Exhibit 10.1

Michael Baker
INTERNATIONAL

CAMBRIA WATER RECLAMATION FACILITY PROJECT

San Luis Obispo County, California

Adaptive Management Plan

Prepared For:

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January 31, 2025

Exhibit 10.1

CAMBRIA SUSTAINABLE WATER FACILITY PROJECT

COMMUNITY OF CAMBRIA, SAN LUIS OBISPO COUNTY, CALIFORNIA

Adaptive Management Plan

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Exhibit 10.1

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EXHIBITS

TABLES

APPENDICES

LIST OF ACRONYMS

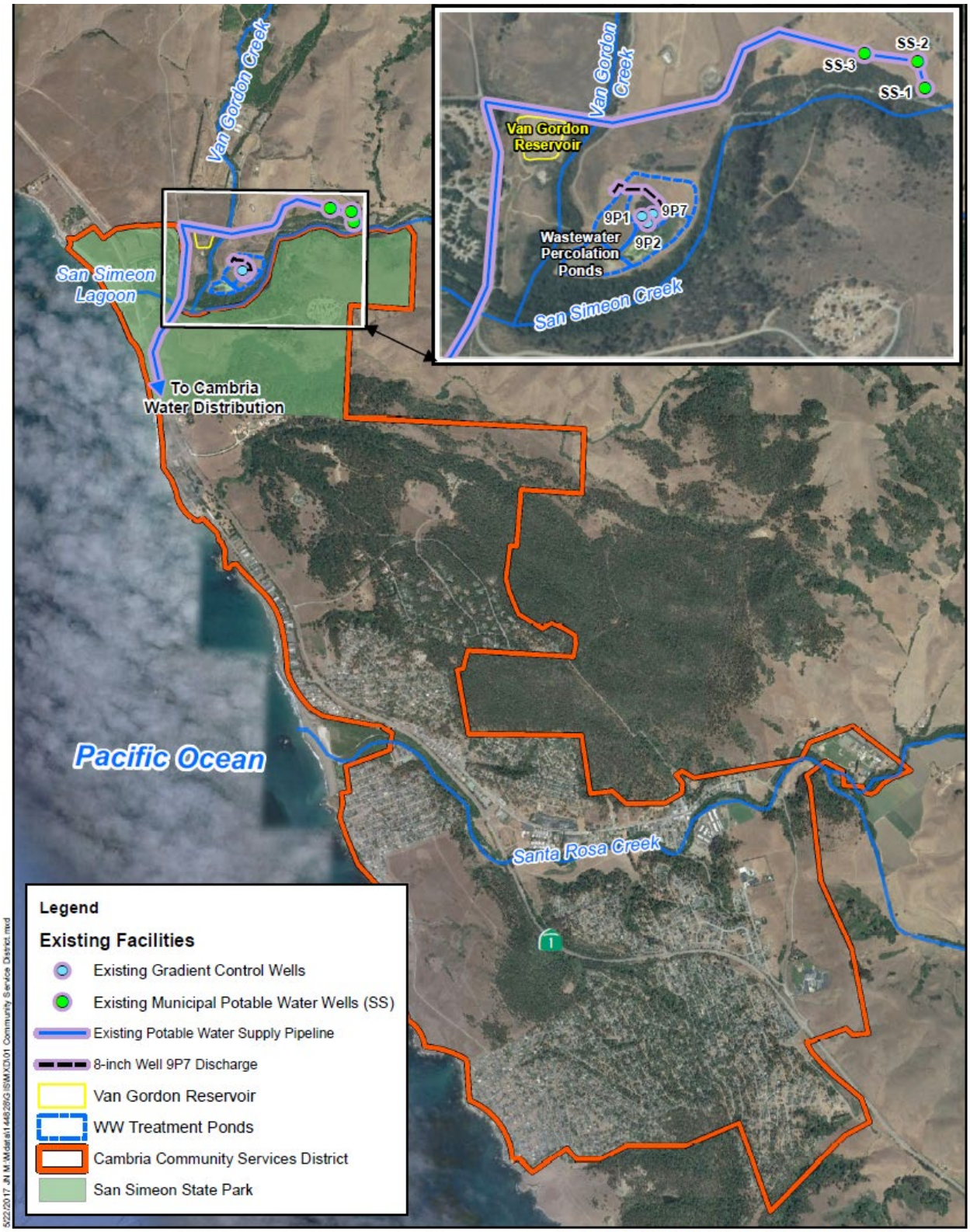
AMP	Adaptive Management Plan
AWTP	Advanced Water Treatment Plant
BM	Biological Monitor
C	Celsius
CCSD	Cambria Community Services District
CDFW	California Department of Fish and Wildlife
CRAM	California Rapid Assessment Method
DO	Dissolved Oxygen
F	Fahrenheit
gpm	Gallons Per Minute
PHABSIM	Physical Habitat Simulation
ppm	Parts Per Million
ppt	Parts Per Thousand
RBF	RBF Consulting
RIW	Recharge Injection Well
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WUA	Weighted Usable Area

Section 1 Background

Cambria is located in central California's coastal region in the northwest portion of San Luis Obispo County (SLO County). The Cambria Community Services District (CCSD or the District) is an independent special district of the SLO County that provides water, wastewater, fire protection, parks and recreation and other community services for this 3,200 acres community south of San Simeon, CA. Exhibit 1, *Cambria Community Services District and Existing Facilities*, shows the CCSD Service boundaries, and the locations of the CCSD's existing well field and freshwater facilities. All of Cambria's potable water is supplied by groundwater wells in the San Simeon Creek and Santa Rosa Creek aquifers. The San Simeon Creek and Santa Rosa Creek aquifers are relatively shallow and porous, with the groundwater levels typically recharged every year during the rainy season. Groundwater levels generally exhibit a consistent pattern of high levels during the wet season, steady decline during the dry season, and rapid rise when the wet season resumes.

To minimize loss or contamination of potable groundwater at the aquifer and ocean interface, treated wastewater effluent is percolated into the San Simeon Creek aquifer downstream from its production wells. This practice also helps prevent saltwater intrusion into the freshwater water aquifer. If the groundwater level drops too far, treated effluent and seawater could migrate toward the water supply wells, deteriorating the water quality and potentially rendering the freshwater non-potable. The percolation of treated wastewater effluent develops groundwater mounding below the percolation ponds, which forms a positive differential between the percolation pond area and the ocean that results in subsurface discharge of fresh water to the ocean. CCSD operations also monitor the groundwater mound throughout the year to maintain a positive differential from CCSD's up-gradient production wells and down-gradient percolation ponds area. During the summer dry season, and depending upon the prior year's precipitation, the CCSD may periodically pump groundwater from its percolation fields in order to maintain this differential. When this occurs, water is lost to the ocean as subsurface underflow and the volume of up-gradient freshwater storage is diminished.

As noted, the aquifers are recharged primarily by seepage from San Simeon and Santa Rosa Creeks, which typically flow during the winter and spring rainy seasons. The average groundwater levels at San Simeon Creek Well ranges from 8 to 20 feet above mean sea level (amsl) in depth; see *Groundwater* Section below. In 2013, well levels dropped to three (3) feet amsl in the summer and fluctuated between four and seven (4 and 7) feet amsl during the winter rainy season (October through February).



CAMBRIA SUSTAINABLE WATER FACILITY PROJECT

Cambria Community Service District and Existing Facilities

Michael Baker INTERNATIONAL

0 1,500 3,000 Feet

Source: CDM Smith, ESRI World Imagery, Google Earth

Exhibit 1

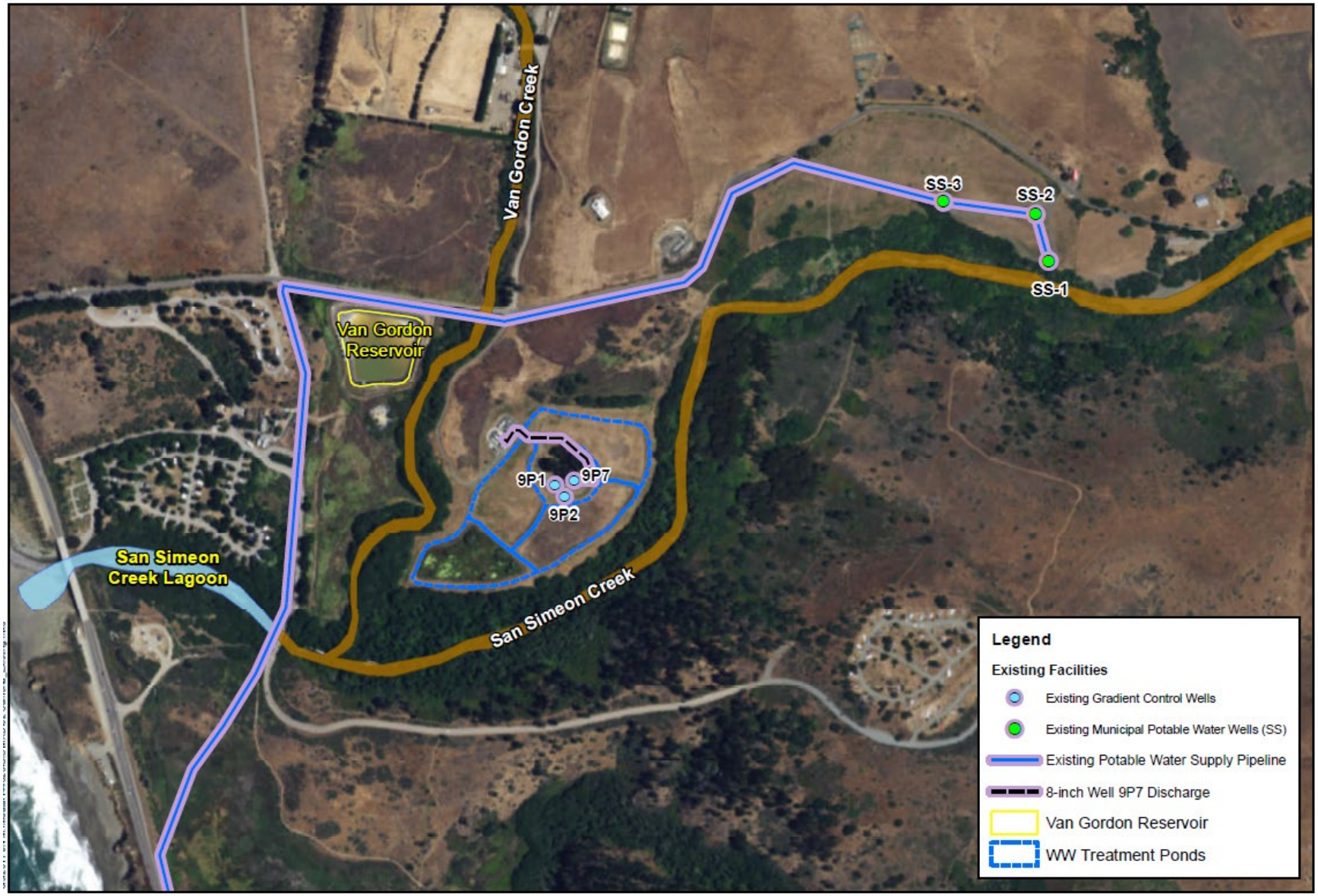
The 2013/2014 water year drought prompted the CCSD's decision to develop an emergency water supply for Cambria that could be made available quickly. The CCSD subsequently changed the Project name to Sustainable Water Facility (or SWF). Within this document, there are references to earlier Project reports, which referred to the Emergency Water Supply Project (EWSP) and SWF. More recent reports, including this update to the Adaptive Management Plan (AMP), refer to the Project as the Water Reclamation Facility (or WRF). In response to the emergency status, the CCSD constructed the Cambria Emergency Water Supply Project. The Cambria Emergency Water Supply Project San Simeon Creek Basin Groundwater Modeling Report (GMR) (CDM Smith, May 2014) (see Appendix A) was prepared to support Project design. In addition, the Technical Memorandum – San Simeon Creek Flows (Technical Memorandum) (CDM Smith, October 16, 2016) (see Appendix B) was prepared to analyze instream flows and the SWF Project's lagoon water supply design feature. The GMR and Technical Memorandum were also included within the 2017 Supplemental Environmental Impact Report (2017 SEIR) Appendix E-1 and Appendix E-6, respectively, which analyze the SWF. The GMR and Technical Memorandum evaluated the Project's potential impacts on San Simeon Creek and the San Simeon Creek Lagoon. These studies showed that the SWF would not substantially deplete groundwater levels within the San Simeon Creek aquifer and, given the area's drought history and its impacts on groundwater supply, the SWF would instead work towards alleviating the existing problem of groundwater depletion within the aquifer. The WRF proposes to withdraw up to 525 gpm of water through Well 9P7 and reinject up to 452 gpm of treated water for indirect potable use after appropriate resident time in the aquifer. This reinjected water also serves to maintain gradient control within the groundwater basin between the CCSD's San Simeon Creek aquifer well field area and the treated wastewater effluent percolation ponds. Besides the Project's reinjected water, a Project Design Feature (PDF) proposes that approximately 100 gpm of MF filtrate (identical to the source water quality) will be discharged from the Project's Advanced Water Treatment Plan (AWTP) to the upstream end of the San Simeon Creek lagoon to maintain surface water levels within the lagoon.

1.1 EXISTING CCSD FACILITIES

The CCSD constructed the EWSP during 2014. As designed, the Project used several existing CCSD facilities: the San Simeon Well Field and Potable Water Supply, percolation ponds that receive treated effluent from the Cambria Wastewater Treatment Plant, and a treated wastewater effluent holding basin (aka the Van Gordon Reservoir). The locations of each of these existing facilities are shown in Exhibit 2, *Existing Facilities*.

The San Simeon Well Field and Potable Water Supply is located at the eastern portion of the Project site, approximately one mile inland from the ocean. The well field contains three municipal wells (SS- 1, SS-2 and SS-3) used to extract groundwater from the San Simeon Aquifer. An underground potable water supply pipeline, which generally parallels the northern and western site boundaries, is used to transport potable water from the well field to Cambria, approximately 2.5 miles to the south. In addition to the three CCSD municipal water wells (SS-1, SS-2, and SS-3), there are three other CCSD wells located within the Project site:

- Well 9P1: Which once served a ranch house and is no longer in use;
- Well 9P2: An irrigation well, which supplies a riparian irrigator via an agreement with the CCSD that replaces the use of abandoned Well 9K1;
- Well 9P7: A former gradient control well that was repurposed as part of the SWF Project.


