile drivers in waters exposed to underwater noise levels that could potentially cause injury.

- Reporting exceedances of hydroacoustic thresholds to CDFW within one business day of any exceedance and implementing corrective actions as determined through coordination with CDFW.

- Providing annual pile driving monitoring information to CDFW as part of the Annual Status Report (Condition of Approval 10.13). Reported information shall include a summary of pile driving monitoring observations over the course of each construction year, including an evaluation of the underwater sound abatement plan performance measures, as well as a description of exceedances of hydroacoustic thresholds and measures implemented to remediate impacts to Covered Species.

The underwater sound abatement plan shall include a requirement for continual hydroacoustic monitoring of in-water Covered Activities, including: impact or vibratory pile driving, drilled shaft (also known as castin-drilled hole piles) construction, riprap placement, and dredging. During in-water Covered Activities, conducted in the Construction Work Window (Condition of Approval 11.31.2), Permittee shall implement the CDFW-approved underwater sound abatement plan to verify that any sound transmitted to the water column is below the applicable and interim underwater noise thresholds established for injury of fish provided in California Department of Transportation 2020 *Technical Guidance for the Assessment of Hydroacoustic Effects of Pile Driving on Fish*[36] at 10 meters from source:

- Injury threshold for fish of all sizes includes a peak sound pressure level (SPL) of 206 dB relative to 1 micropascal;

- Injury threshold for fish less than 2 grams is 183 dB relative to 1 micropascal cumulative sound exposure level ($SEL_{cumulative}$); and

- Injury threshold for fish greater than or equal to 2 grams is 187 dB relative to 1 micropascal $SEL_{cumulative}$.

If injury thresholds are exceeded during in-water Covered Activities conducted in the Construction Work Window (Condition of Approval 11.31.2), Permittee shall stop all in-water Covered Activities at the site and not continue until CDFW has been consulted.

[36] California Department of Transportation (2020). Technical guidance for the assessment of hydroacoustic effects of pile driving on fish. California Department of Transportation, Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office, Sacramento, CA. October 2020.

During any in-water Covered Activities approved by CDFW to occur outside of the Construction Work Window (Condition of Approval 11.31.2), Permittee shall implement the CDFW-approved underwater sound abatement plan to verify that any sound transmitted to the water column is below the applicable and interim underwater noise thresholds established for disturbance of fish provided in California Department of Transportation 2020 *Technical Guidance for the Assessment of Hydroacoustic Effects of Pile Driving on Fish* at 10 meters from source:

- Disturbance threshold for fish of all sizes is 150 dB root mean square relative to 1 micropascal.

If the disturbance threshold is exceeded during in-water Covered Activities conducted outside of the Construction Work Window (Condition of Approval 11.31.2), Permittee shall stop all in-water Covered Activities at the site and not continue until CDFW has been consulted.

Procedures for hydroacoustic monitoring shall be consistent with the California Department of Transportation 2020 *Technical Guidance for the Assessment of Hydroacoustic Effects of Pile Driving on Fish.* Hydroacoustic monitoring shall at a minimum consist of two hydrophones used at each site to monitor in-water Covered Activities. Hydrophones shall be calibrated prior to deployment and maintained with best management practices. All hydrophones shall be placed at least 1 meter below the water surface, preferably at mid-depth in the water column, and will have a direct line of acoustic transmission through the water column to the in-water Covered Activity. The first hydrophone shall be positioned at 10 meters from the site. The second hydrophone shall be positioned at or near the proposed $SEL_{cumulative}$ limit to measure whether threshold distances are met. The results of hydroacoustic monitoring shall be made available to CDFW upon request and submitted in the appropriate Monthly Compliance Report (Condition of Approval 10.12) and Annual Status Report (Condition of Approval 10.13).

11.34 Pile Driving Plan.

Permittee shall develop a pile driving plan to minimize the impacts of pile driving on Covered Fish Species. Permittee shall submit the pile driving plan to CDFW as part of the Pre-implementation Phase Authorization Package (Condition of Approval 6.1) for review and written approval prior to initiating Covered Activities. The pile driving plan shall include an explanation of how the Project engineering design minimizes the total number of pilings, the number of pilings that will be driven per day with an impact or vibratory pile driver, the number of pile driving strikes per day, the duration of pile driving within the in-water work windows, the duration and timing of impact or vibratory pile driving outside the in-water work windows, and the duration of pile driving within the daily in-water construction window.

11.35 Fish Salvage Plan.

Permittee shall collaborate with CDFW to develop a fish rescue and salvage plan that describes procedures for fish rescue and salvage to minimize the number of Covered Fish Species stranded during Project construction activities. Permittee shall submit the fish salvage plan to CDFW as part of

the appropriate Phase Authorization Package (Condition of Approval 6.2) for review and approval prior to initiating Covered Activities. Permittee shall not initiate Covered Activities until the final fish salvage plan is approved in writing by CDFW.

The fish salvage plan shall incorporate, but not be limited to, the following requirements:

- Requirement that fish salvage operations occur within the Project phase in accordance with all required state and federal permits.

- Description of fish salvage operations to occur at all in-water Project construction sites where dewatering and resulting isolation of fish may occur.

- Obligation for the Designated Representative or Designated Fisheries Biologist(s) to notify CDFW at least seven days prior to site-specific dewatering activities that are expected to require fish salvage or prior to an anticipated activity that could result in isolating fish, such as installation of a cofferdam.

- Appropriate site-specific procedures for excluding fish from construction zones, removing fish from construction zones should they become trapped, and preventing fish from reentering construction zones prior to dewatering based on site-specific conditions and construction methods.

- Requirement that each fish salvage team conducting fish salvage efforts have at least one Designated Fisheries Biologist. Safety training for fish rescue workers shall be provided prior to accessing the work site.

- To avoid and minimize the risk of injury to fish, attempts to seine and/or net fish shall always precede the use of electrofishing equipment. Require any electrofishing to be conducted in accordance with NMFS electrofishing guidelines.[37] One or two 3- to 4-person teams shall conduct electrofishing, with each team having an electrofishing unit operator and two or three netters.

Permittee shall describe implementation of the fish salvage plan and provide a summary of the results of the fish salvage operations (including date, time, location, comments, method of capture, fish species, number of fish, approximate age, condition, release location, and release time) to CDFW as part of the Annual Status Report (Condition of Approval 10.13).

[37] National Marine Fisheries Service (2000). Guidelines for electrofishing waters containing salmonids listed under the Endangered Species Act. June 2000.

The Designated Fisheries Biologist(s) shall place dead Covered Fish Species in sealed plastic bags with labels indicating species, location, date, and time of collection, store them on ice, freeze as soon as possible, and provide the frozen specimens to CDFW.

Fish capture, release, and relocation measures shall be consistent with the following general guidelines:

- Use dip nets made of soft (nonabrasive) nylon material and small mesh size (no greater than 0.125 inch) to collect small fish.
- After conducting herding and netting operations, use electrofishing, as needed, to remove as many fish as possible from the enclosure.
- Make at least three passes through the enclosed cofferdam areas to remove as many fish as possible.
- Initially place salvaged fish in containers filled with water obtained from the immediate area.
- Transfer salvaged fish into 5-gallon buckets filled with clean river water at ambient temperature.
- Hold fish in 5-gallon buckets equipped with a lid and an aerator and add fresh river water or small amounts of ice to the fish buckets if the water temperature in the buckets becomes more than 2°F warmer than ambient river waters.
- Maintain low densities of salvaged fish in holding containers to avoid effects of overcrowding.
- Use water-to-water transfers whenever possible.
- Release salvaged fish at predetermined locations approved by CDFW in appropriate habitat upstream or downstream of the construction site with similar temperature to the area from which fish were rescued and a low likelihood of fish reentering the construction site or being impinged on exclusion nets/screens.
- Segregate larger fish from smaller fish to minimize risk of predation and physical damage to smaller fish from larger fish.
- Limit holding time to about 10 minutes, to the extent possible.

- Avoid handling fish during processing unless absolutely necessary. Use wet hands or dip nets if handling is necessary.

- Handle fish with hands that are free or potentially harmful products, including but not limited to sunscreen, lotion, and insect repellent.

- Avoid anesthetizing or measuring fish.

- Note the date, time and location of fish collection; species; number of fish; approximate age (e.g., young-of-the-year, yearling, adult); fish condition (dead, visibly injured, healthy); and water temperature.

- If positive identification of fish cannot be made without handling the fish, note this and release fish without handling.

- In notes, indicate the level of accuracy of visual estimates to allow appropriate reporting to CDFW (e.g., "Approx. 10–20 young-of-the-year steelhead"). Note the fish release date, time, and location.

- Provide CDFW with unrestricted access to construction sites for the duration of implementation of the fish salvage plan and fish salvage activities.

- Begin fish salvage operations as soon as fish stranding is discovered and when conditions are safe enough to do so, and complete within 48 hours after isolation of a construction site to minimize potential predation and adverse water quality impacts (e.g., high water temperature, low dissolved oxygen) associated with confinement.

- Install cofferdams to block off the construction area before fish removal activities occur. Use block nets or other temporary exclusion methods (e.g., silt curtains) for other in-water construction activities to exclude fish or isolate the construction area prior to the fish removal process.

Permittee shall ensure the fish salvage plan is submitted to CDFW for written approval prior to initiating Covered Activities. Permittee shall implement all measures in the final CDFW-approved plan. Permittee shall not initiate dewatering and fish salvage until the fish salvage plan is approved in writing by CDFW.

11.36 Barge Operations Plan.

Permittee shall coordinate with CDFW to develop a barge operations plan to minimize the number of barge trips necessary to conduct Covered Activities including over-water geotechnical explorations and rip rap installation, identify the barge routes that minimize impacts on Covered Fish Species, and minimize general barge operation-related effects on Covered Species. Permittee shall submit the draft barge operations plan to CDFW as part of the Pre-implementation Phase Authorization Package (Condition of Approval 6.1). Permittee shall work collaboratively with CDFW to incorporate comments into the draft plan and submit the final Barge Operations Plan to CDFW for review and approval a minimum of one year prior to initiating any in-water Covered Activity. Permittee shall not initiate Covered Activities that require barge operations until the final barge operations plan is approved in writing by CDFW.

The barge operations plan shall identify the number of barge trips associated with construction of each intake as well as over-water geotechnical explorations and describe measures to avoid and minimize impacts to Covered Species caused by direct mortality due to propeller strikes or propeller wash, bottom scour from propeller wash, bank erosion or loss of submerged or emergent vegetation from propeller wash and/or excessive wakes, fish stranding due to wakes, accidental spillage of hazardous material, sediment that could cause turbidity or changes to bathymetry if disturbed, and disturbances to the bottom dwelling (benthic) invertebrates that provide a prey base for Covered Species.

The barge operations plan shall incorporate, but not be limited to, the following requirements:

- Limit vessel speeds to maintain wake heights of less than two feet at shore to minimize the potential for vessel wakes to strand Covered Species and the effects of wakes on unarmored or vegetated banks.

- Ensure that tugboat and barge operators are trained to minimize impacts on Covered Species' habitats such as reducing the effects of wake on vegetated banks. Permittee shall require vessel operators to obey all federal and state navigation regulations that apply to the Delta.

- The Designated Biologist(s) or Fisheries Biologist(s) shall conduct visual inspections for invasive aquatic species on all in-water equipment, such as barges and small work boats, prior to equipment deployment into a waterway. If the Designated Biologist(s) or Fisheries Biologist(s) detects the presence of invasive aquatic species on equipment, the Permittee shall report the presence to CDFW within 24 hours and follow quarantine guidelines as provided by CDFW prior to the equipment entering a waterway.

- Limit the direction and/or velocity of propeller wash to prevent bottom scour and loss of aquatic vegetation.

- All vessels shall approach and depart from the north Delta intake locations at dead slow to reduce vessel wakes and propeller wash.

- Tie up barges whenever possible to avoid the necessity of maintaining stationary position by tugboat or by the use of barge spuds. Use anchors and barge spuds to secure vessels only when it is not possible to tie up.

- Identify the location of barge anchoring planned at each north Delta intake site. Vessel operators shall not anchor barges where they will ground during low tide.

- Lower anchors into place so they are not allowed to drag across the channel bed.

- Avoid pushing stationary vessels up against cofferdams, docks, or other structures for extended periods, which could result in excessive direct propeller wash impinging on a single location.

- All vessel operators shall obey U.S. Coast Guard regulations related to prevention, notification, and cleanup of hazardous materials spills. Vessel operators shall also keep a copy of the hazardous materials management plan onboard.

- All vessel operators shall obey all federal and state navigation regulations that apply to the Delta.

- When transporting loose materials (e.g., sand, aggregate), vessel operators shall use deck walls or other features to prevent loose materials from blowing or washing off of the deck.

- Designate a Fisheries Biologist(s) and/or Biological Monitor(s) who shall fulfill the following requirements:

    - Observe barge operation activities including loading and unloading.

    - Report to CDFW within 24 hours any vessel grounding and deviations from the barge operations plan, and barge operations that could have resulted in the disturbance of bottom sediments, damage to riverbanks, loss of submerged, emergent, or riparian vegetation or impacts to Covered Species.

    - Provide summary information on monitoring observations over the course of each year, including an evaluation of the plan performance measures. The information shall also include a description of and representative photographs and/or video of

conditions of riverbanks and vegetation, deviations from the barge operations plan, accidental contaminant and materials spills, and other impacts of Covered Fish Species and their habitats. The information provided shall be included by the Permittee in the Annual Status Report (Condition of Approval 10.13).

- Visit each site requiring barges to determine the extent of emergent and riparian vegetation, bank conditions, and general site conditions during the growing season prior to initiation of construction activities, during construction, and then annually for up to five years after construction.

- Monitor geotechnical exploration and construction Covered Activities including observations of barge usage and cone penetration tests in the Sacramento River used to determine the in situ density of soils prior to, during, and after test pile installation. There will be limited use of barges to haul construction materials.

- All vessel operators shall keep an oil spill containment kit and spill prevention and response plan onboard. In the event of fuel spill, vessel operators shall contact the CDFW Office of Spill Prevention and Response immediately at 800-852-7550 or 800-OILS-911 (800-645-7911) to report the spill.

- Permittee shall visit each north Delta intake to determine the extent of emergent and riparian vegetation, bank conditions, and general site conditions during the growing season prior to initiation of geotechnical exploration and construction Covered Activities and then annually during and after construction. Permittee shall monitor the condition of both riverbanks at each geotechnical exploration and intake site.

If barge operations result in 20% or more of a bank eroding, Permittee shall hire a qualified restoration specialist to restore the eroding bank.

11.37 Dewatering Plan.
Permittee shall collaborate with CDFW to develop a dewatering plan. Permittee shall submit the dewatering plan to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for review and approval prior to initiation Covered Activities. Permittee shall not initiate Covered Activities until the final dewatering plan is approved in writing by CDFW. At minimum, the plan shall provide that Permittee shall screen dewatering pump intakes to prevent entrainment of fish in accordance with screening criteria for salmonid fry found in the NMFS 1997 *Fish Screening Criteria for Anadromous Salmonids*.[38] During dewatering activities at the north Delta

[38] National Marine Fisheries Service (1997). Fish screening criteria for anadromous salmonids. National Marine Fisheries Service, Southwest Region. January 1997.

intakes or during any other dewatering activity that could potentially impact Covered Fish Species, a Fisheries Biologist(s) shall remain onsite to observe the process and remove Covered Species that were not successfully salvaged prior to dewatering (see Condition of Approval 11.35).

If Covered Fish Species salvage operations cannot be conducted effectively or safely by the Fisheries Biologist(s), it may be necessary to begin the dewatering process prior to salvage. During the dewatering process, a Fisheries Biologist(s) shall be onsite to implement Covered Species salvage during dewatering with the aim of minimizing the number of Covered Species that become trapped in isolated areas or impinged on pump screen(s) or isolation nets. If the Fisheries Biologist(s) determines the proposed methods are found to be insufficient to avoid undue losses of Covered Fish Species, they shall implement alternative salvage methods to minimize impacts to Covered Fish Species.

Permittee shall temporarily stop dewatering if the Fisheries Biologist(s) or CDFW personnel determine that water levels may drop too quickly to allow successful fish salvage.

Upon dewatering to water depths at which neither electrofishing nor seining can effectively occur (e.g., less than 3 inches [0.1 meter]), the Fisheries Biologist(s) shall inspect the dewatered areas to locate any remaining fish and collect them by dip net. The Fisheries Biologist(s) shall notify Permittee and CDFW within one business day when the fish salvage has been completed and construction can recommence.

11.38 Preconstruction Survey Protocols.
Permittee shall develop, in coordination with CDFW, species survey protocols specific to CTS, GGS, SWHA, TRBL, CBB, and MALI. Survey protocols specific to each forementioned Covered Species shall be provided to CDFW as part of the Pre-implementation Phase Authorization Package (Condition of Approval 6.1) for review and approval. Protocols shall be finalized and approved in writing by CDFW prior to initiation of any Covered Activity including but not limited to preconstruction field investigation activities or preconstruction species site surveys necessary for Construction Phase Authorization. Survey protocols shall include but not be limited to: the number of surveys that will be conducted for each Covered Activity and/or location; when the surveys are planned to take place (i.e., season and how much time between surveys); what type of habitat will be surveyed (i.e., foraging, nesting, and/or overwintering); associated habitat characteristics, survey methods and supporting rationale including references as appropriate; capture and identification protocol(s)if appropriate; and survey methodology developed specifically for determining presence or absence of a species, if appropriate.

Construction Phase and Maintenance-Activity Covered Species Measures

The following protective measures are intended to minimize impacts from Covered Activities associated with preconstruction, construction, and facilities maintenance, as described in this ITP for Covered Species.

California Tiger Salamander (CTS) Measures

11.39 CTS Avoidance.
To the greatest extent practicable, suitable CTS habitat identified and delineated in accordance with CDFW-approved protocols (Condition of Approval 11.38) shall be completely avoided. Permittee shall conduct Covered Activities within paved roads, farm roads, road shoulders, and similarly disturbed and compacted areas where possible. Where it is not possible to conduct Covered Activities in already disturbed areas, Permittee shall confine ground disturbance and habitat removal to the most minimal area necessary as identified in the appropriate Phase Authorization Package (Condition of Approval 6.2). All Project personnel shall inform the Designated Biologist(s) if they encounter CTS, or a salamander resembling CTS, within the Project construction site or 75 feet beyond the Project construction site, or on access roads during, all phases of Covered Activities. If Project personnel observe CTS, or a salamander resembling CTS, retreating into an underground burrow, crack or crevice, or under woody debris for refuge within a construction site, Permittee shall prohibit Covered Activities within a 75-foot radius of that refuge (no-activity buffer) until the Designated Biologist(s) is contacted and on-site. If the Covered Activities cannot avoid the refuge, only the Designated Biologist(s) shall excavate, expose, and relocate the CTS in accordance with Condition of Approval 11.51.

11.39.1 Vehicle Strikes. Project-related vehicles shall observe a speed limit of 10 miles per hour within suitable CTS habitat prior to ground clearance. After ground clearance, the speed limit shall be observed within 300 feet of suitable aquatic habitat or 75 feet from a flagged burrow, except on roads where 10 miles per hour would unsafely impede the normal flow of traffic. A vehicle speed limit of 10 miles per hour shall be posted on all nonpublic construction and access roads where the speed limit is required.

11.40 Breeding Habitat Avoidance Near Conserved Lands.
If the Designated Biologist(s) and/or Biological Monitor(s) identifies suitable aquatic breeding habitat within the Project Area south of Byron Highway, Permittee shall demarcate a no-activity buffer of at least 300 feet around the suitable aquatic breeding habitat and avoid Covered Activities within the suitable aquatic breeding habitat and no-activity buffer. Where Covered Activities cannot be avoided within the suitable aquatic breeding habitat or no-activity buffer, Permittee shall restrict Covered Activities to the dry season of July 15 – October 15 (Condition of Approval 11.44). Where suitable aquatic breeding habitat cannot be avoided by 300 feet, Permittee shall notify and coordinate with CDFW to implement site-specific avoidance and minimization measures through the appropriate Phase Authorization Package (Condition of Approval 6.2). Permittee shall consult with CDFW to

develop further habitat protection measures at the Bethany Complex site to maintain connectivity between breeding habitat and suitable upland habitat and ensure impacts to breeding habitat are fully avoided. South of Byron Highway, Permittee shall delineate suitable CTS aquatic habitat within areas affected by Covered Activities including preconstruction activities, and SCADA, transmission line, and access road construction and maintenance sites with poly wire or other visible flagging approved by CDFW to demarcate a no-activity buffer. of at least 300 feet around suitable breeding habitat.

11.41 Preconstruction Activities, SCADA and Transmission Line Construction and Maintenance, Access Road Construction and Maintenance Activities.
Permittee shall implement the following measures to minimize disturbance to CTS to the greatest extent possible:

- Permittee shall restore temporarily disturbed habitat with appropriate native vegetation in accordance with the Restoration and Revegetation Plan (see Condition of Approval 12.3.3).

- The Designated Biologist(s) and/or Biological Monitor(s) shall be present during selection of the preconstruction activity sites, construction sites, and maintenance areas, ingress and egress to these sites, and during set-up activities to guide workers to avoid visible burrows, cracks, crevices, vegetation, or other suitable habitat features until avoidance routes are clearly established.

- The Designated Biologist(s) and/or Biological Monitor(s) shall flag potentially occupied burrows to be avoided by a 75-foot radius no-activity buffer or shall designate and flag areas within the site and ingress/egress routes that avoid potentially occupied burrows.

- The Designated Biologist(s) and/or Biological Monitor(s) shall conduct daily surveys prior to the start of Covered Activities each day to check for burrows within the work site. The Designated Biologist(s) and/or Biological Monitor(s) shall either flag burrows to be avoided by a 75-foot radius no-activity buffer or designate and flag work sites, staging areas, and ingress/egress routes that avoid potentially occupied burrows.

- Permittee shall confine movement of heavy equipment to existing or CDFW-approved access roads or to locations at least 75 feet from flagged burrows. Vehicles shall follow the shortest possible routes from existing roads to the work site and shall follow speed limits consistent with Condition of Approval 11.11.

11.42 CTS Surveys.

The Designated Biologist(s) and/or Biological Monitor(s) shall conduct CTS surveys following CDFW-approved protocols (Condition of Approval 11.38) within the boundaries of each Project site plus a surrounding 75-foot buffer zone following the *2003 Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Findings of the California Tiger Salamander*[39] prior to the initiation of Covered Activities. The 75-foot buffer zone may be reduced with approval by CDFW should Permittee not have access to adjacent parcels that are under different ownership. Permittee shall submit the CTS preconstruction survey results to CDFW as part of the appropriate Construction Phase Authorization Package for written approval. Subsequent survey efforts conducted during the construction phase(s) shall occur each year Covered Activities are expected to occur in CTS habitat or within 75 feet of the habitat, unless otherwise approved by CDFW, and shall be reported to CDFW by the Permittee within the Monthly Compliance Reporting (Condition of Approval 10.12) and summarized within each Annual Status Report (Condition of Approval 10.13).

The Designated Biologist(s) and/or Biological monitor(s) shall complete walking surveys of the Project construction site for CTS before the start of any vegetation clearing or ground disturbing Covered Activities (e.g., soil deposition areas; preconstruction activities such as field investigations; SCADA, transmission line, or access road construction, maintenance, or improvement sites; or exclusion fence installation and repair sites) by completing nocturnal walking or cover-board surveys in each of the construction sites located within suitable upland habitat, within or within 1.3 miles from any suitable CTS breeding sites (aquatic habitat), and beneath any woody debris or other potential refugia for CTS. The survey shall provide 100% visual coverage of the Project construction site and 75-foot boundary unless otherwise approved by CDFW. The Designated Biologist(s) and/or Biological Monitor(s) shall follow earthmoving equipment to look for CTS during initial site grading. All ruts and holes near root structures, foundations, abutments, etc. shall be inspected for CTS prior to and during excavation or removal.

Permittee may only modify the 75-foot boundary with written approval by CDFW and may exclude physical barriers to CTS movement, such as the California Aqueduct. If the Designated Biologist(s), Biological Monitor(s), or any Project personnel discover CTS, the Designated Biologist(s) shall move the animal to a safe location nearby following the CTS Relocation Plan required by Condition of Approval 11.51.

11.42.1 Preconstruction Watering. Permittee shall prepare in consultation with CDFW a preconstruction watering protocol and submit the protocol as part of the appropriate

[39] California Department of Fish and Game and U.S. Fish and Wildlife Service (2003). Interim guidance on site assessment and field surveys for determining presence or a negative finding of the California tiger salamander. California Department of Fish and Game, Sacramento, CA. U.S. Fish and Wildlife Service, Sacramento, CA. October 2003.

Construction Phase Authorization Package (Condition of Approval 6.2) describing the methodology to be used to stimulate CTS emergence from burrows on permanently impacted Project construction sites. The preconstruction watering protocol shall include but not be limited to the proposed water application methodology, discussing duration, timing, and quantity of water applied to mimic a rain event to stimulate CTS to emerge from burrows for capture and relocation, and any other pertinent information. The Designated Biologist(s) and/or Biological Monitor(s) shall survey the area each morning following watering. The Designated Biologist(s) shall relocate any CTS according to the CTS Relocation Plan (Condition of Approval 11.51).

11.42.2 Mowing. Permittee shall not remove vegetation within avoidable burrows, burrow complexes, and suitable refugia to the greatest extent practicable. If Covered Activities require the removal or maintenance of vegetation, within suitable upland habitat, Permittee shall mow grasses within 24 hours of initiation of preconstruction surveys (see Condition of Approval 11.42) within suitable upland habitat in each Project construction site where ground disturbance will occur and within the 75-foot boundary. Within 75 feet of identified burrows, burrow complexes, and suitable refugia, Permittee shall only use light mowing equipment limited to string trimmers (e.g., weed whackers) that will not crush burrows or impact the ground to mow vegetation until vegetation is short enough (vegetation height of four to six inches) that allows the Designated Biologist(s) and Biological Monitor(s) to see and survey for CTS and burrows. The Designated Biologist(s) and/or Biological Monitor(s) shall walk in front of the mower and monitor for CTS escaping out of burrows. If CTS is found, mowing shall cease until the CTS is relocated by the Designated Biologist(s) only in accordance with the CTS Relocation Plan (Condition of Approval 11.51). Any request by Permittee to use other mowing equipment shall be subject to CDFW written approval (e.g., in locations that are not near refugia and burrow complexes). Mowing shall occur in rows in a pattern that would not concentrate animals in the center of the construction site and shall only occur during the day in dry conditions (no rain within the past 24 hours) when the Designated Biologist(s) and/or Biological Monitor(s) determines CTS is unlikely to be aboveground.

11.43 Exclusion Barrier Installation and Maintenance.

Permittee shall submit site-specific CTS exclusion barrier design and location details to CDFW as part of the appropriate Construction Phase Authorization Package based on preconstruction survey results (see Condition of Approval 11.42). Prior to initiation of ground disturbing Covered Activities the Designated Biologist(s) and/or Biological Monitor(s) shall conduct a CTS survey consistent with Condition of Approval 11.38 and within 24 hours (1 calendar day) after completion of the CTS survey(s) and any necessary burrow excavation(s) (see Conditions of Approval 11.42 and 11.49), Permittee shall install a high visibility exclusion barrier to prevent CTS from dispersing into the Project construction site.

Permittee shall place the barrier along the perimeter of the construction footprint for any site within or 300 feet of any suitable CTS upland or aquatic habitat, or as approved by CDFW. The barrier shall be maintained by the Permittee throughout all construction activities. The Designated Biologist(s) and/or Biological Monitor(s) shall inspect the area prior to and during installation of exclusion fencing, including during trenching, vehicular access, erecting fencing material, installing posts, and any other activity requiring vehicle or foot traffic in suitable habitat. If CTS or new burrows are discovered during installation of the exclusion barrier, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to stop construction until new burrows are checked for occupancy, any CTS are relocated by the Designated Biologist(s) (see Condition of Approval 11.51), and unoccupied burrows are blocked by the Designated Biologist(s) (see Condition of Approval 11.49). The Designated Biologist(s) and/or Biological Monitor(s) shall continue to monitor the fencing daily before and during construction and maintenance activities, prior to the start of the rainy season, and during and after rain events (rainfall predicted to exceed 0.25 inches during a 24-hour period) for the duration of Covered Activities in the Project construction site to ensure it is functional and without defects, the fencing material is taut, and the bottom edge of the fencing material remains buried. If a defect is identified, the Designated Biologist(s) and/or Biological Monitor(s) shall have authority to stop Covered Activities within 300 feet of the defect. Permittee shall maintain and repair the barrier immediately (within 24 hours) to ensure that it is functional and without defects. After the barrier is repaired, the Designated Biologist(s) shall conduct a survey using CDFW-approved protocol (see Condition of Approval 11.38) within 24 hours (1 calendar day) prior to reinitiation of Covered Activities and carefully search potential hiding spots, such as along exclusion fence and in pipes, culverts, or other similar structures, trenches, large downed woody debris, and beneath vehicles or equipment before they are moved (see Conditions of Approval 9.12, 11.14, and 11.15). Permittee shall ensure the exclusion barrier is supported sufficiently to maintain its integrity under all conditions, such as wind and heavy rain, for the duration of the Covered Activities in the Project construction site.

