Final

WATSONVILLE SLOUGH SYSTEM MANAGED AQUIFER RECHARGE AND RECOVERY PROJECT

Addendum to the Draft Environmental Impact Report

Prepared for
Pajaro Valley Water Management Agency

March 2025

Pajaro Valley Water Management Agency

ESA

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TABLE OF CONTENTS

Watsonville Slough System Managed Aquifer Recharge and Recovery Project – Addendum

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CHAPTER 1
Background and Purpose of the Addendum

1.1 Background

The Pajaro Valley Water Management Agency (PV Water) was formed in 1984 by the Pajaro Valley Water Management Agency Act for the primary purpose of managing groundwater resources and supplemental water supplies in its service area. PV Water's service area encompasses approximately 70,000 acres in the Pajaro Valley, located in southern Santa Cruz County, northern Monterey County, and a small portion of San Benito County. In the coastal areas and throughout much of the Pajaro Valley Groundwater Basin, overdraft conditions have caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater to move inland. Seawater intrusion has elevated the chloride concentrations in groundwater up to approximately three miles inland from the coast, in some areas contaminating the groundwater to the point that it is unsuitable for agricultural irrigation and domestic (potable) uses without treatment.

To help achieve its objective to manage local groundwater resources to reduce, and eventually halt, long-term overdraft of the groundwater basin while ensuring sufficient water supplies for present and anticipated needs, PV Water has prepared and periodically updates a basin-wide groundwater management plan, the Basin Management Plan (BMP), which serves, in part, as the basin's Groundwater Sustainability Plan (GSP) Alternative and is the guiding document for its major projects and programs to achieve sustainable groundwater resources. The Watsonville Slough System Managed Aquifer Recharge and Recovery Project (Project), consisting of the Harkins Slough Facilities Upgrade Project (referred to as the Harkins Slough Project) and the Struve Slough Project (previously call Watsonville Slough with Recharge Basins in the BMP) was first included in the BMP, and then analyzed as its own project in the Watsonville Slough System Managed Aquifer Recharge and Recovery Project Environmental Impact Report (EIR; SCH No. 2019059130) which was published in September 2020.[1] PV Water's Board of Directors certified the EIR in January 2021. The EIR evaluated potential environmental impacts that could occur as a result of implementing the Project, and provided applicable mitigation to reduce the intensity of potential environmental impacts. As part of Project approval, PV Water adopted a Mitigation Monitoring and Reporting Program (MMRP).

Subsequent to adoption of the EIR, the Project has undergone further development. Chapter 2 of this Addendum presents an updated description of the Project. Chapter 3 presents an evaluation of

[1] Pajaro Valley Water Management Agency, *Watsonville Slough System Managed Aquifer Recharge and Recovery Projects Supplemental Environmental Impact Report*, State Clearinghouse No. 2019059130, certified January 2021.

the environmental impacts of the Project as currently developed in comparison to the impacts disclosed in the EIR. Chapter 4 summarizes the findings of the evaluation presented in Chapter 3, and Chapter 5 contains an updated MMRP for the Project as planned for development.

1.2 Purpose of This Addendum

California Public Resources Code section 21166 and the CEQA Guidelines (Sections 15162 and 15164) require a lead agency to prepare an addendum to a previously certified EIR if some changes to the project occur or additions to the environmental evaluation are necessary, but none of the following occurs:

1. Substantial changes are proposed in the project which will require major revisions to the EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was adopted, shows any of the following:
    a. The project will have one or more significant effects not discussed in the EIR;
    b. Significant effects previously examined will be substantially more severe than shown;
    c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
    d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

This Addendum documents that the Project as modified subsequent to the certified EIR does not trigger any of the conditions described above.

CHAPTER 2
Project Description

2.1 Summary of Previously Approved Project

In the coastal areas and throughout much of the Pajaro Valley Groundwater Basin, overdraft conditions have caused groundwater levels to drop below sea level, creating a landward pressure gradient that causes seawater to flow inland contaminating freshwater aquifers. The Pajaro Valley Water Management Agency's (PV Water) objective is to achieve sustainable groundwater resources within the Pajaro Valley Groundwater Basin by managing local water resources to reduce, and eventually halt, long-term groundwater overdraft and seawater intrusion while ensuring sufficient water supplies for present and anticipated needs. In 2021, PV Water certified a supplemental environmental impact report (EIR) for the Watsonville Slough System Managed Aquifer Recharge and Recovery Project (Project)[1], consisting of Harkins Slough facilities upgrades and Stuve Slough components.[2] The EIR assessed construction and operation of the following:

- Upgrades at the Harkins Slough filter plant, intake and pump station;
- Backwash and raw water pipeline from the Harkins Slough filter plant to a gravity sewer in West Beach Street;
- New screened intake, pump station, and associated pipelines at Struve Slough;
- Pipeline from Stuve Slough to the Harkins Slough filter plant; and
- Three recharge basins (Southwest, Southeast, and North) and associated recovery wells, monitoring wells, and pipelines.

The EIR indicated that water would continue to be diverted at the existing point of diversion on Harkins Slough pursuant to PV Water's Water Right Permit 21039; for the Struve Slough Project, PV Water filed an application with the State Water Resources Control Board for a new water right[3] to divert water from Struve Slough.

2.2 Modified Project Components

Following certification of the EIR and approval of the Project, PV Water proceeded with design of the Project, resulting in modifications. **Table 2-1** summarizes key features of the Project described

1 Pajaro Valley Water Management Agency, *Watsonville Slough System Managed Aquifer Recharge and Recovery Projects Supplemental Environmental Impact Report*, State Clearinghouse No. 2019059130, certified January 2021.

2 The Harkins Slough facilities upgrades were previously considered as an individual project (Harkins Slough Facilities Upgrades Project or the Harkins Slough Project), as were the Struve Slough components (the Struve Slough Project). Since adoption of the EIR, the projects have been combined into the Watsonville Slough System Managed Aquifer Recharge and Recovery Project to be analyzed and permitted as one project.

3 Water Right Application A033151 was submitted September 4, 2020, and is pending as of December 2023.

in the certified EIR as well as proposed changes to the Project, which are described and evaluated in this document. Refer to **Figure 2-1** for location of Project components and **Table 2-2** for the updated estimated dimensions of Project components. Refer to **Appendix APN** for the assessor parcel numbers of properties that are wholly or partially within the footprint of proposed Project components.

Harkins Slough Facilities Upgrades

Intake and Filter Plant Upgrades

Upgrades to the Harkins Slough intake and filter plant would still include the installation of an intake screen and replacement of two existing intake (or diversion) pumps (refer to **Figure 2-2**). The 8-foot diameter cone intake screen would have a maximum capacity of 17 cubic feet per second (cfs) and a screen opening of 1.75 millimeters (mm) to protect aquatic organisms, particularly California red-legged frogs (*Rana draytonii*; CRF). All diversions would be conveyed through the new screened intake. The two new intake pumps would include one 30 horsepower (hp) pump and one 10 hp pump, only one pump would be operated at a time. As such, the intake would have a maximum flowrate of approximately 11 cfs (5,000 gallons per minute [gpm]) and a minimum flowrate of approximately 5.5 cfs (2,600 gpm). Additionally, valve operators on the discharge lines would be replaced. These components would be supported by six, 18-inch diameter, 15-foot-long precast concrete piles installed to a depth of approximately 15-feet below the bottom of the slough. A steel frame would be secured to the top of the piles, positioned at-grade on the slough bottom, to support the new intake infrastructure.

The Project initially proposed to include filter upgrades; however, this improvement would not be included at this time and water from either intake would be pumped directly to the recharge basins.[4] The existing filters and associated piping on the west side of the Harkins Slough filter plant would be demolished. While replacement of the intermediate pumps is not needed at this time, the following mechanical equipment upgrades would be included at the Harkins Slough Facility:

- Installation of new 14-inch check valves (one for each intake pump);
- Replacement of existing 12-inch air cushioned check valve (one for each 100 hp intermediate pump);
- Replacement of existing 16-inch air cushioned check valve (one for the 200 hp intermediate pump);
- Replacement of existing 12-inch butterfly valve (one for each 100 hp intermediate pump);
- Replacement of existing 16-inch butterfly valve (one for the 200 hp intermediate pump); and
- Replacement of existing 20-inch influent magnetic flow meter.

[4] Struve Slough typically has less turbidity than the PV Water target turbidity threshold (50 nephelometric turbidity units); PV water has successfully diverted water from Harkins Slough to the existing recharge basin without treatment when the turbidity is less than 50 NTU without apparent detrimental effect on the existing recharge basin.

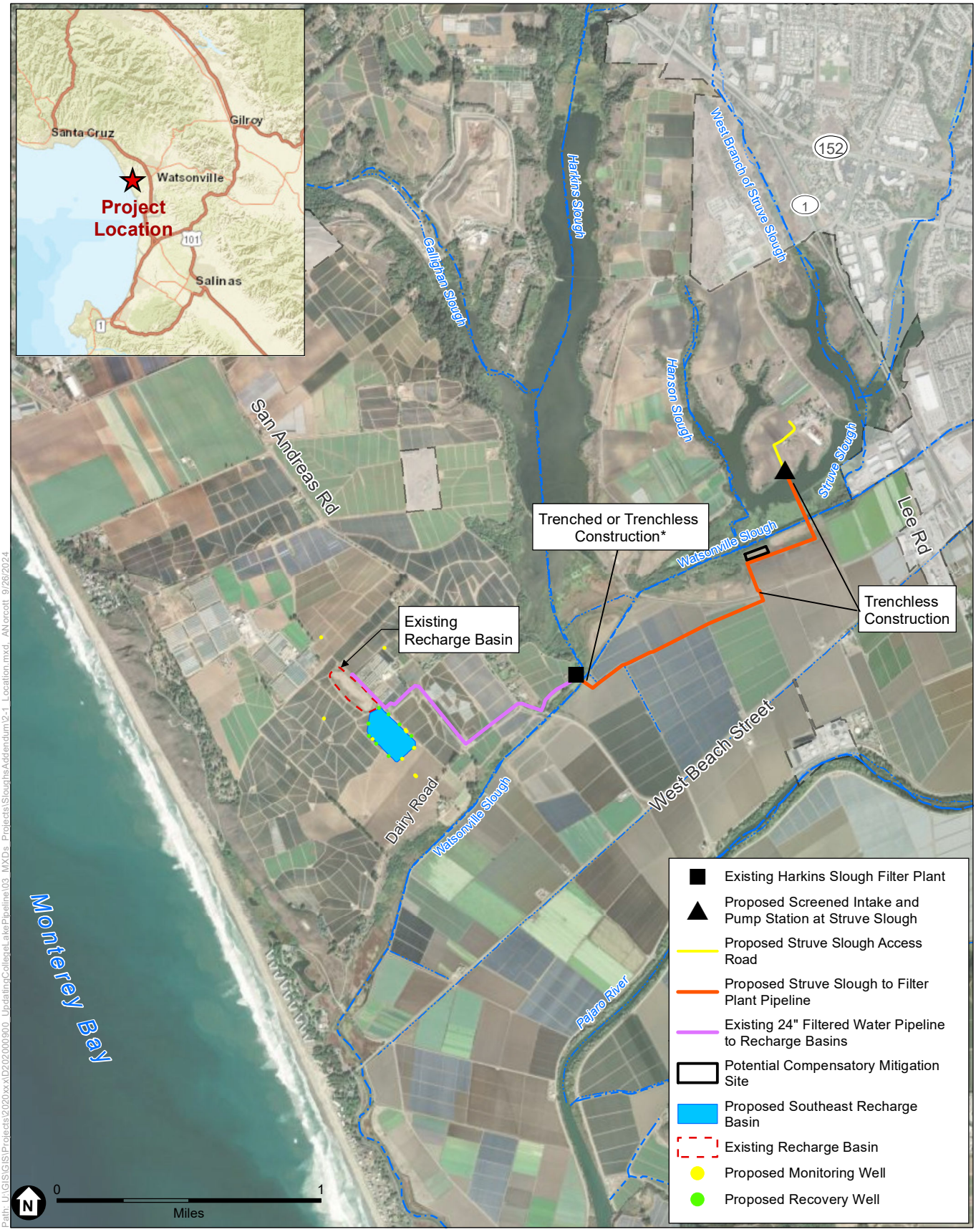
TABLE 2-1
KEY FEATURES OF WATSONVILLE SLOUGH SYSTEM MANAGED AQUIFER RECHARGE AND RECOVERY PROJECT

Harkins Slough Facilities Upgrades			
Key Feature		**Summary of EIR Project**	**Summary of Modified Project**
Annual Diversion	Average	Approximately 740 AFY	Approximately 770 AFY[a]
	Maximum	2,000 AFY	Same as approved Project: however, total diversions between Harkins and Struve would not exceed 4,000 AFY
Components	Facility Construction/ Expansion	• Construction of coagulant addition facilities. • Replacement of two existing diversion pumps and three existing intermediate pumps. • Addition of two diversion pump screens.	• Replacement of two existing diversion pumps and check valves at existing intermediate pumps. • Addition of one diversion pump screen. • Demolition of existing filters. Pumps would convey water directly to the recharge basins, bypassing filtration.
	Recharge Basins and Recovery Wells	**Southwest and Southeast Recharge Basins** • Would receive water pumped from Harkins or Struve Sloughs. • Southwest recharge basin: 16.7 acres with a capacity of 77 acre-feet. • Southeast recharge basin: approximately 12.7 acres, with a capacity of 128 acre-feet. • Estimated 10 recovery wells installed within 500 feet of each recharge basin to recover water from the aquifers. • Estimated 10 monitoring wells installed at each recharge basin to monitor underground water level fluctuations.	• Southeast Recharge Basin is essentially the same as approved Project. • The number and location of recovery and monitoring wells has been refined. • Southwest recharge basin will not be included at this time. • Replacement of electrical components are proposed at PV Water's existing recharge basin.
	Pipelines	• Pipeline to connect Southwest recharge basin to filter plant to recharge basins pipeline.	Not included at this time
		• 200-foot, 36-inch diameter pipeline to connect Southeast recharge basin to filter plant to recharge basins pipeline.	• 200-foot, 36-inch diameter pipeline to reroute a portion of an existing Coastal Distribution System irrigation pipeline around the Southeast Recharge Basin. • 800-foot, 24-inch diameter pipeline to connect the Southeast Recharge Basin to the existing pipeline that conveys water from the Harkins Facility to the recharge basins.
		• Backwash and raw water pipeline from filter plant to sewer pipeline under West Beach Street.	Not included at this time
Operations and Maintenance	Water Supply Diversions	• November 1 through May 31, subject to seasonal constraints of minimum water depth and consistent with existing permit conditions (from November 1 to March 31 diversions up to 30 cfs; from April 1 to May 31 diversion up to 3 cfs; no pumping from June 1 to October 31) • Total diversions up to 2,000 AFY consistent with existing permit conditions.	Same as approved Project: however, total diversions between Harkins and Struve would not exceed 4,000 AFY
	Maintenance	• Periodic inspections and maintenance of Project components.	Same as approved Project
Struve Slough Components			
Key Feature		**Summary Description of EIR Project Components**	**Summary of Modified Project Components**
Annual Diversion	Average	Approximately 1,320 AFY	Approximately 1,510 AFY[a]
	Maximum	4,000 AFY	Same as approved Project: however, total diversions between Harkins and Struve would not exceed 4,000 AFY
Components	Facility Construction/ Expansion	• Construction of a screened intake that would divert water from Struve Slough via a pipeline to the proposed pump station. • Construction of a pump station that would transport water to the Harkins Slough filter plant via a new pipeline (Struve Slough to filter plant pipeline).	Same as approved Project with the exception of the location of the intake and pump station, which is now on the Land Trust Property.[5]
	Recharge Basins and Recovery Wells	• North Recharge Basin and associated wells	Will not be included at this time
	Pipelines	• 250-foot, 36-inch diameter pipeline from screened intake to proposed pump station.	Same as approved Project
		• 7,150-foot, 30-inch diameter pipeline to connect Struve Slough pump station to Harkins Slough filter plant.	Alignment modified to avoid a wetland (increasing length to 8,000 feet); pipeline would connect to existing pipeline to recharge basin.
		• Pipeline to connect filter plant to recharge basins.	Not included at this time
		• Pipeline to connect North recharge basin to existing recharge basin pipeline.	Not included at this time
	Compensatory Mitigation Site	• Not previously included	Enhancement of an approximately 2.84-acre mitigation site (including an approximately 1-acre breeding pond) adjacent to Watsonville Slough to compensate for potential Project impacts on California red-legged frog.
Operations and Maintenance	Water Supply Diversions	• Year-round, subject to seasonal constraints on minimum water depth. • From November 1 to March 31 diversions up to 30 cfs; from April 1 to October 31 diversions up to 3 cfs. Total diversions up to 4,000 AFY.	Same as approved Project: however, total diversions between Harkins and Struve would not exceed 4,000 AFY
	Maintenance	• Periodic inspections and maintenance of Project components.	Same as approved Project

NOTES: AFY = acre-feet per year; cfs = cubic feet per second

[a] Average annual diversion values increased since publication of the EIR due to an extension in the period of record in hydrologic modeling that includes recent years where more water was available for diversion.

[5] Chapter 5, *Alternatives*, of the EIR described and evaluated the Struve Slough Pump Station on Land Trust Property Alternative (an alternative to the location described in FEIR Chapter 2, Project Description). As described in the Findings adopted by the PV Water Board of Directors, PV Water deferred decision on whether to move forward with the original or alternative site for the Struve Slough Pump Station. PV Water has since decided to move forward with the alternative site on the Land Trust property.



Watsonville Slough System Managed Aquifer Recharge and Recovery Project

SOURCE: Carollo Engineers, 2024; ESA, 2024

*If dewatering is feasible, PV Water would install the pipeline via open-trench construction.