Van Gordon Creek
SS-3
SS-2
SS-1
Van Gordon Reservoir
9P1
9P7
9P2
San Simeon Creek Lagoon
San Simeon Creek
Legend
Existing Facilities
Existing Gradient Control Wells
Existing Municipal Potable Water Wells (SS)
Existing Potable Water Supply Pipeline
8-inch Well 9P7 Discharge
Van Gordon Reservoir
WW Treatment Ponds
Michael Baker INTERNATIONAL
0 250 500 1,000
Feet
Source: CDM Smith, ESRI World Imagery
CAMBRIA SUSTAINABLE WATER FACILITY PROJECT
Existing Facilities
Exhibit 2

The effluent percolation ponds are located in the southwestern portion of the Project site and includes four percolation ponds and associated treated wastewater effluent pipelines. After secondary treatment at the CCSD wastewater treatment plant (located approximately two miles south from the Project site), treated effluent is pumped to the four percolation ponds where it infiltrates slowly through the soil into the underlying groundwater/San Simeon Creek aquifer. Except for times when a reverse hydraulic gradient condition could occur (such as later summer to early fall, also see Section 3) this recharging of the lower San Simeon Creek aquifer helps maintain the hydraulic mound/barrier that separate the up-gradient potable groundwater supply from the San Simeon Creek aquifer/ocean interface.

Van Gordon Reservoir is an existing, but unused, storage basin for wastewater located in the northwest corner of the Project site. Between 1994 and 2005, the Van Gordon Reservoir was used as an intermediate storage reservoir prior to discharge into the percolation ponds.

1.2 EMERGENCY WATER SUPPLY PROJECT

In addition to the use of existing CCSD facilities, the EWSP included construction of several new water facilities. Exhibit 3, *Sustainable Water Facility*, shows the location of these new EWSP facilities in relationship to the existing CCSD facilities. The new facilities included:

- An Advanced Water Treatment Plant (AWTP);
- A Recharge Injection Well (RIW);
- An evaporation pond (created by modifying the existing Van Gordon Reservoir);
- Four new monitoring wells; and
- Four new pipelines.

The AWTP consists of multiple unit processes including ultrafiltration membranes, reverse osmosis membrane, advance oxidation, and post-treatment and disinfection facilities. A feed water pipeline transports the brackish water between existing Well 9P7 and the AWTP. The treated AWTP product water is re-introduced/pumped for injection into the groundwater basin so that it is available in the existing San Simeon well field. To inject the product water into the basin, a new potable water recharge injection well (RIW) is located at the existing potable water well-field. A new water pipeline transports the product water between the AWTP and RIW well. A separate pipeline from the AWTP provides mitigation water to the head of the San Simeon Creek lagoon area.

The AWTP generated waste stream (reverse osmosis concentrate) is pumped in a new pipeline from the AWTP to a lined evaporation pond (aka the modified Van Gordon Reservoir). Both natural and mechanically assisted evaporation of the waste stream occurs within the evaporation pond.

1.3 WATER RECLAMATION FACILITY MODIFICATIONS

The District is now in the process of completing a regular Coastal Development Permit (R-CDP) for the WRF to allow more flexibility in its operation while further enhancing supply reliability. As part of this permitting process, the District initially submitted an application for an R-CDP on June 13, 2014. This initial application was subsequently replaced with a new R-CDP application on February 27, 2017, which was accompanied by the draft 2017 SEIR to provide CEQA information requirements. In response to input received during initial operation of the EWSP, and to further enhance reliability, the 2017 SEIR evaluated

several proposed modifications to the EWSP (these modifications are known as the SWF).

The proposed SWF modifications described within the 2017 SEIR are illustrated in Exhibit 4, *SWF Project Modifications*, and summarized below.

- Change in the discharge point for the AWTP RO concentrate: The AWTP RO concentrate is currently discharged into an evaporation pond (aka the Van Gordon Reservoir). The proposed modification would either redirect the RO concentrate discharge to four Baker tanks for onsite storage prior to offsite disposal or, the CCSD preferred method, would redirect the RO concentrate to a permanent zero liquid discharge (ZLD) facility, which would leave behind a semi-solid brine concentrate that would be hauled offsite for disposal. (Note: the ZLD facility was not anticipated in the 2017 SEIR but was later analyzed in a 2025 SEIR Addendum. The ZLD facility would be located in the same location that a Surface Water Treatment Plant was originally contemplated.)
- The evaporation pond will be decommissioned, and the pond liner will be removed. The pond basin will be revegetated with native plant species. (Note: the 2017 SEIR anticipated reuse of the evaporation pond as a potable water storage basin. The 2025 SEIR Addendum evaluated the decommission and restoration of the pond.)
- Project modifications would include extending the lagoon water supply pipeline to a new discharge point further south and onto the San Simeon Creek bank. At this new discharge point, Armorflex lining (articulating concrete blocks) would be installed to protect the creek bank but would allow for continued growth of riparian vegetation.
- During normal precipitation years, it is anticipated that operation of the WRF would begin in July and run until September. Operating and maintaining the WRF equipment during normal precipitation years requires onsite full-time staff, although the AWTP is designed to operate with minimal operator intervention. The WRF would be staffed Monday through Friday, 12 hours per day, with two employees per shift for two consecutive shifts (6:00 AM to 12:00 PM and 12:00 PM to 6:00 PM). This operation schedule would generate approximately 17.67 acre-feet of water per month.

  In response to a prolonged dry season, the WRF could run for up to 24 hours per day, five days per week, between May and October, subject to the AMP and the need to protect ESHA. Under less-than-average precipitation during a prolonged dry season, the WRF would be staffed Monday through Friday, 24 hours per day, with two employees per shift for three consecutive shifts (4:00 AM to 12:00 PM, 12:00 PM to 8:00 PM, and 8:00 PM to 4:00 AM). This operation schedule would generate approximately 35.4 acre-feet of water per month.
- Removal of the mechanical spray evaporators and decommissioning of the evaporation pond has already occurred. Removal of the pond liner, installation of native vegetation in the pond basin, and RO concentrate storage (Baker tanks) installation or ZLD facility installation is anticipated to occur within one year of approval of all necessary regulatory agency permits. Construction of the proposed modifications is subject to obtaining permits and available CCSD funding.
- Permitting agencies or completion of the proposed modification would likely include San Luis Obispo County, CDFW, USFWS, RWQCB, CCC, and the USACE.

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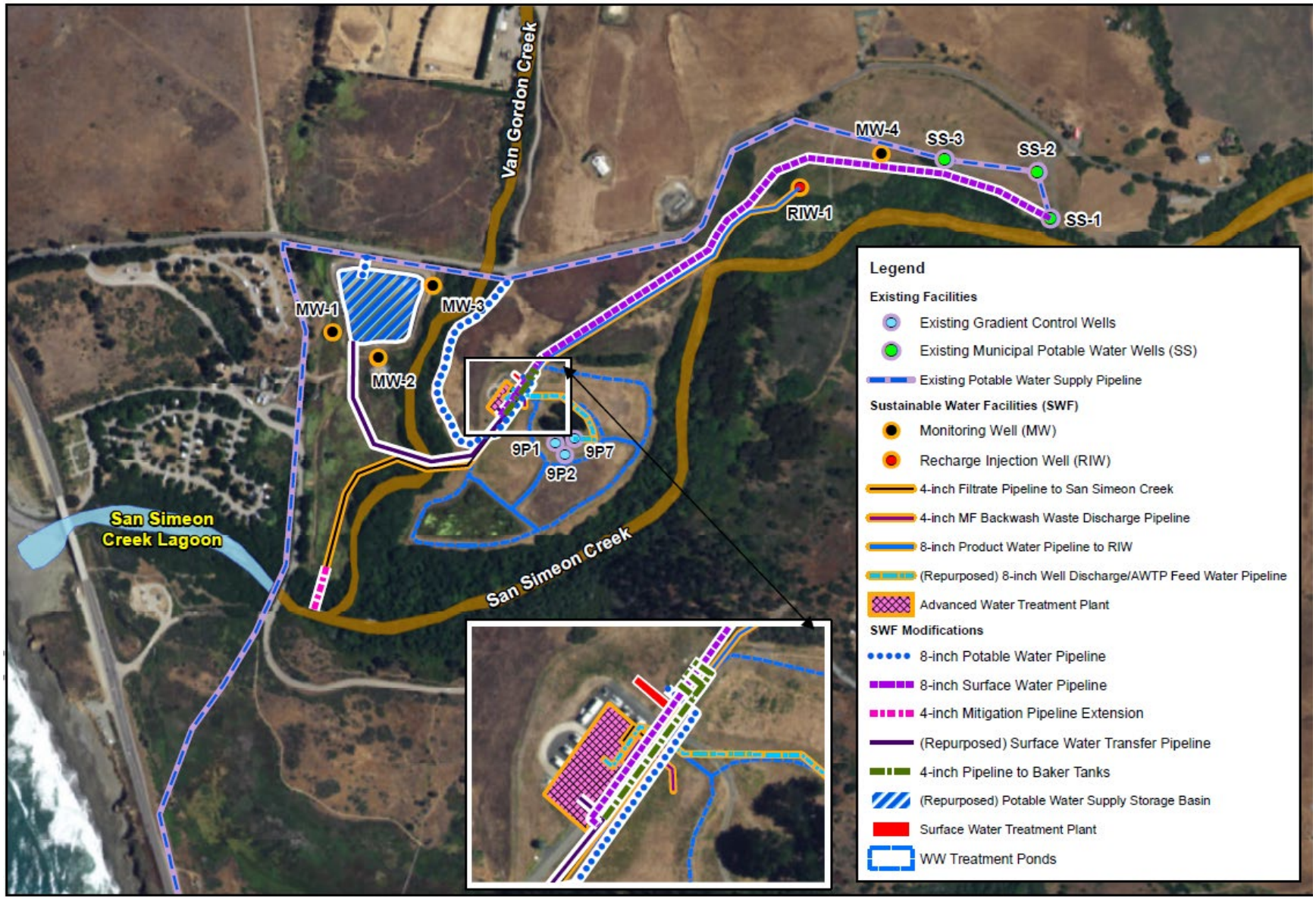
CAMBRIA SUSTAINABLE WATER FACILITY PROJECT

Sustainable Water Facilities (SWF)

Exhibit 3


Van Gordon Creek
MW-4
SS-3
SS-2
SS-1
RIW-1
MW-1
MW-3
MW-2
9P1
9P7
9P2
San Simeon Creek Lagoon
San Simeon Creek
Legend
Existing Facilities
Existing Gradient Control Wells
Existing Municipal Potable Water Wells (SS)
Existing Potable Water Supply Pipeline
Sustainable Water Facilities (SWF)
Monitoring Well (MW)
Recharge Injection Well (RIW)
4-inch Filtrate Pipeline to San Simeon Creek
4-inch MF Backwash Waste Discharge Pipeline
8-inch Product Water Pipeline to RIW
(Repurposed) 8-inch Well Discharge/AWTP Feed Water Pipeline
Advanced Water Treatment Plant
SWF Modifications
8-inch Potable Water Pipeline
8-inch Surface Water Pipeline
4-inch Mitigation Pipeline Extension
(Repurposed) Surface Water Transfer Pipeline
4-inch Pipeline to Baker Tanks
(Repurposed) Potable Water Supply Storage Basin
Surface Water Treatment Plant
WW Treatment Ponds
0 250 500 1,000
Feet
Source: CDM Smith, ESRI World Imagery
Michael Baker INTERNATIONAL
CAMBRIA SUSTAINABLE WATER FACILITY PROJECT
SWF Modifications
Exhibit 4

Section 2 Environmental Setting

The following information presents the existing environmental conditions at the Project site. This information will be used for conducting the Project's environmental analyses and will serve as the environmental baseline for hydrological and biological monitoring. This section describes the physical and biological environmental conditions in the vicinity of the Project site prior to Project initiation.

2.1 SOILS

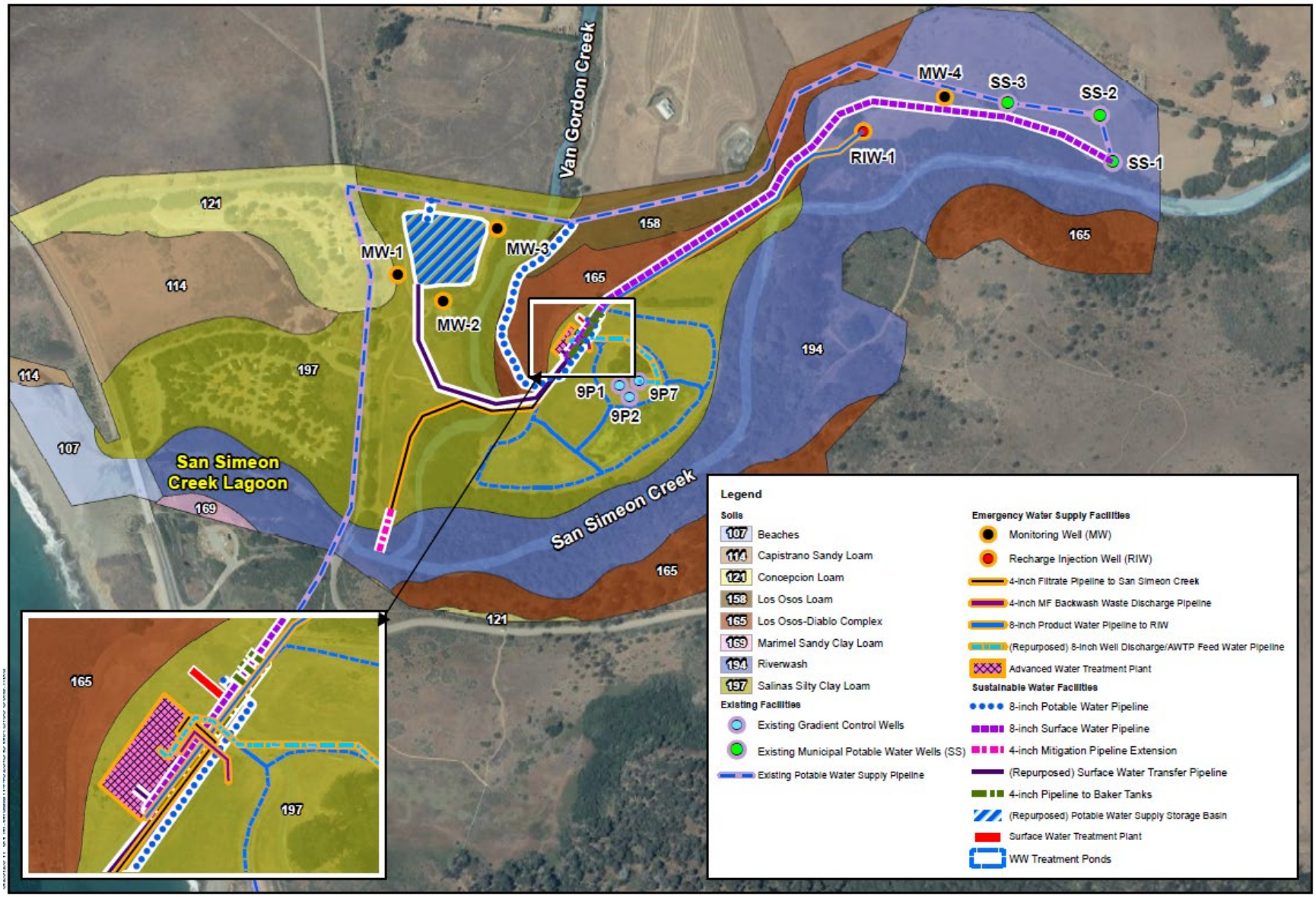
Based on the U.S. Department of Agriculture Soil Survey, the Project site and survey area are underlain by the following soil units (Exhibit 5, *Soils Map*): Beaches, Capistrano sandy loam (rolling), Concepcion loam (5 to 9 percent slopes), Lodo clay loam (5 to 15 percent slopes), Los Osos loam (5 to 9 percent slopes), Los Osos loam (30 to 50 percent slopes), Los Osos-Diablo complex (15 to 30 percent slopes), Marimel sandy-clay loam (occasionally flooded), Riverwash, and Salinas silty clay loam (0 to 2 percent slopes).