The barrier shall consist of taut wildlife exclusion fencing supported by stakes at least 24 inches tall above the soil surface and buried to a depth of 6-12 inches below the soil surface; and shall be constructed with a top climber barrier lip so that CTS cannot scale and go over the barrier into the Project construction site. Fencing that is overlapped to connect different sections of material shall be sealed in a manner that does not allow CTS to become entrapped. Permittee shall design the barrier to prevent CTS from climbing over it or under it through burrows or cracks. The fence shall include multiple one-way exit funnels flush to the ground every 150 feet to allow CTS and other species to leave the Project construction site. At the ends of the fences and at any access opening in the fence, the fence shall turn 180 degrees away from the access point for a length of approximately 10 feet and at a minimum width of one foot from the original fence. Permittee shall design the exclusion barrier to include redirection points at access gates and at no greater than 100-foot intervals (e.g., at least five feet of the fencing perpendicular to the exclusion barrier) to redirect CTS on the outside of the barrier back to intact habitat. Permittee shall instruct Project personnel to ensure access gates

are securely closed when not in use. If access gates are left open and unattended, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to stop Covered Activities until CTS surveys are repeated (Condition of Approval 11.42), any CTS found are relocated from the construction site (Condition of Approval 11.51), and additional burrows are checked and the entrances blocked by the designated Biologist(s) in accordance with Condition of Approval 11.49. Permittee shall not use plastic monofilament netting for the exclusion barrier (see Condition of Approval 11.28).

The barrier shall remain in place until Permittee completes all Covered Activities and all construction equipment has been removed from the site. The Designated Biologist(s) shall relocate any CTS found along the fence (see Condition of Approval 11.51). Permittee shall provide refuge opportunities such as natural cover objects (such as fallen logs and branches), artificial cover boards, or leaf litter along or near both sides of the barrier. Permittee shall avoid damage to burrows to the maximum extent possible during installation and monitoring of the exclusion fencing (see Condition of Approval 11.49). Permittee shall maintain vegetation within three feet of the edge of the exclusion barrier away from the Project construction site at a height that allows visibility of CTS (four to six inches, depending on the terrain and at the discretion of the Designated Biologist(s)) near the barrier, using hand tools to trim or remove vegetation.

11.44 Seasonal Work Window.
Permittee shall limit ground-disturbing Covered Activities in suitable upland habitat and aquatic habitat involving construction and heavy equipment use (such as excavation, road construction, grading, trenching, pipe and culvert installation) to the period of July 15 to October 15 of each year (dry season). Covered Activities may begin prior to July 15 if the location in which work will occur has been dry for a minimum of 30 days prior to initiating work, the Designated Biologist(s) has conducted surveys for presence of CTS consistent with Condition of Approval 11.42, and exclusion barriers have been installed. Any Covered Activities conducted outside of the dry season (July 15 – October 15) shall be limited to periods of low rainfall (less than 0.08 inches per 24-hour period and less than 40 percent chance of rain), and subject to CDFW approval with potentially further restrictions.

11.45 Rain Forecast.
This condition applies to Covered Activities within 1.3 miles of potential or known CTS breeding sites that are not encircled by CTS exclusion fencing. Permittee and Designated Biologist(s) and/or Biological Monitor(s) shall monitor the 72-hour weather forecasts from the National Weather Service (NWS) prior to the start of work at any Project construction site. Construction activities, including all ground disturbance or vegetation clearing, shall cease 24 hours prior to a 30 percent (30%) or greater forecast of rain from the NWS. Construction activities may continue 24 hours after the rain ceases and once there is a zero percent chance of precipitation in the 72-hour forecast. The Designated Biologist(s) and/or Biological Monitor(s) shall survey each Project site before construction begins on each day any rain is forecasted.

11.46 Time of Day Work Restriction.
CTS active season is defined as the period of time during which CTS are aboveground. The period is geographically and temporally variable and shall be assessed by the Designated Biologist(s) and/or Biological Monitor(s) on each Project construction site and on a yearly basis. During the CTS active season or within 300 feet of suitable CTS aquatic habitat, Permittee shall terminate all Covered Activities not encircled by an exclusion barrier, including use and/or construction of access roads for preconstruction activities, SCADA and transmission line construction and maintenance, and facility maintenance no less than 30 minutes before sunset and shall not resume Covered Activities until 30 minutes after sunrise. Permittee shall use sunrise and sunset times established by the U.S. Naval Observatory Astronomical Applications Department for determining when Covered Activities shall terminate and resume.

11.47 Night Work.
If night work is required within a Project construction site after exclusion barriers have been installed, Permittee shall not use artificial lighting unless it is needed for worker safety. Where artificial lighting is required for worker safety, Permittee shall follow night lighting provisions in Condition of Approval 11.8. If light spillover occurs within 300 feet of suitable CTS habitat during night work, the Designated Biologist(s) and/or Biological Monitor(s) shall be present to survey CTS burrows in portions of the 75-foot no-activity buffer (see Condition of Approval 11.39) to ensure CTS movement is not inhibited by artificial lighting. If CTS is found aboveground, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to stop Covered Activities until the light is directed away from the burrows, the CTS individual moves out of the illuminated area, or the CTS individual is relocated away from the illuminated area by the Designated Biologist(s) to a suitable location following the CTS Relocation Plan (Condition of Approval 11.51).

11.48 Initial Site Clearing and Monitoring.
Permittee shall confine ground disturbance activities that could result in take of CTS (clearance work) to the most minimal area necessary to conduct Covered Activities and shall not initiate clearance work until after exclusion fencing is installed (Condition of Approval 11.43). The Designated Biologist(s) and/or Biological Monitor(s) shall be onsite during clearance work and shall check potential CTS hiding spots (see Condition of Approval 11.49). The Designated Biologist(s) and/or Biological Monitor(s) shall conduct CTS surveys prior to initiation of any Covered Activity within a Project construction site and regularly throughout the workday when Covered Activities are occurring within CTS habitat. If clearance work is conducted at night, the Designated Biologist(s) and/or Biological Monitor(s) shall conduct an additional CTS survey no more than two hours after sunrise on the subsequent day using the CDFW-approved protocol (Condition of Approval 11.38), to ensure absence of CTS within the Project site. If CTS is discovered inside the exclusion fencing along the Project site boundary, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to stop Covered Activities until the CTS is relocated in accordance with the CTS Relocation

Plan (Condition of Approval 11.51) and appropriate corrective measures are implemented to ensure CTS cannot enter the construction site.

11.49 Avoidance or Treatment of Burrows.
Permittee shall avoid disturbing any known or potential CTS burrows unless they are in an area of direct disturbance (e.g., grading or excavation areas) or their location poses a risk of direct harm to CTS individuals. Burrows in an area of temporary disturbance shall remain intact and the Designated Biologist(s) shall monitor to determine vacancy, then block the entrance by installing an object approved in advance, in writing by CDFW, to prevent CTS from entering and using the burrow during Covered Activities. The Designated Biologist(s) shall remove the object immediately after Covered Activities are completed in that work site when the Designated Biologist(s) has determined that potential resumed use of the burrow will not result in harm to the Covered Species. Permittee shall not destroy or modify burrows that are beyond the direct footprint of ground disturbance. When the Permittee cannot avoid burrows in areas of direct ground disturbance or in a location posing a risk of direct harm to CTS, they shall be hand excavated by the Designated Biologist(s) prior to trenching activities (see condition of Approval 11.49.2) and any CTS found during excavation shall be relocated according to the CTS Relocation Plan (see Condition of Approval 11.51). Following excavation, the Designated Biologist(s) shall block holes or burrows which appear to extend under exclusion fencing (see Condition of Approval 11.43) to minimize CTS movement into the Project construction site. The Designated Biologist(s) shall be on-site during installation of fencing to relocate any CTS outside of the work area following the CTS Relocation Plan (Condition of Approval 11.51).

11.49.1 Flag Burrows. The Designated Biologist(s) and/or Biological Monitor(s) shall identify and flag all potential burrows, soil cracks, crevices, or other habitat features that are outside of the area planned for direct disturbance (e.g., grading, excavation, etc.) and within the Project construction site no less than five days prior to earthmoving activities in those areas. For preconstruction activities, maintenance activities, or activities within a Project construction activity where there is not an exclusion barrier (see Condition of Approval 11.43). Permittee shall establish a 75-foot radius no-activity buffer around flagged burrows to be avoided, as feasible. Areas with a high concentration of suitable burrows shall be demarcated and flagged for avoidance to the greatest extent possible. Signs, stakes, and/or flags shall be clearly distinguishable from markings used to delineate work areas. If burrows cannot be avoided by a no-activity buffer and are within suitable upland habitat, Permittee shall monitor to determine vacancy and block burrows for the duration of Covered Activities. Burrows in a location that cannot be avoided shall be excavated as described in Condition of Approval 11.49.2.

11.49.2 Burrow Excavation. All excavation of potential refuge features, including burrows, individual rocks and rock piles, and other accessible features with an entrance diameter of greater than or equal to 0.5 inches, as well as gopher digging piles and mounds, shall be carried out by the

Designated Biologist(s). Burrows shall be excavated by hand to the terminus of each burrow branch or until the burrow diameter is less than 0.5 inches.

11.50 CTS Capture and Handling.

Prior to handling and relocation, the Designated Biologist(s) and Biological Monitor(s) shall take precautions to prevent introduction of amphibian diseases in accordance with the 2003 *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*,[40] or the most recent guidance approved by CDFW. If any person discovers a CTS in the Project construction site that cannot move away from Covered Activities on its own, only the CDFW approved Designated Biologist(s) shall capture it using CDFW-approved methodologies. CTS shall be handled using methodology described in the *Restraint and Handling of Live Amphibians*[41] or the most up-to-date protocols approved by CDFW. The Designated Biologist(s) shall capture CTS by hand, dipnet, or other CDFW-approved method (see Condition of Approval 11.51) and place the CTS individual in a dark, clean plastic container of suitable size (e.g., enough room so the animal can move freely). The container shall be thoroughly cleaned and disinfected prior to being transported to the Project site and shall be rinsed with freshwater onsite immediately prior to usage unless doing so would result in injury or death of an individual due to the time delay. The Designated Biologist(s) shall wear sterile gloves while handling CTS to prevent the spread of disease or harmful chemicals being absorbed through CTS skin. The Designated Biologist(s) shall keep the container moist with damp paper towels, soft foam rubber, or soap-free natural or synthetic sponge. Containers used for holding or transporting shall not contain any standing water. The lids of the containers shall have small air holes for ventilation. Sponges shall not be reused, and all other housing materials shall be disinfected between occupants according to the *Declining Amphibian Task Force Fieldwork Code of Practice*[42] or the most recent guidance approved by CDFW. The Designated Biologist(s) shall place only one animal in each plastic container. The Designated Biologist(s) shall keep individual plastic containers containing CTS in an ice chest, and place ice packs in the cooler with the containers in a manner that prevents direct contact of the CTS with the ice packs, to maintain a cool temperature comparable to a refrigerator. The Designated Biologist(s) shall keep the ice chests in a cool, dark, quiet, secure place and release the CTS as soon as possible following the CTS Relocation Plan (see Condition of Approval 11.51).

[40] California Department of Fish and Game and U.S. Fish and Wildlife Service (2003). Interim guidance on site assessment and field surveys for determining presence or a negative finding of the California tiger salamander. California Natural Resources Agency, California Department of Fish and Game, Sacramento, CA. U.S. Fish and Wildlife Service, Sacramento, CA. October 2003.

[41] Green, D.E. (2001). Restraint and handling of live amphibians: Amphibian Research and Monitoring Initiative standard operating procedure, no. 100. National Wildlife Health Center. February 2001.

[42] Declining Amphibian Populations Task Force (1998). The Declining Amphibian Populations Task Force fieldwork code of practice. Available: https://www.fws.gov/sites/default/files/documents/declining-amphibian-task-force-fieldwork-code-of-practice.PDF.

11.51 CTS Mortality Reduction and Relocation Plan.

Permittee shall prepare a CTS Mortality Reduction and Relocation Plan (CTS Relocation Plan) and submit it to CDFW for written approval as part of the appropriate Construction Phase Authorization Package (see Condition of Approval 6.2) prior to initiating Covered Activities. The Relocation Plan shall include, but is not limited to, the name(s) of the Designated Biologist(s) who will relocate CTS individuals, methods for hand excavation of burrows that cannot be avoided during Covered Activities; the methods of capture, handling, and relocation; a map depicting the construction, proposed relocation areas, and those areas within 1.3 miles of known or potential breeding habitat for CTS; site photos; the description of the proposed relocation area(s) for captured CTS within 300 feet of the Covered Activities site(s) or at a distance agreed to by CDFW, including relative location, habitat quality, non-native species, other CTS present, identified upland burrows determined to be suitable for CTS placement, distance to aquatic habitat, and potential barriers for movement; written permission from the landowner to use their land as a relocation site; and identification of a wildlife rehabilitation center or veterinary facility that routinely evaluates or treats amphibians.

11.51.1 Relocation from Buffer Outside Project Construction Sites. If CTS is found within a construction site or 75 feet beyond the construction site (75-foot boundary), Project personnel shall notify the Designated Biologist(s) immediately. If CTS is encountered within a Project construction site, it is directly threatened by Covered Activities, and it is unable to move to a safe area of its own volition, the Designated Biologist(s) shall relocate CTS to a safe area using the following parameters: (1) CTS shall not be relocated to sites that already contain populations of CTS; (2) CTS shall not be relocated to areas where non-native tiger salamanders or hybrids are within the maximum CTS migration distance (i.e., ≤ 1.3 miles); (3) injured or diseased animals shall not be moved (see Condition of Approval 11.52); (4) hybrid salamanders shall not be moved; and (5) relocation shall occur within 300 feet of the original location where the individual was found or at a distance agreed to by CDFW.

11.51.2 Capture and Handling of CTS. No Project personnel shall capture and/or handle CTS except the Designated Biologist(s). The Designated Biologist(s) shall determine whether the CTS should be captured and handled and shall relocate any CTS within the Project construction site impacted by Covered Activities to an active ground squirrel or other rodent burrow system or appropriate breeding pond as soon as possible. If burrow density allows, the Designated Biologist(s) shall only release one animal per burrow, and shall not exceed the release of a maximum of three individual CTSs into extensive burrows. The burrows must have moist and cool conditions to support CTS. CTS may be encouraged to enter the burrows by gently nudging if they do not enter on their own. If the animal repeatedly walks away from the burrow, or partially enters it and then turns around, the Designated Biologist(s) shall immediately remove it and find another burrow as this behavior indicates the burrow is inappropriate. The Designated Biologist(s) shall ensure that the CTS individual disappears from view before walking away. The Designated Biologist(s) shall release individual CTSs one at a time rather than as a group.

11.51.3 Release of Relocated CTS. Permittee's Designated Representative or the Designated Biologist(s) shall notify CDFW within one business day each time CTS is relocated. Notification to CDFW shall be via telephone and email, followed by a written incident report. Notifications shall include the date, time, location, and circumstances of the incident. The written incident report shall also be included in the Monthly Compliance Report (see Condition of Approval 10.12).

11.52 Notification of CTS Take or Injury.

Permittee shall immediately notify the Designated Biologist(s) if a CTS is injured or killed by a Covered Activity, or if a CTS is otherwise found dead or injured within the vicinity of the Project preconstruction activity, construction site, or maintenance area. Live injured CTS shall be handled and assessed according to the *Restraint and Handling of Live Amphibians*[43] or the most recent CDFW-approved guidance for handling CTS. If an injured CTS is found during Covered Activities, the individual shall be evaluated by the Designated Biologist(s) who shall immediately take the injured CTS to a CDFW-approved wildlife rehabilitation or veterinary facility identified in the CTS Relocation Plan (see Condition of Approval 11.51) and contact the CDFW Representative, via email and telephone, within one business day to discuss the next steps. The notification to CDFW's Representative shall include information regarding the location, species, number of animals taken or injured, the name of the facility where the animal was taken, and the ITP tracking number. Following discovery of the injured CTS the Designated Biologist(s) shall conduct the following steps:

11.52.1 Minor Injury. If the injury is minor or healing and the salamander is likely to survive as determined by the Designated Biologist(s), the salamander shall be released immediately in accordance with the CTS Relocation Plan (Condition of Approval 11.51).

11.52.2 Major or Serious Injuries. If it is determined that the CTS individual has major or serious injuries as a result of Project-related activities, the Designated Biologist(s) shall immediately take it to the nearest CDFW-approved wildlife rehabilitation or veterinary facility. If taken into captivity, the individual shall remain in captivity and not be released into the wild unless it has been kept in quarantine and the release is authorized by CDFW and USFWS. Permittee shall bear any costs associated with the care or treatment of such injured CTS. The circumstances of the injury, the procedure followed, and the final disposition of the injured animal shall be documented in the written incident report as described in Condition of Approval 11.52.4).

11.52.3 Recently Deceased. If the CTS is found recently deceased (as evidenced by lack of odor or decomposition), a 0.5-inch portion of the tail tip shall be removed and placed in a labeled tissue tube with 95% ethanol. The carcass shall be immediately bagged, labeled, and preserved in a

[43] Green, D.E. (2001). Restraint and handling of live amphibians: Amphibian Research and Monitoring Initiative standard operating procedure, no. 100. National Wildlife Health Center. February 2001.

freezer. The label shall include time and date, GPS location, circumstances surrounding death (if known), and ITP tracking number. CDFW shall be consulted regarding specimen disposal.

11.52.4 Written Report. Following initial notification, Permittee shall send CDFW a written incident report within two business days of the discovery. The report shall include the date and time of the finding or incident, GPS location of the CTS, photographs of the location and the CTS, circumstances around the cause of take or injury, and any other pertinent information. The report shall also be included in the Monthly Compliance Report (see Condition of Approval 10.12).

11.53 Invasive Species.
Permittee shall not introduce predatory fishes (including but not limited to largemouth bass, redear sunfish, bluegill, catfish, mosquitofish, and fathead minnows) or amphibians (including but not limited to bullfrogs, barred tiger salamanders, and Arizona tiger salamanders) within 1.3 miles of suitable aquatic/breeding CTS habitat. Permittee shall notify CDFW if a barred tiger salamander (*Ambystroma tigrinum mavortium*) or CTS-non-native salamander hybrids are found within the Project construction site within one business day of detection. Permittee shall consult with CDFW to determine measures to address non-native or hybrid populations.

Giant Garter Snake (GGS) Measures

11.54 Establishment of Environmentally Sensitive Areas (ESAs).
Permittee shall establish Environmentally Sensitive Areas (ESAs) in each Project construction site to minimize disturbance of GGS habitat from construction-related activities to the greatest extent practicable. Permittee shall erect ESA fencing around suitable GGS habitat as directed by the Designated Biologist(s). ESAs shall be demarcated by tying high visibility poly wire to stakes placed every six feet along the ESA boundary. The high visibility poly wire shall be raised at least four feet above grade and marked with high visibility flagging or markers. Permittee shall also post and maintain signs identifying the ESAs every 50 feet along the edge of suitable GGS habitat and ensure signs are clearly visible and recognizable to Project personnel.

Where agricultural ditches or other suitable aquatic habitat can be avoided and delineated, Permittee shall clearly mark the aquatic habitat by surrounding it with poly wire 200 feet from the edge of the suitable aquatic habitat. The Designated Biologist(s) and/or Biological Monitor(s) shall identify and flag all potential burrows within the Project construction site that can be avoided. In addition, all potential GGS habitat that can be reasonably avoided during construction activities shall be identified as ESAs and shall be marked by the Designated Biologist(s) and/or the Biological Monitor(s). All construction personnel shall avoid ESAs. The Designated Biologist(s) and/or Biological Monitor(s) shall inspect the stakes and high visibility poly wire before the start of each workday during ground disturbance activities, and Permittee shall maintain the stakes and poly wire until completion of Covered Activities within a Project construction site. Permittee shall remove all stakes and high visibility poly wire upon completion of Covered Activities.

11.55 GGS Avoidance.

To the greatest extent practicable, suitable GGS habitat identified and delineated in accordance with the CDFW-approved GGS survey protocol (Condition of Approval 11.38) shall be completely avoided. Where possible, Permittee shall conduct Covered Activities within paved roads, farm roads, road shoulders, and similarly disturbed and compacted areas. Permittee shall restrict stockpiling of construction materials including portable equipment, vehicles, and supplies away from GGS suitable habitat including any ESAs (see Condition of Approval 11.54). Permittee shall confine all Project-related parking, staging areas, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project Site using, to the extent possible, previously disturbed areas. Where it is not possible to conduct Covered Activities in already disturbed areas, Permittee shall confine ground disturbance and habitat removal to the most minimal area necessary. Permittee shall identify suitable GGS habitat, locations of proposed surface-disturbing activities, proposed areas for ground disturbance, and habitat removal within the appropriate Phase Authorization Package (Condition of Approval 6.1 and 6.2) for CDFW review and approval prior to initiation of Covered Activities. The Designated Biologist(s) and/or Biological Monitor(s) shall help guide Project access and construction work around ESAs (e.g., wetlands, active rice fields, and other sensitive habitats capable of supporting GGS) to minimize habitat disturbance and risk of take of GGS. Permittee shall not use or cross GGS habitat outside of the marked Project construction site boundary (Condition of Approval 9.8) unless otherwise authorized by CDFW. Permittee shall confine clearing of vegetation and scraping or digging of soil to the minimal area necessary to facilitate construction activities, to the extent feasible. Permittee shall implement dust control measures during Covered Activities to facilitate visibility for monitoring of GGS by the Designated Biologist(s) and/or Biological Monitor(s). Project personnel shall inform the Designated Biologist(s) and/or Biological Monitor(s) if they encounter GGS, or any snake resembling GGS, within or near the Project construction site during all phases of Covered Activities. If Project personnel observe GGS, or any snake resembling GGS, retreating into an underground burrow, crack, or crevice, including rock riprap for refuge within a Project construction site, Permittee shall prohibit Covered Activities within a 50-foot radius of the refuge until the Designated Biologist(s) and/or Biological Monitor(s) is contacted and is on-site. If the refuge cannot be avoided by the Covered Activities, the Designated Biologist(s) shall attempt to excavate or expose and identify the snake. If Permittee unearths or uncovers a GGS while conducting ground disturbing activities, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to stop Covered Activities and allow it to escape the Project construction site of its own volition or the Designated Biologist(s) may relocate it in accordance with Condition of Approval 11.67.

11.55.1 Access to Project Construction Sites. Project-related vehicles shall access the Project construction site(s) during Covered Activities using existing routes and shall not cross GGS habitat outside of the Project construction site(s) unless otherwise authorized by CDFW. Project-related vehicle traffic shall observe speed limits consistent with Condition of Approval 11.11 in Project construction sites and access roads within suitable GGS upland habitat. If GGS, or any snake

resembling GGS, is found on or traversing a roadway, Project personnel shall allow the snake to safely move off the road on its own, maneuver to avoid striking it, or shall notify the Designated Biologist(s) to move the snake off the road (see Condition of Approval 11.67).

11.56 GGS Surveys.
The Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall conduct CDFW approved preconstruction surveys (Condition of Approval 11.38) within the boundaries of each Project site and include a three-foot buffer zone around the Project site, prior to initiation of any Covered Activities, including preconstruction activities, during the GGS active season (May 1 to October 1). Permittee shall submit the GGS preconstruction survey results to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2). Subsequent survey efforts conducted after submittal of the Construction Phased Authorization Package, shall occur each year Covered Activities are expected to occur in GGS habitat or within three feet of the habitat, or as otherwise approved by CDFW, and shall be reported to CDFW by the Permittee within the Monthly Compliance Reporting (Condition of Approval 10.12) and summarized within each Annual Status Report (Condition of Approval 10.13).

The first Project construction site GGS survey following approval of the appropriate Construction Phase Authorization Package (i.e., after a baseline preconstruction survey(s) has been completed) shall begin no more than seven days prior to initiating ground disturbing Covered Activities and be conducted consistent with CDFW-approved protocols (Condition of Approval 11.38). Ground disturbing activities include soil deposition areas, preconstruction activities, and SCADA, transmission line, or access road construction, maintenance, or improvement sites, and exclusion barrier installation and maintenance. Survey efforts shall occur each year Covered Activities are expected to occur in GGS habitat or within three feet of GGS habitat.

Additional GGS surveys shall occur within 24 hours (one calendar day) preceding exclusion fencing installation (see Condition of Approval 11.62) and shall provide 100% visual coverage of the Project construction site and three-foot buffer. The survey shall be repeated prior to reinitiating Covered Activities if a lapse in Covered Activities of 14 calendar days or greater occurs at the Project construction site during the aestivation period (October 2 to April 30) or if the lapse in Covered Activities is more than 12 hours during the active season (May 1 to October 1).

If a GGS is discovered, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to delay installation of the exclusion barrier until the GGS leaves the Project construction site or three-foot boundary on its own volition or is needed to be removed from the construction site by the Designated Biologist(s) for its own safety. The Designated Biologist(s) shall relocate removed GGS in accordance with Condition of Approval 11.67).

Within the Project construction site and three-foot boundary, the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall investigate all burrows within suitable upland habitat outside of established ESAs using a CDFW-approved methodology (see Condition of Approval 11.62.2) to determine whether the burrows are occupied by GGS. The Designated Biologist(s) shall monitor to determine vacancy, then block unoccupied burrows (e.g., less than three feet long with dead ends) by installing an object approved in advance, in writing by CDFW, to prevent GGS from entering and using the burrow during Covered Activities. The Designated Biologist(s) shall remove the object immediately after Covered Activities are completed in that work site when they have determined that potential resumed use of the burrow will not result in harm to GGS. The Designated Biologist(s) shall attempt to expose and identify any snakes found in burrows and relocate any individuals who do not move out of harm's way on their own in accordance with the GGS Relocation Plan (Condition of Approval 11.67). Permittee shall avoid disturbing any known or potentially occupied burrows unless they are in an area of direct ground disturbance (e.g., grading areas, excavation areas) or their location poses a risk of direct harm to GGS. Permittee shall not destroy or modify burrows or exclude GGS from burrows that are beyond the direct footprint of ground disturbance. Where the Permittee cannot avoid burrows (e.g., within footprint of ground disturbing activities), they shall be carefully hand excavated by the Designated Biologist prior to trenching activities consistent with Condition of Approval 11.62.2 and any GGS found during excavation that does not leave of their own volition shall be relocated according to the GGS Relocation Plan (see Condition of Approval 11.67).

11.57 Mowing.

Permittee shall not remove vegetation within established ESAs, avoidable burrows, burrow complexes, and suitable refugia to the greatest extent practicable. If Covered Activities require the removal or maintenance of vegetation, Permittee shall limit mowing to occur only between July 1 to September 30 in suitable GGS habitat and after a Designated Biologist(s) and/or Biological Monitor(s) has performed clearance surveys to ensure absence of GGS. Within 24 hours (one calendar day) following the clearance survey (see Condition of Approval 11.56) in Project construction sites or Project maintenance areas with high grass cover or vegetation, Permittee shall mow the flagged site or area and a three-foot boundary around the Project site or area, where feasible. Permittee shall use light mowing equipment limited to string trimers (e.g., weed whackers) that will not crush burrows or impact the ground. Permittee shall maintain vegetation at a minimum of six inches to avoid injuring GGS and to retain grassy cover and that allows the Designated Biologist(s) and/or Biological Monitor(s) to see and survey for snakes and burrows. The Designated Biologist(s) and/or Biological Monitor(s) shall be onsite during all mowing and trenching activities. The Designated Biologist(s) and/or Biological Monitor(s) shall walk in front of the mower and monitor for GGS emerging from the vegetation or burrows. If GGS is found, Permittee shall cease mowing until GGS moves out of the way on its own or, if needed, is relocated by the Designated Biologist(s) (see Condition of Approval 11.67). Any Permittee request to use other mowing equipment (e.g., for locations away from refugia and

burrow complexes) shall be subject to CDFW approval. Permittee shall mow in rows and not in a circular pattern that would concentrate animals in the center of a construction site. Permittee shall start mowing farthest from the water to force snakes toward the water when mowing fields near streams or canals. By cutting the swath along the water last, the snakes will be allowed to maintain cover and escape. Permittee shall limit mowing on banks to one side of the channel per year to maintain cover and escape. Permittee shall avoid mowing emergent vegetation (i.e., tule, cattail, sedge, rush) to the maximum extent feasible. Permittee shall not disc or till upland vegetation as disking is more hazardous to GGS that are underground than mowing. Permittee shall leave vegetation on levees, canal sides, and other upland habitat within 200 feet of suitable aquatic features wherever possible.

