CAMBRIA COMMUNITY SERVICES DISTRICT

COASTAL DEVELOPMENT PERMIT PROJECT DESCRIPTION

Summary Project Description

A request by the Cambria Community Services District (CCSD) for a Development Plan and Coastal Development Permit (DRC2013-00112) to operate the CCSD Water Reclamation Facility (WRF) previously approved to operate on an emergency basis pursuant to the Emergency Coastal Development Permit (ZON2013-00589) issued May 15, 2014. The WRF would operate up to 24 hours per day, 5 days per week, for 7 months per year, depending on precipitation. The WRF would produce 425 gallons per minute (GPM) of treated water that would be injected into an existing reinjection well (RIW-1) and would migrate at least 60 days before reaching existing CCSD potable production Wells SS-1 and SS-2. Additionally, approximately 100 GPM of treated and de-chlorinated water would be discharged into San Simeon Creek to maintain and enhance the San Simeon Creek Lagoon during the dry season. The WRF is primarily designed to meet the current demands of the community and ensure a reliable water supply for the existing service connections of the CCSD. However, as part of future operations, evaluations will be conducted through research studies, biological assessments, and consideration of impacts on other stakeholders. These assessments will determine whether the WRF is sufficient to fulfill existing commitments. The project would result in approximately 50 cubic yards of new earthwork and would result in approximately 3.83 acres of new site disturbance on the approximately 95-acre CCSD-owned site (3.6 acres for removal of the pond liner and 0.23 acres for installation of a Zero Liquid Discharge (ZLD) facility). The project site is within the Agriculture land use category, within the California Coastal Zone, and is located at 990 San Simeon Creek Road, approximately 0.65 miles north of the Cambria urban reserve line and 1.23 miles south of the San Simeon urban reserve line.

Expanded Project Description

Entitlements and Modifications Requested

The Cambria Community Services District (CCSD) is seeking a Development Plan (DP) and Coastal Development Permit (CDP) pursuant to Condition of Approval #6 of Emergency CDP ZON2013-00589 to allow for the operation of the CCSD Water Reclamation Facility (WRF). No ordinance modifications, adjustments, or variances are requested.

Background: Cambria Community Services District Water Sources, Allocations, and Commitments

All of Cambria's potable water is supplied from groundwater wells in the San Simeon and Santa Rosa Creek aquifers. Municipal water production from these aquifers is limited by the constraints contained in the CCSD's Water Rights Licenses (Permit Nos. 17287 and 20387) and Waste Discharge Requirements and Water Recycling Requirements (Permit No. R3-2019-0051). Between 2016 and 2020, these aquifers produced between 494 acre-feet-per-year (AFY) and 578 AFY (combined). Table 1 outlines the CCSD's projected water supplies based on water rights and safe yields:

Table 1. Cambria Community Services District Water Supply

Water Supply	Projected Water Supply					
		2025	2030	2035	2040	2045
	T.R.S.Y.	R.A.V.	R.A.V.	R.A.V.	R.A.V.	R.A.V.
San Simeon Creek and Santa Rosa Creek Basins Groundwater (not desalinated)	1,017	725[1]	725	725	725	725
Water Reclamation Facility Recycled Water		21	21	21	21	21
Landscape Irrigation Recycled Water (excludes golf courses)			50	100	100	100
Total		**746**	**796**	**846**	**846**	**846**

Source: Cambria Community Services District 2020 Urban Water Management Plan (Table ES-6)
[1]Based on historic production in an average year type (i.e., 2018).

T.R.S.Y. – Total Right or Safe Yield *R.A.V. – Reasonably Available Volume*

The CCSD currently has 4,075 residential, commercial, and parks/landscape/irrigation existing commitments for water service. Per the CCSD Municipal Code (Title 8), "existing commitments" means service commitments made to CCSD customers, including active service commitments, non-active service commitments (commonly known as "grandfathered"), and parks/landscaping/irrigation commitments, as established by Section 8.04.030 of the CCSD Municipal Code. Active service commitments consist of active water and sewer uses and service accounts with equivalent dwelling units assigned and are those with current billing for service ("wet connections"). Non-active service commitments consist of parcels with what the district has determined have pre-existing (grandfathered) commitments for service but which do not have active service uses ("dry connections"). Non-active service commitments are subject to minimum bi-monthly billing to maintain commitment status. Parks/landscaping/irrigation commitments consist of water meters installed on a parcel for park irrigation, landscape, or agricultural irrigation or stock water purposes only. "Existing commitments" do not include those properties on the CCSD water and sewer waiting lists[1].