2.2 VEGETATION

Eight (8) plant communities were identified within the Project site (Exhibit 6, *Vegetation Map*): Central Coast Arroyo Willow Riparian Forest, Monterey Pine Stand/Monterey Pine Forest, Coyote Brush Scrub, California Bulrush Marsh, Annual Grassland, Wild Oats Scrub, Upland Mustards, and Eucalyptus Stand. In addition, there are a landscaped campground, percolation ponds, San Simeon Creek, Van Gordon Creek, and the San Simeon Creek Lagoon and Estuary. Table 1, *Plant Communities*, provides the acreage of each plant community or noted features, as well as the percentage that each encompasses within the Project site. The plant communities are described in further detail below.

Table 1: Plant Communities

Plant Community	Acreage	Percentage
Central Coast Arroyo Willow Riparian Forest	61.1	31.0%
Monterey Pine Stand	0.8	0.4%
Monterey Pine Forest	23.3	11.8%
Coyote Brush Scrub	6.6	3.3%
California Bulrush Marsh	0.2	0.1%
Annual Grassland	31.8	16.1%
Wild Oats Grassland	6.5	3.3%
Upland Mustards	27.9	14.1%
Eucalyptus Stand	5.9	3.0%
Landscaped Campground	8.5	4.3%
Percolation Pond	9.0	4.6%
Lagoon/Estuary	2.2	1.1%
Total	183.8	100%


Van Gordon Creek
MW-4
SS-3
SS-2
SS-1
RIW-1
MW-1
MW-3
MW-2
9P1
9P7
9P2
San Simeon Creek Lagoon
San Simeon Creek
121
114
197
107
169
158
165
194
Legend
Soils
107 Beaches
114 Capistrano Sandy Loam
121 Concepcion Loam
158 Los Osos Loam
165 Los Osos-Diablo Complex
169 Marimel Sandy Clay Loam
194 Riverwash
197 Salinas Silty Clay Loam
Existing Facilities
Existing Gradient Control Wells
Existing Municipal Potable Water Wells (SS)
Existing Potable Water Supply Pipeline
Emergency Water Supply Facilities
Monitoring Well (MW)
Recharge Injection Well (RIW)
4-inch Filtrate Pipeline to San Simeon Creek
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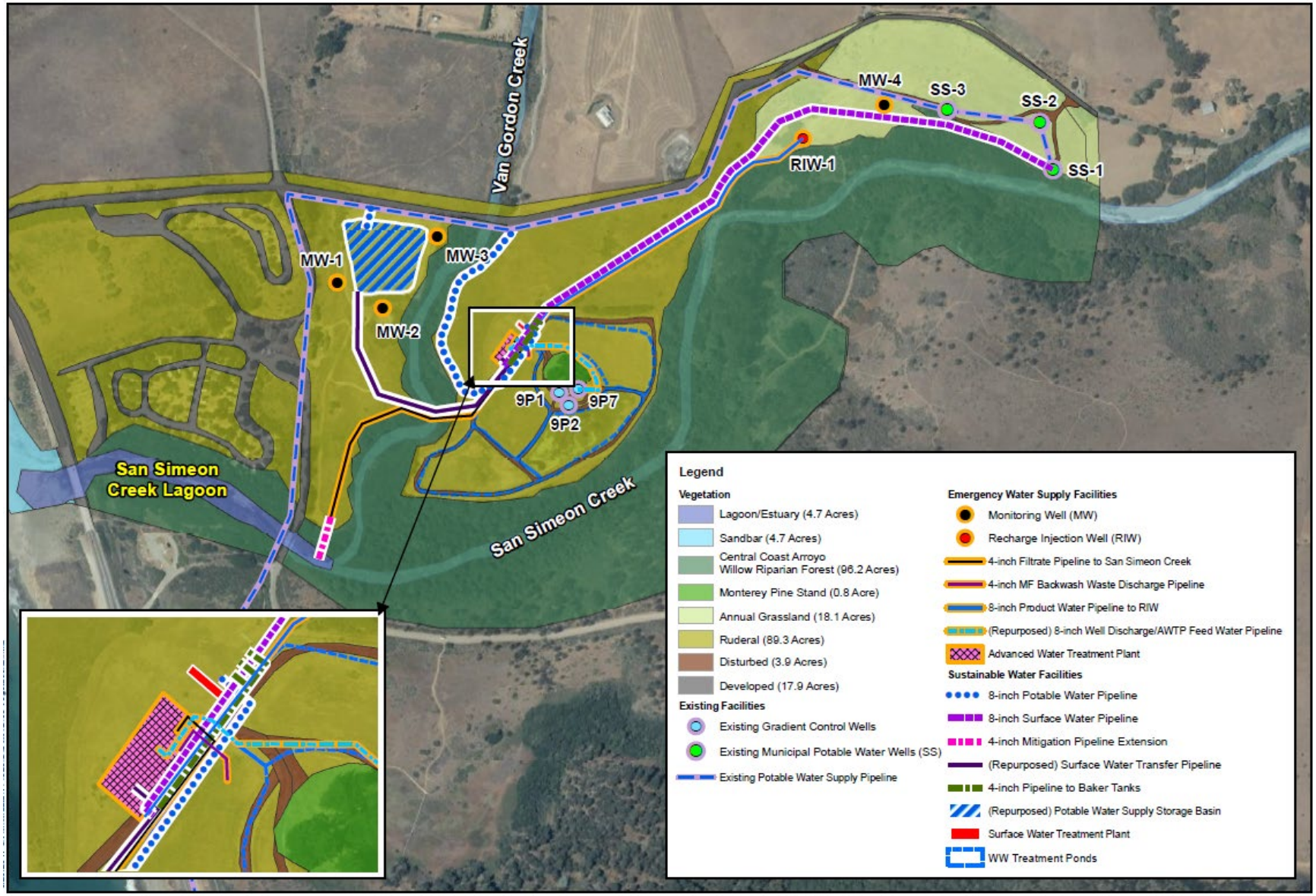
4-inch Mitigation Pipeline Extension
(Repurposed) Surface Water Transfer Pipeline
4-inch Pipeline to Baker Tanks
(Repurposed) Potable Water Supply Storage Basin
Surface Water Treatment Plant
WW Treatment Ponds
Michael Baker INTERNATIONAL
0 250 500 1,000
Feet
Source: NRCS Soils ca-664, CDM Smith, ESRI World Imagery Basemap
CAMBRIA SUSTAINABLE WATER FACILITY PROJECT
Soils Map
Exhibit 5



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0 250 500 1,000 Feet

Source: CDM Smith, ESRI World Imagery Basemap

CAMBRIA SUSTAINABLE WATER FACILITY PROJECT

Vegetation Map

Exhibit 6

Central Coast Arroyo Willow Riparian Forest

A Central Coast Arroyo Willow Riparian Forest borders both San Simeon Creek and Van Gordon Creek. It is characterized by a dense, low, closed-canopy forest dominated by arroyo willow (*Salix lasiolepis*), western sycamore (*Platanus racemosa*), eucalyptus (*Eucalyptus* sp.), and cape ivy (*Delairea odorata*). It typically occurs in areas that are moist to saturated sandy or gravelly soil.

Monterey Pine Stand/Monterey Pine Forest

There are two small stands of Monterey pine (*Pinus radiata*) located within the Project site. One stand is located in the center of the percolation ponds, adjacent to Well 9P7. The canopy cover in this area is composed entirely of Monterey pines, with the understory composed mostly of ripgut brome (*Bromus diandrus*) and wild oats (*Avena fatua*). A second stand of Monterey pine is located on the south side of San Simeon Creek.

Coyote Brush Scrub

Coyote brush scrub is scattered throughout the Project site, but is concentrated in patches primarily south of the vicinity of the intersection of Van Gordon Creek Road with San Simeon-Monterey Creek Road around the brine evaporation pond. It is also present north of the percolation ponds, to the east of the San Simeon Creek Campground within Hearst San Simeon State Park, and on the south side of San Simeon Creek Lagoon east of State Route 1 (SR 1). It is dominated by coyote brush (*Baccharis pilularis*) and is intermixed with black mustard (*Brassica nigra*) and non-native grasses.

California Bulrush Marsh

California bulrush marsh is located on the western edge of the Project site, immediately east of the SR 1 crossing and on the south side of San Simeon Creek Lagoon. It consists of a narrow channel dominated by dense California bulrush (*Schoenoplectus californicus*). The upland slopes are covered in coyote brush scrub. This channel is a tributary to San Simeon Creek Lagoon.

Annual Grassland

Annual grasslands are located in the northeastern portion of the Project site between San Simeon- Monterey Creek Road and San Simeon Creek, as well as south of San Simeon Creek. This community is dominated largely by canary grass (*Phalaris aquatica*), wild oat, ripgut brome, dandelions (*Taraxacum officinale*), coyote brush, and other herbaceous vegetation.

Wild Oats Grassland

Wild oats grassland is primarily located along the upper edges of and between the percolation ponds. It is dominated almost exclusively by thick stands of wild oats, but is intermixed with light coverage of ripgut brome, shortpodded mustard (*Hirschfeldia incana*), and canary grass.

Upland Mustards

Upland mustard communities are located primarily in the center of the Project site, both east and west of

Van Gordon Creek and north of the percolation ponds. This community intermixes with coyote brush scrub. It is dominated by thick, tall stands of black mustard with low-growing grasses (canary grass andbromes), milk thistle (*Silybum marianum*), dandelion, poison hemlock (*Conium maculatum*), and giant horse tail (*Equisetum telmateia* ssp. *braunii*).

Eucalyptus Stand

Small eucalyptus stands are located on the eastern side of the Project site on the south/eastern shore of San Simeon Creek. These are predominantly characterized by tall eucalyptus trees that have invaded the Central Coast Arroyo Willow Riparian Forested areas.

Landscaped Campground

The landscaped campground (San Simeon Creek Campground) is located west of the Project site, west of Van Gordon Creek Road, and north of San Simeon Creek Lagoon. (The AMP monitoring will avoid entering the campground area unless otherwise approved by State Parks. It is described here to complete a discussion on the areas adjacent to and outside of the SWF Project site.) The landscaped campground area is underlain by non-native ornamental grasses and contains larger trees and shrubs including cypress (*Cupressus* sp.), western sycamore, and toyon (*Heteromeles arbutifolia*).

Percolation Pond

There are four (4) percolation ponds located in the center of the Project site, northeast of the confluence of Van Gordon and San Simeon Creeks. While the upland edges of these are dominated by wild oats grasslands, the bottoms get periodically flooded for water treatment purposes and therefore undergo dynamic changes, sometimes holding dense vegetation, sometimes being bare and dry, and sometimes being inundated with water depending on the current flooding schedule.

Lagoon/Estuary

San Simeon Creek Lagoon/Estuary is located from just east of Van Gordon Creek Road to just west of SR 1. It is surrounded by the Central Coast arroyo willow riparian forest. When the sandbar is closed (typically late spring through fall or winter) this habitat is characterized as a lagoon. When it is open (typically fall or winter through early spring) it is characterized as an estuary where saltwater and freshwater merge. In some years the sandbar may not open at all and remains lagoon habitat.

2.3 WILDLIFE

The above-described plant communities and wildlife habitats section are either known to support the following federally listed and sensitive wildlife species or these species have a moderate or higher potential to occur.

Amphibians

Most of the Project site provides suitable habitat for the federally threatened California red-legged frog (*Rana draytonii*).

Reptiles

The Project site also provides suitable habitat for western pond turtle (*Emys marmorata),* a California species of special concern, and two-striped garter snake (*Thamnophis hammondii*).

Avian

The Project site supports a high variety of avian species. Those that were observed in the greatest quantities included mallard (*Anas platyrhynchos*), turkey vulture (*Cathartes aura*), California gull (*Larus californicus*), Pacific-slope flycatcher (*Empidonax difficilis*), chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltriparus minimus*), cedar waxwing (*Bombycilla cedrorum*), song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), and house finch (*Haemorhous mexicanus*). The Project site and surrounding area have the potential to support special- status raptors such as ferruginous hawk (*Buteo regalis*) and prairie falcon (*Falco mexicanus*).

Mammals

The plant communities within the Project site are anticipated to provide suitable habitat for a number of common mammalian species acclimated to heavy disturbance, including California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), California vole (*Microtis californicus*), deer mouse (*Peromyscus maniculatus*), raccoon (*Procyon lotor*), cottontail rabbits (*Sylvilagus audubonii*), and opossum (*Didelphis virginiana*).

Fish

When wetted, San Simeon Creek, Van Gordon Creek, the San Simeon Creek Lagoon, and their tributaries would provide suitable habitat for fish. Threespine stickleback (*Gasterosteus aculeatus*) and the federally endangered tidewater goby (TWG, *Eucyclogobius newberryi*) were observed during the habitat assessment in San Simeon Creek and San Simeon Creek Lagoon. In addition to tidewater goby, the aforementioned waterways have the potential to support another special-status fish species, South- Central California Coast steelhead trout (*Oncorhynchus mykiss irideus*).