11.58 Seasonal Work Window.
Permittee shall confine all fill, vegetation removal, and other ground disturbing Covered Activities during preconstruction and construction activities or Project maintenance areas within suitable GGS aquatic and upland habitat (areas within 200 feet of aquatic habitat) to the GGS active period between May 1 and October 1 unless otherwise approved by CDFW per Condition of Approval 11.59.

11.58.1 Work Period in Low Rainfall/Dry Weather Only. The work period for Covered Activities within suitable GGS habitat shall be restricted to periods of low rainfall (less than 0.25 inch per 24-hour period) and periods of dry weather (with less than a 40 percent chance of rain) unless otherwise approved by CDFW. Permittee shall monitor the National Weather Service 72-hour forecast for all Project Phases of Covered Activities within the Project Site. No work shall occur during a dry-out period of 24 hours after the above referenced wet weather. Weather forecasts shall be provided to CDFW upon request.

11.59 Seasonal Work Restriction Exception.
Permittee may conduct Covered Activities within suitable GGS habitat prior to May 1 during the GGS inactive season only after consultation with and obtaining written approval from CDFW, which approval may require additional measures to minimize and/or avoid potential impacts to GGS during activities prior to May 1. Permittee shall provide evidence from the National Weather Service that ambient daytime temperature has remained within a minimum range of 45°F (±5°F) and 65°F (±3°F) for two weeks. Permittee shall provide evidence of consistent warm weather to CDFW for approval 48 hours preceding construction activities. CDFW may consider requests to work outside of the seasonal work window on an activity-by-activity basis. Permittee may also conduct Covered Activities within suitable GGS habitat outside of the seasonal work restriction if initial ground disturbance removing suitable habitat within a construction site has been conducted prior to September 15 and the construction site already has an exclusion barrier in place (see Condition of Approval 11.62). Permittee shall submit these requests in writing for review and approval by CDFW. Requests shall include a justification for the request and any additional information CDFW determines necessary.

11.60 Channel Management and Seasonal Work Restriction.
Permittee shall conduct all in-channel Covered Activities only between October 2 and April 30 (GGS inactive period). In-channel work shall be limited to removal of accumulated sediments, acoustic monitoring, and aquatic vegetation removal in canals or other areas where GGS may be overwintering within 200 feet of the activity, until CDFW-approved surveys (Condition of Approval 11.38) have occurred and absence of overwintering GGS has been confirmed by the Designated Biologist(s). Permittee shall confine all excavation/dredging to the channel bed (below the high-water mark). If in-channel work needs to occur within the GGS active season, Permittee shall request written approval by CDFW and have the Designated Biologist(s) and/or Biological Monitor(s) survey following CDFW-approved protocols (Condition of Approval 11.38) for GGS prior to initiating work and monitor throughout the duration of Covered Activities for GGS.

Permittee shall not disturb canal banks as many GGS overwinter very close to (i.e., within three to six feet of) canals. Hand clearing of canals or light mowing equipment limited to string trimmers (e.g., weed whackers), shall be used for removal of excessive vegetation or debris if such removal is needed. Other mowing equipment requested by the Permittee shall be subject to CDFW approval. Permittee shall place any spoils from canal clearing in a designated location, rather than along bank tops, to prevent burying or crushing snakes basking on the banks or trapping snakes taking cover in burrows or bank-top soil crevices. Any equipment shall be operated from the bank top and Permittee shall excavate from only one side of the canal during a given year so emergent vegetation and bank side cover is left in place.

Permittee shall haul any dredged or excavated material off site or place it in areas lacking rodent burrows, riprap, or other materials that might provide dormant period cover for GGS. Upland habitat shall not be disced. Permittee shall not remove vegetation on levees and canal sides to the maximum extent feasible.

11.61 Dewatered GGS Aquatic Habitat.
If Permittee cannot avoid conducting Covered Activities in suitable GGS aquatic habitat, Permittee shall dewater the habitat within the Project construction site prior to starting the Covered Activity. Permittee shall limit dewatering to the immediate Project construction site and shall ensure that alternative aquatic habitat is available. The Designated Biologist(s) shall be on site during all dewatering activities, particularly when dewatering begins and when the level of water reaches the level of the intake, to salvage and relocate any GGS that cannot swim away from the suction cups and escape on its own. If Project personnel see GGS at the screen during dewatering, they shall shut down the pump and contact the Designated Biologist(s) to relocate the snake (see Condition of Approval 11.67). Permittee shall ensure that habitat remains dry for at least 15 consecutive days after April 15 prior to excavating or filling aquatic habitat. Permittee shall limit dewatering to April 15 – October 1 unless otherwise approved by CDFW. Following dewatering of aquatic habitat, the Designated Biologist(s) shall survey for GGS in all suitable GGS aquatic or upland habitat within the

Project construction site that is not within the established ESAs. If GGS is observed, the Designated Biologist(s) shall follow the GGS Relocation Plan (Condition of Approval 11.67). Permittee and the Designated Biologist(s) shall obtain written approval from CDFW for any deviation from this measure and shall coordinate alternative actions with CDFW. Once habitat is deemed free of potential GGS, exclusion fencing shall be installed around the Project construction site (see Condition of Approval 11.62) so no snakes or other wildlife may reenter prior to or during construction.

11.62 Exclusion Barrier Installation and Maintenance.
Prior to initiation of ground disturbing Covered Activities (e.g., staging, vegetation removal) and within 24 hours after preconstruction surveys and burrow excavations are completed (see Conditions of Approval 11.56 and 11.62.2), Permittee shall erect a high visibility exclusion barrier to exclude GGS from entering the Project construction site. Permittee shall place the barrier along the perimeter of the Project construction site within all suitable GGS habitat where ground disturbing activities will occur to isolate activities from suitable GGS upland and aquatic habitat. Permittee shall install the exclusion barrier at least 10 feet from the edge of the aquatic habitat unless otherwise approved by CDFW. The Designated Biologist(s) and/or Biological Monitor(s) shall inspect the area prior to and during installation, including trenching, vehicular access, erecting fencing material, installing stakes, and any other activity requiring vehicle or foot traffic in suitable habitat. After installation, the Designated Biologist(s) and/or Biological Monitor(s) shall inspect the barrier daily and during and after rain events (rainfall predicted to exceed 0.25 inches during a 24-hour period). Permittee shall maintain the barrier throughout the entire duration of Covered Activities and repair it immediately to ensure that it is functional and without defects, that fencing material is taut so snakes are unable to climb over, and that the bottom edge of the fencing material remains buried. If a defect is identified, the Designated Biologist(s) and/or Biological Monitor(s) shall have authority to stop Covered Activities within 50 feet of the defect. After the barrier is repaired, the Designated Biologist(s) shall conduct a survey using CDFW-approved protocol (see Condition of Approval 11.38) within 24 hours (one calendar day) prior to re-initiation of Covered Activities and carefully search within and along exclusion fencing and in pipes, culverts, or other potential places of hiding and entrapment (see Conditions of Approval 11.14 and 11.15) and beneath vehicles and equipment immediately before they are moved (see Condition of Approval 9.12). The Designated Biologist(s) shall capture and relocate any GGS found that does not safely leave the Project construction site on its own in accordance with Condition of Approval 11.67. The Permittee shall submit the fencing design and locations as part of the appropriate Construction Phase Authorization Package.

Permittee shall avoid damage to burrows to the maximum extent possible during installation of the exclusion fencing. When Permittee cannot avoid burrows, burrows shall be hand excavated by the Designated Biologist(s) prior to trenching activities. The Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall watch for burrows on either side of the barrier during trenching. If GGS are discovered during barrier construction, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to stop barrier construction until the GGS leaves the

construction site on its own volition, is relocated in accordance with Condition of Approval 11.67, and unoccupied burrows that appear to extend under the fencing are blocked or excavated by the Designated Biologist (see Condition of Approval 11.62.2). Permittee shall maintain vegetation within three feet on the side of the fence away from the Project construction site, unless otherwise approved by CDFW, at a maximum height of six inches to discourage GGS from using vegetation along the barrier fencing and to increase visibility of GGS near the barrier. Permittee shall use hand tools to trim or remove vegetation. The Designated Biologist(s) and/or Biological Monitor(s) shall monitor all vegetation removal to minimize impacts to GGS.

Fencing shall consist of taut wildlife exclusion fencing supported by stakes on the Project side only as snakes may be able to climb over the fencing via stakes. Permittee shall not use plastic monofilament netting for the exclusion barrier (see Condition of Approval 11.28). Fencing shall be buried a minimum of six inches below ground and soil shall be compacted against both sides of the fence for its entire length to prevent animals from passing under the fence. Fencing shall extend at least 24 inches above the ground and shall be constructed with a top climber barrier lip so that GGS cannot scale and go over the barrier into the Project construction site. Fencing that is overlapped to connect different sections of material shall be sealed in a manner that does not allow GGS to become entrapped. Permittee shall design the exclusion barrier to prevent GGS from climbing over it or under it through burrows or cracks. Permittee shall ensure there are no gaps or holes in the barrier except for the access areas required for vehicular and pedestrian traffic and one-way exit funnels to allow GGS to move out of the construction site but not reenter. The fence shall include multiple one-way exit funnels flush to the ground every 150 feet to allow GGS and other species to leave the Project construction site. At any access opening in the fence, the fence shall turn 180 degrees away from the access point for a length of approximately 10 feet and at a minimum width of one foot from the original fence to redirect GGS outside of the barrier back to intact habitat. Access points shall be flush to the ground to prevent GGS or other wildlife from entering the barrier. Permittee shall instruct Project personnel to ensure access gates are securely closed when not in use. If access gates are left open and unattended, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to stop Covered Activities until GGS surveys are repeated consistent with Condition of Approval 11.56, GGS found are relocated from the Project construction site (see Condition of Approval 11.67), and additional burrows are checked and blocked or excavated in accordance with Condition of Approval 11.62.2. The barrier shall remain in place until the Permittee completes all Covered Activities, and all construction equipment has been removed from the Project construction site. Permittee shall remove the barrier and all barrier materials upon completion of construction-related Covered Activities.

11.62.1 Refugia Flagging. The Designated Biologist(s) and/or Biological Monitor(s) shall identify and flag all potential burrows, soil cracks, crevices, or other habitat features that are outside of the area planned for direct disturbance (e.g., grading, excavation, etc.) and within the Project construction site, no less than five days prior to earthmoving activities in those areas. Permittee

shall establish a 50-foot radius no-activity buffer around flagged burrows that can be avoided within the preconstruction activity sites, constructions sites, access roads, SCADA and transmission line construction, and maintenance sites, and the three-foot buffer zone. Permittee shall avoid flagged locations during Covered Activities to the maximum extent feasible. In areas planned for direct disturbance, the Designated Biologist(s) and/or Biological Monitor(s) shall be onsite to monitor for potential GGS during ground disturbing activities. Areas with a high concentration of suitable burrows or refugia spots shall be demarcated as ESAs consistent with Condition of Approval 11.54 and avoided to the greatest extent possible. Proposed ESAs and any area containing suitable burrows or refugia shall be identified as part of the appropriate Phase Authorization Package (Condition of Approval 6.1 and 6.2) for CDFW review and approval prior to the initiation of any Covered Activity. Signs, stakes, and/or flags shall be clearly distinguishable from markings used to delineate work areas. If burrows cannot be avoided by a no-activity buffer and are within suitable upland habitat, Permittee shall monitor to determine vacancy and block the burrows or excavate occupied burrows as described in Condition of Approval 11.62.2.

11.62.2 Burrow Excavation. Permittee shall avoid disturbing any known or potentially occupied burrows unless they are in an area of direct ground disturbance (e.g., grading areas, excavation areas) or their location poses a risk of direct harm to GGS. The Designated Biologist shall first monitor to determine vacancy and attempt to expose and identify any snakes found in burrows, then block the entrance of unoccupied burrows (e.g., less than three feet long with dead ends) by installing an object approved in advance in writing by CDFW, to prevent Covered Species from entering and using the burrow during Covered Activities. The Designated Biologist(s) shall remove the object immediately after Covered Activities are completed in that work site when they have determined that potential resumed use of the burrow will not result in harm to GGS. Permittee shall not destroy or modify burrows or exclude GGS from burrows that are beyond the direct footprint of ground disturbance. Burrows in an area of temporary disturbance shall remain intact. Where the Permittee cannot avoid burrows (e.g., within footprint of ground disturbing activities), they shall be carefully excavated prior to any trenching activities and any GGS found during excavation that does not leave of its own volition shall be relocated according to Condition of Approval 11.67. All excavation of potential refuge features, including identified burrows, soil cracks, crevices, individual rocks and rock piles, and other accessible features for GGS, shall be carried out by hand by the Designated Biologist(s). Burrows shall be excavated to the terminus of each burrow.

11.63 Initial Site Clearing and Monitoring.

Permittee shall confine ground disturbance that could result in take of GGS (clearance work) to the most minimal area necessary to conduct Covered Activities. The Designated Biologist(s) with assistance (if needed) from Biological Monitor(s) shall be onsite during initial ground disturbing activities to assess the Project construction site each morning before construction work begins. The Designated Biologist(s) and/or Biological Monitor(s) shall monitor burrows that have not been

blocked or excavated for emerging GGS. The Designated Biologist(s) and/or Biological Monitor(s) shall also check any potential hiding places in the Project construction site, such as cracks, crevices, or cavities; stockpiles that have been left for more than 24 hours where cracks or crevices may have formed; and under or around vehicles and equipment before they are moved. If GGS is discovered, the Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to delay construction activities until the GGS leaves the construction site of its own volition or is removed from the construction site by the Designated Biologist(s) in accordance with Condition of Approval 11.67 and Permittee implements appropriate corrective measures to ensure GGS will not enter the construction site through the exclusion barrier.

11.64 Disposal of Debris.
Permittee shall use one, but not both, of the following methods to handle natural debris (debris composed of on-site vegetation, usually removed from waterways, not including spoils from dredging):

(1) Debris shall be placed in piles 200 feet from aquatic habitat and within the exclusion barrier (i.e., outside of fenced habitat). Debris piles shall not be disturbed or removed once placed; or

(2) Debris shall be immediately hauled off-site for disposal within 24 hours to avoid GGS from colonizing debris piles.

11.65 Preconstruction Activities, SCADA and Transmission Line Construction and Maintenance, Access Road Construction and Maintenance Activities.
Permittee shall delineate suitable GGS aquatic habitat within preconstruction field investigations sites and SCADA, transmission line, and access road construction, and maintenance sites with highly visible poly wire or other flagging approved by CDFW to demarcate it as a disturbance-free zone (see Condition of Approval 11.55). Permittee shall not conduct these Covered Activities in suitable GGS aquatic habitat. The Designated Biologist(s) and/or Biological Monitor(s) shall delineate suitable upland habitat with flagging or other high-visible markers within the Covered Activity sites. Permittee shall not conduct preconstruction field investigations and SCADA, transmission line, and access road construction, and maintenance sites in suitable GGS upland habitat during the inactive season from October 2 – April 30 unless otherwise approved by CDFW. For Covered Activities conducted in suitable upland habitat during the active season of May 1 - October 1, Permittee shall implement the following measures to minimize disturbance to Covered Species to the greatest extent possible:

- Permittee shall confine movement of heavy equipment to existing access roads or to locations outside of suitable GGS upland habitat to the extent practicable.

- Project personnel shall limit vehicle speed to 10 miles per hour within exploration sites and on non-public access roads.

- The Designated Biologist(s) and/or Biological Monitor(s) shall be on-site during selection of the field investigation site, ingress and egress, and during set-up activities to guide Project personnel to avoid visible burrows until access routes are clearly established.

- The Designated Biologist(s) and/or Biological Monitor(s) shall conduct daily surveys prior to the start of Covered Activities each day to check for burrows within the exploration site. The Designated Biologist(s) and/or Biological Monitor(s) shall either flag burrows to be avoided by a 50-foot radius no-activity buffer or designate and flag work sites, staging areas, and ingress/egress routes that avoid potentially occupied burrows.

- If GGS, or any snake resembling GGS, is detected retreating into or exiting a burrow, the Designated Biologist(s) shall flag the burrow to be avoided by the no-activity buffer.

- If Project personnel find GGS, or any snake resembling GGS, within the site, they shall allow GGS to leave the site on its own or notify the Designated Biologist(s) to relocate the GGS outside the Project Site, before continuing Covered Activities (see Condition of Approval 11.67).

- Permittee shall only use mowing for vegetation control within suitable GGS upland habitat. Permittee shall use light mowing equipment limited to string trimmers (e.g., weed whackers) that will not crush burrows or impact the ground. Any request by Permittee to use other mowing equipment shall be subject to CDFW approval (e.g., for locations away from refugia and burrow complexes). Permittee shall limit mowing on channel banks to one side of the channel per year to maintain cover for GGS. Permittee shall avoid mowing emergent vegetation such as tule, cattail, sedge, or rush to the greatest extent practicable and shall keep grassy vegetation at a minimum height of six inches.

- Permittee shall restore temporarily disturbed habitat with appropriate native vegetation in accordance with the Restoration and Revegetation Plan (see Condition of Approval 12.3.3).

- Permittee shall ensure maintenance activities do not include ground disturbance activity that would crush burrows or entomb GGS within a burrow.

11.66 Restoration of Temporary Impacts.
Upon completion of preconstruction activities with temporary impacts or other activities considered to be temporary with required on-site mitigation and as identified in the appropriate Phase Authorization Package, Permittee shall restore all temporarily impacted GGS habitat onsite to pre-Project conditions or better by removing temporary fill, construction debris and stockpiled materials, regrading to the pre-existing contour if appropriate or a contour that would improve restoration

potential of the site with CDFW consultation and approval, and revegetating upland areas or replanting emergent vegetation in active channels and on banks with CDFW approved and available native plant species (see Revegetation Plan in Condition of Approval 12.3.3). The restoration effort shall comply with the *Guidelines for the Restoration and/or Replacement of Giant Garter Snake Habitat*.[44] Permittee shall monitor the restoration for one year or until restoration success is achieved as determined by the Designated Biologist(s) and/or Biological Monitor(s) and CDFW.

11.67 GGS Mortality Reduction and Relocation Plan.

Permittee shall prepare a GGS Mortality Reduction and Relocation Plan (GGS Relocation Plan) and submit it to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) prior to initiating Covered Activities. The GGS Relocation Plan shall include, but is not limited to, the name(s) of the Designated Biologist(s) who will relocate GGS individuals, the proposed methods of capture, handling, and relocation; a quantification of the amount, relative location, and quality of suitable habitat (aquatic and upland) including invasive and non-native species present, available upland burrows for aestivation and high-water refugia, suitable prey items, and potential barriers to movement; methods for hand excavation of burrows that cannot be avoided during Covered Activities; a map depicting the construction site, proposed relocation areas, and areas of suitable aquatic and upland habitat; site photos; the description of the proposed relocation area(s) for captured GGS, within 300 feet of the Covered Activities site(s) or at a distance agreed to by CDFW, and written permission from the landowner to use their land as a relocation site; and identification of a wildlife rehabilitation center or veterinary facility that routinely evaluates or treats reptiles.

11.67.1 GGS Handling. GGS may only be captured and handled by the CDFW-approved Designated Biologist(s) (see Condition of Approval 9.2.1). If a GGS, or a snake resembling GGS, is found on the Project construction site or three feet beyond the construction site, the Designated Biologist(s) shall be notified immediately and shall determine whether the animal should be captured and handled. The Designated Biologist(s) shall minimize capture and handling to the greatest extent feasible as most reptiles experience stress in response to capture and short-term confinement. GGS encountered in Project construction sites shall be allowed to leave on their own volition. The Designated Biologist(s) shall only relocate GGS if the animal is directly threatened by immediate Covered Activities and the animal is unable to move to a safe area on its own. Relocated GGS shall be released as soon as possible. The Designated Biologist(s) shall only relocate GGS to areas identified in the Relocation Plan. The Permittee's Designated Representative or the Designated Biologist(s) shall notify CDFW within 24 hours each time GGS is relocated. Notification to CDFW shall be via telephone and email, followed by a written incident report. Notifications shall include the date, time, location, and circumstances of the incident. The

[44] U.S. Fish and Wildlife Service (2007). Guidelines for restoration and/or replacement of giant garter snake habitat. U.S. Fish and Wildlife Service.

written incident report shall also be included in the Monthly Compliance Report (see Condition of Approval 10.12).

11.68 Notification of GGS Take or Injury.

Permittee shall immediately notify the Designated Biologist(s) if a GGS is injured or killed by a Covered Activity, or if a GGS is otherwise found dead or injured within the vicinity of the Project preconstruction activity, construction site, or maintenance area. The Designated Biologist(s) shall immediately take the GGS to a CDFW-approved wildlife rehabilitation or veterinary facility identified in the GGS Relocation Plan (see Condition of Approval 11.67) and contact the CDFW Representative, via email and telephone, within one business day to discuss the next steps. Permittee shall bear any costs associated with the care or treatment of such injured GGS. The initial notification to CDFW shall include information regarding the location, species, and number of animals taken or injured, the name of the facility where the animal was taken if applicable, and the ITP number. Following initial notification, Permittee shall send CDFW a written incident report within two business days to the CDFW Representative. The incident report shall include the date and time of the finding or incident, location of the animal or carcass or the name of the facility where the animal was taken, photographs, explanation as to the cause of take or injury if known, and any other pertinent information. The written incident report shall also be included in the Monthly Compliance Report (see Condition of Approval 10.12). Following the discovery of the injured GGS, the Designated Biologist(s) shall take the following steps:

11.68.1 Minor Injury. If the injury is minor or healing and the snake is likely to survive as determined by the Designated Biologist(s), the snake shall be released immediately in accordance with the GGS Relocation Plan (Condition of Approval 11.67).

11.68.2 Major or Serious Injuries. If it is determined that the GGS individual has major or serious injuries as a result of Project-related activities, the Designated Biologist(s) shall immediately take it to the nearest CDFW-approved wildlife rehabilitation or veterinary facility. If taken into captivity, the individual shall remain in captivity and shall not be released into the wild unless it has been kept in quarantine and the release is authorized by CDFW and USFWS. Permittee shall bear any costs associated with the care or treatment of such injured GGS. The circumstances of the injury, the procedure followed, and the final disposition of the injured animal shall be documented in the written incident report as described in Condition of Approval 11.68.4).

11.68.3 Recently Deceased. If the GGS is found recently deceased (as evidenced by lack of odor or decomposition), the carcass shall be immediately bagged, labeled, and preserved in a freezer. The label shall include time and date, GPS location, circumstances surrounding death (if known), and ITP tracking number. CDFW shall be consulted regarding specimen disposal.

11.68.4 Written Report. Following initial notification, Permittee shall send CDFW a written incident report within two business days of the discovery. The report shall include the date and time of the finding or incident, GPS location of the GGS, photographs of the location and the GGS, circumstances around the cause of take or injury, and any other pertinent information. The report shall also be included in the Monthly Compliance Report (see Condition of Approval 10.12).

Swainson's Hawk (SWHA) Measures

11.69 SWHA Avoidance.
Project personnel shall access Project construction sites using existing routes and shall not cross SWHA habitat outside of or enroute to the Project construction site(s) unless otherwise approved by CDFW. Permittee shall restrict Project-related vehicle traffic to established roads, staging, and parking areas. Permittee shall contact CDFW for written approval if the Permittee determines construction of routes for travel is necessary outside of the Project construction area. Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project construction sites using, to the extent possible, previously disturbed areas and as identified within the appropriate Project Phase Authorization Package (Condition of Approval 6.1 and 6.2). Permittee shall implement dust control measures during Covered Activities to facilitate visibility for monitoring of SWHA by the Designated Biologist(s) and/or Biological Monitor(s).

11.70 Seasonal Work Restriction.
Where a Project construction site occurs within 0.5 miles of suitable known or occupied nest trees identified by the Designated Biologist(s), Permittee shall limit Covered Activities to occur only outside the SWHA nesting season (February 28 – September 15), to the extent practicable. Where Covered Activities cannot be restricted to more than 0.5 miles from an occupied nest tree during the nesting season, Permittee shall restrict the Covered Activities to not occur during the period of egg laying until after young have fledged, as determined by the Designated Biologist(s), to the maximum extent practicable. If not practicable, Permittee shall initiate Covered Activities prior to egg laying to allow time for SWHA to acclimate to disturbance before eggs are laid. When it is not practicable to restrict work to outside the breeding season or to restrict work during the period of egg laying to post-fledging, Permittee shall submit plans to initiate Covered Activities and minimize impacts to SWHA specifically to CDFW for written approval prior to conducting any Covered Activities.

11.71 SWHA Surveys.
The Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall conduct CDFW approved SWHA survey protocols (Condition of Approval 11.38) to identify the presence of suitable SWHA nest trees and known nest trees (occupied within one or more years of the past five years) within 0.5 miles of each preconstruction activity site, SCADA, transmission line, and access road sites, construction site, and postconstruction maintenance site, prior to initiation of any

Covered Activities. Permittee shall submit the SWHA preconstruction survey results to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2). Subsequent survey efforts conducted during the Project construction phase(s) shall occur each year Covered Activities are expected to occur in SWHA habitat and shall be reported to CDFW by the Permittee within the Monthly Compliance Reporting (Condition of Approval 10.12) and summarized within each Annual Status Report (Condition of Approval 10.13). Permittee shall map all existing or potential nesting or foraging sites and provide these maps to CDFW (see Condition of Approval 10.3). Nesting sites, including both currently occupied nesting sites and sites known to have been occupied within the last five years, shall be noted on plans that are submitted as a part of the appropriate Construction Phase Authorization Package.

Suitable nest trees shall be defined by Condition of Approval 10.4. Survey efforts shall occur each year Covered Activities are expected to occur in or within 0.5 miles of SWHA nesting habitat. Permittee shall ensure surveys for nesting SWHA are conducted in all suitable and known nest trees identified by the Designated Biologist(s) and/or Biological Monitor(s) and are consistent with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*,[45] or methodology modified with written approval from CDFW. The Designated Biologist(s) shall include the location of all known and occupied nest trees present within 0.5 mile of the Project construction site in the Annual Status Report. A nest tree shall be considered occupied from the time the SWHA pair starts constructing the nest until the young leave the nest, or until the Designated Biologist(s) determine(s) the nesting attempt failed and the nest is abandoned.

- January 1 – March 20: A minimum of one survey shall be conducted to determine potential nest locations. After March 1, the Designated Biologist(s) are likely to observe SHWA individuals staging in traditional nest territories.

- March 20 – April 5: A minimum of three surveys during sunrise to 10:00 AM, and during 4:00 PM to sunset, shall be conducted.

- April 5 – April 20: A minimum of three surveys during sunrise to 12:00 PM, and during 4:30 to sunset, shall be conducted.

- April 21 – June 10: Permittee shall not initiate surveys during this time as nests are extremely difficult to locate this time of year and surveying activities may threaten nesting SWHA. Only monitoring of known nest sites shall be permitted during this time.

[45] Swainson's Hawk Technical Advisory Committee (2000). Recommended timing and methodology for Swainson's hawk nesting surveys in California's Central Valley. May 2000.

- June 10 – July 30: A minimum of three surveys during sunrise to 12:00 PM, and during 4:00 PM to sunset, shall be conducted as young are active and visible and parents will be making numerous trips to the nest and/or soaring above, or perched near or on the nest tree.

Results of each survey shall be submitted to CDFW as part of the Monthly Compliance Reporting (Condition of Approval 10.12) and summarized within the Annual Status Report (Condition of Approval 10.13).

11.72 No-Disturbance Buffer.
Disturbance of birds of prey during the nesting season may lead to failure to nest, nest desertion, long-term temporary abandonment, shifts in home-range, lowered reproductive success, and death of eggs and young. Where Covered Activities must occur within 0.5 miles of an occupied SWHA nest tree, Permittee, the Designated Biologist(s), and the Biological Monitor(s) shall ensure that no Covered Activities occur within 656 feet (200 m) of an occupied SWHA nest tree during the nesting season by establishing a 656-foot-radius no-activity buffer around the occupied nest tree. The buffer shall remain in place and be maintained until the end of the breeding season or until the last chick is no longer dependent upon parents and has left the nest. Permittee shall clearly delineate the buffered area using fencing or other high visibility marking. Permittee shall delineate SWHA nests with different materials than those used to delineate nearby Project construction sites. The buffer zone design and location shall be submitted to CDFW for approval as part of the appropriate Construction Phase Authorization Package. Permittee shall not conduct any Covered Activity within the 656-foot buffer unless a smaller buffer is approved in writing by CDFW, however, Permittee shall not conduct any Covered Activity within, at minimum, 150 feet of an occupied nest tree. If a Covered Activity must occur within 0.5 miles of an occupied nest tree, Permittee shall follow the requirements in Condition of Approval 11.73. Permittee shall remove all materials used for delineation upon completion of the Project.