Of the 4,075 existing commitments, there are 4,034 existing active service connections (commercial and residential) that draw approximately 520 AFY of water. There are 36 non-active service commitments that are not currently drawing water (30 residential and 6 commercial). If all non-active service commitments became active, the CCSD estimates that they would consume approximately 3.8 AFY of water. In addition to the CCSD's existing commitments, the CCSD is required to encumber 205 acre-feet per year from the San Simeon Creek Basin per a legal agreement with the neighboring Warren property. This water is reserved for extraction by the Warren property and, per the agreement, cannot be used by the CCSD even if the Warren property does not use their allocation.

Table 2. Cambria Community Services District Water Supply v. Demand (normal year)

Water Supply Potential (AFY)		Water Demand (AFY)	
San Simeon Creek and Santa Rosa Creek Basins groundwater (not desalinated)	1,017	Active service commitments (4,034)	520
Santa Rosa Dry Season Diversion 155.3 acre-feet		Non-active service commitments (36, if converted to active service)	3.8
San Simeon Dry Season Diversion 370 acre-feet		Warren allocation	205
TOTAL	1,017	**TOTAL**	728.8
WRF Aquifer Recharge	30-250[2]	San Simeon Creek Lagoon Discharge (only during WRF operation)	1-62.5
TOTAL	1,017	**TOTAL**	729.8-769.8

Water Reclamation Facility History

The San Simeon and Santa Rosa aquifers are relatively shallow and porous, with the groundwater levels typically recharged every year during the rainy season. With pumping, 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 potable groundwater losses 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

[1] The CCSD waiting list for new water and sewer hookups was established in 1986. The list was closed to new applications on December 31, 1990 in cooperation with the County's Growth Management Ordinance. The County maintains a separate waiting list for vacant parcels, which will be served after the CCSD's waiting list.

[2] The WRF yield would be aquifer recharge acre-feet and does not increase the CCSD's permitted diversion.

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 CCSD operations maintain a positive differential between the up-gradient groundwater levels at its potable well field and the down-gradient wastewater effluent percolation ponds. During later parts of the summer dry season, and depending upon the prior year's precipitation, the CCSD may occasionally operate with a negative gradient and will periodically pump groundwater from its percolation pond area to control this differential.

For water year 2013/2014, the total rainfall in Cambria was approximately 80 percent of the minimum rainfall needed to fully recharge the two coastal stream aquifers that are the sole water supply for Cambria. At a Special Meeting on September 9, 2013, the CCSD Board of Directors considered the CCSD's water supply conditions. At that time, CCSD staff presented a report to the Board regarding the status of the San Simeon well field and estimates regarding remaining water supply and demand. CCSD staff estimated there was a two-to-three-month supply of water remaining.

On December 26, 2013, the California Department of Health (Division of Drinking Water) issued a notice to public water purveyors, including the CCSD, urging them to develop water supply contingency plans for implementing water supply alternatives given the lingering extreme drought conditions in California. Shortly after, on January 17, 2014, California Governor Brown issued Emergency Proclamation B-17-2014 and declared a State of Emergency related to the drought. CCSD staff evaluated various alternatives for further reducing water demand and securing an emergency water supply. These efforts included meetings with regulatory agency personnel and consultants, planning, and contacting various emergency water equipment suppliers. Staff ultimately determined the most realistic and expedient solution would be to utilize prefabricated, portable water treatment facilities to treat a brackish water supply. On January 30, 2014, the CCSD issued a Notice of Exemption pursuant to Public Resources Code 21080(b) for the construction and operation of the Emergency Water Supply Project (EWSP) (CCSD Resolution 05-2014). At this same meeting, the CCSD declared a Stage 3 Emergency Water Shortage based, in part, on well-level production information showing approximately 3 months of remaining water supply. The CCSD then entered into an agreement with CDM Smith to design and complete the EWSP. On February 13, 2014, the CCSD Board approved Resolution 06-2014, which directed staff to submit an Emergency CDP application to the County of San Luis Obispo (County) for the EWSP, and on April 22, 2014, the CCSD submitted the application. The County granted an Emergency CDP (ZON2013-00589) on May 15, 2014, which included as a condition of approval a requirement to complete the EWSP within 3 months and to obtain a non-emergency CDP. On June 13, 2014, the CCSD applied for a non-emergency CDP (this application) for the WRF.