2.4 HYDROLOGY

The Project site lies in the coastal zone, approximately 3.5 miles upstream of the Pacific Ocean. It is underlain by a significant alluvial aquifer along San Simeon Creek which includes the Van Gordon Creek tributary. The immediate area is a wide floodplain, up to 1,000 feet wide, and flanked by steep hillsides that rise 200 to 800 feet above the valley floor. A freshwater lagoon (i.e., San Simeon Creek Lagoon) is present in the lower portion of the valley. The San Simeon Creek lagoon forms behind an ocean berm and is supported by groundwater discharge and surface water inflows.

Groundwater

All of the CCSD's water supply is pumped from the groundwater wells in the San Simeon Creek and Santa Rosa Creek aquifers. The San Simeon and Santa Rosa aquifers are relatively shallow, narrow, and porous, with the groundwater levels typically recharged every during the rainy season. As noted above, these two aquifers are recharged primarily by seepage from San Simeon and Santa Rosa Creeks, which typically flow

during the winter and spring rainy seasons. However, rainfall has been insufficient in the recent years to fully recharge the two aquifers that provide Cambria's water supply. Exhibit 7, *Average Groundwater Levels Along San Simeon Creek*, shows the average groundwater levels at monitoring wells along San Simeon Creek between 1988 and 2016.

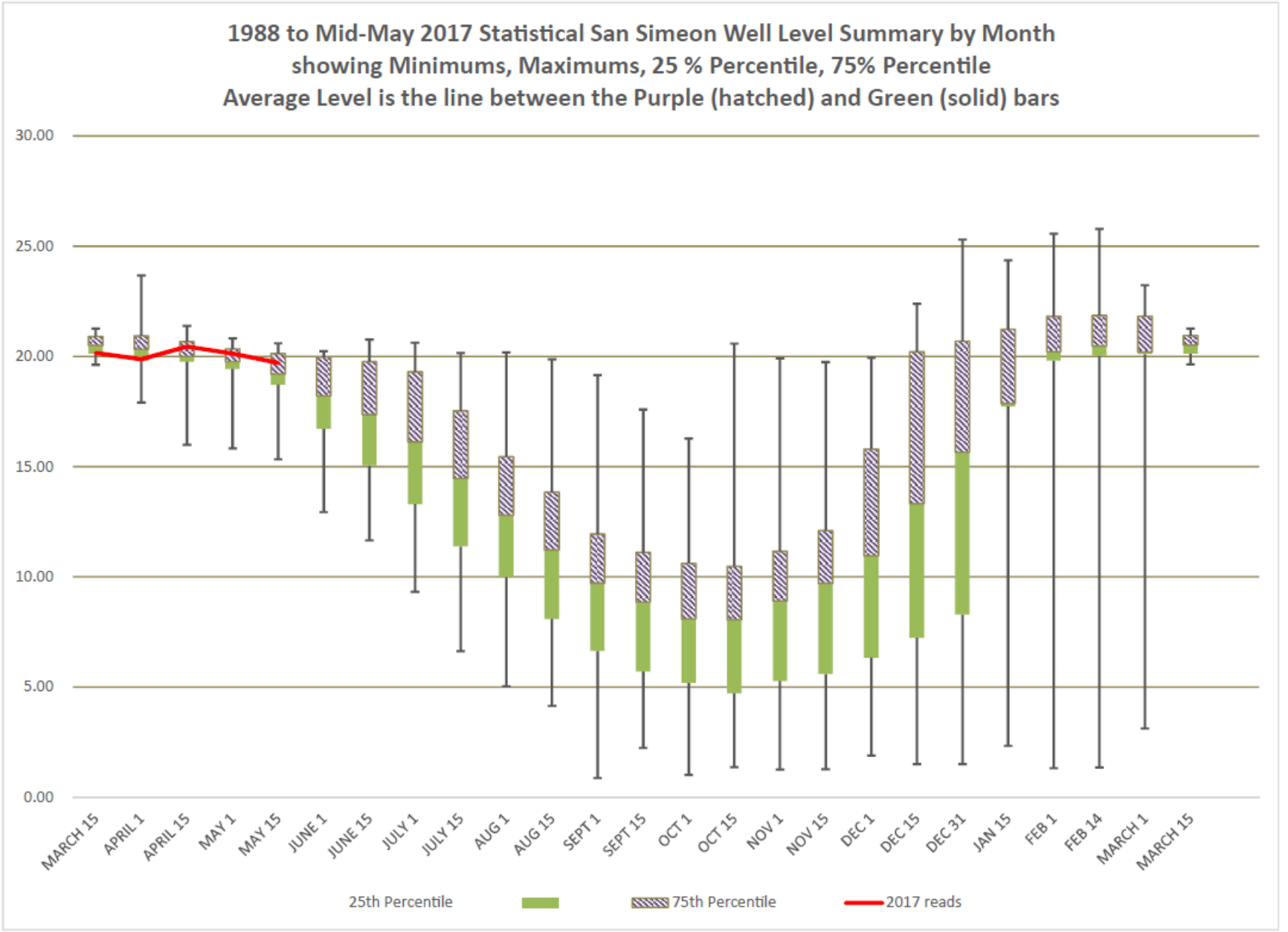
Although neither the San Simeon nor the Santa Rosa aquifers are adjudicated, the State of California, in particular the State Water Resources Control Board, mandates how much water CCSD can pump from the aquifers. Additionally, the dry season start date, duration, and beginning groundwater levels limit the actual availability of groundwater from both basins.

Surface Water

The Project site supports two creeks, San Simeon Creek and Van Gordon Creek and a lagoon at the downstream end of San Simeon Creek, the San Simeon Creek Lagoon. These are discussed below. During storm events, minor sheet flooding occurs but, due to relatively pervious surfaces within the Project area, surface waters are either absorbed or directed into the existing streams.

Streams/Wetlands

The Project site contains two intermittent creeks (San Simeon Creek and Van Gordon Creek) and one wetland (San Simeon Creek Lagoon). San Simeon Creek runs along the Project site's southern boundary, whereas Van Gordon Creek is situated along the site's western boundary. San Simeon Creek Lagoon begins in San Simeon Creek approximately 230 feet upstream of Van Gordon Creek Road and extends west to San Simeon State Beach, where it seasonally switches between a lagoon and an estuary. Vegetation within these water bodies is dominated by a Central Coast Arroyo Willow Riparian Forest community as described in Section 2.2 above. A jurisdictional delineation has been completed to determine specific acreages of potentially jurisdictional areas, the Cambria Sustainable Water Facility Project Delineation of Jurisdictional Waters - Update (JD Update) (Michael Baker International, August 2016); see 2017 SEIR Appendix E7.



NOT TO SCALE

Michael Baker INTERNATIONAL

06/17 - JN 144828

CAMBRIA SUSTAINABLE WATER FACILITY PROJECT

Average Groundwater Levels Along San Simeon Creek

Exhibit 7

Section 3 Potential Impacts

The Cambria Emergency Water Supply Project San Simeon Creek Basin Groundwater Modeling Report (GMR) (CDM Smith, May 2014) (see Appendix A) and the Technical Memorandum – San Simeon Creek Flows (Technical Memorandum) (CDM Smith, October 16, 2016) (see Appendix B) concluded that the SWF (now WRF) would not result in a permanent change in groundwater extraction from CCSD well field and is not expected to result in significant impacts to groundwater levels or surface water flows within the Project area.

The WRF benefits the community by making more efficient use of existing water supplies. This is accomplished by a more efficient control of the hydraulic gradient between the well field and the downstream freshwater/ocean interface, and through indirect potable reuse. To avoid potential contamination of potable groundwater in the San Simeon Creek wells, the groundwater levels at the treated effluent percolation ponds are measured against the groundwater levels at the San Simeon Creek wells. Under normal conditions, there is a positive gradient from the San Simeon wells towards the downstream percolation ponds. During very dry conditions, this positive gradient can reverse as the groundwater level under the well field is lower during the latter part of the summer, prior to the onset of seasonal rainfall, which replenishes the groundwater under the well field. To avoid such a reverse gradient condition, when observed, operators revert to running well 9P7, a gradient control well within the percolation pond area, and releasing the pumped groundwater directly into Van Gordon Creek. This water percolates into the underlying groundwater, raising the groundwater levels, restoring the water mound, and restoring the positive gradient between the well field and downstream areas. However, a significant portion of the pumped water runs down Van Gordon Creek and is discharged to the ocean. This water is lost and no longer available. Besides the loss of water, this practice also lowers the up gradient fresh groundwater levels at the well field, which reduces freshwater storage during the critical late dry season when remaining supply would be near its annual minimum. With the WRF operating, water extracted from Well 9P7 at the percolation pond area is treated to drinking water quality levels and reinjected back into the groundwater near the San Simeon wells. Following re-injection, approximately 60 percent of the water travels underground to the existing San Simeon potable wells (SS1 or SS2), where groundwater is then pumped at a maximum allowable rate of 400 gpm back into the CCSD distribution system and reused. Based on hydraulic modeling, the remaining 40 percent of reinjected water either travels into the subterranean creek channel or recycles back to extraction Well 9P7.

In addition to providing more efficient control of the hydraulic gradient and providing reuse of an otherwise wasted resource, the WRF includes a PDF that delivers approximately 100 gpm of MF filtrate product water (identical to the source water quality) into the upstream end of the San Simeon Creek Lagoon to maintain groundwater levels during dry conditions. Based upon detailed hydrogeological analyses and modeling (GMR and Technical Memorandum), CDM Smith concluded that significant impacts to groundwater levels and surface water flows are not expected as a result of the WRF's groundwater pumping and the proposed reinjection program. Because there may still be some uncertainty or doubts on the potential for impacts to groundwater levels and surface water flows in the San Simeon Creek and San Simeon Creek Lagoon, the CCSD has implemented an Adaptive Management Program (AMP) as part of the Project to ensure that all the design elements are working as intended. The AMP includes ongoing groundwater, surface water, and biological monitoring to verify that sensitive habitats and federally listed species are not being adversely affected by Project operations. These monitoring programs and reporting requirements are discussed more

comprehensively below.

3.1 EMERGENCY WATER SUPPLY PROJECT

Groundwater, surface water, and biological monitoring were conducted during preliminary EWSP operations in 2015. Data gathered during these limited operations found the groundwater levels and surface flows were not significantly different that levels observed during the drought conditions. Further, no observations were made that indicated groundwater levels and surface flows were below the historic minimum average levels. No impacts to tidewater goby, California steelhead, or California red-legged frog were observed during 2015 EWSP operations. An assessment of habitat conditions and of the extant populations of California red-legged frog and tidewater goby showed high quality habitat and stable breeding populations. Although California steelhead was not observed in San Simeon Creek or San Simeon Creek Lagoon, habitat conditions were considered to be high quality. Although California steelhead can and does periodically occupy San Simeon Creek and Lagoon, it is not a perennial or seasonal inhabitant.

3.2 PROPOSED MODIFICATIONS TO A WATER RECLAMATION FACILITY

During groundwater, surface flows, and biological monitoring of the EWSP, various modifications were identified to further avoid and reduce potential environmental impacts resulting from future WRF operations. These are more comprehensively described within the 2017 SEIR and included decommissioning the evaporation pond and mechanical spay evaporators, and moving the surface discharge into San Simeon Creek further downstream towards the San Simeon Creek Lagoon.

3.2.1 Surface Water Flows

The WRF does not involve significant development of additional impervious surface areas (such as roadways, rooftops, and parking lots) in previously undisturbed areas that would substantially increase runoff or substantially alter drainage patterns within the Project site or alter the course of San Simeon or Van Gordon Creeks. As shown on Exhibit 4, the existing and new water facilities are outside of the two creeks and upstream of the San Simeon Creek Lagoon, with the exception of the filtrate pipeline, which would be extended to relocate the discharge point further south to the San Simeon Creek bank. This surface water discharge to the San Simeon Creek Lagoon is a permitted activity through the SWQRB Order No. R3-2100-0223. This permit allows the SWF to discharge 100 gpm of MF filtrate product water to the San Simeon Creek Lagoon as long as the discharge complies with permit requirements, based on the determination that this discharge is a low-threat discharge. Low-threat discharges are discharges that contain minimal amounts of pollutants and pose little or no threat to water quality and the environment. The surface discharge structure for the lagoon water would be located on the San Simeon Creek bank to provide more efficient delivery of water to the creek in order to maintain water levels in the lagoon for the purposes of maintaining biological resources. Armorflex lining would be used at the discharge point to protect the creek bank from erosion and allow for the continued growth of riparian vegetation.

3.3 HABITAT

Based on the aforementioned discussion on groundwater and surface water, geo-hydrological modeling, permitting requirements, and AMP monitoring will ensure that the WRF Project will have a negligible effect on groundwater and surface water levels. The Project site supports instream and riparian habitats associated with San Simeon Creek and San Simeon Creek Lagoon. All of these habitats are expected to remain intact and only be influenced by annual fluctuations in groundwater and surface water levels associated with

seasonal or climatic changes. WRF implementation is not expected to reduce the extent of naturally occurring habitats.

3.4 SPECIES

Based on habitat requirements for specific species, availability and quality of habitats needed by sensitive species, and known distribution in and around the WRF Project site, it was determined that the following listed or sensitive species, which occur or have a high potential to occur in the Project area would not be adversely affected by Project implementation.

California Red-legged Frog

The California red-legged frog is a year-round resident in Simeon Creek, San Simeon Creek Lagoon, and the adjacent steam side and upland habitats. An October 2014 survey by Michael Baker identified California red-legged frog population in the San Simeon Creek Lagoon and lower San Simeon Creek. Based on the surveys, it was estimated that up to 54 frogs were present. Overwintering tadpoles were not observed. The entire Project area is located within California red-legged frog Critical Habitat Unit SLO-2. As noted in the WRF Project Description, the discharge of the RO concentrate into an evaporation pond (Van Gordon Reservoir) would be discontinued/decommissioned. As part of Project modifications, the RO concentrate would, instead, be discharged to four Baker tanks or to a ZLD facility prior to offsite disposal. As noted above, based upon detailed hydrogeological analyses and modeling (GMR and Technical Memorandum), CDM Smith concluded that groundwater levels and surface water flows will not be adversely affected and no impacts to California red-legged frog habitat are expected to occur.