Figure 2-1
Project Location Map

TABLE 2-2
ESTIMATED DIMENSIONS OF PROJECT COMPONENTS

	Project Component	Approximate Area, square feet (acres)	Maximum Depth of Excavation for Component (feet)	Height Above Finished Grade (feet)
Harkins Slough Facilities Upgrades	**Filter Plant and Pump Station Upgrades**			
	Diversion Pump Screen, Steel Support Frame, and Manifold[a]	300 (0.007)	2	3[a]
	Replacement of Diversion Pumps	20 (0.0005)	0	12
	Precast Concrete Piles (6)	445 (0.010)	15[d]	At grade
	Southeast Recharge Basin			
	Recharge basin	628,700 (14.4)[b]	13	Below grade
	Recovery Wells (10)[c]	1,000 (0.023)	160	3
	Monitoring Wells (10)[c]	160 (<0.0005)	160	3.25
Struve Slough Components	**Pump Station**			
	Pump Station (Top Slab/Equipment)	880 (0.02)	N/A	10
	Pump Station Site Work	14,000 (0.33)	2	At grade
	Pump Station (Base Slab)	880 (0.02)	35	Below grade
	Electrical & Controls Building (Base Slab)	722 (0.02)	2	8
	Grading for Access Road	22,000 (0.51)	2	At grade
	Screened Intake			
	Diversion Pump Screen (2)	160 (0.004)	0	4
	Precast Concrete Piles (8)	594 (0.014)	15[d]	At grade
	Wooden Piers (17)	1,148 (0.026)	15	6
	Steel Support	600 (0.01)	2	At Grade

NOTES:

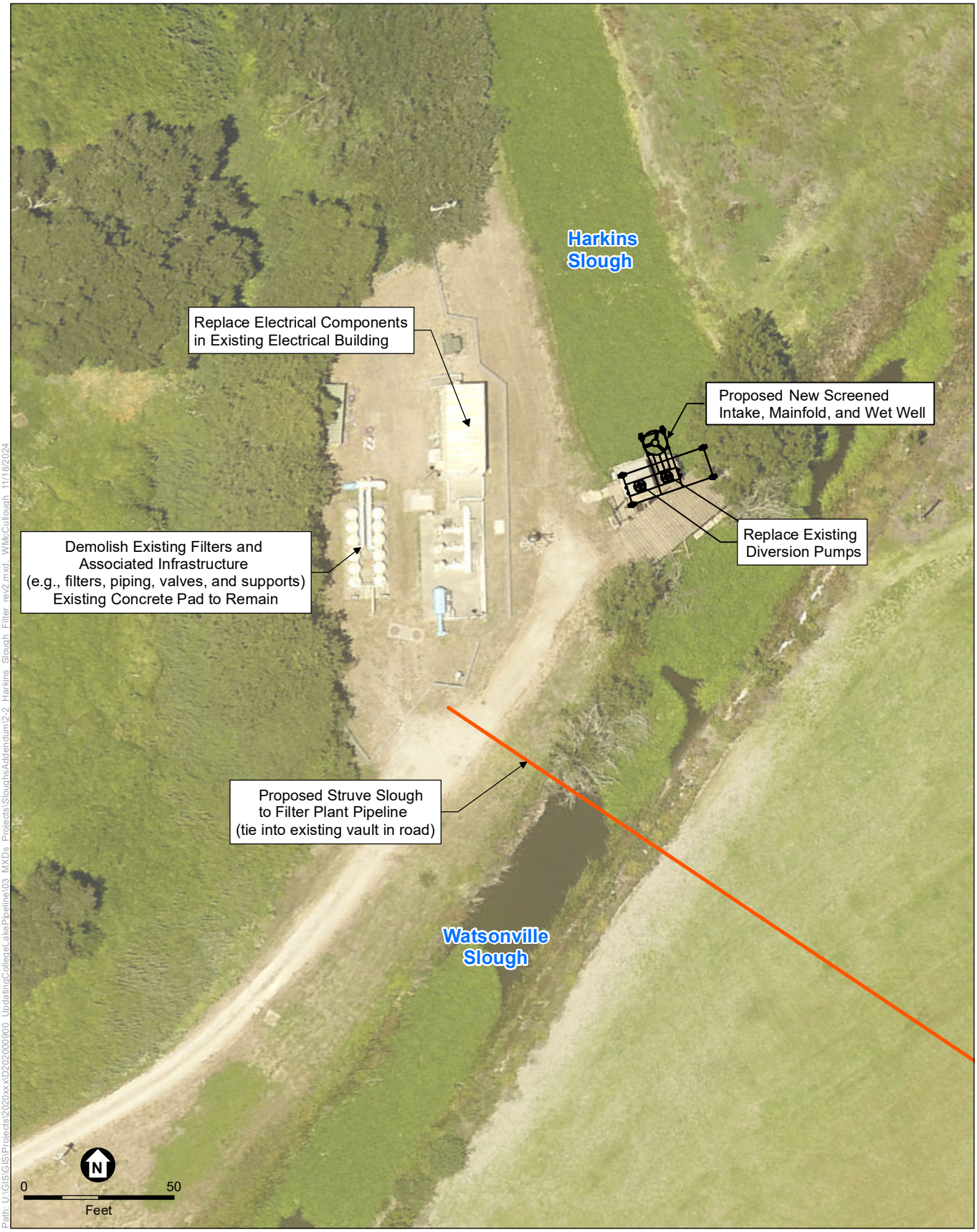
[a] The wet well for the diversion pump screen would be approximately 8 feet above the bottom of Harkins Slough.

[b] Area includes the perimeter road around the recharge basin and all grading. The actual basin would be approximately 12.7 acres.

[c] There would be approximately 10 recovery wells and 10 monitoring wells associated with the Southeast recharge basin. The recovery and monitoring wells may be constructed independently from the recharge basin. The dimensions would be the same for all recovery wells and monitoring wells. Information provided is for the cumulative 10 recovery and monitoring wells proposed under the Project.

[d] Piles would be driven to a depth of 15 feet below grade and not require excavation. perimeter

SOURCE: Carollo Engineers, 2024.



SOURCE: Carollo Engineers, 2024; ESA, 2024

Watsonville Slough System Managed Aquifer Recharge and Recovery Project

*Not shown: Additional facility pipelines to be demolished and infrastructure that would be abandoned in place.

Figure 2-2
Harkins Slough Filter Plant Site Plan

Southeast Recharge Basin and Associated Infrastructure

The characteristics of the Southeast recharge basin are similar to those described in the EIR with slight modifications (refer to **Figure 2-3**). The recharge basin would be approximately 12.7 acres and would have a bottom elevation of approximately 89 feet and a maximum water elevation of 118 feet.[6]

An overflow diversion structure between the existing and new recharge basin has been removed from the design as it is no longer needed. PV Water would instead construct a connection and valve on the Southeast recharge basin's inlet pipe to allow for pumping between the basins with a portable pump.[7] An approximately 200-foot, 36-inch diameter pipeline would reroute a portion of an existing Coastal Distribution System irrigation pipeline around the proposed Southeast basin. An approximately 800-foot, 24-inch pipeline would connect the existing 24-inch pipeline from the Harkins Slough Facility to the bottom of the Southeast basin, where water would be discharged. To accommodate energy needs for the recovery well pumps, PV Water is proposing to add two new electrical facilities around the perimeter of the basin.

As indicated in the EIR, construction of the Southeast recharge basin would require the demolition of existing structures (a warehouse, irrigation well, and a Coastal Distribution System turnout) and removal of several trees. A chain link fence with two access gates would be installed to enclose the existing and proposed recharge basins. Two access gates would be provided, one at the eastern corner of the proposed basin and one on the existing access road between the existing and proposed basins. Figure 2-3 depicts the location of recovery and monitoring wells.[8] Each of the recovery wells would resemble existing wells and would be constructed to conform to the existing grade, with a depth of approximately 160 feet. The monitoring wells would have a maximum depth of 160 feet.[9]

Existing Recharge Basin Electrical Upgrades

Replacement of electrical facilities at the existing recharge basin was added to the Project following field investigations. Electrical upgrades include replacement of switchboards, motor control centers, and remote terminal units or RTUs. The new switchboards, motor control centers, and RTUs would have a similar design and elevation as the existing facilities.

6 Carollo Engineers, Watsonville Slough System Managed Acquired Recharge and Recovery Project, FINAL Technical Memorandum 4: Southeast Recharge Basin Basis of Design, April 2024.

7 Carollo Engineers, Watsonville Slough System Managed Acquired Recharge and Recovery Project, FINAL Technical Memorandum 4: Southeast Recharge Basin Basis of Design, April 2024.

8 Additional recovery wells may be needed in the future based on recovery goals. Mitigation measures that apply to wells analyzed in this document would also apply to future wells.

9 Carollo Engineers, Watsonville Slough System Managed Acquired Recharge and Recovery Project, FINAL Technical Memorandum 4: Southeast Recharge Basin Basis of Design, April 2024.

SOURCE: Carollo Engineers, 2024; ESA, 2024

Note:
1. Not shown: inlet pipe for pumping between basins; connection from recovery wells to existing Coastal Distribution System pipelines.
2. A portion of the existing 24-inch filtered water pipeline located within the boundary of the proposed Southeast recharge basin would be relocated as needed.
3. Additional recovery wells may be needed in the future based on recovery goals.

Watsonville Slough System Managed Aquifer Recharge and Recovery Projects

Figure 2-3
Southeast Recharge Basin, Recovery and Monitoring Wells

Struve Slough

The function of facilities at the Struve Slough site would be as described in the EIR. The Project still includes construction of a screened intake, pump station, and associated pipelines, however, components would be constructed on the Land Trust Property evaluated in EIR Chapter 5, *Alternatives* (approximately 90 feet west of the site evaluated in EIR Chapters 2 and 3; refer to **Figure 2-4**).

Screened Intake and Pump Station

As described in the certified EIR, the Struve Slough pump station would receive diverted slough water via a 250-foot-long, 36-inch diameter high-density polyethylene (HDPE) pipeline from the intake. The screened intake at the diversion point in Struve Slough would be installed on a pile-supported steel base. Eight 18-inch diameter, 15-foot-long precast concrete piles would be installed to a depth of 15 feet below grade to support a steel frame foundation for the screened intake. The new intake would be installed on the steel frame at grade on the slough bottom and would include two 10-foot diameter cone screens both with a screen opening of 1.75 mm. All diversions would be conveyed through the new intake screens. There would be seventeen 12-inch diameter, 21-foot-long wooden piers installed around the intake screens for stability within the slough waters. These wooden piers would be installed to a depth of 15-feet below grade and protrude six feet above grade within the water column, two feet above the top of the 4-foot-tall intake screens.

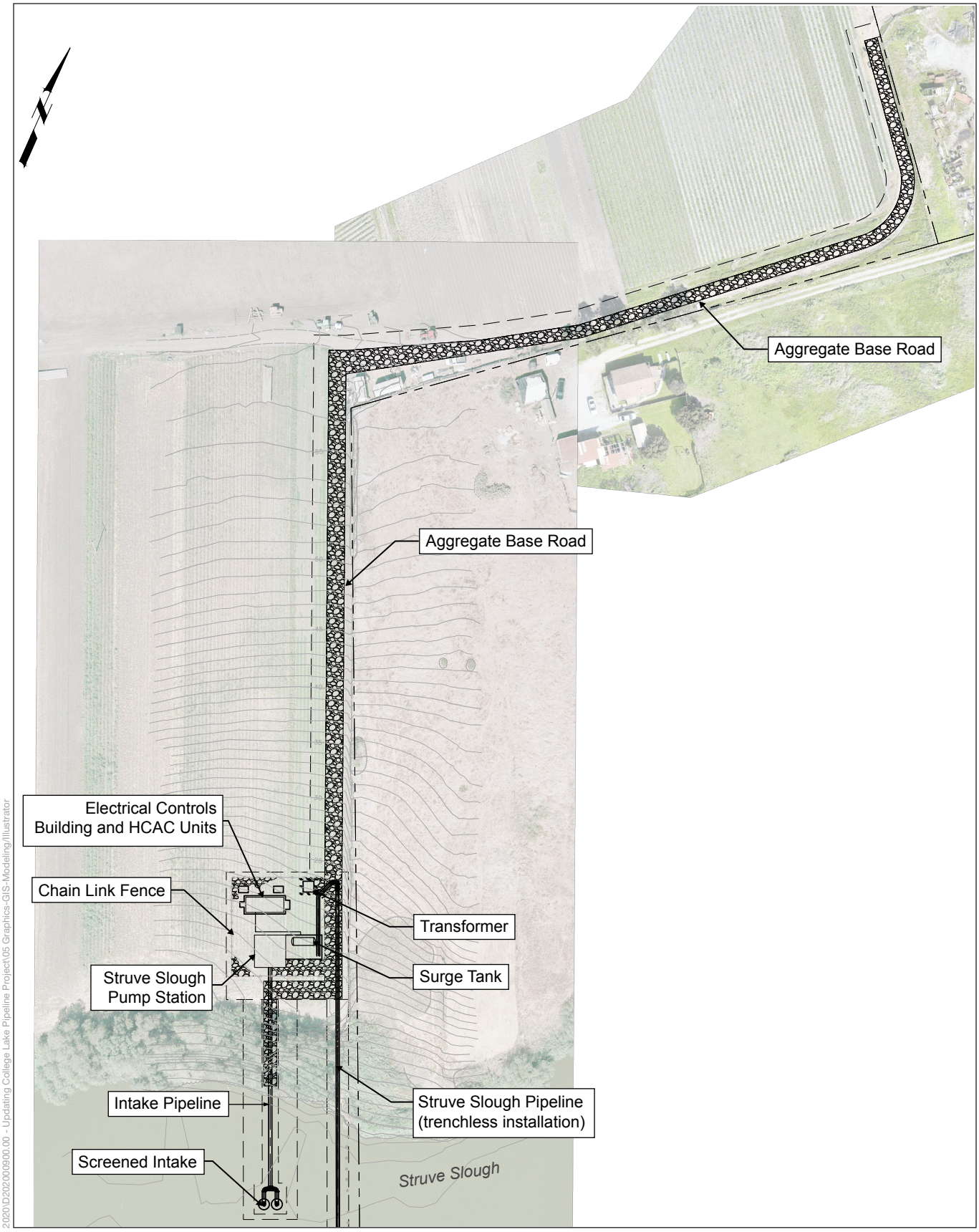
The new pump station would include two 400 hp pumps and one 75 hp pump, with a design maximum flowrate capacity of 25 cfs[10] (approximately 11,200 gpm) and a minimum flowrate of approximately 3 cfs (approximately 1,350 gpm), which would be designed to maintain noise levels at nearby residences at or below applicable local noise limits. Included on the pump station site would be the pump station, an electrical controls building, a surge tank, and a transformer (refer to Figure 2-4).[11]

The length of improvements to the existing farm roads which would provide access to the Struve Slough pump station via Lee Road and other adjacent farm roads as well as installation of approximately 150 feet of access road leading to Stuve Slough for intake maintenance, has been refined to a length of approximately 1,300 feet (refer to Figure 2-4). The access road from Lee Road to the northern part of the Project site would be covered with aggregate base to accommodate site access, and portions of the approximately 550-foot segment of farm road leading directly to the pump station would be graded (refer to Figure 2-4). The approximately 12-foot-wide access road leading to Stuve Slough would be cleared of existing vegetation and covered with aggregate base.

The pump station would be surrounded by an 8-foot-tall chain link fence with a 20-foot-wide access gate. Exterior security lighting will use motion sensors, timers, cones, and/or hoods to comply with the California Green Building Standards Code.

10 While the design capacity is 25 cfs, pumps may be able to operate up to 30 cfs under certain conditions.

11 Carollo Engineers, Watsonville Slough System Managed Acquired Recharge and Recovery Project, FINAL Technical Memorandum 1: Struve Slough Intake Facilities Basis of Design, April 2024.



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SOURCE: Carollo Engineers, 2024

Watsonville Slough System Managed Aquifer Recharge and Recovery Projects

Figure 2-4
Struve Slough Screened Intake and Pump Station

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Struve Slough to Filter Plant Pipeline

As noted above, the Struve Slough to filter plant pipeline has been rerouted since certification of the EIR. The pipeline, which would convey water from the Struve Slough pump station to the Harkins Slough filter plant, would now extend approximately 8,000 feet primarily within farm roads and agricultural fields. Once water is delivered to the Harkins Slough filter plant, the existing 24-inch filtered water pipeline would convey water to the recharge basins.

Compensatory Mitigation Site

As a condition of the project's approval by U.S. Fish and Wildlife Service (USFWS) and consistent with adopted Mitigation Measure BR-1b from the 2014 BMP Update PEIR (refer to Chapter 5, *Mitigation Monitoring and Reporting Program*, for the full text of the mitigation measure), the Project includes a proposed mitigation site to compensate for potential impacts to CRF. An approximately 2.84-acre mitigation site has been identified adjacent to Watsonville Slough that will be enhanced to create an approximately 1-acre CRF breeding pond. The pond is proposed on formerly cultivated land north of the Struve Slough to filter plant pipeline and east of the Land Trust of Santa Cruz County's property (refer to **Figure 2-5**).[12]

The mitigation site would be approximately 20 feet wide and surrounded by earthen berms that reach an elevation of 9 feet NAVD88, effectively isolating the site from slough flooding which otherwise could introduce (and contain) predatory fish. Sides of the basin would be sloped to support essential wetland edge habitat and the bottom elevation would be 4.5 to 5.0 feet NAVD88 to allow seasonal ponding during the CRF breeding season. The composition of the mitigation site would be designed to maintain approximately 30 percent open water, 30 percent wetland fringe, and no more than 10 percent willows to provide optimal habitat supporting breeding CRF. Design would support a subsurface hydraulic connection with Watsonville Slough to facilitate the mitigation site's groundwater/freshwater connection and improved water quality.

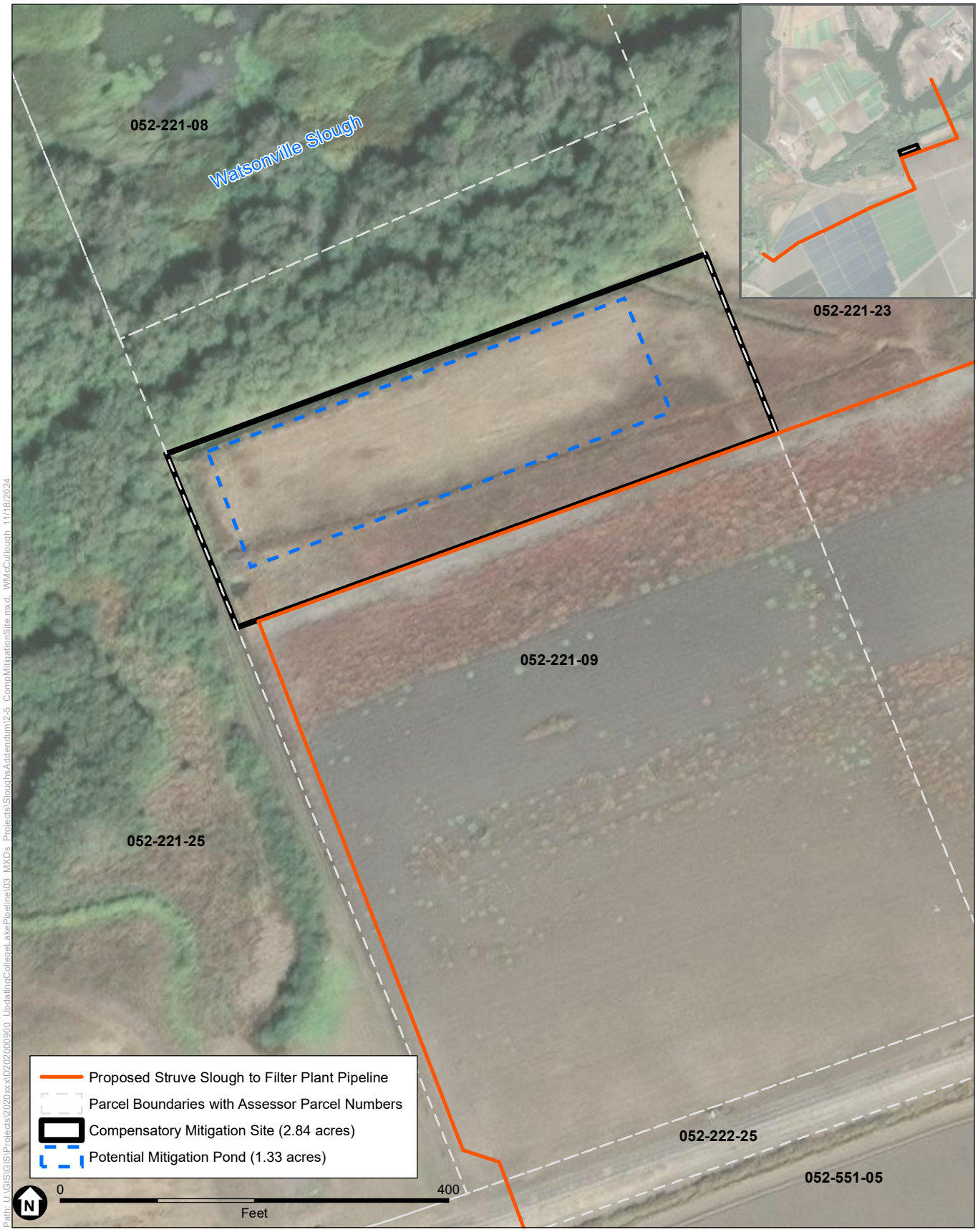
2.3 Construction

Construction Schedule, Hours, and Work Force

Construction Schedule

Construction would be initiated following issuance of permits, completion of design, acquisition of the necessary property rights, and approval of submittals. Project construction is expected to occur over approximately 18 months between 2026 and 2027. **Table 2-3** shows the currently anticipated construction schedule and duration of each activity for the Projects.