11.73 SHWA Nest Monitoring.
If a nesting SWHA is found at or within 0.5 miles of a Project construction site(s), the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall be present to monitor the behavior of the potentially affected SWHA. Permittee shall implement the following monitoring where the Covered Activities within 0.5 miles of an occupied nest tree must occur. If a nesting bird monitoring plan is prepared by the Designated Biologist(s) and approved in writing by CDFW as part of a Construction Phase Authorization Package (Condition of Approval 6.2), that plan shall prevail where it differs from the measures below.

- Five days and three days prior to the initiation of Covered Activities at any Project construction site where an occupied nest tree is within 0.5 miles of the Covered Activity, the Designated Biologist(s) shall observe the occupied nest(s) for at least one hour or until nest status can be determined. The Designated Biologist(s) shall document nesting status and

behaviors to compare to nesting status and behaviors after Covered Activities begin. Permittee shall report the results of preconstruction monitoring to CDFW within 24 hours of each survey.

- Where an occupied nest tree occurs between 150 and 325 feet from Covered Activities, the Designated Biologist(s) shall observe the nest for at least four hours per day during Covered Activities to ensure the SWHA are engaged in normal nesting behavior. Permittee shall limit Covered Activities to between 30 minutes after sunrise and 30 minutes before sunset.

- Where an occupied nest tree occurs between 325 and 650 feet of Covered Activities, the Designated Biologist(s) shall observe the nest for at least two hours per day during Covered Activities to ensure the SWHA are engaged in normal nesting behavior.

- Where an occupied nest tree occurs between 650 and 1,300 feet of Covered Activities, the Designated Biologist(s) shall observe the nest for at least one hour on at least three days per week during Covered Activities to ensure the SWHA are engaged in normal nesting behavior and to check the status of the nest.

- Where an occupied nest tree occurs between 1,300 and 2,640 feet of Covered Activities, the Designated Biologist(s) shall observe the nest for at least one hour on at least one day per week during Covered Activities to ensure the SWHA are engaged in normal nesting behavior and to check the status of the nest.

11.74 Disturbance of Occupied Nest Tree.
Permittee shall prohibit physical contact with an occupied nest tree throughout the breeding season (see Condition of Approval 11.70). Permittee shall not designate any employee break, rest, or meeting areas in proximity to active SWHA nests. All Project personnel within 656 feet shall be out of the line of sight of the occupied nest tree during breaks, rests, or meeting areas unless prior approval has been obtained in writing from CDFW. In consultation with the Designated Biologist(s), Permittee shall stage stationary, not in-use equipment outside of sight lines from the SWHA nests.

11.75 Authority of the Designated Biologist(s).
If, during Covered Activities, the Designated Biologist(s) determine(s) that nesting SWHA within 0.5 miles of the Project construction site are exhibiting distress and/or abnormal nesting behavior from Covered Activities (swooping/stooping, excessive vocalization (e.g., distress calls), agitation, failure to remain on nest, failure to deliver prey items for an extended time period, failure to maintain nest, etc.), the Designated Biologist(s) shall have the authority to stop Covered Activities and shall immediately notify Designated Representative. The Designated Representative shall contact CDFW within 24 hours to determine additional protective measures to be implemented. The Designated Biologist(s) shall:

(1) Stop Covered Activities until additional protective measures are implemented;

(2) Continue monitoring and ensure additional protective measures remain in place until the Designated Biologist(s) in coordination with CDFW determines SWHA behavior has normalized;

(3) Determine if additional protective measures are ineffective and stop Covered Activities until the additional protective measures are modified; and

(4) Continue monitoring until it has been determined by CDFW that the SWHA behavior has normalized. The Designated Representative or Designated Biologist shall notify CDFW within 24 hours if nests or nestlings are abandoned and notify CDFW whether abandoned nestlings are still alive.

The Designated Biologist(s) shall work with CDFW to determine appropriate actions. If no occupied SWHA nests initially occur at or within 0.5 mile of the Project construction site, any discovery of nests shall trigger the monitoring and records required under this Condition of Approval as well as Conditions of Approval 11.72, 11.73, and 11.74.

11.76 Nest Tree Avoidance. Permittee shall avoid removal of known SWHA nest trees and suitable nest trees to the maximum extent practicable. If a known nest tree must be removed for Covered Activities, Permittee shall notify and obtain written approval from CDFW. The notification shall include the location of the known nest tree, conditions to offset the loss of the nest tree, and the timing of removal, which shall generally be September 16 – February 28. Permittee shall not remove any occupied nest tree during nesting season, until the last young have left the nest, as verified by the Designated Biologist(s).

11.77 Vegetation Removal.
Permittee shall conduct removal of woody vegetation (trees and shrubs) only between September 16 - February 28 of any construction year to avoid impacts to nesting birds, unless preconstruction surveys are conducted by the Designated Biologist(s) and recently used SWHA nests or active SWHA nests are determined to be absent from the trees and/or shrubs to be removed. The Designated Biologist(s) shall notify CDFW of survey results prior to any vegetation removal. If active or recently used SWHA nests are present, the Permittee shall not remove vegetation within 656 feet of SWHA nests. The Designated Biologist(s) and/or Biological Monitor(s) shall delineate, flag, and avoid any active nests until the nesting cycle is complete (refer to Condition of Approval 11.72).

11.78 Preconstruction Activities.
The Designated Biologist(s) and/or Biological Monitor(s) shall delineate suitable nesting habitat with flagging or other highly visible markers within each Project preconstruction site(s). Permittee shall restrict preconstruction activities to areas outside of the delineated nesting habitat. Permittee shall

conduct preconstruction activities such as field investigations outside of the nesting season to the maximum extent practicable. If such activities must occur during the nesting season, the Designated Biologist(s) shall survey the preconstruction activity site and within 0.5 miles for nesting SWHA. Permittee shall limit field investigation activities to at least 0.5 miles away from any occupied nest tree, unless otherwise approved by CDFW in writing.

11.79 Measures Specific to SCADA and Transmission Line Construction and Maintenance.
Permittee shall not use helicopters to string SCADA or transmission lines within 0.5 miles of an occupied nest tree. Permittee shall not remove or trim occupied nest trees for transmission line construction until after the breeding season has ended and the last of the young have left the nest. Permittee shall not remove or trim occupied nest trees during transmission line maintenance. If removal or trimming of an occupied nest tree needs to occur for human or wildlife safety, Permittee shall conduct removal or trimming consistent with Conditions of Approval 11.77, or otherwise with written approval and guidance from CDFW. Permittee shall avoid removal or trimming of known or suitable nest trees, to the extent practicable, during SCADA and transmission line stringing and reconductoring activities and during power and pole placement. Where practicable, Permittee shall place poles and lines outside of suitable nesting habitat, as delineated by the Designated Biologist(s). Permittee shall follow requirements in Condition of Approval 11.76 when removal or trimming of known or suitable nest trees cannot be avoided.

11.80 SWHA Mortality Reduction and Relocation Plan.
Permittee shall develop a SWHA Mortality Reduction and Relocation Plan (SWHA Relocation Plan) and submit it to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) prior to initiating Covered Activities. The SWHA Relocation Plan shall describe mortality reduction strategies and buffer sizes that Permittee will implement at the Project Site and shall describe the response procedure for each of the following scenarios, and shall be specific to the Project Phase:

(Scenario 1) Mortality or injury of adult SWHA prior to egg-laying

(Scenario 2) Mortality or injury of adult SWHA during egg-laying

(Scenario 3) Mortality or injury of adult SWHA after egg-laying

(Scenario 4) Abandonment of SWHA nest prior to egg-laying

(Scenario 5) Abandonment of SWHA nest during egg-laying

(Scenario 6) Abandonment of SWHA nest after egg-laying

(Scenario 7) Abandonment of SWHA nest after egg-hatching

(Scenario 8) Damage or destruction of nest tree with eggs or juvenile SWHA

(Scenario 9) Mortality or injury of juvenile SWHA

The SWHA Relocation Plan shall include, but not be limited to, methods for obtaining/trapping an injured SWHA or abandoned nestlings; a quantification of the amount, relative location, and quality of suitable habitat present; a map depicting construction, SWHA locations, and suitable habitats; site photos; and identification of an appropriate wildlife rehabilitation center or veterinary facility. SWHA shall only be captured and handled by the CDFW-approved Designated Biologist(s) with appropriate expertise in handling raptors.

11.81 Notification of SWHA Take or Injury.
Permittee shall immediately notify the Designated Biologist(s) if a SWHA is taken or injured by a Covered Activity, or if a SWHA is otherwise found dead or injured within the vicinity of the Project preconstruction activity site, construction site, or maintenance area. The Designated Biologist(s) shall immediately take the SWHA to a CDFW-approved wildlife rehabilitation or veterinary facility identified in the SWHA Relocation Plan (see Condition of Approval 11.80) and contact the CDFW Representative, via email and telephone, within one business day to discuss the next steps. Permittee shall bear any costs associated with the care or treatment of such injured SWHA. The Designated Biologist(s) shall immediately notify CDFW (within 24 hours) if nesting SWHA abandon the nest or exhibit distress and/or abnormal nesting behavior. Abnormal behavior includes, but is not limited to, swooping/stooping, excessive vocalization (distress calls), agitation, failure to remain on nest, and failure to deliver prey items for an extended time period. The Designated Biologist(s) or Designated Representative shall provide initial notification to CDFW by contacting the CDFW Representative. The initial notification to CDFW shall include information regarding the location, species, date, and circumstances of the event (e.g., time where the individual was found, number of animals taken or injured, description of abnormal nesting behavior, etc.), the name of the facility where the animal was taken if applicable, and the ITP Number. Following initial notification, Permittee shall send CDFW a written incident report within two business days to the CDFW offices listed in the Notices section of this ITP. The incident report shall include the date and time of the finding or incident, disposition of the SWHA, location of the animal or carcass or the name of the facility where the animal was taken, any photographs of the animal or the site it was found, explanation as to cause of take, injury, or nesting disturbance, and any other pertinent information. The written incident report shall also be included in the Monthly Compliance Report (see Condition of Approval 10.12).

Tricolored Blackbird (TRBL) Measures

11.82 TRBL Avoidance.
Permittee shall restrict Covered Activities to 45 minutes after sunrise and 45 minutes before sunset when Covered Activities occur within 1,300 feet of a breeding colony or roost site occupied by TRBL, unless otherwise approved by CDFW. The Designated Biologist(s) shall train Project personnel on the

required avoidance procedures, buffer zones, and protocols in the event that a TRBL flies into an active Project construction site (i.e., outside the buffer zone), as part of the education program described in Condition of Approval 9.4. To the maximum extent feasible, Permittee shall coordinate with the Designated Biologist(s) and CDFW to time the loudest or otherwise most disruptive Covered Activities outside periods where the TRBL, their nests/colony, their eggs, or their young are most vulnerable to disturbance.

11.83 Preconstruction Assessment.
Prior to the commencement of Covered Activities for each Project Phase, the Designated Biologist(s) shall conduct a habitat assessment consistent with CDFW-approved protocols (Condition of Approval 11.38) to determine if existing or potential nesting or foraging sites are present within the Project site and include areas within three miles of Project sites, where feasible. The preconstruction (i.e., baseline) assessment shall be completed during the breeding season (March 1 – September 15) prior to implementation of Covered Activities. Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. Within the Project Site and adjacent 1,300 feet when feasible, potential TRBL breeding, roosting, and foraging habitats are defined in Condition of Approval 10.4. Permittee shall map all existing or potential nesting or foraging sites and provide these maps to CDFW as part of the appropriate Phase Authorization Package (see Condition of Approval 10.3). Nesting sites, including both currently occupied nesting sites and sites known to have been occupied within the last five years, shall be noted on plans that are submitted as a part of a Phase Authorization Package (see Condition of Approval 6.1 and 6.2).

11.84 TRBL Surveys.
The Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall conduct CDFW approved TRBL survey protocols (Condition of Approval 11.38) to identify the presence of suitable nesting habitat and roosting habitat, within each preconstruction activity site, SCADA, transmission line and access road site, construction site, and maintenance area, prior to initiation of any Covered Activities. Permittee shall contact the UC Davis Tricolored Blackbird Portal Project staff, or another group as approved by CDFW, to acquire the most recent available colony information for inclusion in site-specific surveys. Permittee shall submit results of the preconstruction surveys to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) prior to initiating Covered Activities. Subsequent survey efforts conducted during the Project construction phase(s) or maintenance shall occur each year Covered Activities are expected to occur in TRBL habitat and shall be reported to CDFW by the Permittee within the Monthly Compliance Reporting (Condition of Approval 10.12) and summarized within each Annual Status Report (Condition of Approval 10.13). Permittee shall map all existing or potential nesting or roosting sites and provide these maps to CDFW (see Condition of Approval 10.3).

11.84.1 Nesting Habitat. Prior to the initiation of Covered Activities in a Project site and within 1,300 feet of the Project site unless otherwise approved by CDFW, the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall conduct preconstruction surveys to evaluate the presence of TRBL breeding colonies and suitable nesting habitat. Surveys shall be conducted during the breeding season (March 1 – September 15) one year prior to, and then again in the year of, the Covered Activities at the Project site. Survey efforts shall occur each year Covered Activities are expected to occur in or within 1,300 feet of TRBL habitat. During each year, surveys shall be conducted monthly in March, April, May, June, July, and September. If Covered Activities are initiated during the breeding season, the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall conduct three surveys within 15 days of commencement of Covered Activities, with one survey occurring within three days of initiating ground-disturbing Covered Activities within the Project site and 1,300 feet from the Project site. If there is a break in Covered Activities for one week or more, surveys shall be conducted three days prior to reinitiating Covered Activities. Permittee shall use a breeding season survey protocol approved by CDFW as part of the TRBL survey protocol (Condition of Approval 11.38). The Designated Biologist(s) and/or Biological Monitor(s) shall delineate suitable nesting habitat and breeding colonies with flagging or other visible marking. If a nest is present, Permittee shall implement Conditions of Approval 11.85 and 11.86.

11.84.2 Roosting Habitat. Prior to initiation of Covered Activities, including nighttime construction and postconstruction maintenance activities, in a Project construction site or Project maintenance area and within 300 feet of a Project site, the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall conduct preconstruction surveys to establish the existence and use of roosting habitat by TRBL. Surveys shall be conducted during the nonbreeding season (September 16 – February 28) one year prior to, and then again in the year of, the Covered Activities. If construction is initiated at a site during the nonbreeding season, the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall conduct three surveys within 15 days prior to the Covered Activities, with one of the surveys occurring within three days prior to the start of the Covered Activity. If there is a break in construction of one week or more, surveys shall be conducted three days prior to reinitiating construction. Permittee shall use a roosting survey protocol approved by CDFW as part of the TRBL survey protocol (Condition of Approval 11.38). Permittee shall consider roosting habitat occupied by large mixed blackbird flocks to be occupied by TRBL if the Designated Biologist(s) cannot clearly identify TRBL absence within the flock. The Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall check suitable roost sites within 300 feet of Project sites that are not occupied at the time of preconstruction surveys in accordance with the roosting survey protocol approved by CDFW (Condition of Approval 11.38), to determine whether TRBL later occupies the roost site. The Designated Biologist(s) and/or Biological Monitor shall delineate occupied roost sites with flagging or visible markings consistent with Condition of Approval 11.90.

11.85 Nest Buffer Zone.

Permittee shall ensure Covered Activities avoid suitable nesting habitat within 1,300 feet of Project construction sites to the extent practicable. If active nests are found within the Project construction sites or within 1,300 feet of any Covered Activity and cannot be avoided, Permittee shall ensure that Covered Activities do not occur within a 1,300-foot diameter no-activity buffer zone surrounding the colony and associated suitable habitat during the breeding season (March 1 – September 15), until the young have fledged, or when approved by CDFW. Permittee shall clearly delineate the buffered area using fencing or other high visibility marking. Permittee shall delineate TRBL colonies with different materials than those used to delineate the Project construction site and maintain the fencing or markings through all weather events. The no-activity buffer zone may be reduced to a minimum of 300 feet, with written approval from CDFW, in areas with dense forest, buildings, or other features between the Covered Activities and the breeding colony; where there is topographic relief to protect the colony from excessive noise or visual disturbance; or where sound curtains have been installed. If TRBL colonizes habitat adjacent to Covered Activities after they have been initiated, Permittee shall reduce the disturbance through establishment of no-activity buffers or sound curtains as determined in consultation with CDFW. The buffer zone design and location shall be submitted to CDFW for approval as part of the appropriate Construction Phase Authorization Package.

11.86 Nest Buffer Monitoring.

If nesting TRBL is present within the Project construction site or within 1,300 feet of any Project-related Covered Activity, the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall monitor the colony daily for at least six hours per day throughout the nesting season to verify the Covered Activities are not disrupting the colony and to determine when the young have fledged, unless otherwise approved by CDFW. The Designated Biologist(s) will be on site daily while construction-related activities are taking place adjacent to the nest disturbance buffer. Work within the nest disturbance buffer shall not be permitted. If the Designated Biologist determines that Covered Activities are disrupting the colony and TRBL are exhibiting agitated behavior, the Designated Biologist(s) shall have the authority to stop Covered Activities until additional protective measures are implemented and the buffer size is increased to a distance necessary to result in no adverse impacts to the TRBL. The Permittee's Designated Representative and/or Designated Biologist(s) shall notify CDFW within 24 hours (one calendar day) to determine additional protective measures to be implemented. The Designated Biologist(s) and/or Biological Monitor(s) shall continue monitoring and ensure additional protective measures remain in place for the duration of the Covered Activities or until it is determined that TRBL behavior has normalized, as approved by CDFW. Additional protective measures may include, but are not limited to, increasing the size of the buffer, delaying Covered Activities until the colony is finished breeding and the young have fledged, temporarily relocating staging areas, or temporarily rerouting access to the construction site. The Designated Biologist(s) and/or Biological Monitor(s) shall have the authority to determine if the additional protective measures are ineffective and stop Covered Activities as needed until the additional protective measures are modified. If the Designated Biologist(s) and/or Biological

Monitor(s) determines that the colonies are at risk, CDFW shall be immediately consulted to determine the best course of action to avoid nest abandonment or take of individuals. The Designated Biologist(s) and/or Biological Monitor(s) shall notify CDFW within 24 hours (one calendar day) if nests or nestlings are abandoned. If the nestlings are still alive, the Designated Biologist(s) and/or Biological Monitor(s) shall work with CDFW to determine appropriate actions. Notification to CDFW shall be via telephone and email, followed by a written incident report submitted to CDFW within two days of the incident. Notifications shall include the date, time, location, and circumstances of the incident. The written incident report shall also be included in the Monthly Compliance Report (see Condition of Approval 10.12) and the incident shall be described in the Annual Status Report (Condition of Approval 10.13).

11.87 Roosting Site Buffer Zone.
Permittee shall ensure Covered Activities avoid suitable roosting habitat and a surrounding buffer area of 300 feet to the extent practicable. If occupied roosting habitat is found within the Project construction site, and the occupied roosting habitat cannot be avoided, Permittee shall not conduct Covered Activities within a 300-foot no-activity buffer surrounding the roost site (no-activity buffer). Permittee shall clearly delineate the buffered area using fencing or other high visibility marking. Permittee shall delineate TRBL roosting sites with different materials than those used to delineate the Project construction site and maintain the fencing or markings throughout all weather events. The no-activity buffer may be modified in areas with dense forest buildings, or other features between the Covered Activities and the occupied roost site; where there is sufficient topographic relief to protect the roost site from excessive noise and visual disturbance; or where sound curtains are installed, as approved by CDFW. The buffer zone design and location shall be submitted to CDFW for approval as part of the appropriate Construction Phase Authorization Package.

11.88 Roosting Site Buffer Monitoring.
Occupied roost sites that are within the 300 feet no-activity buffer (Condition of Approval 11.87) shall be monitored daily by the Designated Biologist(s), with assistance (if needed) from the Biological Monitor(s), for at least four hours each day or until the roost site is no longer occupied and consistent with CDFW-approved TRBL survey protocol (Condition of Approval 11.38) to verify that Covered Activities are not disrupting roosting TRBL. Permittee shall not conduct Covered Activities within the roosting site. If the Designated Biologist(s) determines that Covered Activities are disrupting roosting activity and TRBL are exhibiting agitated behaviors, Permittee shall put additional protective measures in place until TRBL behavior normalizes. Additional protective measures may include, but are not limited to, increasing the size of the roosting site no-activity buffer, delaying Covered Activities until the flock has left the roost site or until the end of the nonbreeding season, temporarily relocating staging areas, temporarily rerouting access to the construction site, or installation of sound curtains. Permittee and/or the Designated Biologist(s) shall contact CDFW if protective measures are not effectively reducing disruption to the roost site to discuss alternative measures.

11.89 Disturbance of Breeding Colonies and Roost Sites.
Permittee shall prohibit physical contact with a breeding colony during the breeding season (March 1 – September 15) from the time of nest site selection until after the chicks have fledged or colony is no longer active, as determined by a Designated Biologist(s) and approved by CDFW. Permittee shall prohibit physical contact with an occupied roost site during the nonbreeding season (September 16 – February 28). Project personnel shall not exit vehicles when inside the established no-activity buffer for breeding or roosting when TRBL are present (see Conditions of Approval 11.85 and 11.87). Permittee shall not designate any employee break, rest, or meeting areas adjacent to or within the no-activity nest and roosting buffers.

11.90 Delineation of Nesting and Roosting Habitat.
The Designated Biologist(s) and/or Biological Monitor(s) shall delineate suitable nesting and roosting habitat and buffers with flagging or other highly visible marking at Project sites for preconstruction activities, construction staging areas, SCADA, transmission line, and access road construction and maintenance sites. Permittee shall restrict these Covered Activities to Project Sites outside of the delineated habitat. Permittee shall prohibit conduct of Covered Activities within no-activity buffers established for breeding colonies or occupied roost sites (see Conditions of Approval 11.85 and 11.87).

11.91 Helicopters.
Permittee shall not use helicopters to string SCADA or transmission lines within 200 horizontal feet or 150 vertical feet of breeding colonies or occupied roost sites unless the helicopter is small enough to only cause a down draft of 15 to 18 miles per hour at up to 150 feet. Permittee shall only operate helicopters at these distances from the breeding colony or occupied roost site for up to three minutes in duration, no more than twice per day, with a minimum of four hours between helicopter activities. For larger helicopters or longer work periods, Permittee shall consult with CDFW to establish the appropriate buffer needed. Permittee shall ensure helicopters do not land or take off within 500 feet of any breeding colony or occupied roost site. This buffer may be modified in areas with dense forest, buildings, or other features between the helicopter landing/take-off site and the occupied roost site; where there is sufficient topographic relief to protect the roost site from excessive noise or disturbance; and as approved in writing by CDFW. Helicopters shall not be used between 45 minutes before sunset to 45 minutes after sunrise.

11.92 TRBL Mortality Reduction and Relocation Plan.
The Designated Biologist(s) shall prepare a TRBL Mortality Reduction and Relocation Plan (TRBL Relocation Plan) and submit it to CDFW as part of the appropriate Construction Phase Authorization Package prior to commencing Covered Activities (Condition of Approval 6.2). The TRBL Relocation Plan shall describe mortality reduction strategies and buffer sizes that Permittee will implement and shall describe the response procedure for each of the following scenarios, and shall be specific to each Project Site and phase:

(Scenario 1) Mortality or injury of adult TRBL

(Scenario 2) Mortality or injury of juvenile TRBL

(Scenario 3) Abandonment of TRBL colony

(Scenario 4) Damage or destruction of TRBL colony

The TRBL Plan shall include, but not be limited to, identification of capture and handling methods; methods of returning TRBL individuals back into the wild; a quantification of amount, relative location, and quality of suitable habitats; a map depicting construction, TRBL locations, and suitable habitat; site photos; and the identification of an appropriate wildlife rehabilitation center or veterinary facility. Only the CDFW-approved Designated Biologist(s) with appropriate expertise in handling blackbirds shall handle and relocate TRBL.

11.93 Notification of TRBL Take or Injury.
Permittee shall immediately notify the Designated Biologist(s) if TRBL is taken by a Covered Activity, or if a TRBL is otherwise found dead or injured within the vicinity of the Project preconstruction activity, construction site, or maintenance area. The Designated Biologist(s) shall immediately take the injured TRBL to a CDFW-approved wildlife rehabilitation or veterinary facility identified in the TRBL Relocation Plan (see Condition of Approval 11.92) and contact the CDFW Representative, via email and telephone, within one business day to discuss the next steps. Permittee shall bear any costs associated with the care or treatment of such injured TRBL. The Designated Biologist(s) shall immediately notify CDFW (within 24 hours) if TRBL abandon their nests or nestlings are abandoned, or nesting or roosting colonies exhibit distress and/or abnormal nesting behavior. The Designated Biologist(s) or Permittee's Designated Representative shall provide initial notification to the CDFW Representative. The initial notification to CDFW shall include information regarding the location, species, date, and circumstances of the event (e.g., time where the individual was found, number of animals taken or injured, description of abnormal nesting behavior, etc.), the name of the facility where the animal was taken if applicable, and the ITP Number. Following initial notification, Permittee shall submit to CDFW a written incident report within two business days to the CDFW offices listed in the Notices section of this ITP. The report shall include the date and time of the finding or incident, disposition of the TRBL, location of the animal or carcass or name of facility where the animal was taken, any photographs of the animal or the site it was found, explanation as to cause of take, injury, or nesting disturbance, and any other pertinent information. The written incident report shall also be included in the appropriate Monthly Compliance Report (see Condition of Approval 10.12).

Crotch Bumble Bee (CBB) Measures

11.94 CBB Avoidance.
Identified and delineated suitable CBB habitat in accordance with Condition of Approval 10.4 shall be completely avoided. Permittee shall conduct Covered Activities within paved roads, farm roads, road shoulders, and similarly previously disturbed and compacted areas to the greatest extent practicable. Where it is not possible to conduct Covered Activities in already disturbed areas, Permittee shall confine ground disturbance and habitat removal to the most minimal area necessary as identified within the appropriate Project Phase Authorization Package (Condition of Approval 6.1 and 6.2). If Project personnel observe CBB or an insect resembling CBB entering or exiting a potential nest, or a CBB nest site, Permittee shall prohibit Covered Activities within a 50-foot radius of that nest until the Designated Biologist(s) is contacted and on-site (see Condition of Approval 11.98). If the Covered Activities cannot avoid the nest, only the Designated Biologist(s) shall relocate the nest in accordance with Condition of Approval 11.102. All Project personnel shall inform the Designated Biologist(s) if they encounter CBB or an insect resembling CBB, within the Project construction site or 50 feet beyond the Project construction site, during all phases of Covered Activities.

11.95 Seasonal Restriction.
If feasible, Covered Activities shall avoid vegetation and ground disturbing impacts to CBB and suitable habitat during the Colony Active Period (February 1 – October 31) each year until the expiration of this ITP unless otherwise approved by CDFW after the Designated Biologist(s) has conducted CBB surveys (see Condition of Approval 11.97) consistent with CDFW-approved protocols (Condition of Approval 11.38). Any work within the Colony Active Period shall be subject to approval by CDFW. Native or non-native flowering vegetation removal shall occur prior to bloom and before the Colony Active Period to prevent colonization during the active season. If Covered Activities cannot be avoided in temporary impact areas intended for on-site restoration during this time and vegetation needs to be removed during the bloom period for these species, Permittee shall remove flowering vegetation during the Colony Active Period in locations where there are no surveyed foraging CBB or active CBB nests.

Permittee shall avoid conducting Covered Activities involving vegetation and ground disturbance in CBB habitat during the Queen and Gyne Flight Seasons, when Queens emerge in the spring searching for nest sites, and during the fall flight period when Gynes mate and search for overwintering habitat. These time periods shift each year due to climatic conditions (drought, temperature, and precipitation). To determine these time periods each year, the Designated Biologist(s) shall conduct CDFW-approved CBB surveys (Condition of Approval 11.38).