Tidewater Goby

The tidewater goby is a year-round resident of San Simeon Creek Lagoon and was observed by Michael Baker biologists in the San Simeon Creek Lagoon, which is designated Critical Habitat Unit SLO-5 for tidewater goby. As noted above, based upon detailed hydrogeological analyses and modeling (GMR and Technical Memorandum), CDM Smith concluded that groundwater levels and surface water flows will not be adversely affected and no impacts to tidewater goby habitat are expected to occur.

Steelhead (South/Central California Coast Distinct Population Segment)

Steelhead is federally listed as threatened and is designated by the CDFW as a California species of special concern. The population in the Project vicinity ranges from Santa Cruz County south to the Santa Maria River. Typical freshwater steelhead habitat consists of gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. The life cycle of this species is such that adult steelhead return to San Simeon Creek from the ocean in winter and early spring to spawn upstream. As the dry season returns and the creek begins to dry into isolated pools, young steelhead fry will either move into deep pools upstream or move downstream into the lagoon to mature while the sandbar is closed. Juveniles will typically spend between one and three years maturing in a freshwater or estuarine environment before migrating out to sea. This species has been historically recorded to occur within San Simeon Creek and Lagoon and Van Gordon Creek. San Simeon Creek and Van Gordon Creek are part of the steelhead designated Critical Habitat unit that is located within the Estero Bay Hydrologic Unit. Although Michael Baker biologists did not observe steelhead in San Simeon Creek or San Simeon Creek Lagoon, there is a high potential for this species to occur. As noted above, based upon detailed hydrogeological analyses and modeling (GMR and Technical Memorandum), CDM Smith concluded that groundwater levels and surface water flows will not be adversely affected and no impacts to steelhead habitat are expected to occur.

Two-striped Garter Snake

The two-striped garter snake is designated by the CDFW as a California species of special concern. It is primarily an aquatic species and is typically found in or near permanent or semi-permanent water including creeks, pools, stockponds, and other areas. Surrounding vegetation is typically made up of chaparral, riparian woodland, and grassland. There is suitable habitat for this species in San Simeon Creek. While it is more likely to be found in the downstream sections where there is more water, it could occur throughout the creek. This species was not observed during Michael Baker's surveys of the Project area but has been recorded in this area in the past. As noted above, based upon detailed hydrogeological analyses and modeling (GMR and Technical Memorandum), CDM Smith concluded that groundwater levels and surface water flows will not be adversely affected and no impacts to two- striped garter snake habitat are expected to occur.

Western Pond Turtle

The western pond turtle is designated by the CDFW as a California species of special concern. It typically inhabits slow-moving streams, ponds, and marshes with exposed banks, logs, and other suitable locations for basking. Western pond turtle has been previously documented in San Simeon Creek and San Simeon Creek Lagoon. Suitable habitat is located within these two areas, particularly in the downstream reaches of San Simeon Creek where the creek substrate gives way from rocks to sandy or muddy bottoms. This species was not observed during Michael Baker's surveys of the Project area but has been recorded in this area in the past. As noted above, based upon detailed hydrogeological analyses and modeling (GMR and Technical Memorandum), CDM Smith concluded that groundwater levels and surface water flows will not be adversely affected and no impacts to western pond turtle habitat are expected to occur.

Section 4 Monitoring Program

As noted above, based upon detailed hydrogeological analyses and modeling (GMR and Technical Memorandum), CDM Smith concluded that groundwater levels and surface water flows would not be adversely affected by the Project and no impacts to habitats are expected to occur. Notwithstanding, given the complexity of the San Simeon Creek system and to further ensure that no impacts to habitat are occurring, the District proposed to develop and implement this Adaptive Management Plan (AMP). The following groundwater, surface water, and biological monitoring programs will be implemented as a component of the WRF operations. The goal of the AMP is to detect changes in the aquatic systems as a result of operation of the WRF by plotting time-series data of the parameters and examining trends before and after WRF operation (Stillwater Sciences 2024).

4.1 ESTABLISHING BASELINE CONDITIONS

4.1.1 Goals and Objectives

Key to an effective adaptive management program is establishing environmental baselines by conducting environmental and biological monitoring that would detect and document any discernible changes in the physical or biological environment that could be attributed to Project implementation. The baseline data shall be used to set the threshold or range of monitoring values beyond which would be viewed as a potential significant change in groundwater and surface water levels that could affect the habitats' extent and viability for supporting sensitive species, as well as the extent and distribution of these various sensitive species within the Project area. This information will then be used to determine specific thresholds that "trigger" additional investigation and/or adaptive management measures.

The initial AMP envisioned that baseline data would be collected for one year under conditions with average or greater precipitation (MBI 2017a). The focus of monitoring was to gather sufficient data to define the interaction between groundwater and surface water, and how this interaction maintains the in-stream habitat, as well as the surrounding riparian habitat. Data collection and analysis have included groundwater, surface water, habitat attributes, and occurrence of special-status species. This information was evaluated along with historical data recorded by CCSD as part of its regular operations and from past biological surveys.

The initial AMP envisioned collecting baseline data on a monthly basis during the first year. Groundwater data collected by CCSD staff have been incorporated into the analysis, and surface water monitoring included observations at established monitoring stations. Groundwater monitoring will track changes in groundwater levels within the Project area as a basis to detect any changes resulting from WRF operations. Monitoring wells have been installed along the creek corridor from the CCSD facility upstream to Palmer Flats. The CCSD regularly monitors levels in these wells, which will be used to establish baseline conditions. Surface water and instream habitat monitoring will be used to assess habitat suitability for special-status aquatic species. A focus shall be on establishing baseline patterns of when flows in the intermittent reaches cease, indicating absence of habitat for steelhead; the persistence and depth of isolated pools and inundated reaches into the late summer and fall, indicating California red-legged frog, southwestern pond turtle, and two-striped garter snake habitat; and, conditions in the lagoon such as wave

over wash and the extent to which it backs up, indicating habitat for each of the target species.

4.1.2 Previous Monitoring of Baseline Conditions

Monitoring of baseline conditions under the AMP was conducted by SWCA in January 2015, and Cleveland Biological, LLC from April 2017 through May 2023. Originally the surface water monitoring schedule was weekly, but because the WRF has not been in operation, the monitoring schedule was reduced to bi-monthly. Kevin Merk Associates, LLC (KMA) began monitoring activities for the project in August 2024 on a quarterly basis. Therefore, monitoring of baseline conditions has been conducted for approximately the past ten years, greatly exceeding the one-year period originally called for in MBI (2017a).

Information collected by SWCA before the WRF was operated intermittently in 2015-2016 included water level, water velocity and water quality measurements at two locations in San Simeon Creek, one in the estuary, and one in Van Gordon Creek. SWCA also conducted California Rapid Assessment Method (CRAM) monitoring at three locations.

Monitoring in 2017 (April to July) by Cleveland Biological, LLC, included weekly measurements of water maximum depth and width, instream habitat variables (habitat type, substrate, and algae), and water temperature at two locations. Photographs were also taken to document existing conditions at the monitoring sites plus the estuary, Van Gordon Creek, and Van Gordon Reservoir (then called "Brine Pond"). Incidental sightings of wildlife species were also recorded.

Monitoring in 2018 (July to December), 2019 (January to December), and 2020 (January and February) by Cleveland Biological, LLC, involved monthly measurements of the variables and locations studied in 2017 with the addition of drone aerial photographs and stream stage from the San Simeon - S (718) staff gage. In March 2020, the schedule was changed to bi-monthly, and additional monitoring sites and variables were added to the program — there were five locations in San Simeon Creek and two in Van Gordon Creek; habitat variables also included instream cover, riparian width, average depth, flow rate (feet/second), wetted area and flow rate (cubic feet per second); and, water quality parameters (dissolved oxygen, total dissolved solids, and salinity). In April 2020, soil moisture measurements near Well 9P7 were also added. This monitoring program was continued by Cleveland Biological, LLC, through May 2023, with the exception that the schedule was changed to five times per year in 2022 and monthly in 2023.

For the monitoring years 2020, 2021 and 2022, annual reports were prepared by Cleveland Biological, LLC. In addition to an evaluation of trends in the water and habitat variables detailed above, the annual reports also included an analysis of groundwater levels and water quality, CRAM surveys at San Simeon Creek and Van Gordon Creek, and focused special-status species surveys.

In an evaluation of past AMP monitoring, KMA (2024) concluded that determining "normal seasonal trends" is problematic because the variables selected for monitoring fluctuate due to numerous natural factors that are characteristic of intermittent streams in a Mediterranean climate. In addition, variables such as stream flow, dissolved oxygen, total dissolved solids, salinity, instream cover, substrate type, and substrate embeddedness vary annually and seasonally based upon the exact point in which these parameters are measured. Even where permanent sampling points are established, conditions change annually based upon scouring flows that rearrange substrate and remove vegetation, and deposit sediment from upstream areas. CRAM monitoring is focused on stream geomorphology and should be discontinued because it does

not assess variables that would be affected by operation of the WRF, and does not accurately describe the habitat conditions for the focus special-status species. Further, most of the variables are measured in a subjective manner, and observer bias could preclude comparisons of the final index scores between years. Studies using measurement of these types of variables are best suited for habitat typing (i.e., steelhead habitat suitability) comparisons between drainages at the landscape scale. Monitoring these variables within this intermittent drainage system over time may not truly provide the determination that the WRF operations are causing adverse impacts to instream pools and surface water flow. Causation cannot be established between the factor and the measured values when these values can be influenced by a number of other factors given the dynamic nature of the system. Particularly, past monitoring has not included a comparison of total annual rainfall received, or a comparison of precipitation patterns over the course of each year, in the analysis of the surface water monitoring. These observations were adaptively incorporated into the baseline monitoring program beginning in August 2024, as described below in Section 4.2.

4.2 REVISED MONITORING PROGRAM

4.2.1 Monitoring and Reporting Schedule

Beginning in 2024, and going forward until the WRF resumes operation, baseline monitoring will be conducted on a quarterly basis. After WRF operations resume, monitoring will be at minimum bi-monthly for the first year. Upon evaluation in the annual AMP report for that year, a minimum of quarterly monitoring may be conducted thereafter. The very nature of the AMP should be adaptive in the approach to monitoring data collection. While the creek is flowing continuously between upstream sources and the ocean, the influence of groundwater in the surrounding area on surface water levels is expected to be minimal. It is recommended that monitoring to determine the effects of WRF operations, when active, should focus on when streamflow becomes intermittent and isolated pools are formed to detect the correlation between the depth of the groundwater and surface water persistence in isolated pools to determine whether recharge into the system is compensating for groundwater pumping. Therefore, additional monitoring during the dry season may be warranted while the WRF is in operation.

Quarterly summary reports of surface water and instream habitat data will be prepared. Annual reports will be produced for each calendar year that incorporate the monitoring data along with rainfall, streamflow, production well and groundwater monitoring data, production well usage, and special-status species surveys as detailed in the sections below. The annual reports shall include an evaluation of parameter trends in comparison to historical data. If any adverse changes are noted that may be attributed to WRF operations, the report shall contain recommendations for further investigation and adaptive management (see Section 5).

4.2.2 Rainfall and Streamflow Patterns

Surface- and groundwater conditions in the system are dependent on the total amount of annual precipitation received and the pattern and duration in which it falls over the rainy season. Annual precipitation received for the monitoring year and "water year" will be obtained from automated gauges in the vicinity. Stream flow data will be from the San Simeon - S (718) staff gauge maintained by the County of San Luis Obispo Department of Public Works. The dates that flows cease and resume at Palmer Flats is tracked by the CCSD, and will also be incorporated into the analysis in the annual report.

4.2.3 Production Well and Groundwater Well Monitoring

The CCSD collects water level depths for the three production wells (SS-1, SS-2 and SS-3) and 21

groundwater monitoring wells. Water level hydrographs prepared in the past have shown a sharp decline in groundwater height typically in November/December, but can be as early as August during drought conditions. Groundwater levels rebound after San Simeon Creek begins flowing. A subset of the well monitoring data will be analyzed in the annual reports for an evaluation of trends that can be compared with past data. The report will address any correlations between declines in groundwater, absence of surface flows, and rates of groundwater pumping for production well usage and WRF operations.

4.2.4 CCSD Production Well and WRF Operations

The CCSD will provide data on the rates of groundwater extraction at the three San Simeon production wells. Additionally, once the WRF resumes operations, the CCSD will track and provide data on the amount of water extracted for the source water of the WRF at Well 9P7 and injection into recharge well RIW-1. The total amount of groundwater extraction at the wells shall be incorporated in the annual reports as described in Section 4.2.3 above. Rates of discharge of treated water from the AWTP to San Simeon Creek Lagoon shall also be reported.

4.2.5 Surface Water and Instream Habitat Monitoring

KMA (2024) established eight habitat monitoring sites that were as close to the sites originally designated in MBI (2017a) while adjusting the locations to be at persistent pools that are closely tied to groundwater levels. The CCSD will provide assistance with vegetation management around the wastewater treatment ponds and maintaining trails so that the monitoring sites can be accessed from outside of the stream channel during periods of high flows. The data collected at each site will include:

- Maximum width of surface water
- Maximum depth
- Channel width at the ordinary high water mark (OHWM)
- Qualitative description of flow
- Substrate type
- Aquatic species observed
- Any noticeable changes in the condition of the riparian habitat
- Visible disturbances to the stream bank or channel morphology

Four photographs will be taken (one in each direction along the orientation of the channel) during each monitoring visit at each site to document habitat conditions. The point in the tidal cycle and whether the beach berm is closed will also be noted.

4.2.6 Focused Special-status Species Monitoring. The initial AMP called for regular surveys for tidewater goby, steelhead and California red-legged frog (MBI 2017a). Additionally, the RFSEIR under Mitigation Measure BIO-7, further refines the surveys to be at minimum two times for per year and to also include southwestern pond turtle and two-striped garter snake (MBI 2017b). The timing for the surveys should be as follows, and has been adjusted for peak timing in observations reported by Rathbun et al. (1993):

- Tidewater goby — May/June and July/August

- Steelhead — early summer when young are present and fall when young may be stranded in isolated pools
- California red-legged frog — February/March during breeding season and September/October when metamorphs are present
- Southwestern pond turtle — March/April and September/October
- Two-striped garter snake — May/June and September/October

Visual surveys will be conducted by walking through the stream within the project area during the daytime when there are warm, clear, calm conditions. Surveys for the California red-legged frog should be conducted both during the day and at night following established protocol (USFWS 2005). Observations of special-status aquatic species shall be mapped and submitted to the California Natural Diversity Data Base.