[12] While multiple sites were considered, the proposed compensatory mitigation site was selected based on professional expertise: unlike other candidate locations evaluated, the proposed site offers ideal conditions as breeding habitat for CRF. The proposed site regularly floods and has therefore not been actively farmed for several years.



SOURCE: ESA, 2024

Watsonville Slough System Managed Aquifer Recharge and Recovery Project

Figure 2-5
California Red-Legged Frog
Compensatory Mitigation Site

TABLE 2-3
APPROXIMATE CONSTRUCTION SCHEDULE[A]

Project Component/Construction Phase	Expected Duration	Estimated Schedule
Harkins Slough Facilities Upgrades		
Harkins Slough Filter Plant Upgrades		
Mobilization	1 month	June 2026
Intake Screen	1 months	June 2026
Mechanical Equipment Installation	2 months	July 2026 – August 2026
Commissioning[b]	1 month	December 2026
Demobilization	1 month	January 2027
Existing Recharge Basin Electrical Upgrades, Southeast Recharge Basin, Recovery Wells, Monitoring Wells, and Pipelines		
Mobilization	1 month	May 2026
Dewatering, Demolition, Grading, and Excavation	3 months	May 2026 – July 2026
Southeast Recharge Basin Yard Piping and Electrical[c]	4 months	July 2027 – November 2027
Existing Basin Electrical and I&C Upgrades	3 months	August 2027 – November 2027
Commissioning and Demobilization	1 month	December 2027
Struve Slough Components		
Screened Intake and Pump Station		
Mobilization	1 month	May 2026
Cofferdam/shoring/excavation	1 month	June 2026
Intake Screens and Yard Piping	3 months	July 2026 – September 2026
Concrete Work – Foundation	1 month	July 2026
Concrete Work – Walls	2 months	August 2026 – September 2026
Concrete Work – Elevated Slab	1 month	September 2026
Install Electrical Building	4 months	October 2026 – February 2027
Install Mechanical and Electrical Equipment[c]	2 months	July 2027 – August 2027
Conduit and Wiring	1 months	August 2027
Commissioning[b]	1 month	December 2027
Demobilization	1 month	December 2027
Struve Slough to Filter Plant Pipeline		
Mobilization	1 month	May 2026
Pipeline Installation[d,e]	4 months	June 2026 – September 2026
Pipeline Testing[b]	1 month	December 2026
Demobilization	1 month	December 2026
Compensatory Mitigation Site		
Construct Mitigation Site	2 weeks	Schedule to be determined in consultation with regulatory agencies

NOTES:

a Construction schedules shown are estimated pending receipt of permits, funding, and property rights.
b Delay in commissioning and testing due to slough water availability constraint.
c Delay in equipment, conduit, and wiring installation due to equipment procurement.
d Assume excavation, fill, and paving occurs as pipeline installation progresses.
e Installation of the Struve Slough to filter plant pipeline would occur over five months between May 2026 and October 2026. The time of construction to cross under Struve Slough via trenchless technology would be determined based on the state of fields south of Struve Slough, which periodically flood (trenchless construction would occur after the potential for flooding passes).

SOURCE: Carollo Engineers, 2024.

Construction Hours

Construction hours do not differ from those previously analyzed in the certified EIR. Standard hours for construction activities generating noise would be 8:00 a.m. to 6:00 p.m., Monday through Saturday. As described in the EIR, exceptions to standard construction hours would include well construction and trenchless pipeline construction, which may require 24-hour construction.

Construction Workforce and Equipment

Table 2-4 identifies the workforce as well as the construction equipment associated with the various Projects' components. Generally, between 6 to 12 workers would be working at a construction site at any given time.

Staging and Laydown Areas

The map in **Appendix EAS** indicates areas where construction equipment and materials would be stored (in purple) and the temporary easements/construction corridor for pipeline construction (in yellow).

Soils Management and Disposal

Table 2-5 presents the estimated volume of excess soil and rock material (spoils) that would be generated during construction of each of the Project's components. The volume of excavation for the compensatory mitigation site would be determined as design progresses, but it is assumed that excavated material would be reused onsite. As indicated in the certified EIR, excess excavated material generated during the construction of each component would be off hauled to Buena Vista Landfill or appropriate recycling facility or used by local farmers.

Construction Activities

Construction traffic routing, demolition of existing structures, and construction of Project components would generally occur as described in certified EIR Section 2.6, Construction. Additional demolition would include removing the existing filters at the Harkins Slough filter plant. Refer to Table 2-4 for equipment that would be required for construction of the Projects.

Screen and Intake Installation

Installation of the screened intake in Struve Slough and the pipeline connecting the intake to the pump station would likely require a cofferdam or shoring to create a construction work area. The cofferdam would consist of interlocking sheet piles to allow for dewatering of an approximately 0.18-acre work area and control of the work within the cofferdam. A temporary working platform would be installed adjacent to the excavated area to allow for access of excavation and piledriving equipment. The working platform area would be restored to pre-construction conditions once activities are complete.

Installation of the Harkins Slough diversion pump screen would likely not require dewatering. The screen assembly would be supported by piles driven adjacent to the existing pump facility platform. Once the piles are driven, the screen would be secured to the piles by underwater divers using clamp style fittings. The pumps would be dropped into the new wet well housings and sealed off from the waterway.

TABLE 2-4
CONSTRUCTION WORKFORCE AND EQUIPMENT

Project Component	Approximate Average Daily Work Force	Construction Equipment		
Harkins Slough Facilities Upgrades				
Filter Plant and Pump Station Upgrades	12	• Excavator (2) • Back Hoe/Track Hoe (1) • Air Compressor (1) • Pile Driver (1)	• Fork Lifts (2) • Crane (1) • Pumps (4)	• Generator Set (1) • Wiring Pulling Machine (1)
Southeast Recharge Basin, Recovery Wells, Monitoring Wells, and Pipelines	11	• Excavator (2) • Skip Loader (1) • Scraper (2) • Fork Lifts (1) • Scissor Lift (1) • Concrete Delivery Truck (20)	• Pump (1) • Air Compressor (4) • Water Truck (2) • Generator Set (2) • Rotary drill rig (1) • Dozer (2)	• Wiring Pulling Machine (2) • Drilling Fluid Cleaning/Recycling System (1) • Pipe Trailer (1)
Struve Slough Components				
Screened Intake	6	• Excavator (1) • Skip Loader (1) • Crane (1)	• Pumps (2) • Air Compressor (1) • Pile Driver (1)	• HDPE Fusion Welding Machine (1) • Generator Set (1)
Struve Slough Pump Station	10	• Excavator (1) • Concrete delivery trucks (144) • Dozers or Scrapers (2) • Back Hoe/Track Hoe (1)	• Fork Lifts (1) • Crane (1) • Scissor Lift (1) • Pumps (2) • Air Compressor (1)	• Water Truck (1) • Generator Set (1) • Wiring Pulling Machine (1) • Pile Driver (1)
Struve Slough to Filter Plant Pipeline	9	• Excavator (1) • Skip Loader (1) • Back Hoe/Track Hoe (2) • Dump Truck (24)	• Fork Lifts (1) • Pumps (2) • Water Truck (2) • HDPE Fusion Welding Machine (1)	• Generator Set (1) • HDD Crane (1) • HDD Mud Pumps (2)
Compensatory Mitigation Site	4	• Excavator (1)	• Dump Truck (1)	• Pickup Trucks (2)

SOURCE: Carollo Engineers, 2024.

TABLE 2-5
APPROXIMATE EXCAVATION SOIL VOLUMES

Project Component	Excavation Soil Volume (cubic yards)	Bulking Factor[a]	Excavated Soil to be Reused as Fill (cubic yards)	Excess Spoils to be Hauled Away (cubic yards)
Harkins Slough Facilities Upgrades				
Pump Station Upgrades – Diversion Pump Screens	20	30%	0	20
Southeast Recharge Basin, Recovery Wells, and Monitoring Wells	37,700		12,700	25,000
Pipeline to Southeast Recharge Basin	3,700		3,000	700
Pipeline to Irrigation Pipeline	1,200		900	300
			Harkins Slough Total Excess Soils[b]	**26,020**
Struve Slough Components				
Pump Station	2,100	30%	0	2,100
Screened Intake	20		0	20
Intake Pipeline	3,900		2,200	1,700
Struve Slough to Filter Plant Pipeline	27,000		17,500	9,500
			Struve Slough Components Total Excess Soils[b]	**13,320**
			Grand Total Excess Soils[b]	**39,340**

NOTES:
[a] The measure of change in volume of a material from when it is excavated to when it is deposited is the bulking factor.
[b] Totals may not add due to rounding.

SOURCE: Carollo Engineers, 2023.

Pipeline Installation

The certified EIR considered open trench and trenchless pipeline installations dependent on pipeline location. Refer to **Table 2-6** for updated pipeline construction details and Figure 2-1 for locations where trenchless construction would occur. Pipeline construction is estimated to occur at an installation rate of up to approximately 250 linear feet per day in undeveloped areas such as agricultural fields except as noted below. The width of construction corridors would vary depending on if the pipeline is near or within potentially jurisdictional wetlands or water. Consistent with EIR Section 2.6.6, Pipeline Installation, pipeline installation techniques and procedures for pipelines would generally be conducted as follows:

- **Struve Slough Intake Pipeline:** Assuming conditions are wet, this pipeline would be installed via open-trench construction within a coffer dam in Struve Slough.

- **Struve Slough to Filter Plant Pipeline:** PV Water would install this pipeline beneath Struve Slough using horizontal directional drilling (expected to take up to 30 work days). South of Struve Slough and adjacent Watsonville Slough, the pipeline would be installed using open-trench construction: the pipeline would be installed via trenchless pipeline techniques beneath the railroad tracks (expected to take up to 15 work days) and have a 20-foot-wide corridor across drainage ditches in select locations. The west end of the pipeline would cross under Watsonville Slough to reach the Harkins Slough filter plant. If dewatering is feasible (e.g., using a temporary cofferdam), PV Water proposes to install the

pipeline via open-trench construction with a 20-foot-wide construction corridor. If dewatering is not feasible, the pipeline would be installed via microtunneling.

- **Pipelines to Connect Southeast Recharge Basin to CDS and Existing Filter Plant to Recharge Basins Pipeline**. The proposed pipelines that would connect the Southeast Recharge Basin to the CDS and existing filter plant to recharge basins pipeline would have a 60-foot-wide construction corridor.

Construction Dewatering and Pipeline Cleaning

Construction dewatering and pipeline cleaning would occur as described in EIR Section 2.6.7.1. Dewatering of excavated areas would be temporary and necessary when surface water or subsurface water is encountered. Water from excavated areas would be discharged to agricultural lands, storm drains, or other waterways, and would be discharged in accordance with applicable regulatory requirements (described in EIR Section 3.3, Surface Water, Groundwater, and Water Quality).

The contractor would treat water from excavated areas as necessary prior to discharge. The treatment could include settling tanks or filter bags to allow sediment to settle out. The need for a cofferdam and dewatering at the Struve Slough intake and where pipelines cross sloughs would be determined based on the amount of water in the sloughs during construction. After pipeline installation, the construction contractor would clean the newly installed pipelines by removing materials and debris before bringing the pipe into service. The water at the outlet end of the pipeline would be discharged in accordance with applicable regulatory requirements.

Site Cleanup and Restoration

After construction, undeveloped areas and agricultural fields used during construction would generally be restored to pre-project conditions consistent with applicable permit conditions.

2.4 Operations and Maintenance

Operations and maintenance activities for Project components discussed in the EIR would be the same as those described in the certified EIR Section 2.7, Operations and Maintenance. Table 2-1 identifies modified anticipated diversion quantities and modified periods of diversion for the Projects.

Sediment removal at the compensatory mitigation site would occur as needed, likely every 5 to 6 years. PV Water or a local entity would conduct long-term vegetation maintenance, if needed (e.g., mowing/weed-shipping, willow thinning, and invasive plant control every 2 to 3 years) to ensure that the mitigation site continues to provide suitable habitat for CRF.

2.5 Required Actions and Approvals

PV Water would continue to conduct the necessary studies and consultations to obtain the permits and approvals shown in the certified EIR at Table 2-9.

TABLE 2-6
MODIFIED PIPELINE CONSTRUCTION DETAILS

Pipeline Name[a]	General Location	From	To	Length (ft.)	Width (in.), Material	Construction Method[b]	Estimated Average Production Rate (linear ft./day)[c]
Struve Slough to Filter Plant Pipeline	Unincorporated Santa Cruz County – Located within agricultural fields	Pump station north of Struve Slough	Existing 24-inch filtered water pipeline at Harkins Slough Facility	8,000	30, HDPE	Open trench, trenchless at Struve Slough crossing and railroad crossing	100-250
Intake Pipeline	Unincorporated Santa Cruz County – Located within Watsonville/Struve Slough and agricultural fields	Intake Screen in Struve Slough	Pump Station north of Struve Slough	215	36, HDPE	Open Trench	100-150
Raw Water Pipeline to Southeast Recharge Basin	Unincorporated Santa Cruz County – Located within agricultural fields	Existing raw water pipeline to recharge basins	Southeast Recharge Basin	800	24, Steel	Open Trench	100-250
Conveyance Pipeline at Southeast Recharge Basin	Unincorporated Santa Cruz County – Located within agricultural fields	Existing and Southeast Recharge Basins	Coastal Distribution System	200	36, Steel	Open Trench	100-250
Southeast Recharge Basin recovery well connection header	Unincorporated Santa Cruz County – Located within agricultural fields	Southeast Recharge Basin recovery wells	Existing 36-inch CDS pipeline	2,900	12, HDPE	Open Trench	100-250
Recovery well connection pipes	Unincorporated Santa Cruz County – Located within agricultural fields	Recovery wells	Recovery well connection header or CDS	500	4, HDPE	Open Trench	100-250
Flushing, Pressure Testing	All Pipelines					N/A	N/A
			Total	**12,615**			

NOTES:

[a] Please refer to Figures 2-1 and 2-4 for pipeline locations.
[b] The timing of trenchless pipeline installation under Struve Slough would be determined based on flooding of fields south of the slough.
[c] The production rate is subject to variation due to site conditions (access, existing utilities, and traffic control requirements).

CHAPTER 3
Evaluation of Environmental Impacts

The evaluations made in the certified Environmental Impact Report (EIR) were revisited to determine whether any changes to the analyses were warranted based on refinements to the Watsonville Slough System Managed Aquifer Recharge and Recovery Project (Project). This chapter describes changes that have occurred in the existing environmental conditions within and near the Project area as well as environmental impacts associated with the modified Project. The analysis includes consideration of the mitigation measures adopted for the Project as part of the Mitigation Monitoring and Reporting Program (MMRP). Chapter 5, *Mitigation Monitoring and Reporting Program,* contains the mitigation measures from the adopted MMRP that apply to the Project.

The topics listed below were sufficiently addressed in the EIR and required no additional analysis because either the nature, scale, and timing of the Project has not changed in ways relevant to the topic or there has not been a substantial change in the circumstances involving the topic on the Project site, nor in the local environment surrounding the site.

- **Land Use and Agricultural Resources.** Many of the Project components would remain within Important Farmland as described in EIR Section 3.2. The Southeast recharge basin and associated monitoring and recovery wells would still be wholly within land designated Important Farmland and would result in approximately 14.4 acres of converted farmland. As described in EIR Section 5.3.4, Struve Slough Pump Station on Land Trust Property Alternative, the Struve Slough pump station on APN 052-081-37 would also be wholly within Important Farmland. The intake pump station, electrical controls building, and surrounding access improvements at Struve Slough would result in conversion of approximately 0.9 acre of farmland and the compensatory mitigation site would result in conversion of approximately 2.84 acres of farmland.[1] Mitigation Measures LU-1a would be implemented to help reduce the magnitude of this impact by compensating for conversion of Important Farmland. While a majority of the Struve Slough to filter plant pipeline analyzed in the EIR was within Important Farmland, the alignment has since been rerouted to avoid restored wetlands in APN 052-221-25, resulting in approximately 850 feet more of the pipeline being constructed within Important Farmland. While there would be temporary disruption of farming operations during construction of the pipeline, and PV Water would occasionally access the pipeline for maintenance purposes, which could also temporarily disrupt farming operations, there would be no permanent conversion of Important Farmland associated with the Struve Slough to filter plant pipeline. Implementation of Mitigation Measure LU-1b would require PV Water to replace topsoil in agricultural areas temporarily disturbed to prevent a long-term adverse effect on Important Farmland resulting from pipeline construction. For

[1] Note that approximately 0.5 acre of Important Farmland associated with the proposed aggregate base access road is already used as a farm road and the proposed compensatory mitigation site has not been farmed in at least 5 years (soils are too saturated for the vegetable row crops cultivated on this parcel).

these reasons, the Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to land use and agricultural resources than those discussed in the certified EIR.

- **Biological Resources.** As indicated in Chapter 2, *Project Description*, several components that were analyzed in the EIR are not being carried forward at this time (e.g, backwash and raw water pipeline, additional recharge basins). The revised alignment of the Stuve Slough to filter plant pipeline would avoid recently restored wetlands, implementing parts of Mitigation Measures BIO-1a (avoiding wetland and riparian habitat) and BR-1b (temporary impacts in CRF critical habitat); the locations of the remaining Project components that were previously analyzed in the EIR have not changed. The proposed compensatory mitigation site described in Chapter 2 is located on a parcel containing an agricultural wetland and overlaps with approximately 0.3 acre of critical habitat for CRF. The purpose of the mitigation site is to create and enhance habitat for biological resources, specifically breeding habitat for CRF, implementing part of Mitigation Measure BR-1b (with respect to permanent impacts to CRF habitat). The mitigation approach was developed in consultation with U.S. Fish and Wildlife Service staff. The development of the mitigation site includes creating a seasonal pond within the agricultural wetland, with open water, wetland, and riparian features, representing an improvement in wetland functions and services from existing conditions. Portions of the agricultural wetland beyond the footprint of the mitigation pond that would be temporarily disturbed during construction activities would be restored to a floodplain wetland through seeding with native species. The mitigation measures presented in Chapter 5, *Mitigation Monitoring and Reporting Program*, would otherwise be implemented to reduce construction and operational impacts on biological resources to less-than-significant levels. For these reasons, the Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to biological resources than those discussed in the certified EIR.

- **Air Quality and Greenhouse Gases.** As indicated in Chapter 2, *Project Description*, several components that were analyzed in the EIR are not being carried forward at this time (e.g., backwash and raw water pipeline, additional recharge basins). The reduction in Project construction activities would result in an overall reduction in air quality impacts and greenhouse gas emissions as compared to those analyzed in the EIR, even with the minor addition of activities associated with construction of the compensatory mitigation site. Mitigation Measure AQ-1 would be implemented to further reduce impacts. For these reasons, the Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to air quality and greenhouse gas emissions than those discussed in the certified EIR.

- **Geology and Soils.** The Struve Slough to filter plant pipeline would remain in the same geologic unit as the previous alignment (basin deposits, Qb) and the Struve Slough intake and pump station would remain in the same geologic unit as the previously analyzed alternative location (terrace deposits, undifferentiated Pleistocene, Qt) (refer to EIR Figure 3.6-2). Additionally, all Project components would remain in the Zayante-Vergeles Fault Zone (refer to EIR Figure 3.6-1). Consistent with Mitigation Measures GS-1 and GS-3, Project components have been further designed based on recommendations from a geotechnical report prepared by Haro, Kasunich and Associates, Inc.[2] Consistent with Mitigation Measure GS-2, the contractor will be required to prepare and implement erosion control plans and

[2] Haro, Kasunichh, and Associates, Inc., Geotechnical Investigation Report for Watsonville Slough System Managed Aquifer Recharge & Recovery Projects for Pajaro Valley Water Management Agency, Santa Cruz County, California, Prepraed for Carollo Engineers, September 2024.

otherwise comply with permit conditions and approvals from resource agencies. Additionally, a Paleontological Resources Monitoring and Mitigation Plan would be developed and implemented consistent with Mitigation Measure GEO-1. For these reasons, the Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to geology and soils than those discussed in the certified EIR.