During the overwintering period, Permittee shall avoid ground disturbance activities in CBB habitat to the greatest extent possible or develop a site-specific phased approach to implementation of activities, for CDFW approval as part of the appropriate Project Construction Phase Authorization Package (Condition of Approval 6.2). During this time, removal of fallen logs, brush piles, woody

debris, and other potential refugia for overwintering bees shall be done carefully with prior inspection and then supervision from the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s).

11.96 Preconstruction Assessment.
Prior to initiation of ground disturbing Covered Activities for each Project Phase, site-level surveys shall be conducted consistent with CDFW-approved survey protocols (Condition of Approval 11.38) to determine whether CBB is present within or adjacent to proposed Covered Activities and submitted to CDFW as part of the appropriate Construction Phased Authorization Package (Condition of Approval 6.2). Site-level surveys shall include historical and current species occurrences from reliable data sources such as California Natural Diversity Database (CNDDB) and the Bumble Bees of North America occurrence database and shall follow survey guidelines outlined in the *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*.[46] The habitat assessment shall include but is not limited to data from Project site visits to observe and document potential habitat including potential foraging, nesting, and overwintering resources; quantification of which plant species are in bloom and their percent cover; and assessment of overall plant diversity. Foraging resources shall be quantified across multiple site visits for each Project construction site corresponding to the CBB colony's active season (February 1 – October 31) from early and late season as well as over the colony active period to ensure the surveys cover a range of dates and account for variability in resource use. Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. Foraging resources recorded shall not be limited to preferred plant species known to be favored by CBB but also include all flowering plants including non-natives and invasives. Nesting resources quantified shall include bare ground, rodent burrows, and other potential nesting sites that may support bumble bee colonies. Leaf litter and woody forest edges that could provide overwintering habitat shall also be described.

11.97 CBB Surveys.
During the Project construction and postconstruction maintenance phases, surveys shall be conducted by the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) following the CDFW-approved CBB survey protocol (Condition of Approval 11.38) prior to any ground-disturbing Covered Activities or vegetation removal within suitable CBB habitat during the colony active period (February 1 – October 31) or until all flowering vegetation is largely desiccated, to detect foraging CBB and determine if any active nests are within the Project construction site or Project maintenance area. At least three surveys shall be conducted in addition to the baseline

[46] California Department of Fish and Wildlife (2023). Survey considerations for California Endangered Species Act (CESA) candidate bumble bee species. Natural Resources Agency, California Department of Fish and Wildlife, Sacramento, CA. June 2023.

preconstruction survey, with each Project construction site survey spaced two to four weeks apart, unless otherwise approved by CDFW, to account for variability in resources and activity, with the last survey taking place within 72 hours prior to construction activity. Survey efforts shall occur each year Covered Activities are expected to occur in or within 50 feet of suitable CBB habitat, since bumble bees have an annual life cycle. The survey(s) shall include a description of vegetation communities and floral resources. The Designated Biologist(s) shall perform meandering transects through the planned construction footprint, plus a 50-foot buffer around each Project construction site, between 9:00 am and 1:00 pm where feasible and at least one hour after sunrise and at least two hours before sunset, to visually survey the area for bumble bee activity. The duration of the survey shall be the minimum amount of time necessary to adequately survey the area, or 30 minutes, whichever is longer. For each sampling event, the Designated Biologist shall survey suitable habitat using non-lethal photo voucher and netting methods. If a suspected or confirmed CBB is identified during any of these surveys, the Designated Biologist(s) shall notify CDFW within 24 hours. The three survey efforts conducted during the Project construction phase(s) shall occur each year Covered Activities are expected to occur in suitable CBB habitat and shall be reported to CDFW by the Permittee within the Monthly Compliance Reporting (Condition of Approval 10.12) and summarized within each Annual Status Report (Condition of Approval 10.13).

11.98 CBB No-activity Buffer Zone.

If a nest is discovered during a CBB survey within the Project construction site or Project maintenance area and avoidance is feasible, a non-disturbance buffer of 50 feet shall be established around the nest until the nest senesces or becomes inactive and is no longer in use, as determined by the Designated Biologist(s) in consultation with CDFW, or until the Covered Activities are complete, whichever is first. A CBB buffer zone design plan shall be submitted to CDFW as part of the appropriate Phase Authorization Package (Condition of Approval 6.2). Utilizing this plan, the buffer shall be delineated using high-visibility fencing, flagging, or similar materials along with appropriate signage and be maintained throughout all weather events. The nest location shall be recorded with global positioning system (GPS) and be reported to CDFW within 24 hours (one calendar day) of finding the nest. Permittee shall not conduct any Covered Activity within the buffer unless a smaller buffer is approved by CDFW.

11.99 CBB Daily Monitoring.

In undisturbed areas of CBB habitat planned for Covered Activities, the Designated Biologist(s) shall perform CDFW-approved CBB survey protocols with assistance from the Biological Monitor(s) (if needed) as described in Condition of Approval 11.38. Once Covered Activities within CBB habitat have begun, the Designated Biologist(s) and/or Biological Monitor(s) shall be onsite and shall conduct daily visual sweeps of the Project construction site for CBB flight activity at the start of the daily work window and shall intermittently repeat these visual sweeps throughout the daily work window. If a suspected or confirmed CBB is detected in the Project construction site, the Designated Representative or Designated Biologist(s) shall contact CDFW by telephone and email within 24

hours. If a suspected or confirmed CBB individual is detected within the Project construction site, every effort shall be made by the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) to find the active nest. If only foraging CBB are observed (i.e., no nest is found), Covered Activities may proceed without the additional intermittent daily visual sweeps by the Designated Biologist(s); however, if there is a lapse in initial construction disturbance greater than 14 calendar days, an additional CBB survey shall be repeated by the Designated Biologist(s) prior to any ground disturbance activities resuming. After initial site clearance activities have ceased and no suitable CBB habitat remains in the Project construction site, the Designated biologist and/or Biological Monitor(s) shall only be required to conduct a daily visual sweep prior to initiation of Covered Activities that day.

11.100 Avoidance or Treatment of Underground Refugia.
Permittee shall avoid rodent burrows or dry cavities such as rock walls or under clump-forming bunch grasses in suitable CBB habitat to the maximum extent possible. Within potential habitat, Permittee shall avoid removal of vegetation such as woody plants, tall grasses, leaf litter or loose soils until CDFW-approved CBB survey protocols (Condition of Approval 11.38) have been performed by the Designated Biologist(s) and absence of overwintering CBB is confirmed. The Designated Biologist(s) shall flag these areas, or other habitat features that are outside of the area for direct ground disturbance within the Project construction site prior to initiation of earthmoving activities in those areas. Permittee shall establish a 50-foot radius no-activity buffer around refugia that can be avoided within the Project preconstruction activity area, construction site, access roads, SCADA and transmission line construction areas, and maintenance areas. Signs, stakes, and/or flags shall be clearly distinguishable from markings used to delineate work areas. If Covered Activities stop for more than 14 calendar days, the Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall repeat CBB surveys within suitable CBB habitat, prior to resuming Covered Activities.

11.101 Vegetation Management.
Disturbance or removal of vegetation shall be kept to the minimum necessary to complete Covered Activities in suitable CBB habitat. Vegetation marked for protection shall only be trimmed with hand tools limited to string trimmers (e.g., weed whackers) to gain access to work sites unless otherwise approved by CDFW. Permittee shall set mower blade heights to no lower than four inches, unless otherwise approved by CDFW in writing (See Condition of Approval 11.18).

11.102 CBB Nest Relocation Plan.
Ground disturbing Covered Activities shall avoid CBB nests using the no-activity buffer as described in Condition of Approval 11.98. If Project personnel observe CBB or an insect resembling CBB entering or exiting a potential nest, or a CBB nest site, Permittee shall stop Covered Activities within 50 feet of the nest until the nest senesces or becomes inactive and is no longer in use, as determined by the Designated Biologist(s) in consultation with CDFW. If Covered Activities cannot stop and a buffer zone

cannot be created around the nest (see Condition of Approval 11.98), Permittee shall make every effort to relocate the nest as a last resort. In the extraordinary case that a nest may be lost because of ground disturbance or if the nest cannot be avoided and will be lost, CDFW shall be contacted immediately (within 24 hours) to determine next steps. Permittee shall develop a CBB Nest Relocation Plan (CBB Plan) and submit it to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) prior to initiating Covered Activities. The CDFW-approved Designated Biologist(s) with appropriate expertise in bumble bee capture and handling shall attempt to relocate the nest to a suitable location outside of the Project construction site following guidance from CDFW. Nest relocation efforts shall follow the general guidelines described by The Xerces Society in *Bumble Bees: Nesting and Overwintering*[47] or the most recently available CDFW-approved guidelines. The CBB Plan shall include, but not be limited to, the following: the names of the Designated Biologist(s) who will relocate the nest; the proposed methods of capture, handling, and relocation of nests; the locations of potential relocation sites (i.e., as close to the existing location as feasible with access to suitable foraging habitat to sustain the nest through the nesting season); a quantification of amount, relative location, and quality of suitable nesting, overwintering, and foraging habitat, including invasive and non-native species present; methods of monitoring the relocated nest; preconstruction survey methodology; methods for hand excavation of burrows that cannot be avoided during Covered Activities; a map depicting the construction, proposed relocation areas, and areas of suitable habitat; site photos; and the written permission from the landowner to use their land as a relocation site. Once relocated, the nest shall be monitored for at least one week by the Designated Biologist(s). Monitoring of an active nest may be conducted using a motion-detecting wildlife trail camera based on site-specific conditions, weather, and species behaviors with CDFW approval. If monitoring suggests the nest relocation was successful (i.e., nest is not immediately abandoned following relocation, bees are observed returning to the relocated nest following foraging activities, and the nest is continued to be used at least one week following relocation), no further measures are required.

11.103 Notification of CBB Take or Injury.
Permittee shall immediately notify the Designated Biologist(s) if CBB is taken by a Covered Activity, or if a CBB is otherwise found dead or injured within the vicinity of the Project preconstruction activity, construction site, or maintenance area. The Designated Biologist(s) or Permittee's Designated Representative shall provide initial notification to the CDFW Representative within one business day of finding the injured or killed CBB.

The initial notification to CDFW shall include the date, time, location, and circumstances of the incident if known. Following initial notification, Permittee shall send CDFW a written incident report

[47] The Xerxes Society (2023). Bumble bees: Nesting and overwintering [Internet]. The Xerxes Society for Invertebrate Conservation, Portland, OR. Available: https://xerces.org/bumble-bees/nesting-overwintering.

within two business days to the CDFW offices listed in the Notices section of this ITP. The report shall include the date and time of the finding or incident, disposition of the CBB, collection location, any photographs, explanation as to cause of take, injury, and any other pertinent information. The written incident report shall also be included in the appropriate Monthly Compliance Report (see Condition of Approval 10.12). The carcass shall be photographed, salvaged, and placed in a labeled, clean plastic, resealable bag or vial and stored in a freezer by the Designated Biologist(s) for shipment to CDFW Wildlife Health Lab. The label shall be appropriately recorded with a unique identifier (collection number), species name, time and date of collection, collection location, GPS location (including datum and horizontal error in feet), circumstances surrounding death, collector name and contact information (phone number and email), and ITP Number.

Mason's Lilaeopsis (MALI) Measures

11.104 Initial Site Clearing and Monitoring.
Permittee shall confine ground disturbance activities that could result in take of MALI to the minimal area necessary to conduct Covered Activities. The Designated Biologist(s) shall be onsite each day during initial ground disturbing activities to assess the Project construction site and no-activity buffer (Condition of Approval 11.106). Following initial ground-disturbance activities, a Designated Biologist(s) and /or Biological Monitor(s) shall be on site to monitor Covered Activities occurring in suitable MALI habitat. If MALI is discovered within the Project construction site, the Designated Biologist(s) and or Biological Monitor(s) shall have the authority to stop Covered Activities until the plant is translocated to suitable habitat outside of the Project footprint in accordance with Condition of Approval 11.108.

11.105 MALI Surveys.
The Designated Biologist(s) with assistance (if needed) from the Biological Monitor(s) shall conduct preconstruction surveys consistent with CDFW-approved protocols (Condition of Approval 11.38) to identify the presence of MALI and suitable MALI habitat within all Project sites and a 100-foot buffer around each Project site, unless otherwise approved by CDFW. Suitable habitat shall be defined by Condition of Approval 10.4. All preconstruction surveys for MALI shall be conducted by a CDFW-approved Designated Biologist(s) with appropriate expertise identifying special-status plants that occur in the Delta. Permittee shall ensure surveys for presence of MALI and MALI suitable habitat are floristic in nature and consistent with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*[48] and *Protocols for Surveying and*

[48] U.S. Fish and Wildlife Service (2000). Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. U.S. Fish and Wildlife Service, Baileys Crossroads, VA. January 2000. Available: https://www.fws.gov/media/guidelines-conducting-and-reporting-botanical-inventories-federally-listed-proposed-and.

Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities,[49] or the most current versions of these protocols. Permittee shall submit the preconstruction survey results to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for written approval prior to initiating Covered Activities. Subsequent survey efforts conducted during the Project construction phase(s) shall occur each year Covered Activities are expected to occur in MALI habitat and shall be reported to CDFW by the Permittee within the Monthly Compliance Reporting (Condition of Approval 10.12) and summarized within each Annual Status Report (Condition of Approval 10.13).

11.106 MALI No-Activity Buffer Zone.
Permittee shall avoid removal of the Covered Species to the maximum extent practicable. Where MALI or suitable MALI habitat is discovered within the Project construction site and avoidance is feasible, Permittee shall establish a 100-foot no-activity buffer zone at least ten feet from the edge of the suitable habitat until Covered Activities in the area are completed. If a 100-foot no-activity buffer is not feasible, Permittee may reduce the no-activity zone to a minimum of 50 feet from the edge of the suitable habitat with CDFW written approval. The buffer shall be delineated using high-visibility silt fencing, flagging, or similar materials along with appropriate signage. The Designated Biologist(s) and/or Biological Monitor(s) shall be onsite during all buffer installation activities that could result in take, including trenching, vehicular access, erecting fencing material, installing posts, and any other activities that require vehicle or foot traffic in MALI suitable habitat. Permittee shall ensure the buffer material is supported sufficiently to maintain its integrity under all conditions, such as wind and heavy rain, for the duration of the Covered Activities in the Project construction site. The buffer zone design plan shall be submitted to CDFW for approval as part of the appropriate Phase Authorization Package. MALI locations shall be recorded with global positioning system (GPS) and reported to CDFW in accordance with Condition of Approval 11.1. If a known occurrence of MALI must be removed for Covered Activities (i.e., because the plant occurrence is within a permanent impact footprint) where the no-activity buffer is not feasible, Permittee shall follow the MALI Relocation Plan in Condition of Approval 11.108.

11.107 Measures Specific to SCADA and Transmission Line Construction and Maintenance.
Where maintenance or repair of SCADA or transmission lines are necessary, maintenance activities shall occur on the landside of levees where the risk of erosion or debris entering the waterways is low. Non-disturbance buffers around MALI shall be placed after preconstruction surveys are conducted by the Designated Biologist(s) and/or Biological Monitor(s) prior to maintenance activities.

[49] California Department of Fish and Wildlife (2021). Protocols for surveying and evaluating impacts to special status native plant populations and sensitive natural communities. California Natural Resources Agency, California Department of Fish and Wildlife, Sacramento, CA. February 2021. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline.

11.108 MALI Translocation Plan.
Permittee shall prepare a Mortality Reduction and Translocation Plan (MALI Translocation Plan) for MALI and submit it to CDFW as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2) for written approval prior to the initiation of Covered Activities. The MALI Translocation Plan shall include, but not be limited to, the name(s) of the Designated Biologist(s) who will be responsible for transplanting MALI; collection, handling, and relocation methods; a map and description of the relocation area(s) for transplanted MALI, including the quantification of the amount, relative location, and quality of suitable habitat, including invasive or non-native species present; and written permission from the landowner to use their land as a relocation site. Relocation areas shall be restored areas selected as Habitat Management Lands for MALI (see Attachment 4).

If MALI is found within a Project construction site or maintenance area, Project personnel shall notify the Designated Biologist(s) immediately. The Covered Species may only be collected and handled by the CDFW-approved Designated Biologist(s) with expertise in handling plants. The Designated Biologist(s) shall determine whether the plant should be collected and handled and shall relocate the plant in accordance with the Translocation Plan. Collected plants shall be transplanted as soon as possible. The Designated Biologist(s) shall relocate the plant to a CDFW approved translocation site if the plant is directly threatened by Covered Activities. The Designated Representative and/or Designated Biologist(s) shall notify CDFW within 24 hours (one calendar day) of each time a plant is transplanted. Notification to CDFW shall be via telephone and email, followed by a written incident report submitted to CDFW within two days of the incident. Notification shall include the date, time, location, and circumstances of the incident. The written incident report shall also be included in the appropriate monthly compliance report (see Condition of Approval 10.12).

Operations Phases Covered Species Measures

11.109 Velocity Requirements at North Delta Intakes.
To minimize impingement and entrainment of Covered Fish Species, Permittee shall only divert when the north Delta intake B and C fish screens are operating according to the CDFW 2000 *Fish Screening Criteria* and the NMFS 2023 *Anadromous Salmonid Passage Design Manual*.[50, 51] In order to comply with CDFW and NMFS fish screening criteria, Permittee shall operate the north Delta intakes not to exceed the maximum uniform approach velocity (V_a) of 0.2 feet per second across the wetted surface of each individual fish screen. During diversions at the north Delta intakes, Permittee shall minimize localized V_a by spreading the diversion as much as possible across intakes and fish screens, and by opening more fish screens than would be minimally required to meet the V_a criterion.

[50] California Fish and Game (2000). Fish screening criteria. June 2000.
[51] National Marine Fisheries Service (2023). Anadromous salmonid passage design manual. National Marine Fisheries Service, National Oceanic and Atmospheric Administration, West Coast Region. February 2023.

Permittee shall operate the north Delta intakes to maintain a minimum uniform V_s of 0.4 feet per second across the wetted surface of each individual fish screen. Permittee shall conduct regular hydraulic testing in accordance with Condition of Approval 10.27 (Hydraulic Testing for Velocity Requirements) to ensure compliance with V_a and V_s requirements identified in this Condition of Approval. As required by Condition of Approval 10.20.1 Permittee shall work collaboratively with CDFW to develop a Hydraulic Data Plan to use the data obtained from the new real-time monitoring station, in addition to upstream monitoring stations described in Section 20.2.1 of the Project Description and existing stations, to implement operating criteria described in this Condition of Approval and Condition of Approval 11.111. The plan shall take into consideration non-Project diversions that may occur between the north Delta intakes and the location of the station used to calculate bypass flows. The plan shall also take into account accuracy of equipment used for real time measurements of Sacramento River flow and diversions, and physical constraints associated with pump operations and intake screens. This plan shall be subject to CDFW approval.

11.109.1 No Diversions Without North Delta Intake Screens. Permittee shall close the gate behind a screen unit and not divert water through that screen unit at north Delta intake B or C at any time unless the screen unit is fully functional. Permittee shall notify CDFW within one business day in writing if the fish screens are not operational at either north Delta intake. The intent of this requirement is to ensure that Permittee does not divert unscreened water from the north Delta intakes at any time.

11.110 Phase 1 and Phase 2 Authorized Operations.
Phase 1 Operations: Phase 1 Operations are authorized for no more than one calendar year. During Phase 1 Operations, Permittee may conduct the Bethany Reservoir Pumping Plant Contractor's Test (see Section 19.2.1 in the Project Description), followed by the Intake B and C Operational Performance Testing (see Section 19.2.2 in the Project Description) and Pump Maintenance Activities (see Section 19.4 in the Project Description). Permittee shall not divert any water through the north Delta intakes while it is conducting the Bethany Reservoir Pumping Plant Contractor's Test (see Section 19.2.1 in the Project Description). During Intake B and C Operational Performance Testing and Pump Maintenance Activities, Permittee shall not divert more than 500 cfs at any time, the maximum rate needed to conduct Intake B and C Operational Performance Testing and Pump Maintenance Activities, during Phase 1 Operations. Permittee may extend the time period of Phase 1 Operations with CDFW approval but shall not extend the total duration of Phase 1 and Phase 2 Operations beyond two calendar years. During Phase 1 Operations, Permittee shall adhere to all velocity requirements and diversion criteria described in Conditions of Approval 11.109 and 11.111.

Phase 2 Operations: Phase 2 Operations are authorized for no more than one calendar year. During Phase 2 Operations, Permittee may conduct the Systemwide Commissioning Test (see Section 19.2.3 in the Project Description), Pump Maintenance Activities (see Section 19.4 in the Project Description),

and subsequent full operations. During Phase 2 Operations, Permittee shall adhere to all velocity requirements and diversion criteria described in Conditions of Approval 11.109, 11.111, 11.112, 11.113, and 11.114. Permittee shall evaluate a wide range of potential approaches to operate the north Delta diversions jointly with existing south Delta export facilities as required by Condition of Approval 10.21.8 (Optimization Study to Inform Joint operations of State Water Project North and South Delta Intakes). Based on the outcomes of the studies in this ITP, Permittee may seek an amendment to this ITP that includes a joint operations approach or other modifications to minimization measures, to ensure that Project operations meet Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, 11.117).

11.111 Diversion Criteria.

Hydrological conditions, and associated biological impacts, vary substantially in the Sacramento River near the town of Hood (just downstream of both Project intakes) across different ranges of flow. The Sacramento River near Hood is tidally dominated at flows below 20,000 cfs, such that the daily flow range from minimum to maximum is larger than the daily average flow itself. When Sacramento River flow near Hood is between 20,000 cfs and 35,000 cfs the daily flow range is less variable than at lower flows, but the tidal fluctuation is still substantial. When Sacramento River flow near Hood is greater than 35,000 cfs the tidal fluctuation is less than about 20% of the daily average river flow each day.

Operating criteria are intended to minimize NDD near-field impacts to larval DS and LFS, larval WS, and juvenile CHNWR and CHNSR by accounting for tidal fluctuations while maintaining sweeping velocities at the intakes sufficient for reducing exposure time and impingement risk. Additionally, flow reversals occur when the incoming flood tide causes the Sacramento River to flow upstream for a portion of each day. Flow reversals in the vicinity of Georgiana Slough are associated with poor through-Delta survival for juvenile CHNWR and CHNSR, as juvenile CHNWR and CHNSR are entrained into the central Delta and are exposed to high predation rates, poor habitat quality, and low survival. Flow reversal at Georgiana Slough always occurs when the daily average Sacramento River flow is below 12,500 cfs, although it can also occur during some tidal conditions when the average Sacramento River flow is higher. Operating criteria pursuant to this Condition of Approval shall be applied during the timeframes described in Condition of Approval 11.111.2 and pursuant to real-time operations decisions in Condition of Approval 11.111.5. To minimize the impact of Project operations on flow reversals at Georgiana Slough, the operating criteria are split into three distinct conditions: (1) tidally dominated, (2) transitional, and (3) flow dominated.

Tidally Dominated: When the 25-hour running average Sacramento River flow is below 20,000 cfs, the Sacramento River near Hood is tidally dominated. Under these conditions, the following NDD criteria shall apply:

- Permittee shall not divert from the north Delta intakes while the Delta Cross Channel Gates are open.
- Permittee shall not divert from the north Delta intakes unless an instantaneous bypass of Sacramento River flow of 10,000 cfs is maintained below the north Delta intake C.
- Permittee shall not divert from the north Delta intakes unless a minimum bypass 25-hour running average Sacramento River flow of 6,000 cfs is maintained downstream of the north Delta intake C.
- Total Project diversions from the north Delta intakes shall not exceed six percent (6%) of the Sacramento River instantaneous flow.
- Permittee shall not divert from the north Delta intakes from March 1 through May 31.

Sacramento River flow shall be measured using the gage required by Condition of Approval 10.20.1.

Transitional: When the 25-hour running average Sacramento River flow is maintained above 20,000 cfs, but less than 35,000 cfs, the Sacramento River near Hood is transitional. Under these conditions, the following NDD criteria shall apply:

- Permittee shall not divert from the north Delta intakes while the Delta Cross Channel Gates are open.
- Total Project diversions from the north Delta intakes shall not exceed six percent (6%) of the 25-hour running average Sacramento River flow at any time, unless otherwise approved through Condition of Approval 11.111.5.
- Total north Delta intake diversions may take between 6% - 10% of the 25-hour running average Sacramento River flow, if approved through Condition of Approval 11.111.5 in response to a risk assessment (Condition of Approval 11.111.3), demonstrating that increased diversions will not cause Covered Fish Species Biological Criteria to be exceeded (Conditions of Approval 11.115, 11.116, and 11.117).
- Permittee shall not divert more than 3% of the 25-hour running average Sacramento River flow from the north Delta intakes from March 1 through May 31.

Sacramento River flow shall be measured using the gage required by Condition of Approval 10.20.1.

Flow Dominated: When the 25-hour running average Sacramento River flow is maintained above 35,000 cfs, the Sacramento River near Hood is flow dominated. Under these conditions, the following NDD criteria shall apply:

- Permittee shall not divert from the north Delta intakes while the Delta Cross Channel Gates are open.

- Total Project diversions from the north Delta intakes shall not exceed ten percent (10 %) of the 25-hour running average Sacramento River flow at any time.
- Total north Delta intake diversions may take between 10% - 12% of the 25-hour running average Sacramento River flow, if approved through Condition of Approval 11.111.5 in response to a risk assessment (Condition of Approval 11.111.3), demonstrating that increased diversions will not cause Covered Fish Species Biological Criteria to be exceeded (Conditions of Approval 11.115, 11.116, and 11.117).

Sacramento River flow shall be measured using the gage required by Condition of Approval 10.20.1.

Operating criteria are also intended to minimize far-field effects of Project operations on Delta outflow that are associated with reductions in abundance of LFS and WS, reduced habitat availability for DS, and reduced through-Delta survival of CHNWR and CHNSR.

11.111.1 June Operations. In June, after the operating criteria (Condition of Approval 11.111) end as determined by Condition of Approval 11.111.6, allowable NDDs shall be subject to the following criteria. Sacramento River flow at Freeport shall be measured using the 25-hour running average of USGS Gage Number 11447650. Sacramento River bypass flow shall be measured using the gage required by Condition of Approval 10.20.1:

- Sacramento River flow at Freeport between 10,900 cfs – 15,000 cfs: Diversions shall not exceed 900 cfs.
- Sacramento River flow at Freeport between 15,000 – 17,000 cfs: Diversions shall not exceed 6% of the Sacramento River flow at Freeport.
- Sacramento River flow at Freeport between 17,000 – 20,000 cfs: Diversions shall not exceed 1,020 cfs plus 40% of Sacramento River flow above 17,000 cfs.
- Sacramento River flow at Freeport above 20,000 cfs: Diversions shall not reduce Sacramento River bypass flows to less than 17,180 cfs.

After 15 consecutive days of Sacramento River bypass flow above 20,000 cfs, as measured using the gage required by Condition of Approval 10.20.1, allowable north Delta diversions shall be subject to the following criteria:

- Sacramento River flow at Freeport between 10,900 – 15,000 cfs: Diversions shall not exceed 900 cfs plus 50% of the Sacramento River flow at Freeport above 11,000 cfs. Diversions shall not reduce Sacramento River bypass flows to less than 10,000 cfs.
- Sacramento River flow at Freeport above 15,000 cfs: Diversions shall not exceed 2,000 cfs plus 80% of Sacramento River flow at Freeport above 15,000 cfs.

11.111.2 Seasonal Operations of the North Delta Intakes. Permittee shall monitor and manage Project operations in close coordination with CDFW staff during Phase 1 and Phase 2 operations as described in Condition of Approval 11.110.