The CCSD commenced construction on the EWSP on August 25, 2014, and it became operational on January 20, 2015. The EWSP ran from January 2015 until April 2015 and produced 39.99 acre-feet of water; from September 2015 until December 2015 and produced 28.93 acre-feet of water; and from October 2016 until December 2016 and produced 23.07 acre-feet of water. The EWSP last ran on December 3, 2016.

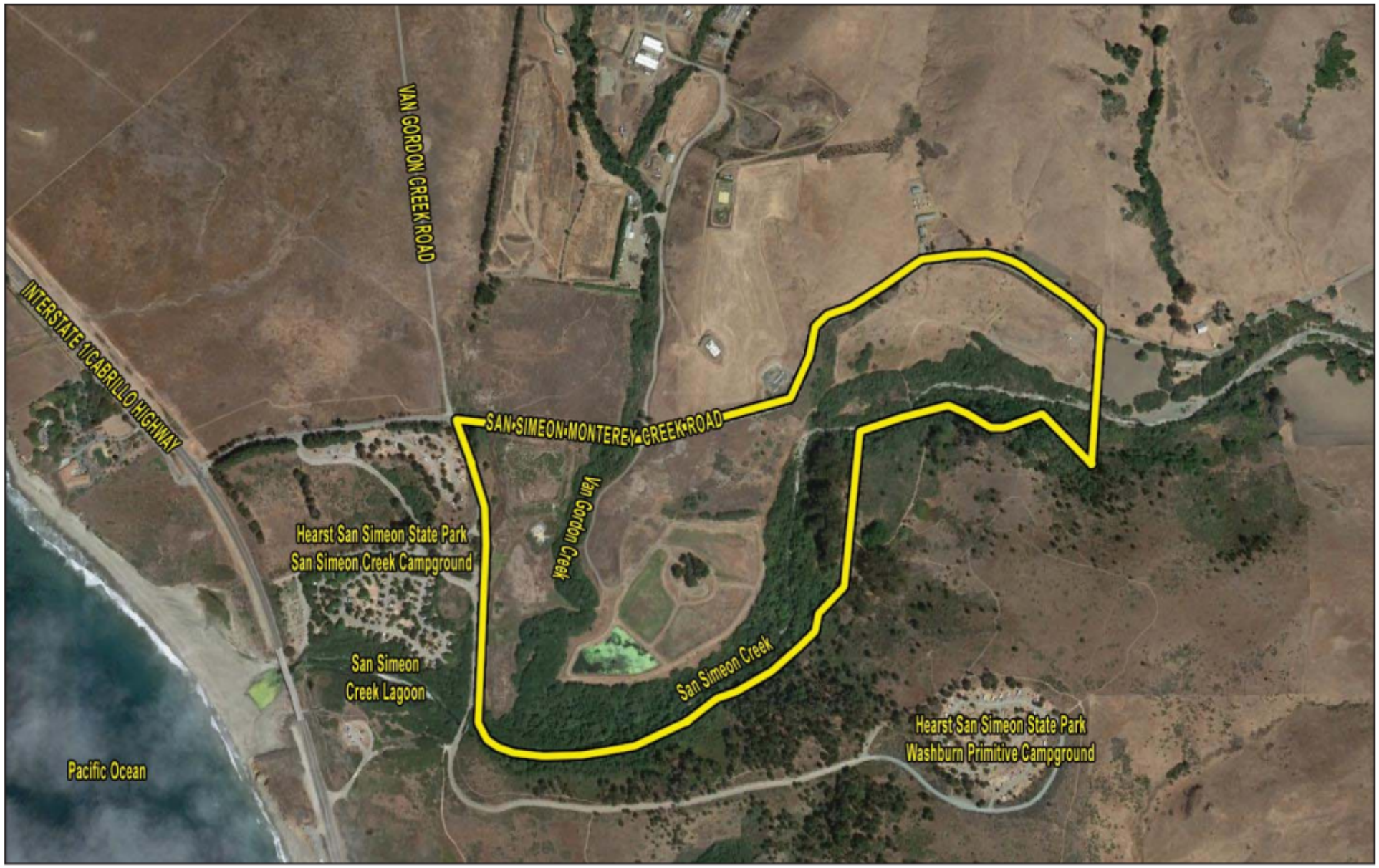
Water Reclamation Facility Infrastructure Constructed Per Approved Emergency Coastal Development Permit and Emergency Water Supply Project