- **Hazards and Hazardous Materials.** None of the Project components are on a site that is included on a list of hazardous materials sites, and there are no hazardous materials sites within one-quarter mile of the Project components. Proposed construction and operation activities generally remain the same as those described in the certified EIR and implementation of Mitigation Measures HM-1 and HAZ-1a would require implementation of a Health and Safety Plan and testing of agricultural soil sites prior to initiation of earthwork. Mitigation Measure TRA-1b would require implementation of a Construction Traffic Control/Traffic Management Plan to reduce impacts related to emergency access. For these reasons, the Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to hazards and hazardous materials than those discussed in the certified EIR.

- **Noise and Vibration.** The locations of the nearest sensitive receptors have not changed from those displayed on certified EIR Figure 3.8-2. As indicated in Chapter 2, precast concrete piles would be driven to a depth of 15 feet in both Harkins Slough and Struve Slough to support the screened intakes. While pile driving in Struve Slough was analyzed in the certified EIR, pile driving in Harkins Slough was not. The closest sensitive receptor to pile driving activities at Harkins Slough is a residence approximately 270 feet west. Pile driving activities would be restricted to daytime hours and are expected to take approximately five days. Noise modeled for an impact pile driver 270 feet away from a receptor indicated a noise level of 83 dBA at the receptor. Caltrans indicates that 100 horizontal feet of tall grass and thick shrubbery can provide up to 5 dB of additional attenuation.[3] When accounting for the approximately 100 horizontal feet of vegetation between the sensitive receptor and where pile driving would occur, noise levels would be reduced to 78 dBA. Additionally, consistent with Mitigation Measures NOI-1a, cushion blocks, which are blocks that dampen the point of contact and reduce the noise of pile driving equipment, would be used to further reduce noise levels by at least 3 dBA, resulting in a noise level of 75 dBA or less at the nearest sensitive receptor, which meets the Santa Cruz County's daytime L_{eq} threshold of 75 dBA. As indicated in the certified EIR, Mitigation Measures NOI-1a, NOI-1b, and NOI-1c would be implemented to reduce daytime and nighttime noise impacts to less-than-significant levels. For these reasons, the Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to noise and vibration than those discussed in the certified EIR.

- **Transportation and Traffic.** Because the general location of the components and amount of construction and operational truck trips have not changed substantially, transportation impacts would remain the same as those described in certified EIR Section 3.9. With implementation of adopted Mitigation Measures TRA-1a and TRA-1b, which will require compliance with local road encroachment permit conditions, preparation of a Traffic Control Plan, identification of roadways that require special construction techniques, development of a circulation and detour plan, and consultation with local transit service providers, potential impacts would be mitigated to less-than-significant levels. Therefore, Project changes are not

[3] California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.

expected to result in any new significant impacts or substantially more adverse impacts related to transportation and traffic.

- **Cultural Resources.** In 2023, archaeologists carried out Mitigation Measure CUL-1b, which included a Phase I Cultural Resources Survey of all areas that were not previously surveyed as part of previous field efforts and an Extended Phase I/Phase II testing for Site ESA-PVWA-MN-01 to ascertain the presence of archaeological resources within the footprint of the current Project components. No archaeological resources potentially qualifying as historical resources, unique archaeological resources, and/or tribal cultural resources were identified during the surveys. In addition, the State Historic Preservation Officer concurred with the US Environmental Protection Agency's finding of no adverse effect to cultural resources from implementation of the Project. PV Water has already implemented and complied with Mitigation Measure CR-1a (located facilities away from identified and recorded archaeological sites), several mitigation measures are no longer warranted, and other measures have been revised and consolidated to reflect more recent research and consultation (refer to Chapter 5, *Mitigation Monitoring and Reporting Program* for details). Mitigation measures presented in Chapter 5 would otherwise be implemented to reduce construction and operational impacts on cultural resources to less-than-significant levels. Therefore, Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to cultural resources.

- **Tribal Cultural Resources.** No tribal cultural resources as defined in Public Resources Code Section 21074(a)(1) were identified to be present within the Project area. Therefore, Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to tribal cultural resources.

- **Energy, Utilities, Public Services, and Recreation.** The nature of the Project with respect to population growth and impairment of achieving service performance objectives, wastewater collection and treatment, water use, and solid waste disposal has not changed. Additionally, projected energy use associated with the Project has not changed. For these reasons, the Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to energy, utilities, public services, and recreation than those previously analyzed in the certified EIR.

- **Aesthetic Resources.** The visual character of the Project components would remain the same as described in the certified EIR. Mitigation Measures AES-1 would be implemented to shield and direct outdoor lighting and reduce visual impacts. While the alignment of the Struve Slough to filter plant pipeline has shifted, construction activities would be the same as described in the certified EIR (refer to Figure 2-1 for the location of the pipeline). The equipment used would still be similar to, or smaller in scale than, equipment used regularly in the Project area, and the pipeline would not be visible once constructed. For these reasons, Project changes are not expected to result in any new significant impacts or substantially more adverse impacts related to aesthetics than those analyzed in the certified EIR.

- **Surface Water, Groundwater, and Water Quality.** Other than the proposed compensatory mitigation pond, the changes to the Project would not substantially change construction in or near surface water or proposed operations. The proposed compensatory mitigation pond site has been sited within an area mapped as wetland adjacent to Watsonville Slough to take advantage of connectivity with the slough for purposes of maintaining breeding habitat (ponded water) for CRF. The proposed construction would be implemented in compliance with applicable regulations (listed in Table 3.3-5 on Draft EIR page 3.3-34). Consequently, the Project changes would not create a new significant impact or substantially increase the

severity of an impact related to surface water, groundwater, or water quality disclosed in the certified EIR. The mitigation measures adopted by PV Water for surface water, groundwater, and water quality impacts will be implemented as outlined in the MMRP presented in Chapter 5.

- **Cumulative Projects.** ESA reviewed City of Watsonville, County of Santa Cruz, Caltrans, Land Trust of Santa Cruz County, and Watsonville Wetlands Watch websites regarding additional projects that may be implemented in the vicinity of the Project sites which could contribute to cumulative impacts. Caltrans identified roadway improvements (e.g., repaving, drainage, lighting, striping, etc.) along State Route (SR) 1 and SR 129 in the vicinity of the Project.[4] As indicated in EIR Section 2.6.3, the construction workforce would likely access the Project sites from SR 1 and SR 152. The projects would be required to comply with Santa Cruz County requirements and would likely implement mitigation measures and/or include project characteristics, such as traffic controls and scheduling, notification, and safety procedures, to reduce potential traffic impacts during construction. Appropriate mitigation measures presented in Chapter 5 would be implemented to avoid cumulative impacts related to air quality and greenhouse gases, traffic, noise, and aesthetics. No additional projects that were not already included in EIR Table 3.1-1 and may be constructed at the same time as the Project were identified. Therefore, there would be no additional cumulative impacts beyond those described in the certified EIR.

[4] Personal communications between A. Norcott (ESA) and J. Hernandez (Caltrans) re: Caltrans projects February 22, 2024.

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CHAPTER 4
Conclusion

The modifications to the Watsonville Slough System Managed Recharge and Recovery Project (Project) would not result in new or more severe significant impacts than those attributable to the Project described in the Environmental Impact Report certified in January 2021 (certified EIR).

The analyses and discussion in Chapter 3 of this Environmental Impact Report Addendum (EIR Addendum) do not indicate substantial changes in the Project which require major revisions to the certified EIR due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. There have been no substantial changes in circumstances under which the Project is undertaken that would result in new significant environmental impacts or substantially more severe impacts, and no new information of substantial importance has become available that would indicate the potential for new significant impacts or substantially more severe impacts than were discussed in the EIR. Therefore, no further evaluation is required, and no Subsequent EIR or Supplement to an EIR is needed pursuant to Public Resources Code section 21166 and CEQA Guidelines sections 15162 and 15163.

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CHAPTER 5
Mitigation Monitoring and Reporting Program

Section 21081.6 of the California Environmental Quality Act (CEQA) requires a lead agency to adopt a Mitigation Monitoring and Reporting Program (MMRP) whenever it approves a project for which mitigation measures have been required to mitigate or avoid significant effects on the environment. The MMRP presented in **Table 5-1** reproduces and revises as needed mitigation measures that were adopted by PV Water's Board of Directors on January 20, 2021. The purpose of the MMRP is to ensure compliance with the mitigation measures during implementation of the modified Watsonville Slough System Managed Aquifer Recharge and Recovery Project (Project).

Several mitigation measures have been revised to reflect changes in the Project design, more detailed site investigations, and clarifications and refinements to facilitate implementation. Added text is shown as underline and deleted text is shown as ~~strikethrough~~.

TABLE 5-1
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Harkins Slough Facilities Upgrades Project Components		Struve Slough Project Components				Mitigation Schedule	Monitoring, Reporting Responsibility	Verification of Compliance by PV Water*
	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~s~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Land Use and Agricultural Resources									
LU-1a: Compensate for Conversion of Important Farmland *Track Conversion of Important Farmland.* PV Water shall review California Department of Conservation's Farmland Mapping and Monitoring Program farmland designations for the recharge basins and associated recovery wells and monitoring wells annually beginning with the first year of construction and continuing for five years after construction of components located in Important Farmland is completed. PV Water shall identify Prime Farmland, Farmland of Statewide Importance, and Unique Farmland referred to herein as Important Farmland that is associated with the recharge basins and associated recovery wells and monitoring wells that converts due to implementation of the Projects. *Establish Memorandum of Understanding for Agricultural Easement Fund.* PV Water shall enter into a Memorandum of Understanding with the Santa Cruz Land Trust or similar entity. The Memorandum of Understanding shall include details regarding an Agricultural Easement Fund to be paid by PV Water and the timing of acquisition of agricultural easements for the purpose of offsetting impacts on Important Farmland caused by the Projects. Acceptance of this fee by the Santa Cruz Land Trust or similar entity shall serve as an acknowledgment and commitment to: (1) secure agricultural easements to offset the conversion of Important Farmland caused by the Projects; and (2) provide documentation to PV Water describing the project(s) funded by the mitigation fee. If there is any remaining unspent portion of the Agricultural Easement Fund following implementation, PV Water shall be entitled to a refund in that amount. To qualify under this mitigation measure, the specific agricultural easement acquisition projects must preserve acreage of farmland of an equal or greater Farmland Mapping and Monitoring Program designation value (e.g., Prime Farmland, Farmland of Statewide Importance, or Unique Farmland) within the PV Water service area to offset the permanent conversion of Important Farmland by the Projects. *Contribute to Agricultural Easement Fund.* PV Water shall initially designate funds to secure easements for up to the equivalent area of Important Farmland associated with development of the first recharge basin and associated recovery wells and monitoring wells. *Directly Fund Agricultural Easements.* As an alternative approach to establishing a memorandum of understanding for, and contributing to an agricultural easement fund, PV Water could elect to directly fund the purchase of agricultural easements for Important Farmland in the Pajaro Valley.		X		X		X	2. Pre-Construction 3. Construction 4. Post Construction	PV Water, Land Trust of Santa Cruz County (Potential)	
LU-1b: Replacement of Topsoil In agricultural areas, PV Water shall require contractors to stockpile topsoil at Project sites during Project grading and reapply it in situ after construction to promote vegetative growth. In agricultural areas temporarily disturbed by construction and where excavation occurs, the following measures shall apply: • Strip 18 inches of topsoil from the area excavated unless otherwise stipulated by landowner. The topsoil shall be stored separately from subsoil and other construction materials. • Clearly mark topsoil with signs, and store topsoil separately from other excavated and imported materials in such a manner that the topsoil is not damaged, mixed, or covered by subsoil or surface rocks, and so that it is not continually disturbed. • Stockpile topsoil on the same property from which it was stripped and return topsoil to same property from which it was stripped.		X		X	X		3. Construction 4. Post Construction	Contractor to implement; PV Water to monitor	
Surface Water, Groundwater, and Water Quality									
****HWQ-1:** PV Water shall require contractors to apply for all applicable NPDES permits, including dewatering permits, develop a SWPPP for construction of proposed facilities, and comply with conditions of the permit(s), as required by the CCRWQCB. The objectives of the SWPPP are to identify pollutant sources that may affect the quality of stormwater discharge and to implement BMPs to reduce pollutants in stormwater discharges. The SWPPP for this proposed action would include the implementation, at a minimum, of the following elements: • Source identification • Preparation of a site map • Description of construction materials, practices, and equipment storage and maintenance • List of pollutants likely to contact stormwater • Estimate of the construction site area and percent impervious area • Erosion and sedimentation control practices, including soils stabilization, revegetation, and runoff control to limit increases in sediment in stormwater runoff, such as detention basins, straw bales, silt fences, check dams, geofabrics, drainage swales, and sandbag dikes • Proposed construction dewatering plans • Provisions to eliminate or reduce discharge of materials to stormwater • Description of waste management practices • Maintenance and training practices	X	X		X	X	X	2. Pre-Construction 3. Construction	Contractor to implement; PV Water to monitor	

NOTES:
* x = Verification of monitoring and reporting has been completed by PV Water
** Mitigation measure adopted in the 2014 BMP Update PEIR and not revised in the Watsonville Slough System Managed Aquifer Recharge and Recovery Projects EIR. PVWMA was renamed PV Water subsequent to adoption of these mitigation measures.
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TABLE 5-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Harkins Slough Facilities Upgrades Project Components		Struve Slough Project Components				Mitigation Schedule	Monitoring, Reporting Responsibility	Verification of Compliance by PV Water*
	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~e~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Surface Water, Groundwater, and Water Quality (cont.)									
****HWQ-4:** Facilities shall be designed to comply with FEMA and County of Santa Cruz requirements to floodproof the facilities and shall not exacerbate upstream or downstream flood hazards on other properties. ~~The FEMA process will require identification of the FEMA floodway zone and may require no increase water elevations for a one percent chance annual flood. The FEMA process will require identification of the FEMA zone type and may require no increase water elevations for a one percent chance annual flood. To meet the specific FEMA requirements for the component, substantial modifications to the facility design and additional mitigation may be required~~.	X						1. Design	PV Water	X
HYD-1: Implement Dewatering Best Management Practices for In-Water Construction For in-water construction during pipeline and screen/intake installation activities in sloughs, PV Water shall require its contractor(s) to prepare a Dewatering Plan. The Dewatering Plan shall identify best management practices that ensure construction activities at Harkins, Watsonville, and Struve sloughs meet water quality objectives. This work shall be timed to take place only after any instream measures to reduce downstream turbidity are in place. In addition, PV Water shall require its contractors to implement the measures below, and water quality protection measures required by the RWQCB. 1. All dewatering and diversion methods shall be installed such that natural flow is maintained upstream and downstream of the Project area and that water released into the sloughs does not increase turbidity in the sloughs such that beneficial uses are adversely affected, as determined by conditions stipulated in permits issued by the RWQCB and CDFW. 2. Any temporary dams or diversion shall be installed such that the diversion does not cause sedimentation, siltation, or erosion upstream or downstream of the Project area. 3. Screened pumps shall be used in accordance with the California Department of Fish and Wildlife's fish screening criteria and in accordance with the NMFS Fish Screening Criteria for Anadromous Salmonids and the Addendum for Juvenile Fish Screen Criteria for Pump Intakes. 4. Cofferdams shall remain in place and functional throughout the in-slough construction. 5. Disturbance of protected riparian vegetation shall be limited or avoided entirely	X		X		X		2. Pre-Construction 3. Construction	Contractor to implement, PV Water to monitor	
Biological Resources									
****BIO-1a:** Wetlands and riparian habitat will be avoided by project construction activities to the extent practicable. All facilities and construction activities will be maintained outside the jurisdictional area defined by riparian or emergent wetland vegetation and applicable setbacks and buffers where feasible. Within the Coastal Zone, project improvements will be located 100 feet from coastal ~~review~~ wetlands. ~~Within the City of Watsonville, development will be located 100 feet from riparian areas. Within the unincorporated areas of the County, yet outside the Coastal Zone, a setback of 30 feet and 50 feet will be established adjacent to intermittent and perennial streams, respectively.~~ If complete avoidance of wetlands and riparian areas is infeasible and/or development occurs within a regulated buffer/setback area, impacts would be minimized through implementation of Mitigation Measures BIO-1b, BIO-1c, BIO-1d, and BIO-1e.	X		X		X		1. Design 2. Pre-Construction 3. Construction 4. Post Construction	PV Water	
****BIO-1b:** Standard measures to maintain water quality and to control erosion and sedimentation will be implemented. These measures include: • Restrict trenching across all waterways to low-flow periods. • Exclude water from around the section of trench that is within the actively flowing channels. This will further reduce the potential for sediment or other pollutants to enter the waterways and impact downstream resources. The diversion will consist of water pillows, rock, sandbags, or other structural methods deemed most effective by the contractor. • Place sediment curtains or silt fence/filter fabric barriers downstream of the construction zone to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone. • Locate spoil sites so they do not drain directly into the waterways. If a spoil site drains into a channel, catch basins will be constructed to intercept sediment before it reaches the channels. Spoil sites will be graded to reduce the potential for erosion. • Prepare and implement a spill prevention plan for potentially hazardous materials. The plan will include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting of any spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching the creek channels. • Store equipment and materials away from the waterways, outside existing levees or at least 50 feet from waterways, but within the pipeline right-of-way. No equipment or materials will be deposited within 100 feet of wetlands. • Provide proper and timely maintenance for vehicles and equipment used during construction to reduce the potential for mechanical breakdowns leading to a spill of materials into or around the creeks. Maintenance and fueling will be conducted in an area that meets the criteria set forth in the spill prevention plan (i.e., away from the creeks).	X		X	X	X	X	2. Pre-Construction 3. Construction 4. Post Construction	Construction contractor to implement, PV Water to oversee	