4.3 SURFACE WATER

Surface water flow is an integral component of providing suitable habitat for aquatic species. While tidewater goby and California red-legged frog require still water or minimal water flow to survive, steelhead trout requires water flow during most of its life stages, including adult migration, spawning, juvenile growth, overwintering, and juvenile migration (Smith undated). Steelhead have not been documented in San Simeon Creek and San Simeon Creek Lagoon in recent years.

To ensure that surface water flow is not adversely impacted by WRF operations, the AMP includes monitoring surface water levels in San Simeon Creek. It is recommended for ease, efficiency, and accuracy that stream flow be measured electronically with a flow meter, such as the Marsh McBirney Flo-Mate 2000. However, the WRF may only be operated when the adjacent reaches of San Simeon and Van Gordon Creeks are already dry, as these reaches only flow seasonally and are not perennial streams. Therefore, such monitoring may be more closely related to monitoring the San Simeon Creek Lagoon area during the dry season. It is noted, little if any flow will be observed during the dry portion of the year, if the beach berm is not open.

4.3.1 Surface Water Flows

Surface water flow should be measured at least twice each month at two-week intervals for the first year at the same time and in the same general location that the surface water level is measured. It is noted that there are tidal influences on the flow in the system, if the beach berm is open. Measurement periods would be required to specify the point in the tidal cycle when spot measurements are taken. Measurements will be taken in Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon, as applicable. The information obtained during this measurement will be used to help determine habitat suitability for fish species. Typical flow rates will be determined over the course of the first year of monitoring in order to determine baseline flow rates for future benchmarking. Following the first year, measurements shall be taken on a quarterly basis but coordinated with the wet and dry seasons.

4.3.2 Surface Water Levels

San Simeon Creek originates in the Santa Lucia Range and runs for approximately 8.5 miles before draining into San Simeon Creek Lagoon. Upstream of the confluence with Steiner Creek is perennial.[1] As such, it receives significant surface flow each year, much of which dries up in the late spring and summer. Historical biological survey reports for lower San Simeon Creek and San Simeon Creek Lagoon will be used to help characterize the annual water cycles (temporally) and inundation patterns (geographically) in these water bodies. In addition, CCSD will coordinate with applicable agencies and organizations to identify key surface water monitoring stations for collection of historical data and active monitoring data.

CCSD staff gages are present in San Simeon Creek. However, the San Luis Obispo County Flood Control District maintains a former USGS gaging station, which is located between the San Simeon well field and the proposed AWTP. The County data for this station is also available online via their website. Manual staff gages are used for quick visual recording of the height of surface water in water bodies. Where appropriate and as part of this AMP, and in consultation with the Biological Monitor and the CCSD hydrologist, additional staff gages will be installed in Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon for the future measurement of surface water levels. Gages will be placed at easily accessible locations to facilitate efficient and cost-effective gage checks. It is recommended that they be placed in areas where it is convenient to simultaneously measure water levels and stream flow. Surface water levels will be measured twice per month at two-week intervals for the first year of AMP implementation. Historical data will be used to establish baseline surface water levels for future monitoring. Following the first year, measurements shall be taken on a quarterly basis.

4.3.3 Impact Analysis

Based upon detailed hydrogeological analyses and modeling (GMR and Technical Memorandum), CDM Smith concluded that the WRF improved surface water flows and surface levels in the San Simeon Creek Lagoon when compared to existing conditions, without WRF operations. From the analyses and modeling, it has been concluded that potential for impacts to surface flows and surface water levels from WRF operations will be low. However, monitoring and maintaining surface water flows and surface water levels will be an integral part of this AMP.

4.4 HABITATS

In addition to tracking changes in groundwater and surface water within the Project area, the AMP will focus on monitoring the extent and viability of the in-stream and riparian habitat associated with Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon. This includes the measurement of wetted width, wetted depth, water flow, and soil moisture levels in the riparian habitat. These measurements will in turn help assess the suitability of the habitat to support listed species known to occur in the Project vicinity.

The riparian forest within the immediate vicinity of groundwater and surface water monitoring stations will be directly monitored to detect changes in soil moisture levels as well as vegetative composition. For areas that exhibit groundwater at or near the surface, groundwater is the primary source of water for the riparian vegetation at that location. Similarly, for areas with consistent surface discharge, but with lower groundwater elevations, vegetation depends mostly on surface water. Undoubtedly, some areas obtain water

[1] Based on the USGS report of monitoring of the Palmer Flats gage, which is near the confluence, the stream is dry for about half the year.

from both sources, and this is likely to vary within a single year and also from year to year depending on a variety of factors, making the determination of definitive baseline conditions difficult. Based on Michael Baker's understanding of the interaction of groundwater levels and surface flows, a combination of severe and rapid groundwater drawdown greater than several feet, coupled with a corresponding loss of surface flows, would be required before soil moisture within the rooting zone of the riparian habitat would decrease enough to cause adverse impacts to the riparian plants and ultimately a reduction in riparian forest.

The proposal to collect groundwater, surface water, and soil moisture data will provide important information on vegetative response to changing conditions. In addition to collecting these data, it is recommended that three separate CRAM surveys be conducted of Van Gordon Creek, lower San Simeon Creek, and San Simeon Creek Lagoon. CRAM is a rapid assessment method used to monitor California's wetlands by assessing the ambient conditions within watersheds and assigning numerical scores based on physical and biotic features. CRAM surveys have previously been conducted in upper San Simeon Creek Lagoon (upstream of Van Gordon Creek Road) in 2005 and 2007. By conducting new or updated CRAM surveys of Van Gordon Creek, lower San Simeon Creek, and San Simeon Creek Lagoon, baseline physical conditions can be obtained to compare against in the future. CRAM surveys shall be conducted annually to provide long-term pictures of the potentially changing conditions within this watershed.

Available fish habitat can also be determined on a relative scale using quantitative measurements such as temperature and available dissolved oxygen. These water characteristics can be measured with oxygen and salinity meters. According to annual studies commissioned by the CCSD between 1991 and 2005, tidewater goby has been observed to be generally more tolerant of adverse ambient conditions. Tidewater goby can spawn at salinities ranging from 5 to 10 parts per thousand (ppt) and can survive in temperatures ranging from 18 up to 27° Celsius (C) and only 1 part per million (ppm) of dissolved oxygen (DO).

However, steelhead trout require more restrictive aquatic conditions in order to survive. Based upon years of annual steelhead surveys funded by CCSD on San Simeon Creek, optimal conditions for steelhead trout in San Simeon Creek are believed to be salinity of less than 10 ppt, water temperatures below 22°C, and dissolved oxygen of greater than 5 ppm. While steelhead can survive at DO concentrations as low as 1-2 ppm, this is generally only for a very short period of time and typically only in the morning when temperature is low and DO is at its lowest due to overnight algal respiration. Algae conduct photosynthesis during the day when the sun is out, consuming carbon dioxide and producing high amounts of oxygen. At night the opposite trend occurs with photorespiration: algae

consume and can nearly deplete oxygen while simultaneously producing high levels of carbon dioxide, thus leading to substantially lower DO levels overnight and into early morning. Steelhead ecology is such that these temporary nightly drops in DO are tolerable because the temperature is generally cooler and metabolic rate is reduced; as water temperature increases over the course of the day, fish metabolic rates increase (generally doubling with each 10°C increase in water temperature) and they require more oxygen. It is estimated that steelhead would be able to survive for only 15-30 minutes with 1-2 ppm DO and at a water temperature of 18-20°C. Thus, steelhead cannot persist for extended periods of time with low DO and high temperatures.

Available habitat for California red-legged frog and other aquatic herpetofauna can similarly be determined. California red-legged frog lays eggs in water that is usually less than 16°C, with a maximum salinity tolerance of 9 ppt for adults and 6 ppt for embryos (Cook 1997). Western pond turtle occurs in brackish estuaries or freshwater (Lovich undated), preferring temperatures between 15°C and 39-40°C and generally not occurring in water that is outside of this range (Jennings and Hayes 1994). By measuring the appropriate aquatic data, as described above, general suitability for monitored species can be determined.

The above habitat measurements will be measured and evaluated twice a month for the first year at two-week intervals along with all other measurements. Following the first year, habitat will be evaluated on an annual basis.

4.5 SPECIES

Tidewater goby, steelhead trout, and California red-legged frog have been known to occur in lower San Simeon Creek and/or San Simeon Creek Lagoon since at least the early 1990s, and much earlier for steelhead due to artificial fish stocking. From 1992 to 2006, the CCSD commissioned in-house surveys for tidewater goby and steelhead in lower San Simeon Creek and San Simeon Creek Lagoon. Tidewater goby was surveyed semiannually, while steelhead was surveyed annually. CCSD has not regularly commissioned California red-legged frog surveys, but this species has instead been surveyed for on an as-needed basis for research and management requirements, particularly by biologists representing and funded by the USGS Piedras Blancas Research Station.

4.5.1 Monitoring Program

Historically, tidewater goby surveys have been conducted in San Simeon Creek Lagoon in early summer and early fall to measure the species' status immediately after sandbar closure and immediately before the sandbar opens again. Steelhead has been surveyed for in lower San Simeon Creek in the summer after young steelhead had hatched. To monitor the presence or absence of listed species, it is necessary to continue conducting surveys for them following Project implementation. Surveys for these two species should continue to be conducted during these same time periods in order to capture consistent data with what has historically been evaluated and to continue building a database of fish presence in these water bodies.

As part of this AMP, visual surveys for California red-legged frog should be conducted on a regular basis in February/March and again in August/September. It is recommended that the first surveys be conducted in early February; if breeding (e.g. observation of amplexus, aural detection of mating calls, presence of egg masses, or presence of tadpoles) is not documented during these surveys, a second round of surveys

should be conducted three (3) weeks later.

4.6 GROUNDWATER MODEL DEVELOPMENT

Data obtained during the aforementioned monitoring actions, particularly those described in Sections 4.1 through 4.2 above, will be used to calibrate the groundwater model that will assist in tracking condition changes in San Simeon Creek, San Simeon Creek Lagoon, and Van Gordon Creek. Baseline data obtained during the first monitoring year will be combined with historical data to determine regular and expected habitat measurements at all times of the year. These data will be used to determine thresholds at which management changes will be required while the facility is in operation.

In order to determine the point at which creek outflow may be adjusted or other management actions may be implemented to avoid impacts to listed species, it is necessary to determine the thresholds at which the potential for an adverse impact would need to be evaluated. Unless otherwise attributable to natural causes, or anthropogenic activities by riparian users upstream and apart from the CCSD- controlled property within the watershed (e.g., an agricultural accident leading to a chemical spill), should any of the following conditions be documented during regular surveys or otherwise during creek monitoring, management actions shall be required:

- Unexplained deaths or die-offs of tidewater goby, steelhead trout, and/or California red-legged frog;
- Early closure of the San Simeon Creek Lagoon sandbar due to dropping water levels;
- Failure of California red-legged frog egg masses due to desiccation;
- Unexplained changes in population levels of these species;
- Project-related drop in groundwater levels below previous historic minimum levels causing impacts to riparian habitat;[2]
- Decrease in lagoon surface water levels below historic minimums.[3]

As a PDF, approximately 100 gpm of MF filtrate product water (identical to the source water quality) would be discharged from the WRF into upper San Simeon Creek Lagoon when the WRF is in operation. Using the monitoring methods provided within this AMP, if it is found that riparian vegetation, creek or lagoon water levels, and/or species population numbers surpass the thresholds established in this document or those established based on the first year of monitoring, the CCSD may increase the treated water being provided, adjust facility operations, or suspend facility operations until conditions are once again deemed acceptable.

[2] Water levels are anticipated to drop every year regardless of Project operations. Therefore, should the lowering of groundwater levels be associated with riparian habitat impacts, management actions may include, but not be limited to: artificially increasing the soil moisture content around riparian plants; periodically alternating which percolation basin is in operation; reducing extractions; increasing the mitigation water flow; or, some combination of these approaches.

[3] It is noted, surface water flows will need to be correlated to rainfall. No flow is anticipated during the dry season.

Section 5 Implementation

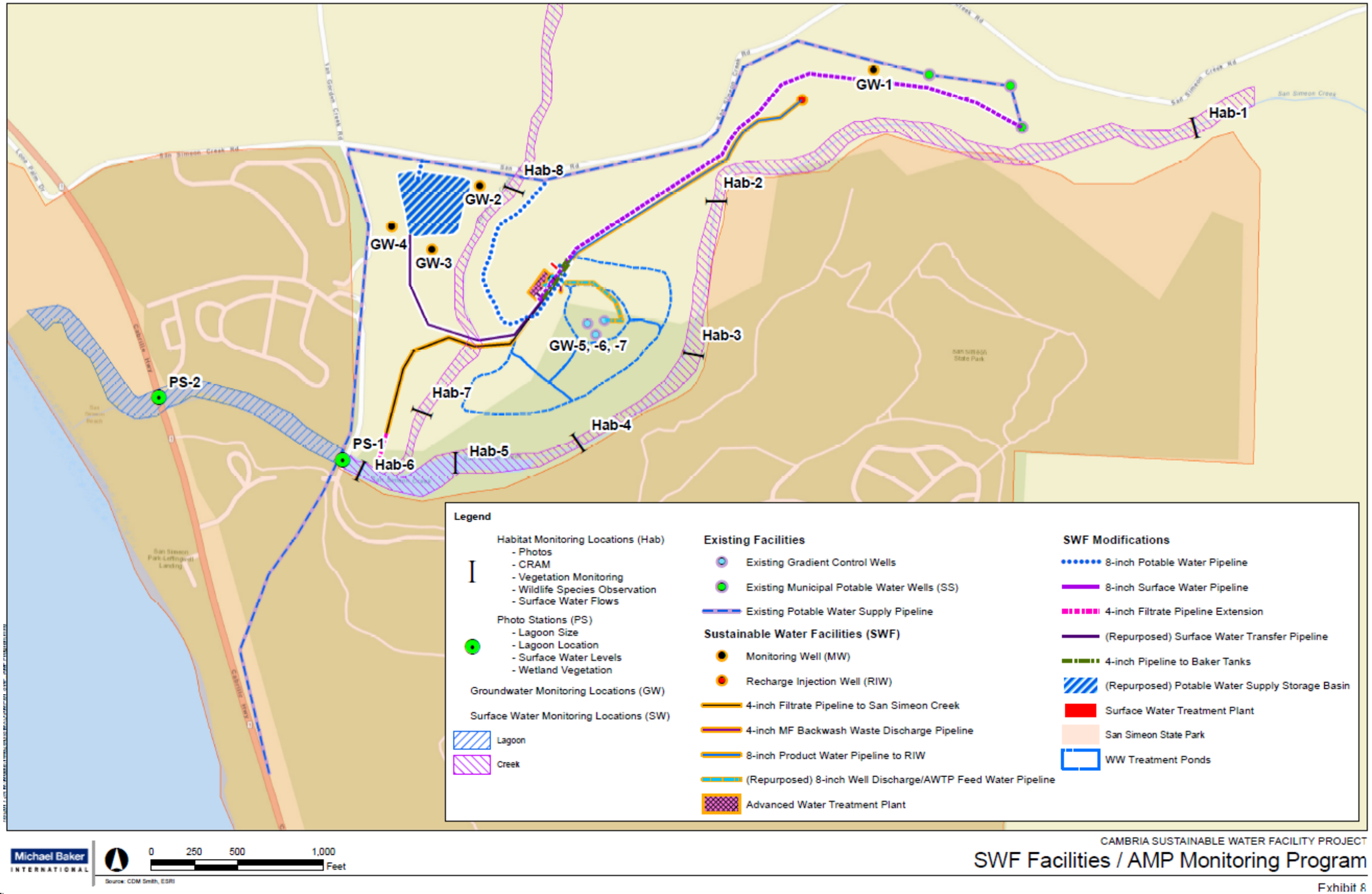
The AMP also provides adaptive management or corrective measures to ensure that any adverse effects of the Project are immediately investigated and corrective actions are taken. The monitoring biologist shall work closely with CCSD staff to inform staff if changes outside of normal ranges are observed and to initiate further evaluation. The reporting requirements described in Section 4.2.1 will also ensure that trends in measured parameters are regularly evaluated and recommendations for corrective measures shall be provided. These actions will ensure that the Project will not result in significantly impacting special-status aquatic species and their habitats.