The majority of the proposed WRF was constructed in 2014 as part of the EWSP. Construction of the EWSP included approximately 15,000 square feet of site disturbance. The EWSP required general construction activities, including clearing, grading, excavating, trenching, pipe installation, placement of backfill, and installation of other limited equipment/improvements on structural footings and concrete housekeeping pads. Approximately 50 cubic yards of cut and 50 cubic yards of fill were generated during the construction of the proposed wells and Advanced Water Treatment Plant (AWTP), and approximately 200 cubic yards of cut and 200 cubic yards of fill were generated during pipeline installation trenching. Ground disturbance activities for well construction included drilling between 40 and 100 feet deep. Excavated soils were retained for backfill to avoid soil exportation and minimize truck trips. Additionally, approximately 2 acres of coyote brush and 1 acre of upland mustard vegetation were removed as part of the evaporation pond liner installation. The project was constructed entirely within CCSD property boundaries. The laydown/staging areas were located at the northern and western portions of the project site (Figures 1 and 2).

The EWSP was designed and constructed in accordance with applicable provisions of the County-issued emergency CDP, the California State Water Resources Control Board's (SWRCB) General Construction Storm Water Permit, American Water Works Association (AWWA) Standards, California State Building Code (CBC), and the Uniform Building Code (UBC). Ground disturbing activities were reviewed and monitored by biological, archeological, and Native American tribal monitors. The EWSP involved a design-build construction delivery method that included installing the water facilities described above. Construction of the EWSP occurred over approximately 6 months; construction began on August 25, 2014, and was substantially completed on November 14, 2014. Construction work occurred between 7:00 AM and 5:00 PM, Mondays through Fridays, and between 8:00 AM and 5:00 PM, Saturdays, consistent with the County's Coastal Zone Land Use Ordinance (CZLUO) Section 23.06.042 regulations. The construction phase was followed by an approximately two-month start-up period, including facility testing and commissioning.