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TABLE 5-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Harkins Slough Facilities Upgrades Project Components		Struve Slough Project Components				Mitigation Schedule	Monitoring, Reporting Responsibility	Verification of Compliance by PV Water*
	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~e~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Biological Resources (cont.)									
• Prior to construction, install temporary construction fencing at the perimeter of the construction zone to prevent inadvertent equipment access or construction staging within adjacent riparian forest and/or coastal marsh habitats. This fencing will be signed in the field as "SENSITIVE HABITAT AREA — NO CONSTRUCTION ACCESS". Monitor construction activities to verify compliance with the perimeter fencing and limits of construction access and staging and implement remedial action if non-compliance is noted. • Restrict limbing of riparian forest trees; if trees are limbed for construction access, document the impact and provide compensation as per Mitigation Measure BIO-1c.									
**BIO-1e: With the exception of open trench pipeline construction that is separated from riparian or wetland habitat by an existing levee, ~~W~~where construction and/or facilities are placed within a riparian or wetland development setback area (as defined in the Santa Cruz County Municipal Code), indirect impacts to adjacent riparian and wetland vegetation will be minimized. Where feasible, buffer plantings of native trees and shrubs will be installed between the facility and the adjacent wetland or riparian resource to provide a vegetated buffer. A buffer planting plan will be prepared as part of a revegetation plan approved by CDFW, RWQCB, USACE, and/or California Coastal Commission, pursuant to regulatory agency permitting. The buffer planting plan will include specific revegetation measures, including the use of locally obtained plant materials, detailed descriptions of installation methods, after-installation care, weed control measures, success criteria, and corrective measures if the success criteria are not met.	X		X	X	X	X	1. Design 2. Pre-Construction 3. Construction	PV Water	
**BIO-2: During the development of Project ~~BMP Update~~ components, PV Water ~~PVWMA~~ will implement conservation measures during construction activities to avoid and minimize incidental take and significant impacts on individuals, populations, or habitat of special-status wildlife species to the maximum extent practicable. The following general measures will be incorporated into the planning and construction of BMP Update components, as appropriate, to ensure that the effects of the BMP Update are avoided, minimized, and mitigated. Suggested species-specific measures for CA red-legged frog and western pond turtle (WPT) are included, as well, although BMP Update components that proposed to divert surface waters beyond existing entitlements would require future additional project-level CEQA analyses of specific diversion and operation plans to support water rights application and environmental permits. It is assumed that project-level biological studies and analysis for these BMP Update components will be required to support those future permits and biological opinions.	X	X	X	X	X	X	Varies (see Mitigation Measures BIO-2a through 2p)	PV Water	
**BIO-2a: During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.	X	X	X	X	X	X	1. Design 3. Construction	Construction contractor to implement, PV Water to oversee	
**BIO-2b: All refueling, maintenance, and staging of equipment and vehicles will occur at least 65 feet from any riparian habitat or water body. PV Water will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, PV Water will ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.	X	X	X	X	X	X	1. Design 3. Construction	Construction contractor to implement, PV Water to oversee	
**BIO-2c: The spread or introduction of invasive exotic plant species will be avoided to the extent practicable. When practicable, invasive exotic plants in the project areas will be removed.	X	X		X	X	X	1. Design 3. Construction	Construction contractor to implement, PV Water to oversee	
**BIO-2d: Prior to any on-site work in areas where special-status species may occur, an experienced ~~qualified~~ biologist will conduct a tailgate training session in which all construction personnel will receive training regarding measures (below and above) that are to be implemented to avoid environmental impacts. This training will include a presentation of the potential for sensitive species to occur at the site and measures to protect habitat including aquatic habitat and avoid impacts to the species. All personnel working on the site will receive this training, and will sign a sign-in sheet showing they received the training.	X	X	X	X	X	X	3. Construction	Construction contractor to implement	
**BIO-2e: Prior to the commencement of work, the limits of the work area (including haul routes, access ramps, storage areas and material stockpiles) will be clearly marked with orange construction fencing to prevent workers from impacting habitat outside the work area. No work will occur outside the designated marked work areas.	X	X	X	X	X	X	2. Pre-Construction	Construction contractor to implement, PV Water to oversee	
**BIO-2f: Each morning before work begins on any components in or within 100 feet of a suitable habitat area (defined as: riparian habitat, USACE jurisdictional wetlands or "other waters" of the U.S., or sensitive habitats identified in subsequent USFWS Biological Opinions and CDFW 1600 Lake and Streambed Alteration Agreements), an experienced ~~qualified~~ or trained biological monitor (i.e., an experienced biologist or an individual trained by an experienced biologist) will survey the work site and habitat immediately surrounding the active work site for conditions that could impact special-status species, and will remain on-site whenever work is occurring that may adversely impact special-status species and their habitats. No work will be allowed to begin each morning until the biological monitor has inspected the work site.	X		X	X	X	X	3. Construction	Construction contractor to implement, experienced or trained ~~qualified~~ biological ~~st~~/monitor to survey, PV Water to oversee	

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MITIGATION MONITORING AND REPORTING PROGRAM

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	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~e~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Biological Resources (cont.)									
****BIO-2g:** A USFWS-approved biologist or biological monitor will permanently remove from within the project area(s), any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes to the extent practicable.	X		X		X	X	2. Pre-Construction 3. Construction	USFWS-approved biologist or biological monitor to remove, PV Water to oversee	
****BIO-2h:** Upon locating individuals of special-status species that are dead or injured as a direct result of activities conducted by PV Water ~~WMA~~, initial notification will be made to the USFWS's Division of Law Enforcement at (916) 978-4861 (Sacramento) within three working days of its finding. The Ventura USFWS Field Office, North Coast Division (805-677-3330) will also be notified. Written notification will be made within five calendar days and include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information.	X		X	X	X	X	2. Pre-Construction 3. Construction	PV Water and experienced or trained ~~qualified~~ biological ~~s~~t/monitor	
****BIO-2i:** Nesting Bird Surveys. Prior to any project construction activities, the project proponent will take the following steps to avoid direct losses of nests, eggs, and nestlings and indirect impacts to avian breeding success: If construction activities occur only during the non- breeding season, between August 31 and February 1, no surveys will be required. For construction requiring tree removal (e.g., Southeast Recharge Basin), tree removal should occur during the non-breeding season if practical. For activities initiated ~~D~~during the ~~breeding~~ bird breeding season (February 1 through August 31), a ~~qualified~~ biologist with experience conducting nesting bird surveys will survey construction areas in the vicinity of the Project sites for nesting raptors and passerine birds not more than 14 days prior to any ground-disturbing activity or vegetation removal. The survey will cover the portions of the Project sites where construction activities will occur as well as a 500-foot radius for the visual survey for raptors and a 250-foot radius for a visual survey for non-raptors. These surveys will only occur from within the Project site and accessible areas, and may not be able to cover the entire survey radius. ~~Surveys will include all potential habitats within 500 feet (for raptors) of activities and all on-site vegetation including bare ground within 250 feet of activities (for all other species). If results are positive for nesting birds~~ If an active nest is located, the experienced biologist will determine avoidance procedures based on site conditions (e.g. nest location, nest stage, site activities) and behavior (e.g. species, tolerance) to ~~will~~ be adopted, if necessary, on a case-by-case basis. These may include implementation of buffer areas (e.g., ~~minimum~~ 50-foot buffer for passerines, ~~and~~ 250-foot ~~minimum~~ buffer for raptors, or other buffer distance as determined by the experienced biologist) or seasonal avoidance.	X	X	X	X	X	X	2. Pre-Construction 3. Construction	PV Water and experienced ~~qualified~~ biologist	
****BIO-2j (CRF):** The following measures for avoidance and minimization of adverse impacts to California Red-Legged Frog (Rana draytonii) (CRF) during construction of ~~the BMP Update~~ Project components are those typically employed for construction activities that may result in short-term impacts to individuals and their habitat. The focus of these measures is on scheduling activities at certain times of year, keeping the disturbance footprint to a minimum, and monitoring. Consultation with the USFWS will be conducted and a Biological Opinion developed for each Project ~~BMP Update~~ component that requires a USACE Section 404 Wetland Permit. Ongoing and future CRF studies in the project area may result in site-specific conditions that would be integrated into the future project-level ~~BMP Update~~ component designs, permitting and operations. **CRF-1.** ~~The Agency~~ PV Water will annually submit the name(s) and credentials of experienced biologists who would conduct activities specified in the following measures. No project activities will begin until ~~The Agency~~ PV Water receives approval from USFWS ~~the Service~~ that the biologist(s) is qualified to conduct the work. **CRF-2.** A USFWS-approved biologist will survey the work site 48 hours prior to the onset of activities. If CRF, tadpoles, or eggs are found, the approved biologist will determine the closest appropriate relocation site. The approved biologist will be allowed sufficient time to move them from the work site before work activities begin. Only USFWS-approved biologists will participate in activities associated with the capture, handling, and moving of CRF. **CRF-3.** Before any activities begin on a project, a USFWS-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the CRF and its habitat, the importance of the CRF and its habitat, general measures that are being implemented to conserve the CRF as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions. **CRF-4.** A USFWS-approved biologist will be present at the work site during initial habitat disturbance, during which ~~until such time as all~~ removal of CRF, instruction of workers, and disturbance of habitat ~~have been~~ will be completed. After this time, the biologist will designate and train a person to monitor on-site compliance with all minimization measures and any future staff training. The USFWS-approved biologist will ensure that this individual receives training outlined in measure WPT-2 (below) and in the identification of CRF. The monitor and the USFWS-approved biologist will have the authority to stop work if CRF are in harm's way. **CRF-5.** The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of riparian and wetland areas to the extent practicable. **CRF-6.** Work activities that may affect CRF habitat will be completed between April 1 and November 1 to the extent practicable. Should PV Water ~~the Agency~~ demonstrate a need to conduct activities outside this period, PV Water ~~the Agency~~ may conduct such activities after obtaining the Service's approval.	X		X	X	X	X	3. Construction	PV Water and USFWS-approved biologist	

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Biological Resources (cont.)									
CRF-7. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than five millimeters (mm) to prevent CRF from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. **CRF-8.** The Declining Amphibian Populations Task Force's Fieldwork Code of Practice will be followed to minimize the possible spread of chytrid fungus or other amphibian pathogens and parasites. **CRF-9:** Implement Mitigation Measures HWQ-1 and HWQ-4~~3.10-1 through 3.10-4 in Section 3.10, Hydrology and Water Quality: Surface Water Systems~~.									
****BIO-2k (WPT):** The following measures for avoidance and minimization of adverse impacts to western pond turtle (Actinemys marmorata) (WPT) during construction of the project elements are those typically employed for construction activities that may result in short-term impacts to individuals and their habitat. The focus of these measures is on keeping the disturbance footprint to a minimum and aggressive monitoring of WPTs before vegetation removal and during the construction and revegetation phase. **WPT-1.** ~~The Agency~~ PV Water will annually submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities will begin until proponents have received approval from USFWS and CDFW that the biologist(s) is qualified to conduct the work. **WPT-2.** An ~~CDFW~~-approved biologist will survey the work site 48 hours prior to the onset of activities. If WPT adults, juveniles or eggs are found, the approved biologist will determine the closest appropriate relocation site. The approved biologist will be allowed sufficient time to move them from the work site before work activities begin. Only ~~CDFW~~-approved biologists will participate in activities associated with the capture, handling, and moving of WPT. **WPT-3.** Before any activities begin on a project, an ~~CDFW~~-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the WPT and its habitat, the importance of the WPT and its habitat, general measures that are being implemented to conserve the WPT as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions. **WPT-4.** An ~~CDFW~~ approved biologist will be present at the work site during initial habitat disturbance, during which ~~until such time as all~~ removal of WPT, instruction of workers, and disturbance of habitat ~~have been~~ will be completed. **WPT-5.** The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the project plans. Routes and boundaries will be clearly demarcated. Where impacts occur in these staging areas and access routes, restoration will occur as identified in subsequent mitigation measures ~~the general BMP Update components above~~.	X		X	X	X	X	2. Pre-construction 3. Construction	PV Water and USFWS and CDFW-approved biologist Construction contractor to implement, qualified biologist/monitor to conduct training and construction monitoring, PV Water to oversee	
****BIO-3a:** Occurrences of special status plant species shall be avoided by project construction activities to the extent feasible. All facilities and construction activities will be maintained outside habitats supporting special status plant species where feasible. Prior to construction during the species-appropriate blooming period, an experienced ~~qualified~~ biologist will conduct a survey of the Project ~~area~~ sites to ascertain the presence or absence of special status plant species. If no species are encountered, no mitigation is required. If a special status species is found within a Project site ~~BMP Update component project area~~, a setback of 50 feet will be established between the occurrence and ~~the BMP Update~~ construction activities. Prior to construction, PV Water ~~WMA~~ will install temporary construction fencing at the 50-foot setback line to prevent inadvertent equipment access or construction staging within the special status plant habitat. This fencing will be signed in the field as "SENSITIVE HABITAT AREA - NO CONSTRUCTION ACCESS". An experienced ~~qualified~~ biologist will inspect the temporary construction barrier fence and monitor the contractor's compliance with this avoidance measure. If complete avoidance of special status plant species is infeasible, impacts would be minimized through implementation of Mitigation Measure BIO-3b.	X			X	X	X	1. Design 2. Pre-Construction 3. Construction	PV Water and experienced ~~qualified~~ biologist	
****BIO-3b:** Prior to clearing and grubbing in areas where impacts to special status plant species cannot be avoided, PV Water ~~WMA~~ will consult with applicable resource agencies (i.e., CDFW and/or USFWS) prior to implementing salvage and revegetation actions. An experienced ~~qualified~~ biologist will collect any available above- ground seed pods/seed heads for their use in future revegetation efforts. During construction, the upper 6 inches of topsoil from areas supporting the plant species will be stripped from the construction area and stored for later use. The topsoil will be used in future revegetation efforts which may be on-site (if feasible) or at an off-site location approved by permitting agencies (i.e., USFWS, CDFW). At the designated revegetation area, all stockpiled topsoil will be placed on site and finish graded to blend with surrounding topography. Under direction of an experienced ~~qualified~~ biologist, the areas will be revegetated with locally native herbaceous plant species compatible with natural regeneration of the special status plant species. The experienced ~~qualified~~ biologist will hand broadcast any seeds collected from the special status plant species into the appropriate habitat areas. The revegetation will achieve a minimum of 2:1 plant replacement (i.e., re- establish two plants for every plant impacted). The experienced ~~qualified~~ biologist will monitor the revegetation areas for two years after construction to ascertain if the special status plant species re-established within the revegetation area. Annual reports will be submitted to permitting agencies by December 31 of each monitoring year, describing the results of the revegetation measures, for a period of 5 years.	X			X	X	X	2. Pre-Construction 3. Construction 4. Post Construction	PV Water and experienced ~~qualified~~ biologist	

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Biological Resources (cont.)									
BR-1a: Frac-out Contingency Plan If HDD installation is implemented, PV Water shall require the contractor to retain a licensed geotechnical engineer to develop a Frac-out Contingency Plan. PV Water would submit the Frac-out Contingency Plan to the appropriate resource agencies (CDFW and RWQCB) for review prior to the start of construction of any pipeline that would use HDD installation to avoid surface waters. The Frac-out Contingency Plan shall be implemented where HDD installation under a waterway will occur to avoid, minimize, or mitigate for potential Project impacts during HDD installation, as specified in the Frac-out Contingency Plan. The Frac-out Contingency Plan shall include, at a minimum: 1) Measures describing training of construction personnel about monitoring procedures, equipment, materials and procedures in place for the prevention, containment, clean-up (such as creating a containment area and using a pump, using a vacuum truck, etc.), and disposal of released bentonite slurry, and agency notification protocols; 2) Methods for preventing frac-out including maintaining pressure in the borehole to avoid exceeding the strength of the overlying soil. 3) Methods for detecting an accidental release of bentonite slurry that include: (a) monitoring by a minimum of one designated monitor throughout drilling operations to ensure swift response if a frac-out occurs; (b) continuous monitoring of drilling pressures to ensure they do not exceed those needed to penetrate the formation; (c) continuous monitoring of slurry returns at the exit and entry pits to determine if slurry circulation has been lost; and (d) continuous monitoring by spotters to follow the progress of the drill bit during the pilot hole operation, and reaming and pull back operations. 4) Protocols that the contractor would follow if there is a loss of circulation or other indicator of a release of slurry. 5) Cleanup and disposal procedures and equipment the contractor would use if a frac-out occurs. 6) If a frac-out occurs, the contractor shall immediately halt work, implement the measures outlined in Item 5 of the Frac-out Contingency Plan to contain, clean-up, and dispose of the bentonite slurry, and, if the frac-out occurs in the water channel, notify and consult with the staffs of the agencies listed above before HDD activities can begin again. PV Water shall require the contractor to implement Frac-out Contingency Plan to ensure that measures are implemented to prevent frac-out and if a frac-out occurs, implement measures to contain, clean-up, and dispose of the bentonite slurry.					X		1. Design 3. Construction	Contractor to implement, PV Water to oversee	
BR-1b: Compensate for Temporary and Permanent Impacts to CRF Critical Habitat. Where temporary impacts to vegetation in CRF critical habitat occur, revegetation measures will include the use of locally obtained plant materials, detailed descriptions of installation methods, after-installation care, weed control measures, success criteria, and corrective measures if the success criteria are not met. Temporarily impacted areas will be restored to pre-construction conditions with equivalent or greater habitat quality. Revegetation will include a 3:1 replacement ratio of the acreage of CRF wetland habitat lost as a result of the Project to account for the reduced habitat values of smaller trees compared with mature vegetation (or an equivalent habitat replacement strategy as agreed upon by PV Water and regulatory agencies). Success criteria for replanting will be less than 20 percent mortality of individual species annually for 5 years. Replanting will be conducted each year that plantings exceed 20 percent mortality, such that 80 percent plant survival is maintained each year of the 5-year monitoring period. Cover provided by invasive, non-native plant species shall not exceed 5 percent during each year of the 5-year monitoring period. If natural recovery is a viable strategy, then a wetland plant cover exceeding 50 percent should be attained after two growing seasons. Where permanent impacts to CRF habitat occur, mitigation may occur via restoration, creation, or preservation of wetlands that support CRF breeding. Mitigation will occur at a 3:1 ratio (or an equivalent habitat replacement strategy as agreed upon by PV Water and regulatory agencies) at a site acceptable to permitting agencies and pursuant to Project permit requirements. If the compensatory mitigation includes restoration, enhancement, or creation of wetlands, an experienced ~~qualified~~ biologist will monitor the designated wetland mitigation area for a minimum of five years to ascertain if the wetland mitigation is successful. Annual reports will be submitted to permitting agencies by December 31 of each monitoring year, describing the results of the monitoring and any remedial actions needed to achieve a minimum 3:1 habitat replacement ratio or equivalent for permanent impacts to wetlands and other waters.	X		X	X	X	X	1. Design 4. Post Construction	PV Water to oversee, revegetation contractor with expertise in CRF and wetland restoration to design, implement, and monitor	
BIO-1c (Revised) During design, PV Water ~~will~~ realigned the Struve Slough to filter plant pipeline to avoid the willow riparian forest at location SW1 within the Bryant Habert property, owned by the Land Trust of Santa Cruz County (Land Trust). ~~If the revised pipeline alignment crosses the referenced parcel, PV Water commits to a narrower construction corridor (i.e., 20 feet instead of 40 feet), requiring a minimum of five feet of cover for the pipeline, and implementing design features to preclude pipe bedding from acting as a drainage conduit for restored wetlands.~~ Where construction impacts on willow riparian forest will otherwise occur, revegetation and restoration measures will be developed as part of a revegetation plan approved by CDFW, RWQCB, and if applicable, USACE, Santa Cruz County, and/or California Coastal Commission, pursuant to regulatory agency permitting. The revegetation plan will include specific plans for the revegetation and restoration of impacted willow riparian forest for restoration of nearby riparian habitat, as appropriate. No trees will be placed above pipelines. Upon approval by applicable agencies, PV Water may choose to coordinate with a team with expertise (e.g., the Natural Resources Conservation Service, the Santa Cruz County Resource Conservation District [RCD], and/or Watsonville Wetlands Watch) to develop and implement the required riparian revegetation, including providing funds to the RCD for their					X		1. Design 2. Pre-Construction 3. Construction 4. Post Construction	PV Water to oversee design, restoration professional with experience in willow riparian restoration to design, implement, and monitor	