Permittee shall implement operating criteria according to the following annual schedule:

- November: Based on real-time operations as described in Conditions of Approval 11.111.3 and 11.111.5, if CDFW determines it is necessary based on an assessment of risk to Covered Fish Species, relative to the Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117), Permittee shall adhere to operating criteria described in Condition of Approval 11.111.
- December – May: Default operations shall adhere to operating criteria described in Condition of Approval 11.111. Condition of Approval 11.111 allows for risk assessments and real-time decision-making when flows in the Sacramento River are between 20,000 – 35,000 cfs (December – February) or above 35,000 cfs.
- June:
    - Before salmon presence off-ramp (Condition of Approval 11.111.6): Default operations shall adhere to operating criteria described in Condition of Approval 11.111.
    - After a salmon presence offramp (Condition of Approval 11.111.6): Default operations shall adhere to June operations criteria in Condition of Approval 11.111.1. Based on real-time operations as described in Conditions of Approval 11.111.3 and 11.111.5, if CDFW determines it is necessary based on an assessment of risk to Covered Fish Species relative to the Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117), Permittee shall adhere to Diversion Criteria described in Condition of Approval 11.111.
- July: Based on real-time operations as described in Conditions of Approval 11.111.3 and 11.111.5, if CDFW determines it is necessary based on an assessment of risk to Covered Fish Species, relative to the Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117), Permittee shall adhere to operating criteria described in Condition of Approval 11.111.
- November 1 – July 30: The following criteria within Condition of Approval 11.111 shall be implemented from November 1 – July 30 without exception:
    - Permittee shall not divert from the north Delta intakes unless an instantaneous bypass of Sacramento River flow of 10,000 cfs is maintained downstream of the north Delta intake C at the gage required by Condition of Approval 10.20.1.
    - Permittee shall not divert from the north Delta intakes unless a minimum bypass 25-hour running average Sacramento River flow of 6,000 cfs is maintained downstream of the north Delta Intake C at the gage required by Condition of Approval 10.20.1.
- August 1 – September 30:

- Permittee shall not divert from the north Delta intakes unless a 3-day average bypass of Sacramento River flow of 5,000 cfs is maintained downstream of the north Delta Intake C at the gage required by Condition of Approval 10.20.1.

- October 1 - October 31:
  - Permittee shall not divert from the north Delta intakes unless a 3-day average bypass of Sacramento River flow of 7,000 cfs is maintained downstream of the north Delta Intake C at the gage required by Condition of Approval 10.20.1.
- Year-round: Permittee shall implement Conditions of Approval 11.109, 11.112, 11.113, and 11.114.

11.111.3 North Delta Diversion Monitoring Team. The purpose of the North Delta Diversion Monitoring Team (NDDMT) is to meet and review hydrologic, SWP and CVP operational, fishery, and water quality data, and provide opportunities for engagement and discussion among biologists and operators on relevant information and issues associated with the Project and risk assessments. The purpose of the NDDMT shall be to evaluate system conditions broadly (including Delta hydrology, south Delta exports, and available biological data) and develop risk assessments regarding operations of the north Delta intakes. The NDDMT shall include representatives from Permittee and CDFW. Upon mutual agreement, representatives from Reclamation, USFWS, and NMFS staff may also attend. Permittee shall make all raw data and modeling utilized as part of NDDMT available to CDFW within ten days of a request.

Permittee shall convene the NDDMT weekly starting the first week in October each year during Phase 1 and Phase 2 operations. The NDDMT shall begin to conduct risk assessments the last week of October, to look ahead to conditions starting in November, and meet weekly throughout November. Permittee may convene the NDDMT and conduct weekly Project operations risk assessments as needed from December – June each year. Permittee shall convene weekly NDDMT meetings in July to conduct risk assessments. Risk assessments shall include, but not be limited to, Components A – G below, and associated data sources. Permittee may change listed data sources or modeling consistent with current best available science and as approved by CDFW.

A. Assessment of hydrologic, operational and meteorological information

i. Water operations conditions data:
   - Antecedent actions (e.g. DCC gate closure and required actions governing south Delta operations such as first flush, etc.)
   - Current controlling factor(s)
   - Water temperatures
   - Tidal cycle
   - Turbidity
   - Salinity

ii. Water operations outlook data:

- Meteorological forecast
- Outages
- Current diversions (SWP and CVP south Delta facilities and north Delta intakes)
- Storm event projection
- Operational status of Georgiana Slough Salmonid Migratory Barrier and other relevant barriers in the Delta

iii. Projection data:

- DCC gate status
- Freeport flows
- Vernalis flows
- Turbidity data throughout the Delta in river reaches affected by south and north Delta export facilities
- Near-term projected diversions (SWP and CVP south Delta and north Delta intakes)
- OMR

B. Assessment of biological information for Covered Fish Species

i. DS population data

- Available real-time and historical fish distribution data from surveys including EDSM, FMWT, San Francisco Bay Study (SFBS), and Delta Juvenile Fish Monitoring Program (DJFMP)
- DS life cycle model
- Life history stage(s) present in Delta (adult, juvenile, larval)
- Estimate of distribution of DS population among EDSM sampling zones

ii. LFS population data

- Available real-time and historical fish distribution data from surveys including FMWT, SFBS, Smelt Larva Survey, 20mm Survey, and DJFMP
- LFS life cycle model
- Life history stage(s) present in Delta (adult, juvenile, larval)
- Estimate of spatial distribution of LFS population upstream of Chipps Island

iii. CHNWR population data:

- Adult escapement
- Redd distribution and fry emergence timing
- JPE and hatchery releases
- CHNWR life cycle model
- Estimate of spatial distribution of CHNWR population in the Delta based on real time data and historical patterns
- Distribution of natural CHNWR, Livingston Stone National Fish Hatchery CHNWR releases, and CHNWR in Battle Creek:
  - % of juveniles upstream of the Delta
  - % of juveniles in Delta

    - % of juveniles past Chipps Island
  iv. CHNSR population data
    - Adult escapement
    - Redd distribution and fry emergence timing
    - JPE and hatchery releases (in-river vs. downstream)
    - CHNSR life cycle model
    - Estimate of spatial distribution of CHNSR population in the Delta based on real time data and historical patterns
    - Distribution of natural (yearling and young of year) CHNSR and hatchery CHNSR:
      - % of juveniles upstream of the Delta
      - % of juvenile in the Delta
      - % of juveniles past Chipps Island
  v. WS population data
    - Available real-time and historical survey data including 20mm and Smelt Larva Survey
    - Estimated WS year class strength
    - WS life cycle model
    - Distribution in the Sacramento River and the Delta
    - Life history stage(s) present in Delta (adult, juvenile, larval)
    - Distribution of adult WS estimated to have initiated spawning migration into the Sacramento River and larval WS estimated to be migrating downstream
  vi. Assessments of population status relative to Covered Fish Species Biological Criteria (Conditions of Approval 11.115, 11.116, and 11.117)
    - Probability of impacts to DS and LFS larval emigration past Chipps Island and entrainment into the north Delta intakes or central and south Delta
    - Probability of impacts to LFS FMWT Index
    - Probability of impacts to CHNWR and CHNSR through-Delta survival and risk of impingement or entrainment at the north Delta intakes
    - Probability of impacts to WS year class strength

C. Salmon through-Delta survival
    - Entrainment into the central and south Delta
    - Available data, including acoustic telemetry, regarding releases of tagged fish to assess survival in real time
    - Monitoring and survey data including rotary screw traps, seines, and trawls
    - STARS, ECO-PTM and EPTM, or an equivalent real-time survival modeling tool

D. Risk of exposure to impacts at the north Delta intakes
    - Assessments of Covered Fish Species biological data in section B above
    - All available hydrologic and operation data and forecasts

- Other data and modeling tools as informed by science and monitoring required by Conditions of Approval in this ITP

E. Routing risk and potential increase in exposure to south Delta operations (low, medium, high):
    - Flows in the Sacramento River predicted with upcoming storm events
    - DCC gate position
    - Status of operations of the Georgiana Slough Salmonid Migratory Barrier
    - Prediction of tidal interaction at Georgiana Slough
        - Inflow to Delta from Sacramento River and the interaction of the muting of tidal effects around Georgiana Slough
    - Precipitation in the forecast for the coming week and increasing river flow effects of routing into central and south Delta
F. Status of south Delta Conditions of Approval in the 2024 ITP (ITP No. 2081-2023-054-00) (or subsequent ITP addressing operations of the SWP south Delta facilities) and risk of initiating south Delta Conditions of Approval (low, medium, high):
    - Conditions of Approval governing south Delta operations that are currently in effect.
    - Assessment of risk of initiating south Delta Conditions of Approval as specified in the 2024 ITP.
    - Available south Delta entrainment risk modeling tools including the Winter-run Machine Learning Model.
    - Assessment of potential for north Delta operations to diminish the effectiveness of south Delta Conditions of Approval included in the 2024 ITP.
G. Status of Sacramento River hydrograph:
    - Assessment of Sacramento River flows in the prior two weeks
    - Assessment of forecasted Sacramento River flows in the coming week
    - Evaluation of current Sacramento River conditions relative to the hydrograph (ascending or descending)

11.111.4 Chartering the North Delta Diversion Monitoring Team. Permittee shall, in collaboration with CDFW, develop a charter for the NDDMT. Team membership, roles, and processes shall be described in the team charter. Permittee shall submit drafts of the team charter to CDFW for review no less than eight months prior to the start of Phase 1 Operations. After CDFW comments are incorporated, the final team charter shall be subject to CDFW approval.

11.111.5 Collaborative Approach to Real-time Decision Making. As set forth in Condition of Approval 11.111.3, Permittee shall convene the NDDMT to consider Covered Fish Species survey data, salvage data, other pertinent biotic and abiotic factors, and hydrologic and biological modeling outputs. NDDMT staff shall provide input on risk assessments prepared to anticipate impacts on Covered Fish Species that could occur if a temporary change in operating criteria described in Condition of Approval 11.111 were approved for the coming week. The NDDMT shall

share and discuss all available biological, abiotic, and operational information to inform discussions among Permittee and CDFW WOMT representatives as established in the 2024 ITP.

Operating criteria included in Condition of Approval 11.111, 11.112, 11.113, and 11.114 are intended to ensure that Project operations achieve biological criteria for Covered Fish Species (Conditions of Approval 11.115.1, 11.116.1, and 11.117.1). The operating criteria and biological criteria were developed using best available science and data available at the time of ITP issuance. Conditions of Approval 10.18, 10.19, 10.20, and 10.21 require new monitoring and science to augment available data and refine or develop analytical tools to assess the magnitude, timing and spatial distribution of impacts of Project operations on Covered Fish Species. This new science, modeling, and data shall be used to inform real-time assessments of risk of impacts of Project operations on Covered Fish Species and the potential to exceed biological criteria.

Permittee and CDFW NDDWT staff may conclude different operations are warranted when conducting risk assessments under the circumstances described in Conditions of Approval 11.111, and 11.111.2 in which case the difference shall be noted and elevated as described in this Condition of Approval. Permittee and CDFW WOMT representatives shall then confer and attempt to reach a resolution and agreed-upon Project operations. If a resolution is reached, Permittee shall operate consistent with the decision regarding Project operations made by Permittee and CDFW WOMT representatives.

If Permittee and CDFW WOMT representatives do not reach a resolution, the Director of DWR shall confer with the Director of CDFW to determine if there is an alternative action that will be mutually agreeable. If consensus is reached, Permittee shall implement the alternative action. If the Directors do not reach a resolution on operations, the CDFW Director may require Permittee to implement an operational decision provided by CDFW in writing. Permittee shall implement CDFW's operational decision.

11.111.6 Salmon Presence Off-ramp. After June 1 default operations as described in Condition of Approval 11.111.2 shall shift from Condition of Approval 11.111 to Condition of Approval 11.111.1 when the following criteria have been met, pursuant to the collaborative decision-making process in Condition of Approval 11.111.5:

- 95% of CHNWR and CHNSR have exited the Delta past Chipps Island as determined through Condition of Approval 11.111.5;
- Daily mean water temperature at Prisoner's Point (CDEC station PPT) is > 22.2^{o}C for seven days (does not have to be consecutive) in June.

11.112 Reservoir Storage.

This Condition of Approval is intended to replicate CalSim 3 modeling assumptions for the Project that reduce the impacts of diversions at the north Delta intakes by maintaining upstream reservoir storage, which in turn limits the times at which flows are available for diversion. The Project does not

change operational criteria associated with upstream reservoirs. SWP upstream facilities will continue to be operated to meet regulatory, environmental, and contractual obligations consistent with existing SWP operations (as of the date of issuance of this ITP) and Permittee shall not change upstream reservoir operations to move additional stored water through the north Delta intakes. Permittee shall not make additional stored water releases, beyond those possible or required as of the date of issuance of this ITP without the use of the Project, from the Lake Oroville Complex, or any other of its existing upstream reservoirs for the purpose of south Delta SWP exports, except:

- A shift in exports from south Delta facilities to the north Delta intakes that results in a carriage water savings (Condition of Approval 11.113); or
- Upstream releases for flood control; or
- Upstream releases required to meet instream flow requirements that are not needed to meet in-Delta regulatory requirements.

To accomplish this, Permittee shall limit combined SWP water diversions at the existing south Delta facilities and the north Delta intakes to the amount allowed under Condition of Approval 11.114.

11.113 Shifting During Balanced Conditions.
This Condition of Approval is intended to replicate CalSim 3 modeling assumptions for the Project that reduce the impacts of diversions at the north Delta intakes by limiting their operations during balanced, drier, conditions. When balanced conditions are declared, consistent with COA, and the CVP and SWP are collectively withdrawing water from storage, Permittee shall not conduct diversions at the north Delta intakes when combined south Delta exports are less than or equal to 3,000 cfs.

Permittee may balance and adjust diversions from the south Delta export facilities and the north Delta intakes to meet the D-1641 salinity requirements at the western Delta stations on the Sacramento and San Joaquin rivers when combined CVP and SWP exports at the south Delta are greater than 3,000 cfs. For example, increasing salinity at Jersey Point could be managed by reducing diversions from the SWP's south Delta intakes and increasing an equal amount at the north Delta intakes. Increasing salinity at Emmaton could be managed by reducing diversions from the north Delta intakes and increasing an equal amount at the SWP south Delta export facilities. This operation could result in conditions that require less water released from storage to meet the same water quality standards. Carriage water is the additional flow, added to Delta outflow, that is needed to carry a unit of water through the Delta to the south Delta export facilities in order to maintain salinity requirements. During these periods when the north Delta intakes are operating to more efficiently manage Delta water quality, the volume of carriage water savings may be diverted at the north Delta intakes.

Shifting of exports from south Delta export facilities to north Delta export facilities during balanced conditions shall be limited by the following:

- Export/inflow (E/I) ratio in D-1641;

- Operating criteria described in Conditions of Approval 11.109, 11.111, 11.112, and 11.114;
- Maintaining combined SWP and CVP south Delta diversions greater than 3,000 cfs; or
- Maintaining total combined SWP diversion at the south Delta and north Delta diversions less than or equal to 7,180 cfs, excluding exceptions for carriage water savings.

No less than three years prior to initiating Phase 1 Operations, Permittee shall collaborate with CDFW to develop a process to share information with CDFW in real time and facilitate evaluation of hydrologic and operational data required to implement this Condition of Approval and Condition of Approval 11.112. This real-time information sharing process shall include, at a minimum, all data and analyses needed to 1) determine whether the system is in balanced or excess conditions (as defined by Project Description Section 15.10), 2) track upstream reservoir releases that meet the exceptions identified in Condition of Approval 11.112, and 3) and calculate carriage water savings. The final information sharing process shall be subject to CDFW approval. Permittee shall begin implementation of the information sharing process with CDFW upon initiation of Phase 1 Operations.

11.114 Additional Diversions from North Delta Intakes.
Permittee shall operate the north Delta intakes at all times to ensure that total SWP diversions from both south and north Delta intakes do not exceed 10,350 cfs on a daily average.

Covered Fish Species Biological Criteria
As described in Condition of Approval 10.18.2 above, the ITP includes requirements for new science and monitoring including Covered Fish Species Monitoring and Scientific Study, Fisheries Evaluation Studies, Water Quality Evaluation Studies, Ecological Response Evaluation Studies, Fish Guidance System Studies, Hydraulic Testing Studies, and associated monitoring (Conditions of Approval 10.18, 10.19, 10.20, 10.21, and 10.27) that are needed to establish baseline biological and environmental conditions before impacts associated with specified Covered Activities begin. The science and monitoring required by this ITP during In-water Preconstruction Monitoring time periods shall be used to establish baseline conditions before impacts associated with Project operations begin. Available pre-Project historical data shall be incorporated into the baseline when needed to span a sufficient range of environmental and biological conditions to compare to Phase 1 and Phase 2 operations, as approved by CDFW. Science and Monitoring conducted during In-water Construction Monitoring may be included in calculations of baseline conditions, as approved by CDFW.

Biological Criteria in Conditions of Approval 11.115.1, 11.116.1, and 11.117.1 describe impacts to specific life history stages of the Covered Fish Species as a result of Project operations under the operating criteria included in this ITP (Conditions of Approval 11.109, 11.111, 11.112, 11.113, and 11.114). Biological Criteria in Conditions of Approval 11.115.2, 11.116.2, and 11.117.2 describe limits to changes to the population growth rates of Covered Fish Species as a result of Phase 1 and Phase 2 operations, as assessed using species-specific life cycle models required by Condition of Approval

10.21.2, and in consideration of all requirements in this ITP, including mitigation required by Conditions of Approval 12.6, 12.7, and 12.8.

The results of the required science and monitoring shall be used during Phase 1 and Phase 2 operations, and at the end of each water year, to evaluate the ability of the Project to meet the Covered Fish Species Biological Criteria described in Conditions of Approval 11.115, 11.116, 11.117. The science and monitoring may be used to identify alternative approaches to minimize and fully mitigate impacts on Covered Fish Species if the Project does not meet Covered Fish Species Biological Criteria. Or, the science and monitoring could be used to develop a different approach to operations that meets Covered Fish Species Biological Criteria (Condition of Approval 10.21.8).
11.115 Delta Smelt and Longfin Smelt Biological Criteria. All models used to assess compliance with the Biological Criteria shall be subject to CDFW approval.

11.115.1 Smelt Biological Criterion 1: Permittee shall ensure that Covered Activities, including construction and operations, do not result in:

- A greater than 0.36 probability of reducing DS or LFS larvae exiting past Chipps Island, and instead becoming entrained in the north Delta intakes or central and south Delta, by greater than or equal to 3% as a result of Covered Activities relative to baseline conditions; and
- A greater than 0.40 probability of reducing the LFS Fall Midwater Trawl Index by more than 3% as a result of Covered Activities relative to baseline conditions.

11.115.2 Smelt Biological Criterion 2: Permittee shall ensure that Phase 1 and Phase 2 operations do not result in a net negative change in DS or LFS population growth rate relative to baseline conditions as measured using the DS and LFS life cycle models required by Condition of Approval 10.21.2.

11.116 Winter- and Spring-run Chinook Salmon Biological Criteria. All models used to assess compliance with the Biological Criteria shall be subject to CDFW approval.

11.116.1 Salmonid Biological Criterion 1: Permittee shall ensure that Phase 1 and Phase 2 operations do not result in entrainment of juvenile CHNWR or CHNSR into the north Delta intakes. Permittee shall ensure that Covered Activities, including construction and operations, do not result in a greater than 0.06 probability of reducing juvenile CHNWR or CHNSR through-Delta survival of CHNWR or CHNSR by more than 4% relative to baseline conditions.

11.116.2 Salmonid Biological Criterion 2: Permittee shall ensure that Phase 1 and Phase 2 operations do not result in a net negative change in CHNWR or CHNSR population growth rate

relative to baseline conditions as measured using the CHNWR and CHNSR life cycle models required by Condition of Approval 10.21.2.

11.117 White Sturgeon Biological Criteria. All models used to assess compliance with the Biological Criteria shall be subject to CDFW approval.

11.117.1 White Sturgeon Biological Criterion 1: Permittee shall ensure that Covered Activities, including construction and operations, do not result in a greater than 0.22 probability of reducing catch per unit effort of young-of-year WS more than 4% relative to baseline conditions.

11.117.2 White Sturgeon Biological Criterion 2: Permittee shall ensure that Phase 1 and Phase 2 operations do not result in a net negative change in WS population growth rate relative to baseline conditions as measured using the WS life cycle model required by Condition of Approval 10.21.2.

12. Habitat Management Land Acquisition and Restoration.

CDFW has determined that permanent protection and perpetual management of compensatory habitat is necessary and required pursuant to CESA to fully mitigate Project-related impacts of the taking on the Covered Species that will result from implementation of the Covered Activities. This determination is based on factors including an assessment of the importance of the habitat in the Project Area, the extent to which the Covered Activities will impact the habitat, and CDFW's estimate of the protected acreage required to provide for adequate compensation.

To meet this requirement, Permittee shall either purchase Covered Species credits from a CDFW-approved mitigation or conservation bank pursuant to Condition of Approval 12.10 to achieve the acreage requirements described in Table 12-1 and Table 12-2, or shall provide for both the permanent protection, restoration, and initial and long-term management and monitoring of Habitat Management (HM) lands pursuant to Condition of Approval 12.11 below and consistent with Covered Species habitat criteria described in Attachment 4**.**

As described in Conditions of Approval 6.2 and 7.1, Permittee shall calculate the total impacts on Covered Species and the corresponding amount of compensatory mitigation, on-site restoration, or other mitigation obligations required for each Phase of the Project prior to the beginning of each Phase, which calculation shall be included in the Phase Authorization Package submitted to CDFW for review. Purchase of Covered Species credits, restoration (where required), permanent HM land protection, and funding for perpetual monitoring and management of compensatory habitat, must be complete before starting Covered Activities, or if Security is provided pursuant to Condition of Approval 13 below for all uncompleted obligations, before incurring impacts to Covered Species for each Phase's Covered Activities. Permittee shall include in its Annual Status Report, pursuant to Condition of Approval 10.13, documentation demonstrating that cumulative HM lands permanently

protected (and restored where required) for each Covered Species is at least 10 percent (10%) greater than the proportional cumulative impacts to each Covered Species habitat, based on the requirements shown in Table 12-1 and Table 12-2 below (10 percent stay-ahead requirements). Permittee shall ensure the ratio of cumulative HM lands protection and restoration for each Covered Species remains at least 10 percent (10%) greater than the proportional cumulative impacts to each Covered Species habitat until the compensatory mitigation acreages in Table 12-1 and Table 12-2 have been achieved. The Annual Status Report shall also demonstrate that land and identified habitat features anticipated to be disturbed over the succeeding twelve months in accordance with Conditions of Approval 10.3 and 10.5, will be preceded by HM lands permanent protection, and restoration if required. In the event that anticipated impacts to each Covered Species habitat in a given year are such that the 10 percent (10%) stay-ahead requirement will not be met, Permittee immediately shall notify CDFW and provide a plan for permanent protection, and restoration if required, of the necessary HM lands before proceeding with the Covered Activities causing the impact. Permittee may request an amendment if actual impacts as documented in the Phase Authorization packages are less than anticipated in this ITP based on updated information, including site surveys or modeling of Project operations. Amendment shall also be required if impacts are greater than anticipated.

Permittee shall also restore on-site acreages of temporarily impacted Covered Species habitat described in Table 12-1 pursuant to Condition of Approval 12.3.

All compensatory acreage requirements are in addition to any acres already required or under development for compliance with existing CESA authorizations including Incidental Take Permit No. 2081-2019-066-00 and Incidental Take Permit No. 2081-2023-054-00. Permittee's implementation of the protection, restoration, or perpetual management of HM lands may require separate CEQA evaluation. Because no take authorization is provided through this permit for the HM lands activities, Permittee shall obtain CESA authorization as necessary to implement HM land requirements. All individual protection and restoration projects proposed to achieve the compensatory mitigation requirements in this Condition of Approval shall be subject to CDFW approval in writing.

Table 12-1. Permanent and Temporary Project Construction Impacts and Associated Compensatory Mitigation Acres for Covered Species.

Impact Type	**Acres** (unless noted otherwise)
California tiger salamander (*Ambystoma californiense)*	
Permanent aquatic habitat non-CDFW lands	0.20
Permanent aquatic habitat CDFW lands	0.00
Permanent upland habitat non-CDFW lands	68.37
Permanent upland habitat CDFW lands	4.04

Impact Type	**Acres** (unless noted otherwise)
Required compensatory mitigation for impacts non-CFDW lands	*0.60 aquatic* *205.11 upland*
Required compensatory mitigation for impacts CDFW- lands	*20.20 upland*
Total required compensatory mitigation	**0.60 aquatic** **225.31 upland**
Temporary upland habitat non-CDFW lands	18.21
Temporary upland habitat CDFW lands	0.87
Required on-site restoration for impacts non-CDFW lands	*18.21 upland*
Required on-site restoration for impacts CDFW lands	*1.74 upland*
Total required on-site restoration	**19.95 upland**
Giant garter snake (*Thamnophis gigas*)	
Permanent aquatic habitat non-CDFW lands	22.83
Permanent aquatic habitat CDFW lands	0.83
Permanent upland habitat non-CDFW lands	96.29
Permanent upland habitat CDFW lands	1.59
Required compensatory mitigation non-CDFW lands	*68.49 aquatic* *288.87 upland*
Required compensatory mitigation CDFW lands	*4.15 aquatic* *7.95 upland*
Total required compensatory mitigation	**72.64 aquatic** **296.82 upland**
Temporary aquatic habitat non-CDFW lands	13.70
Temporary aquatic habitat CDFW lands	0.18
Temporary upland habitat non-CDFW lands	37.36
Temporary upland habitat CDFW lands	0.34
Required on-site restoration non-CDFW lands	*13.70 aquatic* *37.36 upland*
Required on-site restoration CDFW lands	*0.36 aquatic* *0.68 upland*
Total required on-site restoration	**14.06 aquatic** **38.04 upland**
Swainson's hawk (*Buteo swainsoni*)	
Permanent foraging habitat non-CDFW lands	1,916.41
Permanent foraging habitat CDFW lands	4.17

Impact Type	**Acres** (unless noted otherwise)
Permanent nesting habitat non- CDFW lands	22.01
Permanent nesting habitat CDFW lands	2.38
Required compensatory mitigation non-CDFW lands	*1,916.41 foraging* *22.01 nesting*
Required compensatory mitigation CDFW lands	*12.51 foraging* *11.90 nesting*
Total required compensatory mitigation	**1,928.92 foraging** **33.91 nesting**
Temporary foraging habitat non-CDFW lands	161.81
Temporary foraging habitat CDFW lands	0.90
Temporary nesting habitat non-CDFW lands	8.09
Temporary nesting habitat CDFW lands	0.51
Required on-site restoration non-CDFW lands	*161.81 foraging* *8.09 nesting*
Required on-site restoration CDFW lands	*1.80 foraging* *1.02 nesting*
Total required on-site restoration	**163.61 foraging** **9.11 nesting**
Tricolored blackbird (*Agelaius tricolor*)	
Permanent nesting habitat non-CDFW lands *(previously occupied colonies and potentially suitable colonies)*	7.98
Permanent nesting habitat CDFW lands *(previously occupied colonies and potentially suitable colonies)*	0.62
Permanent breeding foraging habitat non-CDFW lands	1,725.32
Permanent breeding foraging habitat CDFW lands	7.27
Permanent nonbreeding foraging habitat non-CDFW lands	1,725.32
Permanent nonbreeding foraging habitat CDFW lands	7.27
Required compensatory mitigation non-CDFW lands	*7.98 nesting* *1,725.32 breeding foraging* *1,725.32 nonbreeding foraging*
Required compensatory mitigation CDFW lands	*3.72 nesting* *29.08 breeding foraging* *14.54 nonbreeding foraging*
Total required compensatory mitigation	**11.70 nesting** **1,754.40 breeding foraging**

Impact Type	**Acres** (unless noted otherwise)
	1,739.86 nonbreeding foraging
Temporary nesting habitat non-CDFW lands *(previously occupied colonies and potentially suitable colonies)*	1.88
Temporary nesting habitat CDFW lands *(previously occupied colonies and potentially suitable colonies)*	0.13
Temporary breeding foraging habitat non-CDFW lands	180.05
Temporary breeding foraging habitat CDFW lands	1.57
Temporary nonbreeding foraging habitat non-CDFW lands	180.05
Temporary nonbreeding foraging habitat CDFW lands	1.57
Required on-site restoration non-CDFW lands	*1.88 nesting* *180.05 breeding foraging* *180.05 nonbreeding foraging*
Required on-site restoration CDFW lands	*0.26 nesting* *3.14 breeding foraging* *3.14 nonbreeding foraging*
Total required on-site restoration	**2.14 nesting** **183.19 breeding foraging** **183.19 nonbreeding foraging**
Crotch bumble bee (*Bombus crotchii*)	
Permanent suitable habitat non-CDFW lands (*all life stages*)	129.64
Permanent suitable habitat CDFW lands (*all life stages*)	7.25
Required compensatory mitigation non-CDFW lands	**129.64**
Required compensatory mitigation CDFW lands	**29.00**
Total required compensatory mitigation	**158.64**
Temporary habitat (*all life stages*) non-CDFW lands	49.17
Temporary habitat (*all life stages*) CDFW lands	1.57
Required on-site restoration non-CDFW lands-	*49.17*
Required on-site restoration CDFW lands	*3.14*
Total required on-site restoration	**52.31**
Mason's lilaeopsis (*Lilaeopsis masonii*)	
Permanent suitable habitat non-CDFW lands (*all life stages*)	2.12
Permanent suitable habitat CDFW lands (*all life stages*)	0.05
Required compensatory mitigation non-CDFW lands	*2.12*
Required compensatory mitigation CDFW lands	*0.15*

Impact Type	**Acres** (unless noted otherwise)
Total required compensatory mitigation	**2.27**
Temporary habitat *(all life stages)* non-CDFW lands	0.42
Temporary habitat (*all life stages*) CDFW lands	0.01
Required on-site restoration non-CDFW lands	*0.42*
Required on-site restoration CDFW lands	*0.02*
Total required on-site restoration	**0.44**
Delta smelt (*Hypomesus transpacificus*)	
Permanent tidal perennial habitat	5.57
Permanent shallow spawning habitat	500.6
Total required compensatory mitigation – permanent impacts	**16.71 tidal perennial 1,501.80 shallow spawning**
Temporary tidal perennial habitat	1.55
Total required compensatory mitigation - temporary impacts	**1.55 tidal perennial**
Longfin smelt (*Spirinchus thaleichthys*)	
Permanent tidal perennial habitat	5.57
Permanent shallow spawning habitat	500.6
Total required compensatory mitigation – permanent impacts	**16.71 tidal perennial 1,501.80 shallow spawning**
Temporary tidal perennial habitat	1.55
Total required compensatory mitigation -temporary impacts	**1.55 tidal perennial**
Winter-run Chinook salmon (*Oncorhynchus tshawytscha*)	
Permanent tidal perennial habitat	5.57
Permanent channel margin habitat	3,124 linear feet
Total required compensatory mitigation – permanent impacts	**16.71 tidal perennial 9,372 linear feet channel margin**
Temporary tidal perennial habitat	1.55
Temporary channel margin habitat	494 linear feet
Total required compensatory mitigation -temporary impacts	**1.55 tidal perennial 494 linear feet channel margin**
Spring-run Chinook salmon (*Oncorhynchus tshawytscha*)	
Permanent tidal perennial habitat	5.57

Impact Type	**Acres** (unless noted otherwise)
Permanent channel margin habitat	3,124 linear feet
Total required compensatory mitigation- permanent impacts	**16.71 tidal perennial 9,372 linear feet channel margin**
Temporary tidal perennial habitat	1.55
Temporary channel margin habitat	494 linear feet
Total required compensatory mitigation -temporary impacts	**1.55 tidal perennial 494 linear feet channel margin**
White Sturgeon (*Acipenser transmontanus*)	
Permanent tidal perennial habitat	5.57
Permanent channel margin habitat	3,124 linear feet
Total required compensatory mitigation -permanent impacts	**16.71 tidal perennial 9,372 linear feet channel margin**
Temporary tidal perennial habitat	1.55
Temporary channel margin habitat	494 linear feet
Total required compensatory mitigation - temporary impacts	**1.55 494 linear feet**

For the purposes of this requirement, CDFW lands include those lands owned by CDFW and lands subject to a conservation easement to which CDFW is a grantee or third-party beneficiary. These include the Bethany Reservoir Conservation Easement, Woodbridge Ecological Reserve, Cosumnes River Ecological Reserve or any adjacent lands protected by CDFW.