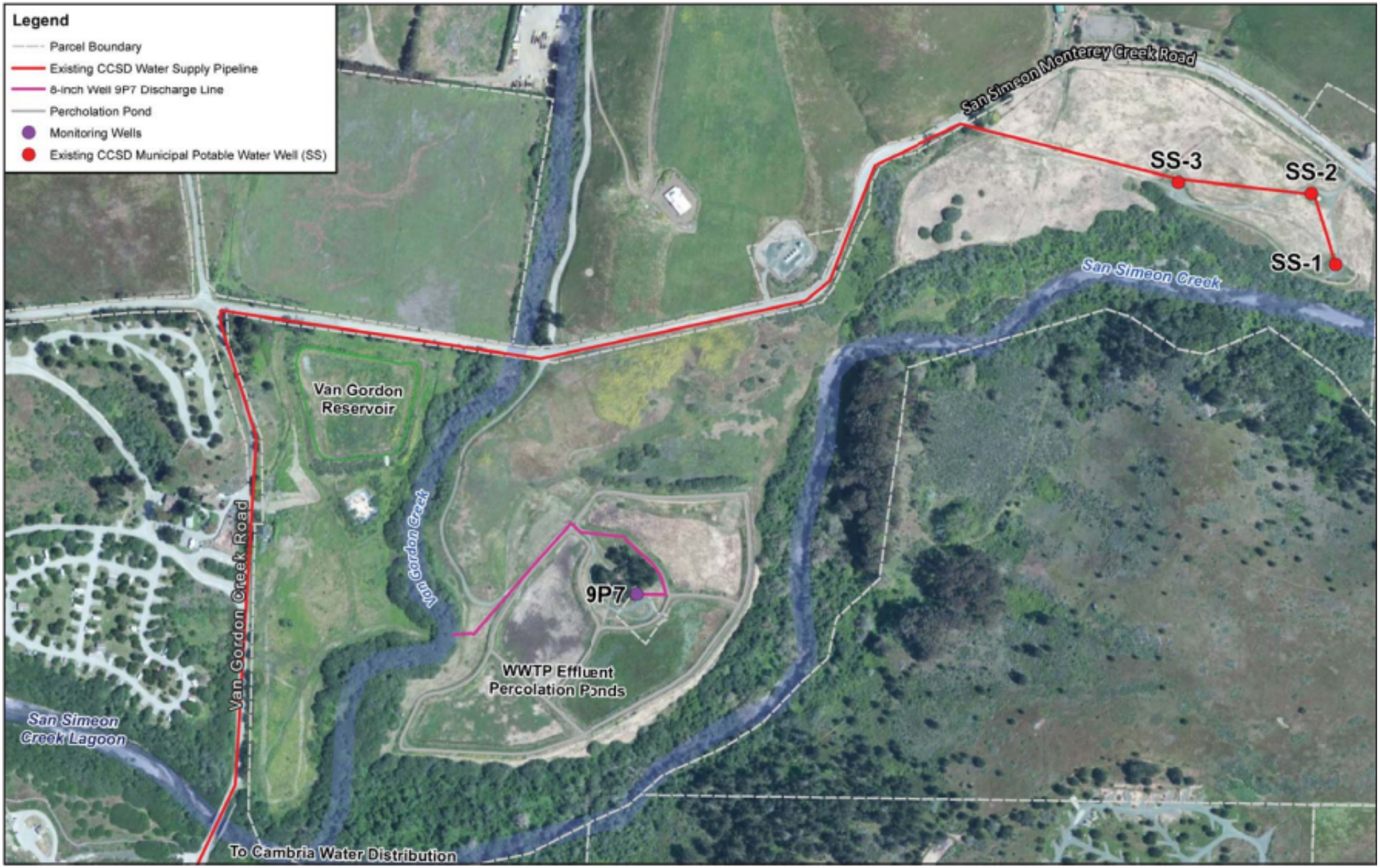
As part of the EWSP, the following infrastructure and components were installed/constructed (Figure 3):

- AWTP includes concrete pads, Conex containers, ultraviolet (UV) vessels, water tanks, pump skids, and self-contained chemical totes. Key AWTP unit equipment was pre-packaged and mounted in six shipping containers, installed within an area measuring approximately 100 feet by 170 feet. Each treatment plant container is about 15 feet in height. UV vessels, water tanks, pump skids, and self-contained chemical totes were installed outdoors on concrete housekeeping pads.
- Extension of an existing 8-inch pipeline between Well 9P7 and the AWTP (200 linear feet of polyvinyl chloride [PVC])
- Installation of a new 8-inch 1,800 linear feet PVC pipeline between the AWTP and Recharge Injection Well (RIW-1)
- Installation of a new 4-inch 4,400 linear feet high-density polyethylene [HDPE] pipeline between the AWTP and Lagoon Surface Discharge
- Installation of a new 4-inch 2,000 linear feet HDPE pipeline between the AWTP and Van Gordon Reservoir
- Modification of Van Gordon Reservoir from an effluent storage basin to a brine evaporation pond through installation of pond lining and five mechanical spray evaporators
- Installation of a leachate collection and removal system for Van Gordon Reservoir
- Construction of 4 monitoring wells (MW-1, MW-2, MW-3, MW-4)
- Construction of Lagoon Surface Discharge
- Construction of Recharge Injection Well (RIW-1); drilled 100 feet deep; 454 GPM of injection
- Installation of a new Pacific Gas and Electric Company (PG&E) pad mount transformer connected to an existing PG&E powerline serving Well 9P7 via a new power drop from the well site along the well site access road
- Installation of a new PG&E pad mount transformer connected to an existing PG&E overhead power line along San Simeon Road via a new power drop along Van Gordon Creek Road