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TABLE 5-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Harkins Slough Facilities Upgrades Project Components		Struve Slough Project Components				Mitigation Schedule	Monitoring, Reporting Responsibility	Verification of Compliance by PV Water*
	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~e~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Biological Resources (cont.)									
implementation of the revegetation. Revegetation measures will include the use of locally obtained plant materials, detailed descriptions of installation methods, after-installation care, weed control measures, success criteria, and corrective measures if the success criteria are not met. Temporarily impacted areas will be restored to pre-construction conditions with equivalent or greater habitat quality. Revegetation will include a 3:1 replacement ratio of the acreage of willow riparian forest habitat lost and for all trees lost as result of the Project to account for the reduced habitat values of smaller trees compared with mature vegetation. Success criteria for replanting will be less than 20 percent mortality of individual species annually for 5 years. Replanting will be conducted each year that plantings exceed 20 percent mortality, such that 80 percent plant survival is maintained each year of the 5-year monitoring period. Cover provided by invasive, non-native plant species shall not exceed 5 percent during each year of the 5-year monitoring period. Mitigation may occur via restoration, creation, or preservation of wetlands or waters. Mitigation will occur at a site acceptable to permitting agencies and pursuant to the Project's permit requirements, and to the extent practical, at a site within the Watsonville Slough system. If the compensatory mitigation includes restoration, enhancement, or creation of wetlands or waters, an experienced ~~qualified~~ biologist will monitor the designated wetland mitigation area for a minimum of five years to ascertain if the wetland mitigation is successful. Annual reports will be submitted to permitting agencies by December 31 of each monitoring year, describing the results of the monitoring and any remedial actions needed to achieve a minimum 3:1 habitat replacement ratio or equivalent for permanent impacts on willow riparian forest.									
BIO-1d (Revised) Where construction or operational impacts on open water (sloughs, jurisdictional ditches), agricultural wetlands, or coastal freshwater marsh occurs, revegetation and restoration measures will be developed as part of a revegetation plan approved by CDFW, RWQCB, USACE, Santa Cruz County and/or California Coastal Commission, pursuant to regulatory agency permitting. Upon approval by applicable agencies, PV Water may choose to coordinate with the Natural Resources Conservation Service, the Santa Cruz County RCD, and Watsonville Wetlands Watch to develop and implement the required wetland revegetation and restoration, including providing funds to the RCD for their implementation of the revegetation and restoration. The revegetation plan will include specific plans for the revegetation of impacted wetlands, and for restoration of nearby wetland habitat, as appropriate. Revegetation measures will include the use of locally obtained plant materials, detailed descriptions of installation methods, after-installation care, weed control measures, success criteria, and corrective measures if the success criteria are not met. Temporarily impacted areas will be restored to pre-construction conditions with equivalent or greater habitat quality. Revegetation will include a 3:1 replacement ratio (or an equivalent habitat replacement strategy as agreed upon by PV Water and regulatory agencies) for impacted wetlands. If natural recovery is a viable strategy, then a wetland plant cover exceeding 50 percent should be attained after two growing seasons. Mitigation may occur via restoration, creation, or preservation of wetlands or waters. Mitigation will occur at a site acceptable to permitting agencies and pursuant to the Project's permit requirements, and to the extent practical, at a site within the Watsonville Slough system. If the compensatory mitigation includes restoration, enhancement, or creation of wetlands or waters, an experienced ~~qualified~~ biologist will monitor the designated wetland mitigation area for a minimum of five years to ascertain if the wetland mitigation is successful. Annual reports will be submitted to permitting agencies by December 31 of each monitoring year, describing the results of the monitoring and any remedial actions needed to achieve a minimum 3:1 habitat replacement ratio or equivalent for permanent impacts on wetlands.	X		X		X	X	1. Design 2. Pre-Construction 3. Construction 4. Post Construction	PV Water to oversee design, revegetation contractor with experience in wetland and/or coastal marsh restoration to design, implement, and monitor	
BR-1c: Avoid and Minimize Impacts on Special-status Bat Species An experienced ~~qualified~~ biologist who is experienced with bat surveying techniques, behavior, roosting habitat, and identification of local bat species shall be consulted at least 14 days prior to initiation of construction activities to conduct a preconstruction habitat assessment to characterize potential bat habitat and identify active roost sites. The preconstruction habitat assessment shall be conducted within 100 feet of construction activities conducted in and around riparian habitat. Should potential roosting habitat or potentially active bat roosts be identified during the habitat assessment in trees and/or structures to be disturbed under the Project, the following measures shall be implemented: 1. Removal or disturbance of trees or structures (e.g. structures at the Southeast Recharge Basin and Harkins Slough Filter Plant ~~the existing weir and intake pump station~~) identified as potential bat roosting habitat or active roosts shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15, to the extent feasible. These dates avoid bat maternity roosting season (approximately April 15 to August 31) and periods of winter torpor (approximately October 15 to February 28). 2. If removal or disturbance of trees and structures identified as potential bat roosting habitat or active roosts during the periods when bats are active is not feasible, an experienced ~~qualified~~ biologist would conduct pre-construction surveys within 14 days prior to disturbance to further evaluate bat activity within the potential habitat or roost site. a. If active bat roosts are not identified in potential habitat during preconstruction surveys, no further action is required prior to removal of- or disturbance to trees and structures within the preconstruction survey area. b. If active bat roosts or evidence of roosting is identified during pre-construction surveys, the experienced ~~qualified~~ biologist shall determine, if possible, the type of roost and species. i. If special-status bat species or maternity or hibernation roosts are detected during these surveys, appropriate species- and roost-specific avoidance and protection measures shall be developed by the experienced ~~qualified~~ biologist in coordination with CDFW. Such measures may include postponing the removal of structures or	X		X	X	X	X	2. Pre-Construction 3. Construction	PV Water and experienced ~~qualified~~ biologist	

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TABLE 5-1 (CONTINUED)
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Biological Resources (cont.)									
trees, or establishing exclusionary work buffers while the roost is active. A minimum 100-foot no disturbance buffer shall be established around special-status species, maternity, or hibernation roosts until the qualified biologist determines they are no longer active. The size of the no-disturbance buffer may be adjusted by the experienced ~~qualified~~ biologist, in coordination with CDFW, depending on the species present, roost type, existing screening around the roost site (such as dense vegetation or a building), as well as the type of construction activity that would occur around the roost site, and if construction would not alter the behavior of the adult or young in a way that would cause injury or death to those individuals. 3. The experienced ~~qualified~~ biologist shall be present during tree and structure disturbance or removal if active non-maternity or hibernation bat roosts or potential roosting habitat are present. Trees and structures with active non-maternity or hibernation roosts or potential habitat shall be disturbed or removed only under clear weather conditions when precipitation is not forecast for three days and when nighttime temperatures are at least 50 degrees Fahrenheit, and when wind speeds are less than 15 mph. a. Trimming or removal of trees with active (non-maternity or hibernation) or potentially active roost sites shall follow a two-step removal process: i. On the first day of tree removal and under supervision of the experienced ~~qualified~~ biologist, branches and limbs not containing cavities or fissures in which bats could roost, shall be cut only using hand tools (e.g., chainsaws). ii. On the following day and under the supervision of the experienced ~~qualified~~ biologist, the remainder of the tree may be removed, either using hand tools or other equipment (e.g. excavator or backhoe). iii. All felled trees shall remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats to escape, or be inspected once felled by the experienced ~~qualified~~ biologist to ensure no bats remain within the tree and/or branches. b. Disturbance to or removal of structures containing or suspected to contain active bat (non-maternity or hibernation) or potentially active bat roosts shall be done in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost. Removal would be completed the subsequent day. 4. Bat roosts that begin during construction are presumed to be unaffected as long as a similar type of construction continues, and no buffer would be necessary. Direct impacts on bat roosts or take of individual bats would be avoided.									
Air Quality and Greenhouse Gases									
****AQ-1:** The construction contractor shall implement a dust program that includes the following elements: • Water all active construction sites at least twice daily • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard • Pave, apply water three times daily, or apply (non- toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites • Sweep daily (with water sweepers) all paved access roads, paved parking areas and paved staging areas at construction sites • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. • Hydroseed or apply (non-toxic) soil binders to inactive construction areas. However, do not apply these measures in operating agricultural fields under cultivation unless requested by the grower • Enclose, cover, water twice daily or apply (non- toxic) soil binders to exposed stockpiles (dirt, sand, etc.). • Limit traffic on unpaved roads to 15 mph • Install sandbags or other erosion control measures to prevent silt runoff to public roadways • Replant vegetation in disturbed areas as quickly as possible • The contractor or builder shall designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints. The name and telephone number of such persons shall be provided to the APCD Compliance Division prior to the start of any grading, earthwork or demolition.	X	X	X	X	X	X	1. Design 3. Construction	Contractor to implement, PV Water to monitor	

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Geology and Soils									
GS-1 (Revised) Future construction of proposed BMP Update facilities shall be designed in accordance with design recommendations of geotechnical reports and in compliance with applicable policies and appropriate engineering investigation practices necessary to reduce the potential detrimental effects of ground shaking and liquefaction. Construction shall be in accordance with applicable requirements regarding mitigation of seismic and geologic hazards, and appropriate geotechnical studies shall be conducted.	X	X	X	X	X		1. Design	PV Water and qualified engineer	
GS-2 (Revised) Construction of future BMP Update facilities shall include preparation and implementation of erosion control plans to minimize erosion and inadvertent transport of sediments into water bodies during installation of facilities. Measures shall include, but not be limited to: limiting the area of ground disturbance and vegetation removal at any one time during construction; conducting work prior to the rainy season if possible and protecting disturbed areas during the rainy season; installing bales or other appropriate barriers adjacent to water bodies to prevent transport of sediments into sloughs and water courses; immediately revegetating disturbed areas; and other Best Management Practices during construction to protect water quality. All grading and construction shall conform to applicable requirements.	X	X	X	X	X		1. Design 3. Construction	Contractor to implement, PV Water to monitor	
GS-3 (Revised) All diversion and pipeline facilities shall be designed and engineered in accordance with recommendations of a geotechnical report and appropriate engineering designs to reduce the potential detrimental effects of expansive soils, corrosivity, and/or other identified soils constraints. A licensed geotechnical engineer shall prepare recommendations applicable to foundation design, earthwork, and site preparation prior to or during the project design phase. Recommendations will address mitigation of site- specific, adverse soil and bedrock conditions that could hinder development. Project engineers shall implement the recommendations. Geotechnical design and design criteria will comply with applicable codes and requirements of the California Building Code (CCR Title 24).	X	X	X	X	X		1. Design	PV Water and qualified geotechnical engineer	
GEO-1: Paleontological Resources Monitoring and Mitigation Program[1] The Projects proponent shall retain a Qualified Paleontologist meeting the standards of the SVP (2010) to develop and implement a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) for the Project. The PRMMP shall include a Worker Environmental Awareness Program (WEAP) for all construction crew members involved in ground disturbing activities for the Project. The PRMMP shall include a description of when and where construction monitoring would be required; emergency discovery procedures; sampling and data recovery procedures; procedure for the preparation, identification, analysis, and curation of fossil specimens and data recovered; pre-construction coordination procedures; and procedures for reporting the results of the monitoring program. The PRMMP shall be consistent with the Society for Vertebrate Paleontology (SVP) Standard Guidelines for the mitigation of construction–related adverse impacts on paleontological resources and the requirements of the designated repository for any fossils collected. • Full-time, part time, and/or spot check monitoring for paleontological resources, as applicable, pursuant to the PRMMP, shall be conducted for ground disturbing activities occurring in previously undisturbed Pleistocene deposits, as well as excavations that exceed 10 feet in Holocene-age deposits. • In the event that paleontological resources are encountered during ground disturbance, all activity in the vicinity of the find shall cease (within 50 feet), and the protocols and procedures outlined in the PRMMP shall be implemented.	X	X	X	X	X	X	2. Pre-Construction 3. Construction	PV Water and qualified paleontologist	
Hazards and Hazardous Materials									
****HM-1:** Prior to initiation of earthwork activities, PV Water ~~WMA~~ shall perform soil testing on agricultural sites proposed for development and analytically test for pesticide residuals and pesticide-related metals arsenic, lead, and mercury. At least one soil test shall occur for each type of uniform crop shown on EIR Figure 3.2-1. If contamination is identified in the soil samples above applicable levels (i.e., Department of Toxic Substance Control regulatory screening levels, Regional Water Quality Control Board environmental screening levels, and hazardous waste acceptance criteria in Title 22 California Code of Regulations Section 66261.3), PV Water ~~WMA~~ shall prepare a Site Management Plan (SMP) to establish protocols/guidelines for the contractor including: identification of appropriate health and safety measures while working in contaminated areas; soil reuse; handling, and disposal of any contaminated soils; and agency notification requirements. The SMP shall be subject to the review and approval of the appropriate regulatory agency.		X		X	X	X	1. Design 2. Pre-Construction	PV Water	
HAZ-1a: Health and Safety Plan (HASP) Prior to demolition of any existing structures, PV Water shall require that structures to be demolished be surveyed to determine if hazardous materials are present. Using information from the survey and the soil testing performed as part of adopted Mitigation Measure HM-1, PV Water shall require the construction contractor(s) to prepare and implement a site-specific HASP in accordance with 29 Code of Federal Regulations 1910.1200 to protect construction workers and the public during all excavation, grading, and demolition activities. The HASP shall include, but is not limited to, the following elements:	X	X					1. Design 2. Pre-Construction 3. Construction	Contractor to implement, PV Water to monitor	

[1] The PRMMP must be prepared for all Project components. The PRMMP will indicate which Project components warrant monitoring during ground-disturbing activities.

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Hazards and Hazardous Materials (cont.)									
1. Designation of a trained, experienced site safety and health supervisor who has the responsibility and authority to develop and implement the site HASP; 2. A summary of all potential risks to construction workers and maximum exposure limits for all known and reasonably foreseeable site chemicals based on the most recent data collection and reporting; 3. Specified personal protective equipment and decontamination procedures, if needed; 4. Emergency procedures, including route to the nearest hospital; and 5. Procedures to be followed in the event that evidence of potential soil or groundwater contamination (such as soil staining, noxious odors, debris or buried storage containers) is encountered. These procedures shall be in accordance with hazardous waste operations regulations and will specifically include, but are not limited to, the following: immediately stopping work in the vicinity of unknown discovered or suspected hazardous materials release and notifying the Santa Cruz County Environmental Health Services (831-454-2022).									
Noise and Vibration									
NOI-1a: Construction Noise Reduction Plan PV Water shall develop and implement a Construction Noise Reduction Plan prior to initiating construction activities. A disturbance coordinator shall be designated for the Project to implement the provisions of the plan. At a minimum, the Construction Noise Reduction Plan shall implement the following measures: • Distribute to the potentially affected residences and other sensitive receptors within 200 feet of the Project construction site boundaries notice including a "hotline" telephone number, which shall be attended during active construction working hours, for use by the public to register complaints. The notice shall identify the noise disturbance coordinator who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the reason for the noise complaints and institute actions warranted to correct the problem, if any. All complaints shall be logged noting date, time, complainant's name, nature of complaint, and any corrective action taken. The notice shall also include the construction schedule. • Equipment and trucks used for construction activities shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts. • Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for construction activities shall be hydraulically- or electrically-powered whenever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used (such as drilling rather than impact equipment) whenever feasible. • <u>Where pile driving will occur within 300 feet of sensitive receptors, cushion blocks shall be used to dampen the point of contact and reduce noise associated with pile driving equipment.</u> • Maintain maximum physical separation, as far as practicable, between noise sources (construction equipment) and sensitive noise receptors. Separation may be achieved by locating stationary equipment (such as generators) in areas that would minimize noise impacts on the community. If they must be located near existing receptors, they shall be adequately muffled. • When construction activities take place within 50 feet of receptors, use construction noise barriers such as paneled noise shields, blankets, and/or enclosures adjacent to noisy stationary and off-road equipment. Noise control shields, blankets and/or enclosures shall be made featuring a solid panel and a weather-protected, sound-absorptive material on the construction-activity side of the noise shield.	X	X			X		1. Design 2. Pre-Construction 3. Construction	Contractor to implement, PV Water to monitor	
NOI-1b: Location of Recovery and Monitoring Wells PV Water shall locate recovery and monitoring wells at a distance of at least 200 feet from existing residences to avoid noise impacts to the residences. If this is found to be not feasible, PV Water shall implement Mitigation Measure NOI-1c for residences located less than 200 feet from well sites where 24-hour construction is required.		X					1. Design	PV Water	
NOI-1c: Off-site Accommodations for Substantially Affected Nighttime Receptors To reduce nighttime impacts to receptors, PV Water shall offer to provide temporary hotel accommodations for all residents within 200 feet of where recovery well drilling (if Mitigation Measure NOI-1b is not feasible) and trenchless pipeline construction activities would occur. The accommodations shall be provided for the duration of nighttime drilling activities. PV Water shall provide accommodations reasonably similar to those of the impacted residents (e.g., in terms of number of beds).		X			X		3. Construction	PV Water	

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Noise and Vibration (cont.)									
NOI-2: Acoustical Enclosures for Stationary Equipment Enclose all blowers, if installed, within acoustical enclosures to reduce noise impacts to nearby uses. Enclosures shall be rated for a noise reduction sufficient to ensure that the attenuated noise level at nearby receptors would be below the County standards of 45 dBA.	X						1. Design 3. Construction	PV Water	
Transportation and Traffic									
****TR-1:** Conduct a preconstruction survey of road conditions on key access routes to the project sites (e.g., San Andreas Road). The pavement conditions of local streets judged to be in good condition for use by heavy truck traffic shall be monitored. Roads damaged by construction shall be repaired to a structural condition equal to, or better than, that which existed prior to construction activity.	X	X	X	X	X	X	2. Pre-Construction 3. Construction 4. Post Construction	Contractor to implement, PV Water to monitor	
~~**TRA-1a: Encroachment Permits**~~ ~~PV Water shall require the construction contractor to obtain any necessary road encroachment permits from Santa Cruz County prior to constructing each Project component and shall comply with the conditions of approval attached to all Project permits and approvals.~~							~~2. Pre-Construction 3. Construction~~	~~Contractor to implement, PV Water to monitor~~	
TRA-1b: Construction Traffic Control/Traffic Management Plan PV Water shall require the construction contractor to prepare a Construction Traffic Control/Traffic Management Plan and submit it to Santa Cruz County for review and approval prior to construction. The plan shall be prepared in accordance with professional engineering standards and may include, but not be limited to, the following elements as appropriate: • Identify hours of construction for each Project component. • Schedule truck trips outside of peak morning and evening commute hours when feasible to minimize adverse impacts on traffic flow if agencies with jurisdiction over the affected roads identify highly congested roadway segments during their review of the encroachment permit applications. Haul routes that minimize truck traffic on local roadways and residential streets shall be used. • Develop circulation and detour plans to minimize impacts on local street circulation. This may include the use of signing and flagging to guide vehicles, bicyclists, and pedestrians through and/or around the construction zone. • Control and monitor construction vehicle movements by enforcing current standard construction specifications as defined by Santa Cruz County through periodic onsite inspections by the construction contractor. • Install traffic control devices where traffic conditions warrant, as specified in the Santa Cruz County's standards (e.g., the *California Manual of Uniform Traffic Controls for Construction and Maintenance Work Zones*). • Perform construction that crosses on-street and off-street bikeways, sidewalks, and other walkways in a manner that allows for safe access for bicyclists and pedestrians. Alternatively, provide safe detours to reroute affected bicycle/pedestrian traffic. • Comply with roadside safety protocols to reduce the risk of accidents, as defined in the *Caltrans Division of Construction Code of Safe Practices and the California Manual of Uniform Traffic Controls for Construction and Maintenance Work Zones*. Provide "Road Work Ahead" warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. • Store all equipment and materials in designated contractor staging areas. • Encourage construction crews to park at staging areas to limit lane closures in the public rights-of-way. • Include a plan and implementation process for notifications and a process for communication with affected residents and businesses prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities at least one week in advance. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints.	X	X	X	X	X	X	2. Pre-Construction 3. Construction	Contractor to implement, PV Water to monitor	