Table 12-2. Project Operations Compensatory Mitigation Acres for Covered Fish Species.

Impact Type	**Acres** (unless noted otherwise)
Delta smelt (*Hypomesus transpacificus*)	
Permanent tidal perennial habitat	1,352
Required compensatory mitigation	**1,352**
Longfin smelt (*Spirinchus thaleichthys*)	
Permanent tidal perennial habitat	1,352
Required compensatory mitigation	**1,352**

Impact Type	**Acres** (unless noted otherwise)
Winter-run and Spring-run Chinook salmon (*Oncorhynchus tshawytscha*)	
Permanent tidal perennial habitat	3,500 acres
Permanent channel margin habitat	2,634 linear feet
Required compensatory mitigation	**3,500 acres tidal perennial** **2,634 linear feet channel margin**
White Sturgeon (*Acipenser transmontanus*)	
Permanent tidal perennial habitat	3,500 acres
Permanent channel margin habitat	2,634 linear feet
Required compensatory mitigation	**3,500 acres tidal perennial** **2,634 linear feet channel margin**

12.1 Project Footprint Features with Impact Multiplier Percentages.
Permittee determined the quantity of permanent and temporary acres impacted by Covered Activities and requiring compensatory mitigation and on-site restoration, respectively, for the following Project construction features utilizing multipliers:

- 230 kV Transmission Lines:
  - *Tower footprint*: 0.36% of the total transmission line corridor identified by Permittee in its ITP application
  - *Tower work area, lay down areas, pull sites, temporary access route:* 46.77% of the transmission line corridor identified by Permittee in its ITP application
- Preconstruction Activities:
  - *Temporary surface impacts*: 21.6% of the preconstruction activity area identified by Permittee in its ITP application.

Permittee shall verify the accuracy of the multipliers assumed through its Annual Status Report documentation of impacts and mitigation (Conditions of Approval 10.9, 10.13, 12). CDFW may require an amendment to this ITP if additional take of Covered Species, or related impacts of the taking, will occur as a result of the Project 230 kV Transmission Lines or preconstruction activities in excess to the percentages calculated utilizing the above multipliers.

12.2 Restoration from Temporary Preconstruction Impacts.
Permittee shall backfill subsurface pits, trenches, and boreholes from preconstruction activities within one year of initiating Covered Activities with the excavated material, and shall place the stockpiled topsoil at the surface and fully restore the site where field investigations were conducted

(see Condition of Approval 12.3.3). Preconstruction activities on the surface over tunnel sections shall avoid siting test trenches, CPTs, and boring in aquatic features.

12.3 Temporary Impacts and On-Site Restoration.

Temporarily affected areas within Covered Species habitat and identified for on-site restoration shall be restored within one year of disturbance to pre-Project conditions or better, including grade and hydrology. Permittee shall ensure that vegetation restoration is implemented and completed in a manner that restores Covered Species habitat that will be temporarily disturbed during Covered Activities to pre-Project or better conditions. Restoration work may include activities such as replanting vegetation removed from banks or replanting emergent vegetation in active channels. Species-specific restoration efforts shall comply with guidelines approved by CDFW prior to the initiation of Covered Activities following Condition of Approval 10.4 suitable habitat features and Attachment 4.

12.3.1 Temporary Impact Criteria. To be considered a temporary impact for on-site restoration, an impact must meet the following criteria: (1) recontouring and reseeding of each temporary impact area shall occur within the year of the impact initially occurring and consistent with the Restoration and Revegetation Plan (Condition of Approval 12.3.3), and no additional ground disturbing activities shall occur; (2) if the impact area is within 1,000 feet of an aquatic feature, all work shall be completed within this area and exclusion fencing shall be removed by October 31 of the same year, allowing the Covered Species unrestricted access between upland and aquatic habitats; and (3) temporary impact sites shall achieve vegetation success as described in the Restoration and Revegetation Plan (Condition of Approval 12.3.3). Permittee shall not initiate Covered Activities that will result in temporary impacts to Covered Species habitat, including preconstruction activities, until the Restoration Plan is approved in writing by CDFW.

12.3.2 Temporary Impact Restoration Schedule. Prior to initiating any temporary impacts, Permittee shall develop a Temporary Impact Restoration Schedule that ensures: (1) removal of invasive substrate, recontouring, and seeding of temporary impact areas shall occur within the same year and at appropriate times to ensure seedling success ; and (2) all temporary impacts from prior years shall meet the recontouring and seeding criteria and shall achieve vegetation success as described in the Restoration and Revegetation Plan (See Condition of Approval 12.3.3).

12.3.3 Restoration and Revegetation Plan. Permittee shall prepare a Restoration and Revegetation Plan (Restoration Plan) to restore Covered Species habitat that will be temporarily disturbed during preconstruction activities and construction Covered Activities to pre-Project or better conditions. Permittee shall submit the Restoration Plan to CDFW as part of the appropriate Phase Authorization Package (Condition of Approval 6.2). The Restoration Plan shall include, at a minimum, the following information:

(1) A description of the existing physical and biological conditions of the site prior to commencement of restoration activities, including water resources and habitat types;

(2) Methodologies for the initial removal of nonnative plant species, trash, and debris;

(3) Identification of native plant seed mixes and/or plantings to be used;

(4) Source(s) of plant seeds and/or plantings;

(5) Seeding rate and/or number of plantings per species;

(6) Identification of mulching methodologies and product(s) to be used;

(7) Proposed spacing of plantings designed with sufficient space appropriate for each species;

(8) Habitat restoration design plans and maps for the restoration areas;

(9) Irrigation/watering plan, if warranted;

(10) Proposed weed management methods;

(11) Results of soil analysis which will include ground-truthing soil conditions (e.g., type, texture, chemical composition, and pH) by taking a soil sample and submitting the sample to an analytical laboratory;

(12) Identification of the plant species anticipated to be damaged or removed during Covered Activities based on completed preconstruction surveys;

(13) Monitoring methodologies and maintenance measures including a timeline for implementation;

(14) Fencing and signage to restrict pedestrian and/or vehicle access into the restoration areas;

(15) Procedures to ensure that invasive plants are not introduced or allowed to sustain at the revegetation site;

(16) Specifications to minimize impacts of disking, mowing, and grazing to Covered Species; and

(17) Success standards to ensure a minimum of 70 percent survivorship for three years after the last planting at each site and proposed remedial actions if those standards are not met.

Given the long period of time over which Covered Activities will occur and uncertainty over the location of habitat to be affected, the Restoration Plan shall be prepared and submitted within the appropriate Phase Authorization Package as construction plans are finalized and the specific Covered Species suitable habitats are identified. In addition to consistency with Condition of Approval 10.4, Attachment 4, and any species-specific habitat restoration guidelines approved by CDFW for defining suitable habitat for restoration purposes, the Restoration Plan shall include the following restoration standards:

Reference Sites. Prior to initiating ground disturbance, Permittee shall establish a representative number of transects within disturbed areas ("treatment") which will each be associated with a reference ("control") site (i.e., site within intact natural habitat that will be used as a model for restoration activities). Each treatment-control transect set shall be appropriately placed and numbered for identification purposes. The slope, aspect, and hydrological conditions shall be similar to both the site to be restored and the reference site. To document existing plant communities, Permittee shall photograph the treatment and control sites during the spring (March to June) when most flowering plants are in bloom. Permittee shall also evaluate species composition at the reference site. Permittee shall use information collected at the reference site to guide restoration activities.

Performance Standards. To be considered successful on-site restoration, Permittee shall meet the following performance standards:

(1) Gravel and other invasive substrate shall be removed from restoration areas.

(2) To the maximum extent feasible, topsoil shall be salvaged from within on-site Project areas prior to construction. Imported fill soils shall be limited to weed-free and pathogen-free topsoil similar in texture, chemical composition and pH to soils found at the Project Site(s).

(3) Permittee may import and place up to three feet of soil in compacted areas to increase the potential for vegetation establishment. Fill shall not be placed for purely aesthetic purposes, as fill has the potential to result in unnecessary and avoidable take of Covered Species. The upper one foot of fill shall consist of topsoil.

(4) Drivers may attempt to use adjacent shoulders for parking or to avoid ruts that form in roadways. To protect restored habitat adjacent to permanent roadways, permanent roads shall be kept in good repair, and barriers or fill shall be placed between the edge of the road and restored shoulders at the same grade to restrict vehicular access.

(5) Minor recontouring may be conducted; however, Permittee shall limit grading, compaction, fill, and other earthmoving activities to the Project construction site. Soils shall be protected from wind erosion using a biodegradable erosion control blanket or appropriate mulch cover (i.e., hydroseed), or other appropriate methods approved by CDFW, until vegetation is established. Seed shall be applied in the early fall, between October 15 and October 31. If feasible, seed shall be applied immediately prior to the first rain event. Mulch and seed shall be weed free and pathogen free.

(6) Seed mixes shall be identified for approval as part of the Restoration Plan and shall include a mix of locally native species and non-native forage species (no species designated by the California Invasive Plant Council (Cal-IPC) as high or moderate invasive species may be

used), including diverse assemblages of native and non-native flora, with an emphasis on nonnative bunchgrasses and other grassland species including local, native wildflowers and/or shrub seeds. Self-sustaining and/or drought-tolerant local native plants that do not create an extreme fire hazard shall also be used. Seeds may be collected from within the Project Area. Additional seeds shall be sourced from within 50 miles of the Project Area, and within level 4 eco-regions as seed zones, to the extent feasible (original genetic material collected within this radius); however, the seed may be purchased from a seed farm outside of this area. For seeding and mulching exposed slopes, the seed blend may include one or two sterile non-native perennial grass species. Seed mixes shall not have been treated with pesticides and shall be pathogen-free. Where there are temporary impacts to potentially suitable, but unoccupied MALI habitat, vegetation restoration shall include post-disturbance grading to elevations and hydrology suitable for MALI.

(7) Permittee shall predesignate each restoration area for establishment of a specific native vegetation community, based on slope, aspect, hydrological conditions, and if applicable, adjacent native vegetation. The seed mix for each restoration site shall be tailored to achieve the species composition of the predesignated vegetation community. The distribution of vegetation communities within the restoration area shall be roughly proportional to any native vegetation communities impacted. Following restoration, the species composition of each restoration site shall closely match that of the associated reference site.

(8) Permittee shall complete seeding prior to winter rains within a year of the impact and consistent with the Restoration Schedule (Condition of Approval 12.3.2). At the discretion of CDFW, all exposed areas where seeding is unsuccessful after 90 days shall be receive appropriate soil preparation and a second application of seeding, straw, or mulch as soon as practicable on a date mutually agreed upon. Straw and/or mulch used shall be weed and pathogen free.

(9) Permittee shall oversee the management of invasive plants within Project construction sites and Project maintenance areas and may use control methods such as hand removal, light grubbing, mowing, or grazing within seeding and planting areas following vegetation restoration. The Designated Biologist(s) shall ensure that invasive plant removal does not result in damage to adjacent Covered Species habitat or to root systems of planted plants. No more than five percent of the vegetation in each restoration site shall consist as species designated as high or moderate invasive species in the *California Invasive Plant Council (Cal-IPC) Inventory*.[52] If the presence of invasive species exceeds this threshold, Permittee is

[52] California Invasive Plant Council (2024). The Cal-IPC Inventory. Available: https://www.cal-ipc.org/plants/inventory/.

responsible for conducting appropriate control activities in coordination with CDFW and the property owner.

12.3.4 Monitoring and Maintenance. Permittee is responsible for monitoring and maintaining the habitat restoration areas for a period of three years or until the Restoration Plan success criteria have been met as determined by the Designated Biologist(s) and/or Biological Monitor(s) and CDFW in writing. For the first year, Permittee shall submit two monitoring reports. After the first six months following completion of restoration activities at a Project Site, Permittee shall submit the first monitoring report detailing vegetation establishment, percent invasive plant species, site photos, and other relevant observations regarding success of the restoration project(s) to CDFW. At the end of the first year, Permittee shall submit the second monitoring report identifying if restoration has been successful as outlined in the Restoration Plan. Upon successful restoration in Year 1, Permittee may submit the monitoring report annually thereafter either as part of the Annual Status Report (Condition of Approval 10.13) or as a stand-alone report until success standards have been met for three consecutive years.

Should the survival and/or cover requirements not meet the performance standards outlined in the Restoration Plan, Permittee is responsible for replacement planting, additional watering, weeding, invasive plant eradication, or any other practice to achieve the above requirements. Permittee shall continue to submit monitoring report(s) for each restored site to CDFW every six (6) months until standards have been met. Replacement plantings shall be monitored with the same survival and growth requirements for three years after successful planting.

12.4 Install and Maintain Bird Strike Diverters on Transmission Lines in the Project Area.
Permittee shall install bird strike diverters on newly constructed and existing transmission lines within the Project Area as a part of Covered Activities and shown in Attachment 1, Figures 5 and 6 consistent with Condition of Approval 11.17.1. Permittee shall submit a plan describing the location and type of bird strike diverters installed as compensatory mitigation for impacts to SWHA and TRBL to CDFW for review and approval as part of the appropriate Construction Phase Authorization Package (Condition of Approval 6.2). Upon written approval of the Plan by CDFW, Permittee shall install and maintain all bird strike diverters.

12.5 Compensatory Mitigation for SWHA.

12.5.1 Compensation for Lost Occupied Nest Sites. In addition to compensatory mitigation listed above in Table 12-1, Permittee shall compensate for any direct impacts to occupied nest sites (occupied within one or more years of the past five years). For each occupied nest site removed as a result of Covered Activities, Permittee shall plant five mature suitable nest trees (at least 20 feet tall) and 15 five-gallon container sized suitable nest trees (see Condition of Approval 10.4 and Attachment 5) at a location that is within preserved HM lands and approved in writing by CDFW.

Permittee may obtain transplanted mature trees from nursery stock or trees transplanted from construction sites. Permittee shall plant a combination of five mature trees and fifteen saplings at each replacement nest site to provide longevity to the nest site and ensure a sufficient number of trees will meet replacement nest tree success criteria (see Condition of Approval 12.5.3) and will survive to continue to provide SWHA nesting habitat over the long-term.

To ensure that transplanted trees and saplings establish new SWHA nest sites, Permittee shall:

- Establish replacement nest sites at least 0.5 miles apart.
- Establish replacement nest sites at least 0.25 miles from any existing suitable nest tree and at least 0.5 miles from any existing occupied nest tree.
- Establish replacement nest sites as close as possible to the impacted nest site, unless such location would have low long-term conservation value due to threats such as ongoing disturbance, seasonal flooding, or sea level rise.
- Plant the five mature trees and 15 saplings in sites within or adjacent to conserved suitable foraging habitat (see Condition of Approval 10.4).
- Plant mature nest trees and saplings before impacts to suitable nest sites to reduce temporal impacts resulting from the loss of mature nest trees.

12.5.2 Compensation for Lost Suitable Nest Trees. For each suitable nest tree removed as a result of Covered Activities, Permittee shall plant five native trees (five-gallon container size) suitable for SWHA nesting to replace lost suitable nest trees consistent with Condition of Approval 10.4 and Attachment 4 at sites within or adjacent to conserved foraging habitat.

12.5.3 SWHA Replacement Nest Tree Monitoring and Success Criteria. Permittee shall monitor and maintain all replacement trees (mature trees and saplings) for a period of ten years to ensure survival and appropriate growth and development. Success shall be measured as an 80% survival rate of mature trees and 80% survival rate of saplings at five and ten years after planting. After the first ten years, Permittee shall monitor replacement trees every five years to verify their continued survival and growth. For every tree lost during the ten-year period, Permittee shall immediately plant a replacement tree upon the detection of failure. Permittee shall provide all necessary maintenance (e.g., fertilizing, irrigation) to ensure successful tree establishment. Permittee shall irrigate trees for a minimum of five years after planting, and then gradually wean the trees off the irrigation during a period of approximately two years. If larger stock is planted, Permittee may reduce the number of years of irrigation accordingly. If the 80% establishment

success criteria cannot be met, Permittee shall coordinate with CDFW to determine additional measures.

12.6 Compensatory Mitigation for Delta Smelt and Longfin Smelt.

12.6.1 Mitigation for Impacts on DS and LFS Associated with Project Construction. Permittee shall site, design, restore, preserve, and provide for perpetual management of the following tidal habitat as compensatory mitigation for impacts on DS and LFS as a result of Project construction:

- 18.26 acres of freshwater tidal perennial habitat for DS
- 18.26 acres of freshwater or mesohaline tidal perennial habitat for LFS
- 1,501.8 acres of shallow freshwater spawning habitat for LFS and DS

This habitat restoration is required to restore the loss of access to shallow, freshwater spawning habitat upstream of the north Delta intakes for both DS and LFS. Permittee shall complete siting, design, and restoration of required DS and LFS compensatory mitigation prior to initiation of in-water construction Covered Activities that impact DS and LFS habitat. Permittee shall coordinate with CDFW throughout the process of site selection and restoration design for habitat mitigation (HM) lands intended to serve as compensatory mitigation for impacts to DS and LFS habitat.

Permittee shall integrate the results from the Ecological Response Evaluation Study: Delta Smelt and Longfin Smelt Spawning Habitat Study (Condition of Approval 10.21.5) into shallow spawning habitat design and implementation. All DS tidal perennial habitat restoration and shallow spawning habitat restoration shall be subject to approval by CDFW. If approved by CDFW, habitat restoration conducted to meet the requirements of other Conditions of Approval in this ITP may be credited to this requirement. As a part of perpetual management of the tidal habitat Permittee shall monitor habitat mitigation sites for a period of at least 10 years to ensure the effectiveness both as refuge and spawning habitat.

12.6.2 Mitigation for Impacts on Delta Smelt Associated with Phase 1 and Phase 2 Project Operations. Permittee shall site, design, restore, preserve, and provide for perpetual management of 1,352 acres of tidal perennial habitat, which may be a combination of mesohaline and/or freshwater, as compensatory mitigation to expand the diversity, quantity, and quality of DS rearing and refuge habitat in the tidal portions of the Delta and Suisun Marsh.

The acreage for mitigation is estimated using an analysis similar to the one originally conducted to support the 2008 USFWS BO and then carried forward into the 2019 and 2024 USFWS BOs and the 2020 and 2024 ITPs. This new analysis indirectly estimates the acres of the Delta impacted by north Delta diversions, and associated loss of DS and LFS food web resources, using the ratio of exports to inflow.

Permittee shall coordinate with CDFW throughout the process of site selection and restoration design for HM lands intended to serve as compensatory mitigation for impacts to DS habitat. All DS tidal wetland habitat restoration shall be subject to CDFW approval. If approved by CDFW, habitat restoration conducted to meet the requirements of other Conditions of Approval in this ITP may be credited to this requirement. Permittee shall complete siting, design, and restoration of required DS compensatory mitigation prior to initiation of Phase 1 Operations.

12.6.3 Delta Smelt Summer–Fall Habitat Action. The Delta Smelt Summer-Fall Habitat Action (Summer-Fall Action) included in the 2024 ITP is intended to benefit DS food supply and habitat, thereby contributing to the recruitment, growth, and survival of DS. The FLaSH conceptual model[53] states that DS habitat should include low-salinity conditions of 0 to 6 parts per thousand (ppt), turbidity of approximately 12 NTU, temperatures below 25°C (77°F), food availability, and littoral or open water physical habitats. The highest-quality habitat in Suisun Marsh and Grizzly Bay includes areas with complex bathymetry, in deep channels close to shoals and shallows, and in proximity to extensive tidal or freshwater marshlands and other wetlands. The Summer-Fall Action will provide the aforementioned habitat components in the Suisun Marsh and Grizzly Bay through an extension of the Suisun Marsh Salinity Control Gate action.

Operate Suisun Marsh Salinity Control Gates: Permittee shall work collaboratively with CDFW to model anticipated changes in the spatial and temporal extent of DS suitable habitat in Suisun Marsh and Grizzly Bay as a result of Phase 1 and Phase 2 operations. To address effects of Project operations on habitat for juvenile DS and food access for DS in summer and fall (June through October) in Suisun Marsh and Grizzly Bay, Permittee shall operate SMSCG for additional days, beyond requirements included in the 2024 ITP, between June 1 and October 31. Permittee shall conduct these additional days of operation during above normal, below normal, and dry years to the extent necessary to ensure that the spatial and temporal extent of DS suitable habitat in Suisun Marsh and Grizzly Bay during these periods is maintained and consistent with baseline conditions as required in the 2024 ITP.

12.6.4 Mitigation for Impacts on Longfin Smelt Associated with Phase 1 and Phase 2 Project Operations. Permittee shall site, design, restore, preserve, and provide for perpetual management of 1,352 acres of tidal perennial habitat, which may be a combination of mesohaline and/or freshwater, as compensatory mitigation to expand the diversity, quantity, and quality of LFS rearing and refuge habitat in the tidal portions of the Delta and Suisun Marsh. As described in Condition of Approval 12.6.2, the acreage for mitigation is estimated using an analysis similar to the one originally conducted to support the 2008 USFWS BO and then carried forward into the

[53] Brown, L.R., R. Baxter, G. Castillo, L. Conrad, S. Culberson, G. Erickson, F. Feyrer, S. Fong, K. Gehrts, L. Grimaldo, B. Herbold, J. Kirsch, A. Mueller-Solger, S. Slater, K. Souza, and E. Van Nieuwenhuyse (2014). Synthesis of studies in the fall low-salinity zone of the San Francisco Estuary, September–December 2011: U.S. Geological Survey Scientific Investigations Report 2014–5041. U.S. Geological Survey, Reston, VA.

2019 and 2024 USFWS BOs and the 2020 and 2024 ITPs. This new analysis indirectly estimates the acres of the Delta impacted by north Delta diversions, and associated loss of DS and LFS food web resources, using the ratio of exports to inflow.

Permittee shall coordinate with USFWS and CDFW throughout the process of site selection and restoration design for HM lands intended to serve as compensatory mitigation for impacts to LFS habitat. All LFS mesohaline habitat restoration shall be subject to approval by CDFW. If approved by CDFW, habitat restoration conducted to meet the requirements of other Conditions of Approval in this ITP may be credited to this requirement. Permittee shall complete siting, design, and restoration of required LFS compensatory mitigation prior to initiation of Phase 1 operations.

12.6.5 Spring Longfin Smelt Distribution. At least two years before initiating Phase 1 operations, Permittee shall work collaboratively with CDFW to use hydrologic and biological modeling to develop an approach to reduce the effect of Project Phase 1 and Phase 2 operations on the distribution of larval and juvenile LFS in the upper estuary (e.g., Suisun Marsh, Suisun Bay, San Pablo Bay) resulting from reduced outflow. Larval LFS are primarily neutrally buoyant with a brief period of surface orientation upon hatching and lack volitional swimming ability until they reach a size of at least 20mm. As a result, the distribution of larval LFS is expected to be determined by their hatching location and local hydrodynamics post-hatch. Juvenile LFS are expected to have fully developed fin arrays and are capable of directed migration. However, due to their limited size, their distribution is expected to be influenced by local hydrodynamics.

Permittee shall work collaboratively with CDFW to use hydrologic models (for example CalSim 3 and DSM2-PTM) to simulate operational scenarios that use different approaches to minimize Project exports during a high flow event when larval and juvenile LFS abundance peaks in the upper estuary to maintain the natural hydrograph. Adjusting south and north Delta exports to maintain a more natural hydrograph during a flow event on the Sacramento or San Joaquin rivers is expected to facilitate movement of larval and juvenile LFS from the Suisun area into San Pablo Bay during the time period when abundance of LFS peaks in the Delta (including the March 1 – May 1 time period).

Permittee and CDFW shall use the Longfin Smelt Life Cycle model and biological models (including modeling resources developed as a part of the Longfin Smelt Science Plan in the 2024 ITP) to evaluate the outcomes of different operational scenarios and select the alternative that best achieves the Delta Smelt and Longfin Smelt Biological Criteria (Condition of Approval 11.115) when considered along with other minimization measures in this ITP relative to impacts of Project Phase 1 and Phase 2 operations. Permittee shall implement the final CDFW-approved operational scenario during Phase 1 and Phase 2 operations.

12.6.6 Longfin Smelt Refugial Population Establishment and Management. Permittee shall contribute $6,000,000 to support and augment the existing implementation of the Longfin Smelt Culture Program established in the 2024 ITP (ITP No. 2081-2023-054-00).

The Longfin Smelt Culture Program shall expand upon the efforts initiated within the Longfin Smelt Science Plan and continue to be guided by the Longfin Smelt Science Program. The governance of the Longfin Smelt Culture Program will be implemented by Permittee and CDFW, in coordination with Reclamation and USFWS, while the Longfin Smelt Technical Team, as part of LFS Science Program, will continue to provide technical guidance and expertise to support advancements in LFS captive propagation.

Funding shall be provided to support the two primary goals of the Longfin Smelt Culture Program:

- Buffer against extinction and,
- Provide a source of fish for research.

Permittee funding shall be used for one of more of the following components of the Longfin Smelt Culture Program: 1) to continue the effort to fully close the LFS life cycle in captivity, 2) the development of a genetic management strategy and plan to implement once the refuge population is established in captivity, and 3) continued support for the genetically managed refugial population, in a manner that will allow for the production of fish for research, as coordinated with the Longfin Smelt Science Program, without compromising the genetic integrity of the refuge population.

12.7 Compensatory Mitigation for CHNWR and CHNSR.

12.7.1 Mitigation for Impacts on CHNWR and CHNSR Associated with Project Construction. Permittee shall site, design, restore, preserve, and provide for perpetual management of the required CHNWR and CHNSR tidal perennial habitat totaling 18.26 acres and channel margin habitat totaling 9,866 linear feet to expand the diversity, quantity, and quality of rearing habitat in the Sacramento River or associated sloughs downstream of the north Delta intakes to offset impacts to habitat associated with construction of the north Delta intakes (Table 12-1). Permittee shall site, design, and restore required CHNWR and CHNSR compensatory mitigation prior to Covered Activities that impact CHNWR and CHNSR habitat. Permittee shall coordinate with CDFW during the process of site selection and restoration design for habitat mitigation lands intended to serve as compensatory mitigation for construction impacts to CHNWR and CHNSR habitat. All CHNWR and CHNSR tidal perennial habitat and channel margin habitat restoration shall be subject to CDFW approval.