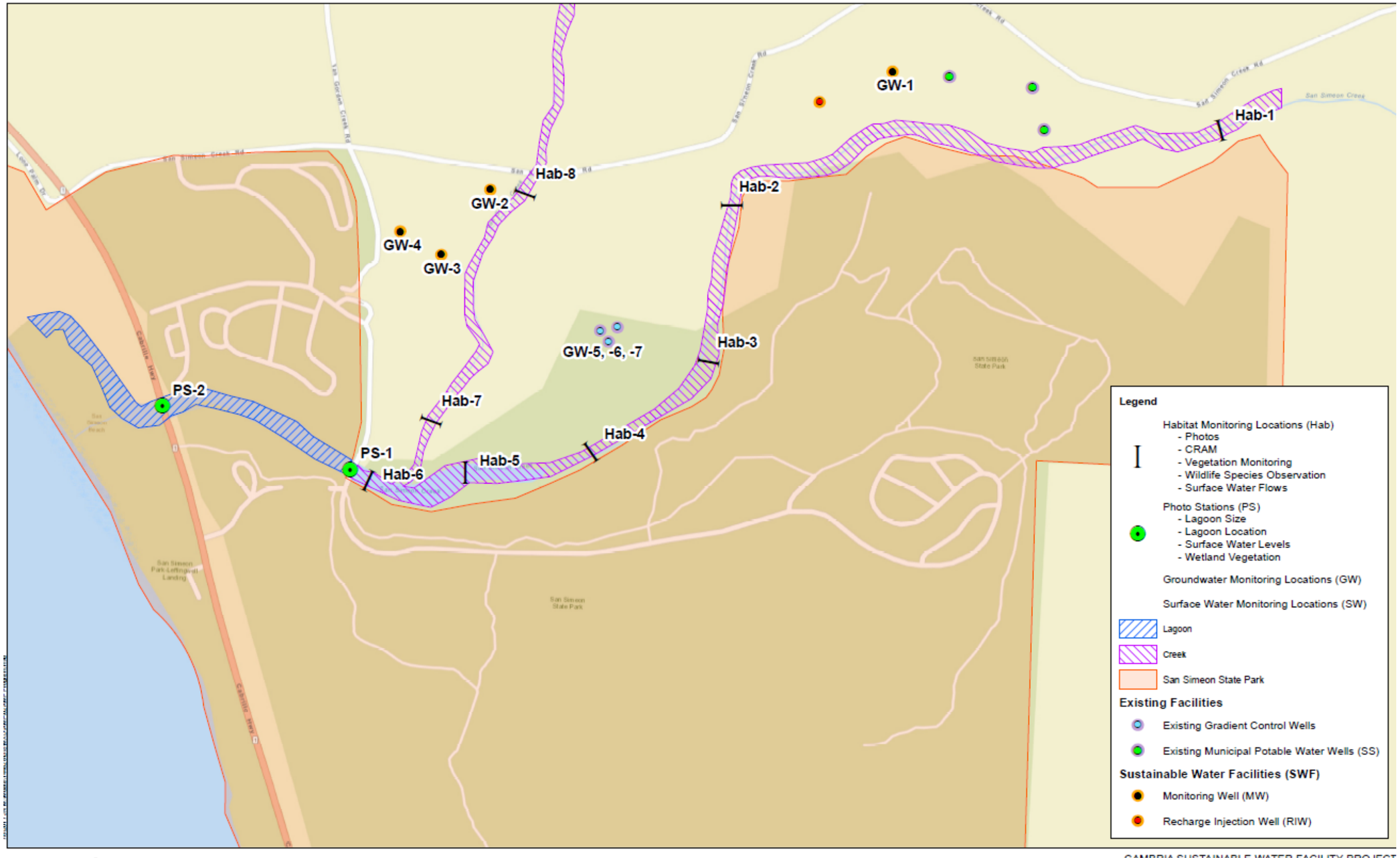
Groundwater data evaluated during the monitoring program, as described in Sections 4.2.2 and 4.2.3 above, will be used to produce a groundwater model based upon baseline data collected before the WRF resumes operations. The model will be used to determine thresholds at which management changes will be required while the facility is in operation. A drop in groundwater levels below the 25th percentile levels, as shown in Exhibit 7, will be a trigger for analysis with the District's hydrologist to determine if further investigation and adaptive management are required.

Thresholds for surface water and instream habitat monitoring will also be determined in order to determine triggers for which other management actions may be implemented to avoid impacts on listed species. Unless otherwise attributable to natural causes, drought conditions, or anthropogenic activities aside from the CCSD operations, should any of the following conditions be documented during monitoring and surveys, management actions shall be required:

- Early closure of the San Simeon Creek Lagoon sandbar due to dropping water levels;
- Desiccation of California red-legged frog egg masses;
- Changes in population sizes of special-status aquatic species due to early drying of stream reaches;
- Project-related drop in groundwater levels below previous historic minimum levels causing impacts on riparian habitat;
- Decrease in lagoon surface water levels below historic minimums.

If it is found that riparian vegetation, creek or lagoon water levels, and/or species population numbers are adversely affected in comparison to baseline conditions, the CCSD may increase the amount of treated water pumped to San Simeon Creek Lagoon, adjust facility operations, or suspend facility operations until conditions are once again deemed acceptable. Changes to riparian habitat could trigger management actions that may include: artificially increasing the soil moisture around riparian plants; periodically alternating which percolation basin is in operation; reducing extractions; increasing the mitigation water flow; or, some combination of these approaches. Additional staff gages may be installed in Van Gordon Creek, San Simeon Creek Lagoon and San Simeon Creek to aid in the measurement of surface water levels. Gages can be placed at locations accessible from upland areas to facilitate monitoring during periods of high flows.


GW-1
Hab-1
Hab-8
GW-2
Hab-2
GW-4
GW-3
GW-5, -6, -7
Hab-3
PS-2
Hab-7
Hab-4
PS-1
Hab-5
Hab-6
Legend
Habitat Monitoring Locations (Hab)
- Photos
- CRAM
- Vegetation Monitoring
- Wildlife Species Observation
- Surface Water Flows
Photo Stations (PS)
- Lagoon Size
- Lagoon Location
- Surface Water Levels
- Wetland Vegetation
Groundwater Monitoring Locations (GW)
Surface Water Monitoring Locations (SW)
Lagoon
Creek
Existing Facilities
Existing Gradient Control Wells
Existing Municipal Potable Water Wells (SS)
Existing Potable Water Supply Pipeline
Sustainable Water Facilities (SWF)
Monitoring Well (MW)
Recharge Injection Well (RIW)
4-inch Filtrate Pipeline to San Simeon Creek
4-inch MF Backwash Waste Discharge Pipeline
8-inch Product Water Pipeline to RIW
(Repurposed) 8-inch Well Discharge/AWTP Feed Water Pipeline
Advanced Water Treatment Plant
SWF Modifications
8-inch Potable Water Pipeline
8-inch Surface Water Pipeline
4-inch Filtrate Pipeline Extension
(Repurposed) Surface Water Transfer Pipeline
4-inch Pipeline to Baker Tanks
(Repurposed) Potable Water Supply Storage Basin
Surface Water Treatment Plant
San Simeon State Park
WW Treatment Ponds
Michael Baker INTERNATIONAL
0 250 500 1,000 Feet
Source: CDM Smith, ESRI
CAMBRIA SUSTAINABLE WATER FACILITY PROJECT
SWF Facilities / AMP Monitoring Program
Exhibit 8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Hab-2
Hab-8
GW-2
GW-4
GW-3
GW-5, -6, -7
Hab-3
Hab-7
Hab-4
PS-2
PS-1
Hab-6
Hab-5
Legend
Habitat Monitoring Locations (Hab)
- Photos
- CRAM
- Vegetation Monitoring
- Wildlife Species Observation
- Surface Water Flows
Photo Stations (PS)
- Lagoon Size
- Lagoon Location
- Surface Water Levels
- Wetland Vegetation
Groundwater Monitoring Locations (GW)
Surface Water Monitoring Locations (SW)
Lagoon
Creek
San Simeon State Park
Existing Facilities
Existing Gradient Control Wells
Existing Municipal Potable Water Wells (SS)
Sustainable Water Facilities (SWF)
Monitoring Well (MW)
Recharge Injection Well (RIW)
Michael Baker INTERNATIONAL
0 250 500 1,000
Feet
Source: CDM Smith, ESRI
CAMBRIA SUSTAINABLE WATER FACILITY PROJECT
AMP Monitoring Program
Exhibit 9

1. Surface water flow is an integral component of providing suitable habitat for aquatic species. While tidewater goby and California red-legged frog require still water or minimal water flow to survive, steelhead trout requires water flow during most of its life stages, including adult migration, spawning, juvenile growth, overwintering, and juvenile migration (Smith undated). Steelhead have not been documented in San Simeon Creek, Van Gordon, or San Simeon Creek Lagoon in recent years. It is recommended for ease, efficiency, and accuracy that stream flow be measured electronically with a flow meter, such as the Marsh McBirney Flo-Mate 2000.

2. Surface water flow will be measured at least twice each month at two-week intervals for first year at the same time and in the same general location that the surface water level is measured. It is noted, that there is a tidal influence on the system's flow, if the beach berm is open. Measurement periods would be required to specify the point in the tidal cycle when spot measurements are taken. Measurements will be taken in Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon, as applicable. The information obtained during this measurement will be used to help determine habitat suitability for fish species. Typical flow rates will be determined over the course of the first year of monitoring in order to determine baseline flow rates for future benchmarking. Following the first year, measurements will be taken on a quarterly basis but coordinated with the wet and dry seasons.

3. Historical biological survey reports for lower San Simeon Creek and San Simeon Creek Lagoon will be used to help characterize the annual water cycles (temporally) and inundation patterns (geographically) in San Simeon Creek, Van Gordon Creek and San Simeon Creek Lagoon. CCSD has established surface water flow monitoring stations that will continue to be used. In addition, CCSD will coordinate with applicable agencies and organizations to identify other key surface water monitoring stations for collection of historical data and active monitoring data. A small section of the San Simeon Creek Lagoon (approximately the uppermost 230 feet) is located within the Project site; the remaining downstream portion continues offsite to the west onto State Parks lands and then to San Simeon State Beach. Surface flow measurements will be taken in San Simeon Creek Lagoon within CCSD property. Surface flow measurements cannot be taken in San Simeon Creek Lagoon within State Park lands. Two or more photos stations will be established within CCSD property that will be used to video flows within the lagoon. The video will be used to qualitatively estimate flow rates for the lagoon by correlating estimated lagoon surface flow rates with quantitatively measured flow rates taken at monitoring stations on CCSD lands as well as using historic records. Exhibit 9 shows two potential surface flow photo monitoring locations for San Simeon Creek Lagoon.

4. CCSD currently measures surface flow levels using manual staff gages for quick visual recordings of the height of surface water in water bodies. Where appropriate and as part of the AMP, and in consultation with the Biological Monitor and the CCSD hydrogeologist, additional staff gages will be installed in Van Gordon Creek and San Simeon Creek for the future measurement of surface water levels. Gages will be placed at easily accessible locations to facilitate efficient and cost-effective gage checks. Surface water levels will be measured twice per month at two-week intervals for the first year of AMP implementation. Historical data will be used to establish baseline surface water levels for future monitoring. Following the first year, measurements shall be taken

on a quarterly basis. Surface water levels for San Simeon Creek Lagoon will be estimated from collecting visual representations of surface levels in the lagoon from the two or more selected photo/video monitoring stations (see Exhibit 9). Data collected for San Simeon Creek Lagoon will also be correlated with historic previously collected by the CCSD within the lagoon.

5. In addition to tracking changes in groundwater and surface water within the Project area, the AMP focuses on monitoring the extent and viability of the in-stream and riparian habitat associated with Van Gordon Creek and San Simeon Creek. This includes the measurement of wetted width, wetted depth, water flow, and soil moisture levels in the riparian habitat. These measurements will in turn help assess the habitat's suitability to support listed species known to occur in the Project vicinity.

   Data collected for groundwater, surface water, and soil moisture will provide important information on vegetative response to changing conditions. In addition to collecting these data, it is recommended that separate CRAM surveys be conducted of San Simeon Creek, Van Gordon Creek, and San Simeon Creek Lagoon at selected locations. Exhibit 9 shows eight (8) potential locations along the San Simeon Creek and Van Gordon Creeks and upper reach of San Simeon Creek Lagoon. CRAM surveys have previously been conducted in upper San Simeon Creek Lagoon (upstream of Van Gordon Creek Road) in 2005 and 2007, and by SWCA in 2015. By conducting new or updated CRAM surveys of Van Gordon Creek and San Simeon Creek baseline physical conditions can be obtained for future comparisons. CRAM surveys shall be conducted annually at the same time each year to provide long-term photos of the potentially changing conditions within this watershed.