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Transportation and Traffic (cont.)									
• Include a plan and implementation process to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities. All roads shall remain passable to emergency service vehicles at all times. • Identify all roadway locations where special construction techniques (e.g., trenchless pipeline installation or night construction) will be used to minimize impacts on traffic flow. Require all open trenches and pits be covered with metal plates at the end of each workday to accommodate traffic and access									
Cultural Resources									
****CR-1a:** Final pipeline and facility plans shall locate facilities and pipeline alignments away from identified and recorded archaeological sites in each component area based on a site reconnaissance and archaeological investigation conducted by a qualified archaeologist at the time site-specific construction plans are developed. The archaeologist shall identify the areal extent of potential recorded sites, assess potential significance to identified resources, recommend adjustment to siting of improvements, facilities and/or pipeline alignments, if necessary, and provide other recommendations to avoid impacts to identified significant resources. If a significant or potentially significant archaeological or historic resource is identified pursuant to the definitions in the State CEQA Guidelines as identified above, the consulting archaeologist shall develop an appropriate mitigation plan for the cultural resource. Possible mitigation measures for important cultural resources may include monitoring by a qualified archaeologist during construction at identified sensitive sites, documentation and recordation of the resource, recovery and relocation, or stabilization of the resource.	X	X	X	X	X	X	1. Design	PV Water and qualified archaeologist	Completed
*****COVERED BY REVISED MITIGATION MEASURES CUL-1I AND CUL-1J** ~~****CR-1b:** The cultural resource boundaries of potentially significant sites shall be marked as exclusion zones both on ground and on construction maps prior to the commencement of construction activities on component sites. Construction supervisory personnel shall be notified of the existence of cultural resources in each component area and will be required to keep personnel and equipment away from these cultural resources sites. During construction and operational phases, personnel and equipment will be restricted to each surveyed corridor for each component.~~	~~See Measure CUL-1h~~						~~See Measure CUL-1h~~	~~See Measure CUL-1h~~	~~Superseded by Measure CUL-1h~~
*****COVERED BY REVISED MITIGATION MEASURE CUL-1K** ~~**** CR:** Should any as yet undiscovered cultural resources be uncovered at any component site, such as structural features, or unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any development activities, work will be suspended and PVWMA staff will be contacted. A qualified professional archaeologist shall be retained and will perform any necessary investigations to determine the significance of the find. PVWMA will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work must be halted and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.~~	~~See Measure CUL-1k~~						~~See Measure CUL-1k~~	~~See Measure CUL-1k~~	~~Superseded by Measure CUL-1k~~
CUL-1a: Retention of a Qualified Archaeologist Prior to start of ground-disturbing activities (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil), PV Water shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (codified in 36 CFR Part 61; 48 FR 44738-44739) to oversee and ensure that all mitigation related to archaeological resources is carried out.	X	X	X	X	X	X	2. Pre-Construction 3. Construction	PV Water and qualified archaeologist	
CUL-1b: Pre-Construction Phase I Cultural Resources Survey Prior to the start of ground-disturbing activity, a qualified archaeologist shall conduct a pre-construction Phase I Cultural Resources Survey of all areas that were not surveyed as part of the 2020 field effort. The survey shall document archaeological resources potentially qualifying as historical resources, unique archaeological resources, and/or tribal cultural resources under CEQA. The qualified archaeologist shall document the results of the survey in a Phase I Cultural Resources Survey Report that follows Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. The qualified archaeologist shall also prepare Department of Parks and Recreation 523 forms for resources encountered during the survey, which shall be appended to the report. If built environment resources are encountered that could potentially be impacted by the Projects, the qualified archaeologist shall consult with a Qualified Architectural Historian meeting the Secretary of the Interior's Professional Qualifications Standards for architectural history (codified in 36 CFR Part 61; 48 FR 44738-44739). The qualified archaeologist shall submit the draft Phase I Cultural Resources Survey Report to PV Water within 30 days of completion of the survey. The final report shall be approved by PV Water no later than 360 days prior to the start of ground disturbance. The qualified archaeologist shall submit the final Phase I Cultural Resources Survey Report to the Northwest Information Center.	X	X	X	X	X	X	2. Pre-Construction	PV Water and qualified archaeologist	Completed

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*** Where noted, cultural resources mitigation measures have been consolidated into revised mitigation measures or are no longer necessary based on the results of Phase II surveys completed in November 2023.

TABLE 5-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Harkins Slough Facilities Upgrades Project Components		Struve Slough Project Components				Mitigation Schedule	Monitoring, Reporting Responsibility	Verification of Compliance by PV Water*
	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~s~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Cultural Resources (cont.)									
*****NO LONGER NECESSARY BASED ON RESULTS OF PHASE II SURVEYS** ~~**CUL-1c: Pre-Construction Phase II Archaeological Testing and Evaluation**~~ ~~Prior to start of ground-disturbing activity, the qualified archaeologist shall develop and implement an archaeological testing and evaluation program for resources CA-SCR-155 and CA-SCR-156, and any other potentially significant archaeological resources that are identified during the pre-construction survey. The testing program shall be aimed at determining the presence/absence of subsurface cultural deposits in the Area of Direct Impact, and if present, the horizontal and vertical extents and significance of those deposits. The qualified archaeologist shall prepare a work plan outlining the objectives, goals, research questions, and methods of the testing program and shall submit the work plan to PV Water for review and comment. The final approved work plan shall be prepared and implemented by the qualified archaeologist. Upon completion of testing, the qualified archaeologist shall prepare a Phase II Archaeological Testing and Evaluation Report for submittal to PV Water. The draft report shall be submitted within 30 days of completion of testing. The final report shall be approved by PV Water no later than 270 days prior to the start of ground disturbance. The qualified archaeologist shall also submit the final Phase II Archaeological Testing and Evaluation Report to the Northwest Information Center.~~ ~~If potentially significant subsurface cultural deposits are identified in the Area of Direct Impact, the qualified archaeologist shall evaluate the resource(s) for significance to determine if it qualifies as a historical resource as defined in CEQA Guidelines Section 15064.5(a). This would include evaluation under all four National Register/California Register Criteria (A/1-D/4). If a resource does not meet the criteria under subdivision(a), then it shall be assessed to determine if it meets the definition of unique archaeological resource as provided in Public Resources Code Section 21083.2(g)). When assessing significance for resources that are Native American in origin, the qualified archaeologist and PV Water shall consult with one or more Native American representatives listed on the California Native American Heritage Commission's contact list for the Projects to ensure that cultural values ascribed to the resource, beyond those that are scientifically important, are considered to determine if it qualifies as a tribal cultural resource pursuant to Public Resources Code section 21074.~~	~~To be determined based on Mitigation Measure CUL-1b~~			~~x~~	~~x~~		~~2. Pre-Construction~~	~~PV Water and qualified archaeologist~~	
*****NO LONGER NECESSARY BASED ON RESULTS OF PHASE II SURVEYS** ~~**CUL-1d: Avoidance and Preservation in Place of Archaeological Resources**~~ ~~PV Water shall make every effort to avoid and preserve in place archaeological sites that are determined to be historical resources, unique archaeological resources, and/or tribal cultural resources as a result of testing and evaluation efforts conducted under Mitigation Measure CUL-1c. Avoidance and preservation in place is the preferred manner of mitigating impacts to archaeological resources. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that avoidance and preservation in place of a resource is determined by PV Water, in consultation with the qualified archaeologist, to be infeasible in light of factors such as Project design, costs, and other considerations, then Mitigation Measures CUL-1e shall be implemented for that resource. If avoidance and preservation in place of a resource is determined by PV Water to be feasible, then Mitigation Measures CUL-1h shall be implemented for that resource.~~	~~x~~	~~x~~	~~x~~	~~x~~	~~x~~		~~2. Pre-Construction 3. Construction~~	~~PV Water and qualified archaeologist~~	
*****NOT NECESSARY BASED ON RESULTS OF PHASE II SURVEYS** ~~**CUL-1e: Development of a Phase III Archaeological Resources Data Recovery and Treatment Plan**~~ ~~The qualified archaeologist shall prepare a Phase III Archaeological Resources Data Recovery and Treatment Plan for all significant resources that will be impacted by the proposed Project, including those that qualify as historical resources, unique archaeological resources, and/or tribal cultural resources. When determining if data recovery is necessary, the qualified archaeologist shall first consider if the data potential of the impacted portion of the site has been exhausted through previous testing. The plan shall be submitted to PV Water for review and approval prior to the start of any Project-related ground-disturbing activity. Treatment for resources that are eligible under Criterion D/4 (data potential). Data recovery field work shall be completed prior to the start of any Project-related ground-disturbing activity. Treatment for resources that are eligible under Criteria A/1 (events), B/2 (persons), and/or C/3 design/workmanship) shall be completed within 3 years of completion of the Projects. The Phase III Archaeological Resources Data Recovery and Treatment Plan shall include:~~ ~~• *Research Design*. The plan shall outline the applicable cultural context(s) for the region, identify research goals and questions that are applicable to each resource or class of resources, and list the data needs (types, quantities, quality) required to answer each research question. The research design shall address all four National Register/California Register Criteria (A/1-D/4) and identify the methods that will be required to inform treatment, such as subsurface investigation, documentary/archival research, and/or oral history, depending on the nature of the resource.~~ ~~• *Data Recovery for Resources Eligible under Criterion D/4*. The plan shall outline the field and laboratory methods to be employed, and any specialized studies that will be conducted, as part of the data recovery effort for resources that are eligible under National Register/California Register Criterion D/4 (data potential). If a resource is eligible under additional criteria, treatment beyond data recovery shall be implemented.~~	~~To be determined based on Mitigation Measures CUL-1b and CUL-1c~~						~~2. Pre-Construction 3. Construction~~	~~PV Water and qualified archaeologist~~	

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*** Where noted, cultural resources mitigation measures have been consolidated into revised mitigation measures or are no longer necessary based on the results of Phase II surveys completed in November 2023.

TABLE 5-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Harkins Slough Facilities Upgrades Project Components		Struve Slough Project Components				Mitigation Schedule	Monitoring, Reporting Responsibility	Verification of Compliance by PV Water*
	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~s~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Cultural Resources (cont.)									
~~• *Treatment for Resources Eligible under Criteria A/1, B/2, and/or C/3*. In the event a resource is eligible under National Register/California Register Criteria A/1 (events), B/2 (persons), or C/3 (design/workmanship), then resource-specific treatment shall be developed to mitigate Project-related impacts to the degree feasible. That could include forms of documentation, interpretation, public outreach, ethnographic and language studies, publications, and educational programs, depending on the nature of the resource, and may require the retention of additional technical specialists. Treatment measures shall be generally outlined in the plan based on existing information on the resource. Once data recovery is completed and the results are available to better inform resource-specific treatment, the treatment measures shall be formalized and implemented. Treatment shall be developed by the qualified archaeologist in consultation with PV Water and one or more Native American Tribal representatives listed on the California Native American Heritage Commission's contact list for the Projects for resources that are Native American in origin.~~									
~~• *Security Measures*. The plan shall include recommended security measures to protect archaeological resources from vandalism, looting, and non-intentionally damaging activities during field work.~~									
~~• *Procedures for Discovery of Human Remains and Associated Funerary Objects.* The plan shall outline the protocols and procedures to be followed in the event that human remains and associated funerary objects are encountered during field work. These shall include stop-work and protective measures, notification protocols, and compliance with California Health and Safety Code section 7050.5 and PRC[2] section 5097.98. See also CUL-2.~~									
~~• *Reporting Requirements*. Upon completion of data recovery for resources eligible under Criterion D/4, the qualified archaeologist shall document the findings in a Phase III Archaeological Data Recovery Report. The draft Archaeological Data Recovery Report shall be submitted to PV Water within 360 days after completion of data recovery, and the final Phase III Archaeological Data Recovery Report shall be submitted to PV Water within 60 days after the receipt of PV Water comments. The qualified archaeologist shall also submit the final Phase III Archaeological Data Recovery Report to the Northwest Information Center.~~									
~~• Upon completion of all other treatment for resources eligible under Criteria A/1, B/2, and C/3, the qualified archaeologist shall document the resource-specific treatment that was implemented for each resource and verification that treatment has been completed in a technical document (report or memorandum). The document shall be provided to PV Water within 30 days after completion of treatment.~~									
~~• *Curation Requirements*. The plan shall stipulate curation of cultural materials in accordance with Mitigation Measure CUL-1l.~~									
~~• *Protocols for Native American Monitoring and Input*. The plan shall outline the role and responsibilities of Native American Tribal representatives. It shall include communication protocols and an opportunity and timelines for review of cultural resources documents. The plan shall include provisions for full-time Native American monitoring during field work (see Mitigation Measure CUL-1j).~~									
Mitigation Measure CUL-1f: Development of a Cultural Resources Monitoring and Mitigation Program The qualified archaeologist shall prepare a Cultural Resources Mitigation and Monitoring Program (CRMMP) based on the final approved Project design plans. The CRMMP shall be submitted to PV Water at least 60 days prior to the start of any ground-disturbing activities. The CRMMP shall include: • *Provisions for Archaeological Monitoring.* The CRMMP shall outline the archaeological monitor(s) responsibilities and requirements (refer to Mitigation Measure CUL-1i). • *Procedures for Discovery of Archaeological Resources.* Procedures to be implemented in the event of ~~an archaeological~~ discovery of cultural resources shall be fully defined in the CRMMP, and shall include stop-work and protective measures, notification protocols, procedures for significance assessments, and appropriate treatment measures. The CRMMP shall state avoidance or preservation in place is the preferred manner of mitigating impacts to ~~historical resources, unique archaeological resources, and tribal~~ cultural resources, but shall provide procedures to follow should PV Water determine that avoidance is infeasible in light of factors such as the nature of the find, Project design, costs, and other considerations. See also Mitigation Measure CUL-1k. If, based on the recommendation of the qualified archaeologist, it is determined that a discovered archaeological resource constitutes a historical property ~~resource, unique archaeological resource, and/or tribal cultural resource~~ pursuant to NHPA, ~~CEQA~~ and data recovery through excavation is the only feasible mitigation available, a Phase III Archaeological Resources Data Recovery and Treatment Plan shall be prepared and implemented by the qualified archaeologist in coordination with PV Water that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource (see Mitigation Measure CUL-1e). PV Water, or its designee, shall consult with one or more Native American representatives listed on the California Native American Heritage Commission's contact list for the Projects in determining treatment of resources that are Native American in origin to ensure that cultural values ascribed to the resource, beyond those that are scientifically important, are considered.	X	X	X	X	X	X	2. Pre-Construction 3. Construction	PV Water and qualified archaeologist	

~~[2] Public Resources Code.~~

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TABLE 5-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Harkins Slough Facilities Upgrades Project Components		Struve Slough Project Components				Mitigation Schedule	Monitoring, Reporting Responsibility	Verification of Compliance by PV Water*
	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~s~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Cultural Resources (cont.)									
• *Procedures for Discovery of Human Remains and Associated Funerary Objects.* The CRMMP shall outline the protocols and procedures to be followed in the event that human remains and associated funerary objects are encountered during construction. These shall include stop-work and protective measures, notification protocols, and compliance with California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 (refer to Mitigation Measure CUL-2). • *Reporting Requirements*. The CRMMP shall outline provisions for monthly ~~weekly~~ and final reporting. The qualified archaeologist shall prepare ~~weekly~~ monthly status reports as a component of the monthly Project compliance report. The monthly cultural resources status report will detail ~~detailing~~ activities and locations observed (including maps) and summarizeing ~~ing~~ any discoveries for the duration of monitoring ~~to be submitted to PV Water via e-mail for each week in which monitoring activities occur~~. Upon completion of ground disturbance, the qualified archaeologist shall prepare a draft Archaeological Resources Monitoring Report and submit it to PV Water within 60 days after completion of the monitoring program or of treatment for significant discoveries should treatment extend beyond the cessation of monitoring. The final Archaeological Resources Monitoring Report shall be submitted to PV Water within 30 days of receipt of PV Water comments. The qualified archaeologist shall also submit the final Archaeological Resources Monitoring Report to the Northwest Information Center. If human remains are encountered, a confidential report documenting all activities shall be submitted to the California Native American Heritage Commission within 90 days after completion of any treatment (refer to Mitigation Measure CUL-2). • *Cultural Materials Storage ~~Curation~~ Requirements.* The CRMMP shall stipulate the temporary storage of cultural materials until appropriate reburial may take place. PV Water, or its designee, shall consult with one or more Native American representatives listed on the California Native American Heritage Commission's contact list for the Projects to determine appropriate storage protocols ~~curation of cultural materials in accordance with Mitigation Measure CUL-1l~~. • *Protocols for Native American Monitoring and Input.* The CRMMP shall outline the role and responsibilities of Native American Tribal representatives. It shall include communication protocols, an opportunity and timelines for review of cultural resources documents related to discoveries that are Native American in origin~~, and provisions for Native American monitoring~~. The CRMMP shall include provisions for Native American monitoring of construction-related ground disturbance, as well as during any subsurface investigation and data recovery for discovered resources that are Native American in origin (refer to Mitigation Measures CUL-1j).									
CUL-1g: Construction Worker Cultural Resources Sensitivity Training Program A worker cultural resources sensitivity training program shall be implemented for the Project. Prior to any ground-disturbing activity, all construction workers shall be required to view a Project-specific cultural resources awareness training presentation (PowerPoint). ~~an initial sensitivity training session shall be provided by the qualified archaeologist to all project employees, contractors, subcontractors, and other professionals prior to their involvement in any ground-disturbing activities, with subsequent training sessions occurring on a monthly basis to accommodate new personnel becoming involved in the Projects (subsequent sessions can be coordinated with other Worker Environmental Awareness Program or safety training that may be required). Construction personnel shall be informed~~ The training shall include a description of the sensitivity of the Project ~~sites~~ vicinity and ~~given a tutorial providing~~ information on how to identify the types of resources that may be encountered. The training shall also include ~~be instructed on~~ the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, confidentiality of discoveries, and safety precautions to be taken when working with cultural resources monitors. PV Water shall make it a requirement that construction personnel are ~~made available for and attend training sessions~~ required to view the training presentation and retain documentation demonstrating attendance.	X	X	X	X	X	X	2. Pre-Construction	PV Water and qualified archaeologist	
~~***NO LONGER WARRANTED; SEE REVISED MITIGATION MEASURES CUL-1I AND CUL-1J~~ ~~**CUL-1h: Designation of Environmentally Sensitive Areas**~~ ~~Prior to the start of ground disturbance, the portion of any avoided archaeological resources nearest Project-related activities shall be marked as Environmentally Sensitive Areas (this includes archaeological resources that qualify as historical resources, unique archaeological resources and/or tribal cultural resources, or those that have not been evaluated). These areas shall not be marked as archaeological resources, but shall be designated as "exclusion zones" on Project plans and protective fencing in order to discourage unauthorized disturbance or collection of artifacts. The qualified archaeologist, or their designee, shall periodically inspect these areas for the duration of Project activities in the vicinity to ensure that protective fencing remains intact and no incursions into the exclusion zones have occurred. Upon completion of all Project-related activities in the vicinity, all protective fencing and signage shall be removed.~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		~~2. Pre-Construction~~ ~~3. Construction~~	~~PV Water and qualified archaeologist~~	
CUL-1i: Archaeological Monitoring All Project-related ground disturbance that produces visible soils within 200 feet of known archaeological resources within the APE shall be subject to archaeological monitoring (i.e., horizontal directional drilling need not be monitored if the archaeologist would not be able to view soils or spoils piles). The archaeological monitor(s) shall be familiar with the types of resources that could be encountered and shall work under the direct supervision of the qualified archaeologist. The archaeological monitor(s) shall keep daily logs detailing the types of activities and soils observed, and any discoveries.	X	X	X	X	X	X	3. Construction	PV Water and qualified archaeologist	