12.7.2 Mitigation for Impacts on CHNWR and CHNSR Associated with Phase 1 and Phase 2 Project Operations. Permittee shall site, design, restore, preserve, and provide for perpetual management of required CHNWR and CHNSR tidal perennial habitat totaling 3,500 acres and

channel margin habitat totaling 2,634 linear feet to expand diversity, quantity, and quality of rearing habitat in the Sacramento River or associated sloughs downstream of the north Delta intakes to offset impacts to habitat associated with operation of the north Delta intakes (Table 12-2). Permittee shall site, design, and restore required CHNWR and CHNSR compensatory mitigation prior to initiating Phase 1 Operations. Permittee shall coordinate with CDFW during the process of site selection and restoration design for habitat intended to serve as compensatory mitigation for operations impacts to CHNWR and CHNSR habitat. All CHNWR and CHNSR channel margin and tidal perennial habitat restoration shall be subject to approval by CDFW.

In addition to the compensatory mitigation requirements shown in Table 12-2, and upon approval of the change in point of diversion for the Project by the State Water Board, Permittee shall provide $8,000,000 to benefit CHNWR and CHNSR in the Sacramento-San Joaquin Delta or the Sacramento River watershed upstream of the Delta as compensatory mitigation for impacts to CHNWR and CHNSR associated with operation of the north Delta intakes during Phase 1 and Phase 2 operations. Consideration shall be given to genetic management and refugial population establishment as a part of the process to select and use this funding toward the highest priority projects for CHNSR.

Permittee shall coordinate with CDFW, NMFS, USFWS, Reclamation and other entities undertaking restoration and enhancement actions to identify the highest priority projects for funding annually and to accomplish the required CHNWR and CHNSR compensatory mitigation for impacts associated with Project operations. Restoration opportunities shall align with CHNWR and CHNSR recovery needs and be guided by information in the *Sacramento Valley Salmon Resiliency Strategy* and the *California Salmon Strategy for a Hotter, Drier Future*.[54, 55] Project selection for use of this funding shall be subject to CDFW approval.

12.8 Compensatory Mitigation for White Sturgeon (WS).

12.8.1 Mitigation for Impacts on WS Associated with Project Construction. Permittee shall site, design, restore, preserve, and provide for perpetual management of the required WS tidal perennial habitat totaling 18.26 acres and channel margin habitat totaling 9,866 linear feet to expand the diversity, quantity, and quality of rearing habitat in the Sacramento River or associated sloughs downstream of the north Delta intakes to offset impacts to habitat associated with construction of the north Delta intakes (Table 12-1). Permittee shall site, design, and restore required WS compensatory mitigation prior to Covered Activities that impact WS habitat.

[54] California Natural Resources Agency (2017). Sacramento Valley salmon resiliency strategy. California Natural Resources Agency, Sacramento, CA. June 2017.
[55] Office of California Governor Gavin Newsom (2024). California salmon strategy for a hotter, drier future: Restoring aquatic ecosystems in the age of climate change [Press Release]. Available: https://www.gov.ca.gov/wp-content/uploads/2024/01/Salmon-Strategy-for-a-Hotter-Drier-Future.pdf.

Permittee shall coordinate with CDFW during the process of site selection and restoration design for habitat mitigation lands intended to serve as compensatory mitigation for construction impacts to WS habitat. All WS tidal perennial habitat and channel margin habitat restoration shall be subject to CDFW approval.

12.8.2 Mitigation for Impacts on WS Associated with Phase 1 and Phase 2 Project Operations. Permittee shall site, design, restore, preserve, and provide for perpetual management of required WS tidal perennial habitat totaling 3,500 acres and channel margin habitat totaling 2,634 linear feet to expand diversity, quantity, and quality of habitat in the Sacramento River to offset impacts to habitat associated with operation of the north Delta intakes (Table 12-2). Permittee shall site, design, and restore required WS compensatory mitigation prior to initiating Phase 1 Operations. Permittee shall coordinate with CDFW during the process of site selection and restoration design for habitat intended to serve as compensatory mitigation for operations impacts to WS habitat. All WS habitat restoration shall be subject to approval by CDFW.

Upon approval of the change in point of diversion for the Project by the State Water Board, Permittee shall provide $1,300,000 to benefit WS in the Sacramento River, Delta, and/or San Joaquin River watersheds as compensatory mitigation for impacts associated with operation of the north Delta intakes during Phase 1 and Phase 2 operations. Prior to initiation of in-water construction Covered Activities, Permittee shall work collaboratively with CDFW to fund projects to offset impacts of Project Phase 1 and Phase 2 operations on WS. Final selection of projects shall be subject to CDFW approval. Permittee shall complete all CDFW-approved projects before initiating Phase 1 Operations.

As a part of the process to develop and finalize projects to offset impacts of Project Phase 1 and Phase 2 operations on WS, Permittee and CDFW shall collaboratively use the WS Life Cycle Model to re-evaluate Project impacts on WS as compared to the analyses used to support this ITP. Permittee, in collaboration with CDFW, may propose adjustments to this funding obligation for WS mitigation based on WS Life Cycle Model updated evaluations of the magnitude and scope of impacts of Project operations on the species. These adjustments may decrease or increase the obligation, with CDFW approval and determination that funding will provide sufficient restoration to continue to meet the full mitigation standard under CESA for WS.

12.9 Cost Estimates.

For the purposes of determining the Security amount for each Project Phase, Permittee shall provide the cost sufficient for CDFW or its contractors to complete acquisition, protection, and perpetual management of the HM lands as follows:

12.9.1 Land Acquisition. Land acquisition costs for HM lands identified in Condition of Approval 12. Land acquisition costs shall be estimated using local fair market current value per acre for lands with habitat values meeting mitigation requirements.

All other costs necessary to review and acquire the land in fee title and record a conservation easement as described in Conditions of Approval 12.11.1 and 12.11.2 below;

12.9.2 Start-up costs. Start-up costs for HM lands, including initial site protection and enhancement costs as described in Condition of Approval 12.11.6 below.

12.9.3 Management Funding. Interim management period funding as described in Condition of Approval 12.11.7 below. Long-term management and monitoring funding as described in Condition of Approval 12.12 below. Permittee shall estimate long-term management funding for the purpose of providing Security to ensure implementation of HM lands management.

12.9.4 Transaction Fees. Related transaction fees including but not limited to account set-up fees, administrative fees, title and documentation review and related title transactions, expenses incurred from other state agency reviews, and overhead related to transfer of HM lands to CDFW as described in Condition of Approval 12.12.

12.9.5 On-Site Restoration Costs. Restoration of on-site temporary effects to Covered Species habitat as described in Conditions of Approval 12.2 and 12.3.

12.10 Covered Species Credits.

If the Permittee elects to purchase Covered Species credits to complete compensatory mitigation obligations for any Project Phase, prior to purchase of Covered Species credits, Permittee shall obtain CDFW approval to ensure the mitigation or conservation bank is appropriate to compensate for the impacts of the Project Phase. Permittee shall submit to CDFW a copy of the Bill of Sale(s) and Payment Receipt prior to initiating Covered Activities in advance of incurring impacts to Covered Species habitat.

12.11 Habitat Management Lands Acquisition and Protection.

If the Permittee elects to provide for the acquisition, permanent protection, and perpetual management of HM lands to complete compensatory mitigation obligations, then the Permittee shall:

12.11.1 Fee Title. Transfer fee title of the HM lands to CDFW pursuant to terms approved in writing by CDFW. Alternatively, CDFW, in its sole discretion, may authorize a governmental entity, special district, non-profit organization, for-profit entity, person, or another entity to hold title to

and manage the property provided that the district, organization, entity, or person meets the requirements of Government Code sections 65965-65968, as amended.

12.11.2 Conservation Easement. If CDFW does not hold fee title to the HM lands, CDFW shall act as grantee for a conservation easement over the HM lands or shall, in its sole discretion, approve a non-profit entity, public agency, or Native American tribe to act as grantee for a conservation easement over the HM lands provided that the entity, agency, or tribe meets the requirements of Civil Code section 815.3. If CDFW elects not to be named as the grantee for the conservation easement, CDFW shall be expressly named in the conservation easement as a third-party beneficiary. The Permittee shall obtain CDFW written approval of any conservation easement before its execution or recordation. No conservation easement shall be approved by CDFW unless it complies with Civil Code sections 815-816, as amended, and Government Code sections 65965-65968, as amended and includes provisions expressly addressing Government Code sections 65966(j) and 65967(e). Because the "doctrine of merger" could invalidate the conservation interest, under no circumstances can the fee title owner of the HM lands serve as grantee for the conservation easement.

12.11.3 HM Lands Approval. Obtain CDFW written approval of the HM lands before acquisition and/or transfer of the land by submitting, at least three months before acquisition and/or transfer of the HM lands, documentation identifying the land to be purchased or property interest conveyed to an approved entity as mitigation for the Project's impacts on Covered Species. HM lands may be proposed and approved in segments or subsets.

12.11.4 HM Lands Documentation. Provide a recent preliminary title report, Phase I Environmental Site Assessment, and other necessary documents (please contact CDFW for document list). All documents conveying the HM lands and all conditions of title are subject to the approval of CDFW, and if applicable, the Wildlife Conservation Board and the Department of General Services.

12.11.5 Land Manager. Designate both an interim and long-term land manager approved by CDFW. The interim and long-term land managers may, but need not, be the same. The interim and/or long-term land managers may be the landowner or another party. Documents related to land management shall identify both the interim and long-term land managers. Permittee shall notify CDFW of any subsequent changes in the land manager within 30 days of the change. If CDFW will hold fee title to the mitigation land, CDFW will also act as both the interim and long-term land manager unless otherwise specified. The grantee for the conservation easement cannot serve as the interim or long-term manager without the express written authorization of CDFW in its sole discretion.

12.11.6. Start-up Activities. Provide for the implementation of start-up activities, including the initial site protection and enhancement of HM lands, once the HM lands have been approved by

CDFW. Start-up activities include, at a minimum: (1) preparing a final management plan for CDFW approval (2) conducting a baseline biological assessment and land survey report within four months of recording or transfer; (3) developing and transferring Geographic Information Systems (GIS) data if applicable; (4) establishing initial fencing; (5) conducting litter removal; (6) conducting initial habitat restoration or enhancement, if applicable; and (7) installing signage. Permittee shall provide for these start-up activities until the final management plan is approved and all restoration or enhancement actions are completed.

12.11.7 Interim Management (Initial and Capital). Provide for the interim management of the HM lands. The Permittee shall ensure that the interim land manager implements the interim management of the HM lands as described in the final management plan and conservation easement approved by CDFW. The interim management period shall be a minimum of three years from the date of HM land acquisition and protection and full funding of the Endowment and includes expected management following start-up activities. Interim management period activities described in the final management plan shall include fence repair, continuing trash removal, site monitoring, vegetation and invasive species management, and any other expected management activities. Permittee shall provide funding for interim management of the HM lands by using revenues derived from SWP charges to the SWP Contractors under long-term water supply contracts and any subsequent agreements.

12.12 In-Perpetuity Management Funding.

If the Permittee elects to provide for the acquisition, permanent protection, and perpetual management of HM lands to complete compensatory mitigation obligations, then the Permittee shall ensure that the HM lands are perpetually managed, maintained, and monitored by the long-term land manager as described in this ITP, the conservation easement, and the final management plan approved by CDFW. After obtaining CDFW approval of the HM lands, Permittee shall provide long-term management funding for the perpetual management of the HM lands. As shall be specified in written terms acceptable to CDFW for individual HM lands projects, Permittee shall provide long-term funding for the perpetual management of the HM lands by using revenues derived from the SWP charges to the SWP Contractors under long-term water supply contracts, and any subsequent agreements, to fund long-term management activities in perpetuity annually in the amount identified initially in a CDFW approved Property Analysis Record (PAR) or PAR-equivalent analysis (hereinafter "PAR") addressing the specific long-term management costs for individual HM lands sites. Actual annual funding shall be adjusted for inflation and may be adjusted to address actual costs of management over time, as approved by CDFW.

After the interim management period, Permittee shall ensure that the designated long-term land manager implements the management and monitoring of the HM lands according to the final management plan. The long-term land manager shall be obligated to manage and monitor the HM lands in perpetuity to preserve their conservation values in accordance with this ITP, the

conservation easement, and the final management plan. Such activities shall be funded as described above or in the event a conservation or mitigation bank is used to meet HM land requirements the long-term manager will be responsible for funding in perpetuity management through the endowment for the bank.

If funding is no longer available from SWP charges to the SWP Contractors, Permittee shall annually fund in-perpetuity management activities through another funding source until Permittee has established and fully funded an endowment. If another funding source is required, it shall be established within six months of identifying that the previous funding source will no longer be available. If SWP charges to the SWP Contractors are no longer available as funding, Permittee shall establish a long-term management fund (Endowment). The Endowment is a sum of money, held in a CDFW-approved fund, that that is permanently restricted to paying the costs of long-term management and stewardship of the mitigation property for which the funds were set aside, which costs include the perpetual management, maintenance, monitoring, and other activities on the HM lands consistent with this ITP, the conservation easement, and the management plan(s) required by this Condition of Approval, and based on funding requirements established through the PAR(s) prepared for the HM lands pursuant to this Condition of Approval and Condition of Approval 12.12.2. If the HM lands have been managed pursuant to a final management plan approved by CDFW for at least five years, the PAR and Endowment shall be based on the actual costs of managing the HM lands. Permittee shall fund the Endowment by contributing a minimum of ten percent of the amount required by the PAR (adjusted for present value) annually, commencing the fiscal year that SWP charges to the SWP Contractors are no longer an available funding source, to a mutually agreed upon account, until the Endowment is fully funded, after which time the activities under the management plan(s) will be funded from interest generated from the Endowment principal. Endowment as referred to in this ITP shall refer to the endowment deposit and all interest, dividends, other earnings, additions and appreciation thereon. The Endowment shall be governed by this ITP, Government Code sections 65965-65968, as amended, and Probate Code sections 18501-18510, as amended.

12.12.1 Identify an Endowment Manager. In the event an Endowment is required, the Endowment shall be held by the Endowment Manager, which shall be either CDFW or another entity qualified pursuant to Government Code sections 65965-65968, as amended. Permittee shall submit to CDFW a written proposal that includes: (i) the name of the proposed Endowment Manager; (ii) whether the proposed Endowment Manager is a governmental entity, special district, nonprofit organization, community foundation, or congressionally chartered foundation; (iii) whether the proposed Endowment Manager holds the property or an interest in the property for conservation purposes as required by Government Code section 65968(b)(1) or, in the alternative, the basis for finding that the Project qualifies for an exception pursuant to Government Code section 65968(b)(2); and (iv) a copy of the proposed Endowment Manager's certification pursuant to Government Code section 65968(e).

Within thirty days of CDFW's receipt of Permittee's written proposal, CDFW shall inform Permittee in writing if it determines the proposal does not satisfy the requirements of Fish and Game Code section 2081(b)(3) and, if so, shall provide Permittee with a written explanation of the reasons for its determination. If CDFW does not provide Permittee with a written determination within the thirty-day period, the proposal shall be deemed consistent with Section 2081(b)(3).

12.12.2 Calculate the Endowment Funds Deposit. In the event an Endowment is required, after obtaining CDFW written approval of the HM lands, long-term management plan, and Endowment Manager, Permittee shall prepare an endowment assessment (equivalent to a Property Analysis Record (PAR)) to calculate the amount of funding necessary to ensure the long-term management of the HM lands (Endowment Deposit Amount). Note that the endowment for the easement holder should not be included in this calculation. If at the time an Endowment becomes necessary, the HM lands have been managed pursuant to an approved final management plan for at least five years, Permittee shall use the actual costs of managing the HM lands to prepare the PAR. Permittee shall submit to CDFW for review and approval the results of the endowment assessment before transferring funds to the Endowment Manager.

12.12.2.1. Capitalization Rate and Fees. Permittee shall obtain the capitalization rate from the selected Endowment Manager for use in calculating the endowment assessment and adjust for any additional administrative, periodic, or annual fees.

12.12.2.2. Endowment Buffers/Assumptions. Permittee shall include in the endowment assessment assumptions the following buffers for endowment establishment and use that will substantially ensure long-term viability and security of the Endowment:

12.12.2.2.1. 10 Percent Contingency. A 10 percent contingency shall be added to each endowment calculation to hedge against underestimation of the fund, unanticipated expenditures, inflation, or catastrophic events.

12.12.2.2.2. Three Years Delayed Spending. The endowment shall be established assuming spending will not occur for the first three years after full funding.

12.12.2.2.3. Non-annualized Expenses. For all large capital expenses to occur periodically but not annually such as fence replacement or well replacement, payments shall be withheld from the annual disbursement until the year of anticipated need or upon request to Endowment Manager and CDFW.

12.12.3 Transfer Long-term Endowment Funds. In the event that an Endowment is required, Permittee shall fund the Endowment Deposit Amount over a maximum 10-year period, in annual

amounts of at least 10% of the total Endowment Deposit Amount, adjusted for inflation, as approved by CDFW in writing.

12.12.4 Management of the Endowment. In the event that an Endowment is required, the approved Endowment Manager may pool the Endowment with other endowments for the operation, management, and protection of HM lands for local populations of the Covered Species but shall maintain separate accounting for each Endowment. The Endowment Manager shall, at all times, hold and manage the Endowment in compliance with this ITP, Government Code sections 65965-65968, as amended, and Probate Code sections 18501-18510, as amended. No agreement governing the management and expenditure of the Endowment, if established, shall be executed prior to obtaining written approval of CDFW.

Consistent with Probate Code sections 18503 and 18504, which allow the instrument creating an endowment to establish practices that differ from certain default provisions in those sections, the Endowment Manager shall not make any disbursement from the Endowment that will result in expenditure of any portion of the principal of the endowment without the prior written approval of CDFW in its sole discretion. Permittee shall ensure that this requirement is included in any agreement of any kind governing the holding, investment, management, and/or disbursement of the Endowment funds.

Consistent with Probate Code sections 18503 and 18504, which allow the instrument creating an endowment to establish practices that differ from certain default provisions in those sections, if CDFW determines in its sole discretion that an expenditure needs to be made from the Endowment to preserve the conservation values of the HM lands, the Endowment Manager shall process that expenditure in accordance with directions from CDFW. The Endowment Manager shall not be liable for any shortfall in the Endowment resulting from CDFW's decision to make such an expenditure.

12.13 Reimburse CDFW.

Permittee shall reimburse CDFW for all reasonable costs incurred by CDFW related to issuance and monitoring of this ITP, including, but not limited to transaction fees, account set-up fees, administrative fees, title and documentation review and related title transactions, costs incurred from other state agency reviews, and overhead related to transfer of HM lands to CDFW, if applicable.

13. Security.

Permittee may proceed with Covered Activities based on the Security as described below. Permittee is a party to a long-term water supply contract with each of its 29 water supply customers, who are generally referred to as "SWP Contractors." SWP Contractors contract with Permittee to pay for the operation, maintenance, planning, and capital costs of the SWP. Under Water Code section 11651, "any agency which contracts to purchase from the department any water, use of water, water

storage, electric power, or other service shall provide for the punctual payment to the department of all amounts which become due under the contract." In accordance with a statutory requirement, each water supply contract between Permittee and a SWP Contractor requires that if that SWP Contractor fails or is unable to raise sufficient funds by other means, the SWP Contractor must levy upon all taxable property in the SWP Contractor's service area a tax or assessment sufficient (with other available moneys) to provide for all payments under the water supply contract. If the SWP Contractor defaults in payment, Permittee may, and under certain conditions is required to, upon six months' notice, suspend water deliveries during the period of default.

Permittee will treat the costs of ITP implementation as components of the Project and address such costs to fulfill those requirements as part of overall Project costs. Costs, such as routine operation, maintenance, and power (e.g., monitoring of mitigation sites) are not financed, but are instead paid in monthly installments in the calendar year, incurred based upon estimates developed by Permittee and delivered to the SWP Contractors in July of the preceding year.

Permittee shall assure performance as follows:

13.1 Security Amount.
The Security for each Phase shall be calculated prior to approval of that Phase based on the instructions provided in the Phase Authorization Form (Attachment 6) and Condition of Approval 12.9. The amount shall be determined by CDFW based on the cost estimates provided by the Phase Authorization Form, sufficient for CDFW or its contractors to complete land acquisition, property enhancement, startup costs, initial management, long-term management, studies, and monitoring.

13.2 Security Form.
Construction monitoring, compensatory mitigation implementation.
Permittee shall prepare and submit to CDFW within one year of issuance of a State Water Board approval of a change in point of diversion for the Project an initial CESA mitigation funding strategy for review and approval. The strategy shall include detailed cost estimates regarding implementation of construction-related monitoring and avoidance costs and mitigation costs including, as applicable: 1) purchase of mitigation or conservation bank credits; 2) HM lands acquisition and start-up costs and interim management period costs; 3) restoration costs including design, environmental review, permitting, construction and interim management period costs 4) and long-term management costs for all HM lands.

Permittee shall submit detailed updates to the strategy to CDFW for review and approval as part of any Phase Authorization Package. If a Phase will exceed three years, the strategy shall be updated and submitted to CDFW for review and approval every three years. These updates shall include extension of the detailed funding strategy for five (5) years post submission date, and shall include a description of expenditures to date for compliance with Conditions of Approval 12.1 through 12.8. To

the degree that annual charges to Contractors are relied upon, the funding strategy shall demonstrate that those funds have been or will be charged to Contractors and received by Permittee consistent with Contractor billing practices.

Covered Fish Species Monitoring and Scientific Studies.
With submittal of the draft Covered Fish Species Monitoring and Science Plan, Permittee shall provide a funding strategy for CDFW review and approval, which shall include costs associated with 1) planning and implementing required studies and monitoring, and 2) costs associated with preparing and submitting required reports.

13.3. Demonstration of Performance.
Before incurring impacts to Covered Species, Permittee shall demonstrate to CDFW that Covered Species' requirements have been satisfied, as evidenced by:

- Receipt by CDFW of a copy of the contract(s) entered into or arrangement made to satisfy California Water Code, section 85089, subdivision (a);
- Receipt by CDFW of documentation, acceptable to CDFW, demonstrating that subsequent financial agreements, entered into to cover repayment of Project-related bonds, explicitly identify funding for pre-construction studies, monitoring and all other Conditions of Approval of this permit as part of the construction costs of the Project;

During the permit term, Permittee shall demonstrate to CDFW that Covered Species' requirements have been satisfied on an ongoing basis and consistent with the requirements of Condition of Approval 12, as evidenced by:

- Written documentation of the acquisition of the HM lands;
- Copies of all executed and recorded conservation easements;
- Written confirmation from the approved Endowment Manager of its receipt of the full Endowment, if required; and
- Timely submission of all required reports.

Permittee must complete the required acquisition, protection and transfer of all HM lands and record any required conservation easements prior to commencing Covered Activities as specified in Condition of Approval 12. CDFW may require the Permittee to provide additional HM lands and/or additional funding to ensure the impacts of the taking are minimized and fully mitigated, as required by law, if the Permittee does not complete these requirements within the specified timeframe.

IX. Amendment:
This ITP may be amended as provided by California Code of Regulations, Title 14, section 783.6, subdivision (c), and other applicable law. This ITP may be amended without the concurrence of the

Permittee as required by law, including if CDFW determines that continued implementation of the Project as authorized under this ITP would jeopardize the continued existence of the Covered Species or where Project changes or changed biological conditions necessitate an ITP amendment to ensure that all Project-related impacts of the taking to the Covered Species are minimized and fully mitigated.

X. Stop-Work Order:
If CDFW determines the Permittee has violated any term or condition of this ITP or has engaged in unlawful take, CDFW may issue Permittee a written stop-work order instructing the Permittee to suspend any Covered Activity for an initial period of up to 30 days or risk suspension or revocation of this ITP. CDFW can issue a stop-work order to prevent or remedy a violation of this ITP, including but not limited to the failure to comply with reporting or monitoring obligations, or to prevent the unauthorized take of any CESA endangered, threatened, or candidate species, regardless of whether that species is a Covered Species under this ITP. The permittee shall stop work immediately as directed by CDFW upon receipt of any such stop-work order. Upon written notice to the Permittee, CDFW may extend any stop-work order issued to Permittee for a period not to exceed 30 additional days.

If Permittee fails to remedy the violation or to comply with a stop-work order, CDFW may proceed with suspension and revocation of this ITP. Suspension and revocation of this ITP shall be governed by California Code of Regulations, Title 14, section 783.7, and any other applicable law. Neither the Designated Biologist nor CDFW shall be liable for any costs incurred in complying with stop-work orders.

XI. Compliance with Other Laws:
This ITP sets forth CDFW's requirements for the Permittee to implement the Project pursuant to CESA. This ITP does not necessarily create an entitlement to proceed with the Project. Permittee is responsible for complying with all other applicable federal, state, and local law.

XII. Notices:
Written notices, reports and other communications relating to this ITP shall be delivered to CDFW by email or registered first class mail at the following address, or at addresses CDFW may subsequently provide the Permittee. Notices, reports, and other communications shall reference the Project name, Permittee, and ITP Number (2081-2024-018-00) in a cover letter and on any other associated documents.

Original cover with attachment(s) to:

Brooke Jacobs, Water Branch Manager
California Department of Fish and Wildlife

Post Office Box 944209
Sacramento, CA 94244-2090
Telephone (916) 903-6426
Brooke.Jacobs@wildlife.ca.gov

and a copy to:

Habitat Conservation Planning Branch
California Department of Fish and Wildlife
Attention: CESA Permitting Program
Post Office Box 944209
Sacramento, CA 94244-2090
CESA@wildlife.ca.gov

Unless Permittee is notified otherwise, CDFW's Representative for purposes of addressing issues that arise during implementation of this ITP is:

Brooke Jacobs,
Post Office Box 944209
Sacramento, CA 94244-2090
Telephone (916) 903-6426
Brooke.Jacobs@wildlife.ca.gov

XIII. Compliance with the California Environmental Quality Act:

CDFW's issuance of this ITP is subject to CEQA. CDFW is a responsible agency pursuant to CEQA with respect to this ITP because of prior environmental review of the Project by the lead agency, DWR. (See generally Pub. Resources Code, §§ 21067, 21069.) The lead agency's prior environmental review of the Project is set forth in the Delta Conveyance Project Final Environmental Impact Report, (SCH No.: 2020010227)] dated December 2023 that DWR certified for the Delta Conveyance Project on December 21, 2023, and the 2024 addendum thereto. At the time the lead agency certified the EIR and approved the Project; it also adopted various mitigation measures for the Covered Species as conditions of Project approval.

This ITP, along with CDFW's related CEQA findings, which are available as a separate document, provide evidence of CDFW's consideration of the lead agency's EIR for the Project and the environmental effects related to issuance of this ITP (CEQA Guidelines, § 15096, subd. (f)). CDFW finds that issuance of this ITP will not result in any previously undisclosed potentially significant effects on the environment or a substantial increase in the severity of any potentially significant environmental effects previously disclosed by the lead agency. Furthermore, to the extent the potential for such effects exists, CDFW finds adherence to and implementation of the Conditions of Project Approval adopted by the lead agency, and that adherence to and implementation of the

Conditions of Approval imposed by CDFW through the issuance of this ITP, will avoid or reduce to below a level of significance any such potential effects. CDFW consequently finds that issuance of this ITP will not result in any significant, adverse impacts on the environment.

XIV. Findings Pursuant to CESA:

CESA and CDFW's related implementing regulations require CDFW to prepare and adopt specific findings under CESA prior to and in connection with the issuance of this ITP. (See, e.g. Fish & G. Code § 2081, subs. (b)-(c); Cal. Code Regs., tit. 14, §§ 783.4, subds, (a)-(b), 783.5, subd. (c)(2).) CDFW's CESA findings for this ITP are available in a separate document as adopted by CDFW.

XV. Attachments:

ATTACHMENT 1	Maps
ATTACHMENT 2	MMRP
ATTACHMENT 3	Biologist Resume Form
ATTACHMENT 4	HM Lands Criteria
ATTACHMENT 5	Baseline Species Maps
ATTACHMENT 6	Phase Authorization Form

ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE ON 02/14/2025

Charlton Bonham, Director
California Department of Fish and Wildlife