6. CCSD's wastewater department currently monitors and analyzes groundwater quality semiannually at Wells SS3, SS4, 9P7, 16Dl, and 9N2 (installed originally by the USGS). Measurements are taken of depth to groundwater and groundwater elevation, nitrate/nitrogen, total dissolved solids, sodium, chloride, sulfate, boron, and water pH. The recent enrollment of the Project Design Feature's filtrate product water flow to the San Simeon Creek Lagoon into the RWQCB's General NPDES permit for low threat discharges will also create additional monitoring and water quality requirements. This information will be provided to the Biological Monitor for analysis and comparison with previous measurements and to assist in assessing the suitability of instream habitats for fish and other aquatic species.

7. Available fish habitat can also be determined on a relative scale using quantitative measurements in the instream habitats taken at selected stations within San Simeon Creek and Van Gordon Creek. Water quality measurements will be taken within San Simeon Creek Lagoon at the confluence of San Simeon Creek and San Simeon Creek Lagoon within CCSD property. By measuring the appropriate aquatic data, as described below, general suitability for monitored species can be determined.

   a. According to annual studies commissioned by the CCSD between 1991 and 2005, tidewater goby has been observed to be generally more tolerant of adverse ambient conditions. Tidewater goby can spawn at salinities ranging from 5 to 10 parts per thousand (ppt) and can survive in temperatures ranging from 18 up to 27° Celsius (C) and only 1 part per million (ppm) of dissolved oxygen (DO).

b. Steelhead trout require more restrictive aquatic conditions in order to survive. Optimal conditions for steelhead trout in San Simeon Creek are believed to be salinity of less than 10 ppt, water temperatures below 22°C, and dissolved oxygen of greater than 5 ppm.

c. California red-legged frog lays eggs in water that is usually less than 16°C, with a maximum salinity tolerance of 9 ppt for adults and 6 ppt for embryos (Cook 1997).

8. Habitat measurements will be measured and evaluated twice a month for the first year at two- week intervals along with all other measurements. Following the first year, habitat will be evaluated on a quarterly basis.

9. Historically, tidewater goby surveys were conducted in San Simeon Creek Lagoon in early summer and early fall. Steelhead were surveyed for in lower San Simeon Creek in the summer. Surveys for these two species should continue to be conducted during these same time periods, within San Simeon Creek Lagoon (on CCSD land) just downstream of the confluence of San Simeon Creek and San Simeon Creek Lagoon, in order to ensure consistency of the data with historic data and to continue building a database of fish presence in these water bodies.

10. Visual surveys for California red-legged frog in lower San Simeon Creek should be conducted on a regular basis in February/March and again in August/September.

Section 6 Adaptive Management Process

This AMP is a surface water, groundwater, and biological monitoring program designed to detect potential impacts to sensitive biological resources. As a second step, the plan will provide adaptive management or corrective measures to the WRF Project to ensure that potential adverse changes, if noted, are immediately corrected. This will ensure that the WRF Project will not result in significant adverse impacts to the riparian habitat in San Simeon Creek, San Simeon Creek Lagoon, and Van Gordon Creek. Integral to the effectiveness of an adaptive management program is the preparation of monthly, quarterly, and annual reports covering times when the WRF is in operation, which will examine and document changes in groundwater and surface water levels, water quality, in-stream and riparian habitats that could affect sensitive species within the Project area.

For the first year of monitoring, the Biological Monitor will prepare and submit to the CCSD a monthly report that will discuss any notable changes in conditions. If any conditions show adverse changes, i.e., exceed the established threshold levels, the report will suggest remedial actions to take. If the site conditions are all shown to be within an acceptable range of variation, the report will note this as such. The report will be equivalent to a memo report or a short letter report for quick analysis of monthly conditions. Following the first year, the report will be compiled on a quarterly basis.

At the end of the first year and all subsequent years, the Biological Monitor will prepare an annual report for submittal to CCSD, which would be made available to the CDFW, and the U.S. Fish and Wildlife Service (USFWS). The annual report will identify:

- Periods of WRF Project operations;
- Specific parameters that were monitored during the year;
- Any noted changes in the quality or extent of instream and riparian habitats in Van Gordon Creek, San Simeon Creek, or San Simeon Creek Lagoon;
- Any noted changes in the populations of the monitored species in Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon;
- Additional factors that could affect the long-term sustainability of sensitive habitats and monitored species populations within Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon, and that merit inclusion in the monitoring program; and
- Specific management measures that should be considered to minimize potential effects of the WRF Project operations on the groundwater and surface water levels, instream and riparian habitats, and monitored species.

Depending upon the actual periods when the WRF Project operates, monitoring each year will normally occur from September 1 through August 31 of the following year. The collected monitoring data will be analyzed during the month of November and presented to a CCSD- predetermined oversight committee each December for review, including preliminary interpretation of data, recommendations for hydrologic and biological monitoring in the coming year and, if necessary, adaptive management measures to correct potential adverse conditions. The annual report shall provide results of the data collection, an interpretation of results, and recommendations for changes to the monitoring program. Recommended changes to monitoring procedures and/or other adaptive management actions will be decided upon prior to February 15 of each year. Table 2, *Annual Report Outline for the Cambria Sustainable Water Facility Project Adaptive Management Plan*, provides an outline of the annual report's required elements.

Table 2: Annual Report Outline for the Cambria Water Reclamation Facility Project Adaptive Management Plan

Annual Report Format
Introduction Briefly mention the monitoring programs conducted that year, the type of data, and the intended use of these data.
Methods Describe the methodology for each monitoring program conducted that year in sufficient detail to ensure repeatability. Describe the analyses used to generate the results from each set of data.
Results The results section presents the collected data in consistent format (tabular and/or graphic). Note changes in surface flows and groundwater levels and any changes in riparian habitat at each of the monitoring sites.
Discussion Provide an analysis of the collected data and discuss whether any observed changes and/or trends are within natural variation or indicative of unexpected and adverse effects from the loss of surface water or changes in groundwater levels. If changes in surface water and/or groundwater are determined to be outside natural variation, assess whether they are related to changes in the riparian forest in surrounding riparian habitat.
Conclusions The conclusion should be a succinct summary of the results, interpretation of the data analysis including noted changes or identified trends, recommendations for modifications to the monitoring program, and recommendations for adaptive management actions.
References Appendix A Groundwater Monitoring Data Appendix B Surface Water Flow Monitoring Data Appendix C Surface Water Level Monitoring Data Appendix D Riparian Vegetation Monitoring Data Appendix E In-stream and Fish Habitat Monitoring Data Appendix F Species Survey Data

Section 7 Process to Revise the AMP

The unique challenge associated with monitoring arises from the need to identify potential adverse effects in a timely manner, such that remedial measures can be implemented before significant adverse impacts (e.g., die off of areas of riparian habitat or of listed species) occur. As described in Section 2, the goal of this Plan is to determine, through monitoring of appropriate early indicators (groundwater levels, surface water flows, riparian habitat condition), that actions related to Project operations are not on a trajectory to cause harm to in-stream and riparian resources in lower San Simeon Creek, San Simeon Creek Lagoon, or Van Gordon Creek.

The annual collection of data will provide a picture of the seasonal trends and, after a number of years, longer-term trends in groundwater and surface water levels in these water bodies, as well as the associated health of the in-stream and riparian habitats based on visual observations of the extent and overall health of the in-stream habitat and riparian vegetation using aerial photographs and photo documentation. Section 2 above describes each indicator to be monitored, the expected range of measurements during the course of a single annual monitoring period, and levels of deviation from the previous monitoring period that would be considered outside natural variation, thus triggering the need for a more detailed assessment of in-stream habitat and riparian vegetation (in-stream measurements, CRAM surveys, detailed examination of aerial photographs, and ground level photo documentation).

All of the above data will be included in the annual report, including any noted change in monitoring levels. This report will also assess whether the noted change can be attributed to other causes independent of the Project, or if the change is thought to represent an adverse response to the Project's ongoing groundwater extraction activities. If a change is determined to be an adverse response to the ongoing groundwater pumping, recommendations for correcting the deviation will be included in the annual report and submitted to CCSD for their review and evaluation as part of the monitoring and annual reporting process under this AMP.

Recommendations for revisions to the monitoring and the adaptive management program, including groundwater, surface water, and biological monitoring, as well as suggested corrective measures to Project-related activities, will be evaluated and considered by CCSD during their reviews of the annual report. Linking recommendations for budgeting to the reporting process will facilitate funding of any needed changes to the monitoring program and adaptive management process.

All monitoring results, suggested revisions to the monitoring program, recommendations for corrective actions related to the groundwater extraction (adaptive management measures), and comments will be presented to the District in the annual report for future monitoring and management decisions. Following District review, suggested revisions or corrective measures will be made and noted in the AMP, including changes to the monitoring program. A final annual report will be prepared and made available to CDFW and USFWS.

Section 8 Corrective Measures

The development and implementation of this AMP will ensure that the WRF Project operations do not significantly adversely impact the riparian habitat of the lagoon and adjacent reaches of San Simeon Creek and Van Gordon Creek and the associated wildlife species. The following potential mitigation measures are suggested for evaluation in the event that significant and adverse deviations and/or trends are noted in San Simeon Creek, San Simeon Creek Lagoon, and/or Van Gordon Creek as part of the annual monitoring program:

- **Limit operations to dry season periods when there is no surface water flow in San Simeon Creek and Van Gordon Creek.** As proposed, the WRF is intended to augment water supplies during the dry season. The adjacent lower creek reaches are not perennial and typically dry up by mid-summer of each year. Under such dry conditions, steelhead and related species of concern would likely be limited to the San Simeon Creek Lagoon area. The Project's PDF (i.e., approximately 100 gpm MF filtrate product water) is intended to protect the lagoon area while the SWF is in operation and there is no flow occurring in San Simeon Creek.
- **Adjustments to WRF Operations.** The amount of groundwater being removed by the WRF may need to be temporarily reduced or suspended should monitoring determine potentially adverse riparian impacts were projected to occur. This measure should be considered if groundwater and/or surface water levels substantially drop to levels outside of historical ranges and significantly impact habitat. If conditions begin to improve and once again fall within the acceptable range, the amount of groundwater being pumped by the WRF at that time should be considered for subsequent pumping regime levels to avoid repetitive occurrences.
- **Changes in the quantity of treated water that is returned to San Simeon Creek Lagoon**. While the WRF is in operation and during times when there is no flow occurring in the San Simeon Creek, the CCSD will return approximately 100 gpm of treated riparian water to the San Simeon Creek Lagoon. It may be necessary to increase the amount of water that is returned into the lagoon by increasing the amount of water that is discharged or adjusting WRF operations to pump less. This measure should be considered if surface water levels or riparian health decrease below what is considered acceptable due to WRF operations. If conditions begin to improve and once again fall within the acceptable range given annual site conditions, the amount of water being returned to San Simeon Creek Lagoon at that time should be adjusted to avoid repetitive occurrences.
- **Increase soil moisture content for riparian plants**. Should plants along the riparian corridor exhibit stress due to a lowering of groundwater levels, irrigation to increase soil moisture content may be deployed. This adaptive measure may include the use of a water truck or above ground irrigation piping to increase soil moisture content. Additionally, the CCSD may periodically alternate which percolation basin they are using in order to place percolated water closest to plant areas showing signs of stress. The CCSD has historically needed to operate only one of its four existing percolation basins at any given time. Therefore, some operating flexibility exists concerning which percolation basin is placed into operation.
- **Design and implementation of additional biological monitoring measures**. In the event that negative trends are not reversible with the above measures, additional monitoring measures may be required to reverse such negative trends. Such measures would be identified and described in the annual monitoring report.

Section 9 Conclusions

Adherence to the proper implementation of the AMP, which requires long-term monitoring, including monitoring groundwater levels, surface water levels/flows, in-stream and riparian habitat, and presence of listed species, will ensure that no impacts to habitat or species occurs in San Simeon Creek and San Simeon Creek Lagoon. Based on the results of the biological monitoring and any noted adverse changes in these habitats, WRF operations will be adjusted such that the amount of treated water that is re- injected into the system, is either increased or decreased to restore affected habitat features. It is expected that the filtrate product water flow returned at any time would be approximately 100 gallons per minute (gpm), as deemed necessary.

The PDF's approximate 100 gpm riparian flow is discharged into the upper San Simeon Creek Lagoon area for species and habitat protection. The TM (Appendix B) includes an analysis of instream flows, which supports the conclusion that the approximate 100 gpm flow rate would be sufficient to maintain habitat within the San Simeon Creek and San Simeon Creek Lagoon. The GMR (Appendix A) includes the detailed results of this hydrogeological modeling. The GMR found that while the WRF is operating, the PDF's 100 gpm of filtrate product water flow discharged to the San Simeon Creek Lagoon would maintain water levels in the lagoon, thereby avoiding potential impacts to lagoon habitat. Further, the TM concluded that under normal climatic conditions, flows of 50 gpm, which would be one-half of the 100 gpm flow, would be sufficient to maintain lagoon levels similar to conditions without the WRF. The TM also included simulations under extreme drought conditions, comparing the zero (0) gpm, 50 gpm, and 100 gpm flow to conditions without the WRF. During the first year of simulated drought, the 100 gpm flow would maintain lagoon levels similar to conditions without the WRF. During the second year of simulated drought, both the 50 gpm and 100 gpm flows would result in higher lagoon levels than conditions without the WRF. Under extreme drought conditions without the WRF, the CCSD well field would not be capable of producing the permitted quantities, while under conditions with the WRF, production at permitted rates could continue. Based on the GMR's and TM's findings, while the WRF is operating, the PDF's approximate 100 gpm filtrate product water flow to the San Simeon Creek Lagoon would maintain water levels in the lagoon. Notwithstanding, the AMP is a security measure to monitor and protect the lagoon, creek, and riparian habitats and, by extension, protect the species that inhabit them. The AMP's primary goal is to monitor the response of the lagoon, creeks, and riparian habitats to WRF operations. Monitoring is required to ensure that creek and lagoon levels are maintained during WRF operations. The GMR and TM analyses concluded that the 100 gpm flow provides greater protection to the San Simeon Creek Lagoon area than a no project alternative would offer. Therefore, given the GMR and TM findings, and the long-term monitoring required, the lagoon, creek, and riparian habitats and, by extension, the species that inhabit them would be protected.

Section 10 References

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