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TABLE 5-1 (CONTINUED)
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Measure	Harkins Slough Facilities Upgrades Project Components		Struve Slough Project Components				Mitigation Schedule	Monitoring, Reporting Responsibility	Verification of Compliance by PV Water*
	Filter Plant Upgrades (including intake screen)	~~Southwest and~~ Southeast Recharge Basin~~s~~, Wells, and pipelines	Screened Intake	Pump Station	SS to Filter Plant Pipeline	Compensatory Mitigation Site			
Cultural Resources (cont.)									
Archaeological monitor(s) shall have the authority to halt and re-direct ground disturbing activities in the event of a discovery until it has been assessed for significance and treatment implemented, if necessary. In the event of a discovery, the archaeological monitor shall follow the notification protocols outlined in the CRMMP (refer to Mitigation Measures CUL-1f), including notifying the Construction Manager and qualified archaeologist. The qualified archaeologist shall determine if the discovery is significant, and if so, develop appropriate treatment (refer to Mitigation Measures CUL-1c, CUL-1d, and CUL-1e). PV Water and the qualified archaeologist shall consult with one or more Native American representatives listed on the California Native American Heritage Commission's contact list for the Projects for resources that are Native American in origin, and in accordance with the protocols and procedures outlined in the CRMMP (refer to Mitigation Measure CUL-1f).									
CUL-1j: Provisions for Native American Monitoring Prior to the start of Project-related ~~any~~ ground-disturbance that produces visible soils within 200 feet of known archaeological resources within the APE~~ing activity~~, PV Water shall contact one or more of the Native American tribes listed on the California Native American Heritage Commission's contact list for the Projects and offer to retain a monitor if the tribe wishes to participate in monitoring efforts. If resources of Native American origin are discovered, the retained Native American monitor shall provide monitoring services in accordance with protocols and procedures outlined in the CRMMP (refer to Mitigation Measure CUL-1f).	X	X	X	X	X	X	2. Pre-Construction	PV Water and Native American monitor	
CUL-1k: Inadvertent Discovery of Archaeological Resources In the event that cultural ~~archaeological~~ resources are encountered during Project activities ~~ground disturbance~~ (e.g., by construction personnel or archaeological/Native American monitors), all activity in the vicinity of the find shall cease (within 100 feet), and the protocols and procedures for discoveries outlined in the CRMMP shall be implemented (refer to Mitigation Measure CUL-1f). The discovery shall be evaluated for potential significance by the qualified archaeologist. If the qualified archaeologist determines that the resource may be significant, the qualified archaeologist shall develop an appropriate treatment plan for the resource in accordance with the CRMMP (refer to Mitigation Measure CUL-1f). When assessing significance and developing treatment for resources that are Native American in origin, the qualified archaeologist and PV Water shall consult with one or more Native American representatives listed on the California Native American Heritage Commission's contact list for the Project ~~to determine if it qualifies as a tribal cultural resource pursuant to Public Resources Code section 21074~~. The qualified archaeologist shall also determine if work may proceed in other parts of the Project areas while treatment (e.g., data recovery) for cultural resources is being carried out.	X	X	X	X	X	X	3. Construction	PV Water and qualified archaeologist	
~~*****COVERED BY REVISED MITIGATON MEASURE CUL-1F**~~ ~~**CUL-1l: Curation**~~ ~~Disposition of Native American archaeological materials shall be determined through consultation between one or more Native American representatives listed on the California Native American Heritage Commission's contact list for the Projects, the qualified archaeologist, and PV Water. Disposition of human remains and associated funerary objects shall be determined through consultation between the Most Likely Descendant, landowner, and PV Water (refer to Mitigation Measure CUL-2).~~ ~~Any significant historic-period archaeological materials that are not Native American in origin shall be curated at a repository accredited by the American Association of Museums that meets the standards outlined in 36 CFR 79.9. If no accredited repository accepts the collection, then it may be curated at a non-accredited repository as long as it meets the minimum standards set forth by 36 CFR 79.9. If neither an accredited nor a non-accredited repository accepts the collection, then it may be offered to a public, non-profit institution with a research interest in the materials, or donated to a local school or historical society in the area for educational purposes, to be determined by the qualified archaeologist in consultation with PV Water.~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		~~3. Construction~~ ~~4. Post-Construction~~	~~PV Water and qualified archaeologist~~	
CUL-2: Inadvertent Discovery of Human Remains If human remains are encountered during Project activities, then PV Water shall halt work in the vicinity (within 100 feet) of the discovery and contact the County Coroner in accordance with Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines the remains are Native American, then the Coroner shall notify the California Native American Heritage Commission in accordance with Health and Safety Code subdivision 7050.5(c), and Public Resources Code Section 5097.98. The California Native American Heritage Commission shall designate a Most Likely Descendant for the remains pursuant to Public Resources Code Section 5097.98. Until the landowner has conferred with the Most Likely Descendant, the contractor shall ensure the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials~~. If human remains are encountered, the qualified archaeologist, in consultation with the Most Likely Descendant shall prepare a confidential report documenting all activities and it shall be submitted to the California Native American Heritage Commission within 90 days after completion of any treatment~~.	X	X	X	X	X	X	3. Construction 4. Post-Construction	PV Water and qualified archaeologist	

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MITIGATION MONITORING AND REPORTING PROGRAM

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Energy, Utilities, Public Services, and Recreation									
****ES-1:** A study to identify utilities along proposed alignments will be conducted by PV Water ~~PVWMA~~ during pre-design states of projects. The following mitigation measures are required for segments identified in final design as having potential conflicts with significant utilities: a. Utility excavation and encroachment permits would be required from the appropriate agencies, including the Public Works Departments of Santa Cruz County, City of Watsonville, Caltrans, and Union Pacific Railroad. These permits include measures to minimize utility disruption. PV Water ~~PVWMA~~ and its contractors shall comply with permit conditions. Permit requirements shall be included in construction contract specifications. b. Utility locations would be verified through field survey (potholing) and use of an underground locating service. c. A detailed engineering and construction plan shall be prepared as part of the design plans and specifications. This plan shall include procedures for the excavation, support, and fill of areas around utility cables and pipes. All affected utility services would be notified of PV Water's ~~PVWMA's~~ construction plans and schedule. Arrangements would be made with these entities regarding protection, relocation, or temporary disconnection of services. d. In areas where the pipeline would parallel wastewater mains, engineering and construction plans shall include trench wall support measures to guard against trench wall failure, and possible resulting loss of structural support for the wastewater main. e. Residents and businesses in the project area shall be notified in writing by the contractor of planned utility service disruption two to four days in advance, in conformance with state and County standards.	X	X	X	X	X	X	1. Design 2. Pre-Construction 3. Construction	PV Water, contractor to comply with encroachment permits	
****ES-2:** PV Water ~~PVWMA~~ shall include in its construction specifications a requirement for the contractor to provide plans for recovering, reusing, and recycling construction, demolition, and excavation wastes and providing for composting of plant material, where feasible.	X	X	X	X	X	X	1. Design 2. Pre-Construction 3. Construction	Contractor to implement, PV Water to monitor	
Aesthetic Resources									
AES-1: Construction Lighting PV Water shall require contractors to direct nighttime lighting used during construction away from residential areas; use the minimum amount of night lighting necessary for construction and safety, and shield and hood outdoor lighting to prevent light spillover effects during Project construction.		X			X		1. Design 3. Construction	Contractor to implement, PV Water to monitor	

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Appendix APN

Assessor Parcel Numbers Associated with the Watsonville Slough System Managed Aquifer Recharge and Recovery Project

ESA

TABLE APN-1
PARCELS POTENTIALLY AFFECTED BY THE WATSONVILLE SLOUGH SYSTEM MANAGED AQUIFER RECHARGE AND RECOVERY PROJECT

SCREENED INTAKE AND PUMP STATION AT STRUVE SLOUGH			
052-081-37			
STRUVE SLOUGH TO FILTER PLANT PIPELINE[a]			
052-081-37	052-221-24	052-221-23	052-221-09
052-222-25[b]	052-551-05	052-551-04	052-551-03
052-551-02	052-551-01	052-211-26	052-211-14
052-211-15	052-211-12	052-211-29	
HARKINS SLOUGH FILTER PLANT, INTAKE, AND PUMP STATION			
052-211-29	052-211-28 (staging)		
SOUTHEAST RECHARGE BASIN, RECOVERY/MONITORING WELLS, AND ASSOCIATED PIPELINES			
046-151-37	052-181-18	052-181-19	052-181-20
052-191-59			
POTENTIAL COMPENSATORY MITIGATION SITE			
052-221-09			

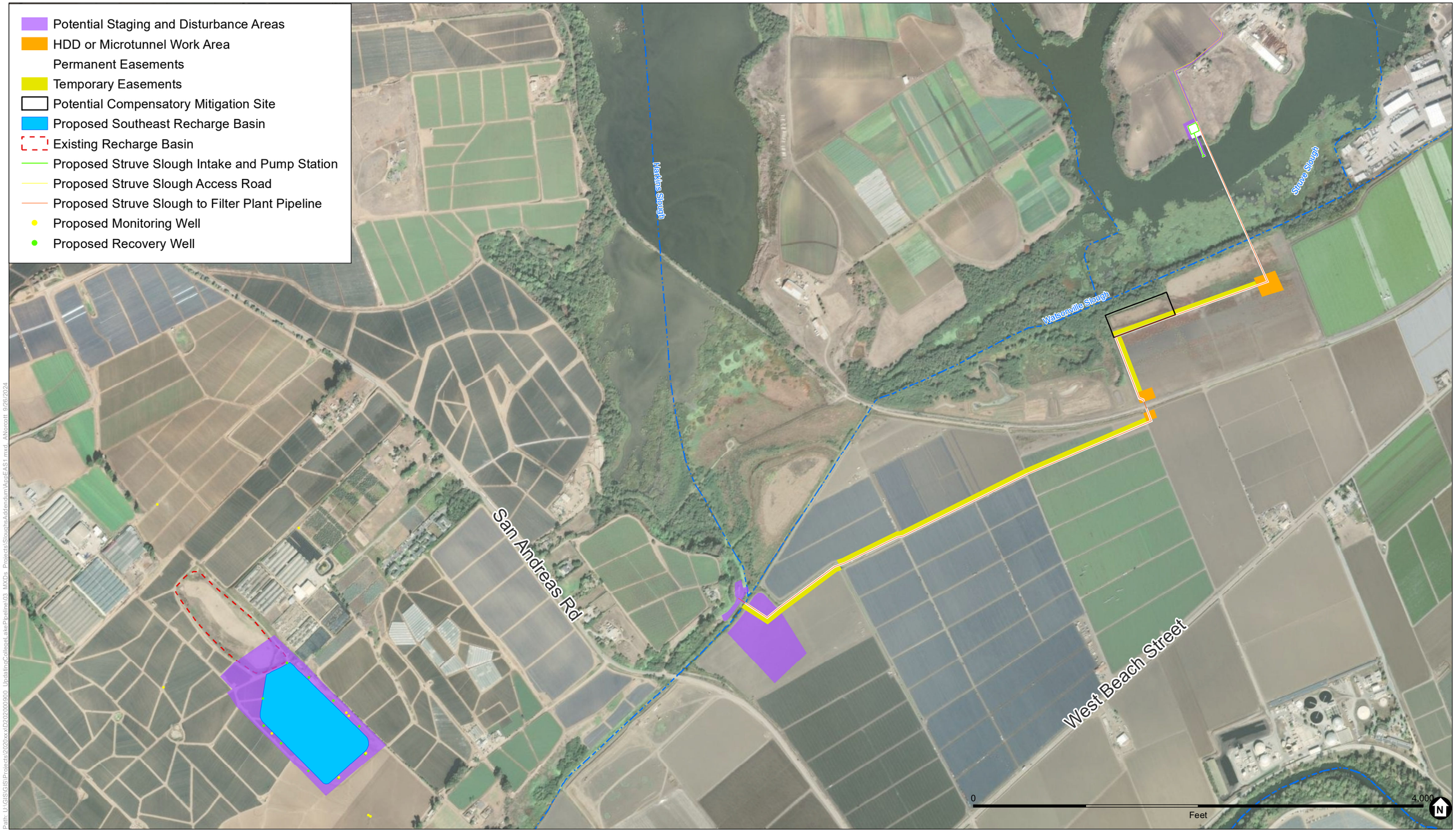
NOTES:

[a] APNs are presented from east to west along the pipeline alignment.

[b] While the Stuve Slough to filter plant pipeline would not be within APN 052-222-25, the pipeline would be installed via trenchless construction beneath the parcel.

Appendix EAS
Easements and Construction Disturbance Areas

ESA



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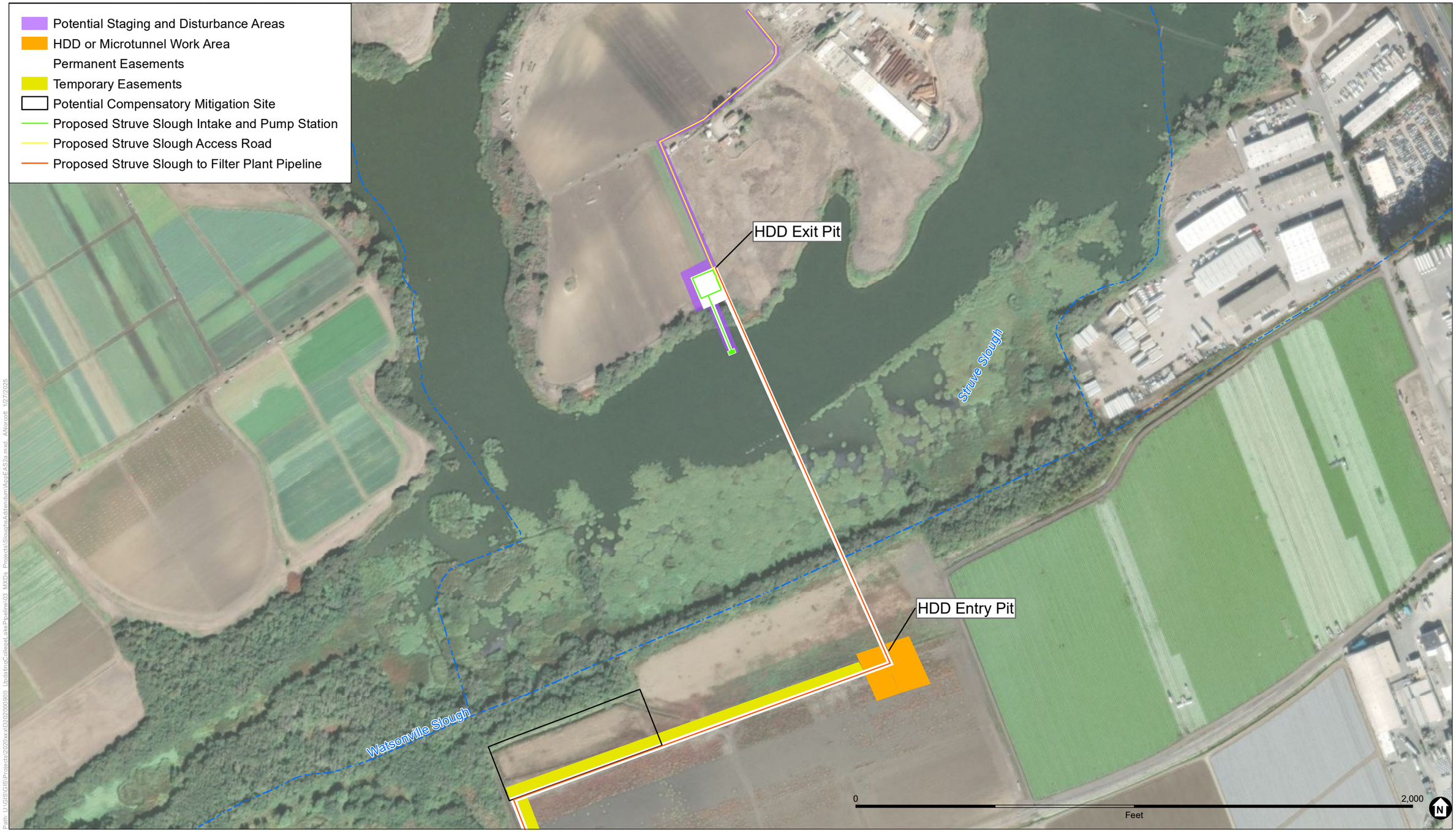
SOURCE: Carollo Engineers, 2024; ESA, 2024

Watsonville Slough System Managed Aquifer Recharge and Recovery Project

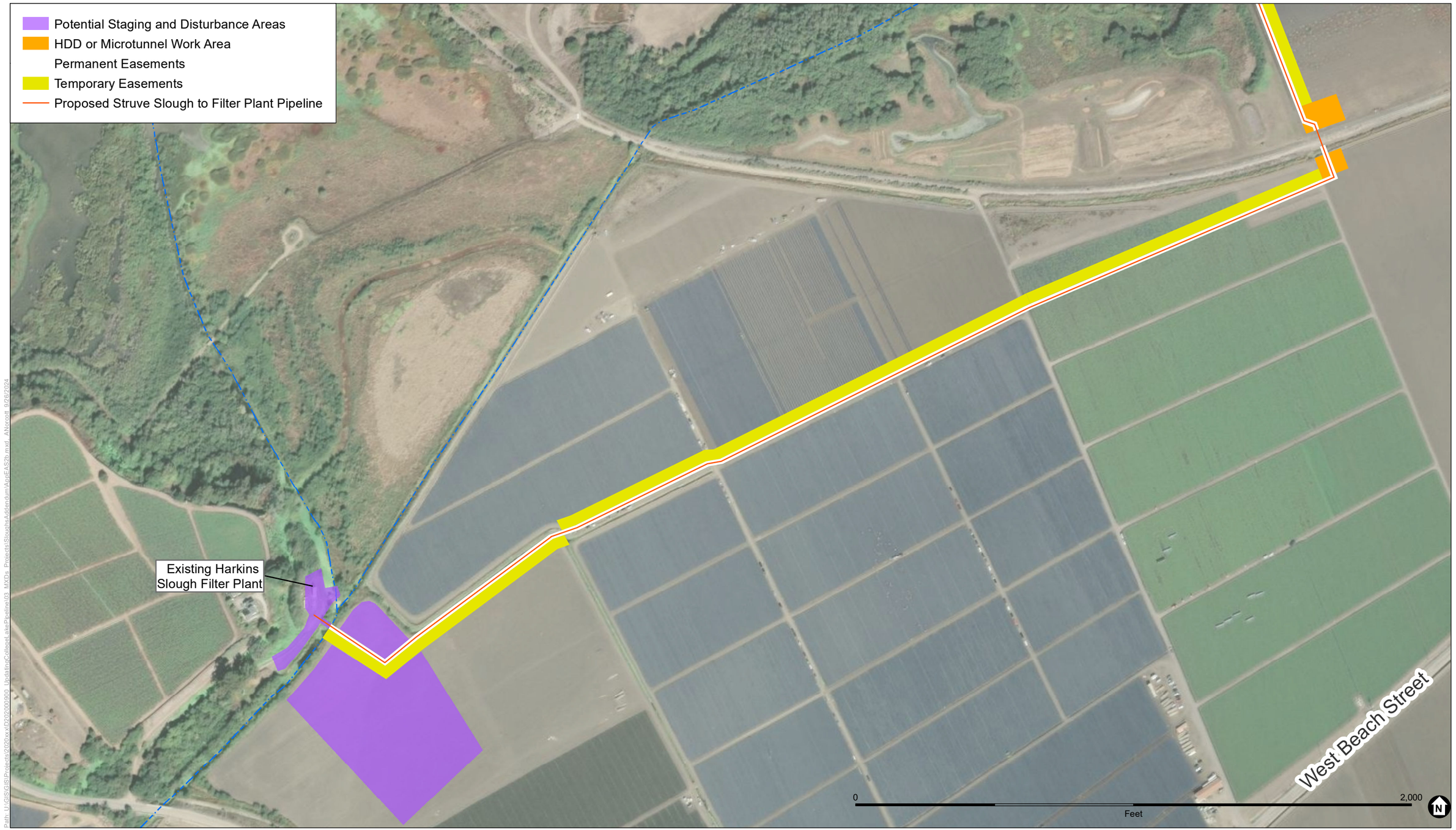
Figure EAS-1
Easements and Construction Disturbance Areas



SOURCE: Carollo Engineers, 2024; ESA, 2024

Watsonville Slough System Managed Aquifer Recharge and Recovery Project

Figure EAS-2a
Easements and Construction Disturbance Areas Along the Struve Slough to Filter Plant Pipeline



SOURCE: Carollo Engineers, 2024; ESA, 2024

Watsonville Slough System Managed Aquifer Recharge and Recovery Project

Figure EAS-2b
Easements and Construction Disturbance Areas Along the Struve Slough to Filter Plant Pipeline