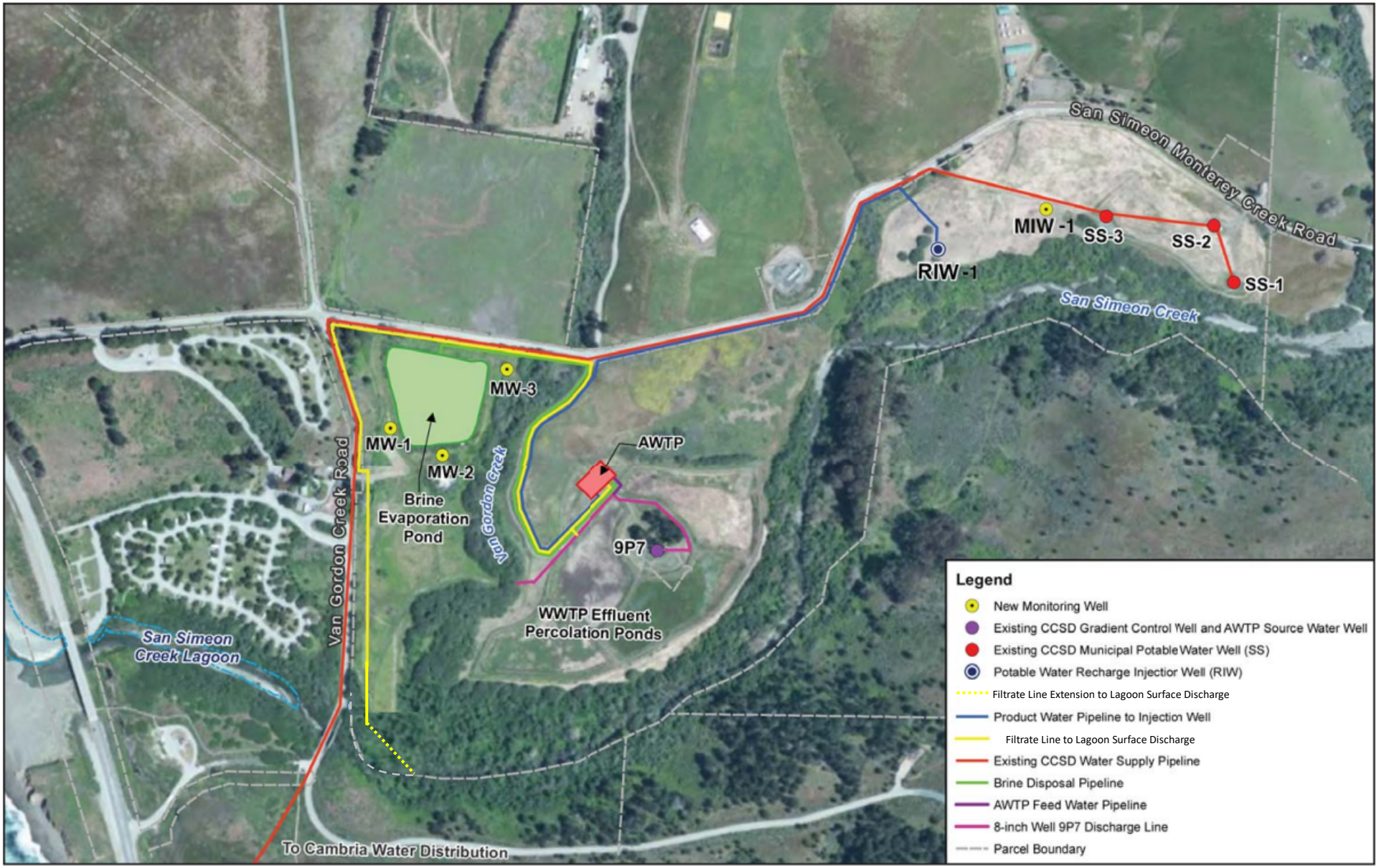
Source: RBF Consulting

Figure 1. Project Location and Boundaries



Source: CDM Smith 2014

Figure 2. 2014 Baseline Conditions.



Source: CDM Smith, June 2014

Figure 3. EWSP/WRF Components.

Proposed Project Modifications from Approved Emergency Coastal Development Permit

As part of this non-emergency CDP request, the CCSD is looking to convert the EWSP to a WRF. While the EWSP is approved to operate only during declared emergency water shortages, the WRF would operate during water shortages and also proactively to prevent water shortages. Several modifications to the EWSP are needed to achieve this goal (Table 3). The following infrastructure and components are proposed to be modified, installed, and/or constructed as part of this project. The components are summarized and discussed in further detail in the next section.

- Removal of the five mechanical spray evaporators, leachate collection and removal system, and pond lining from Van Gordon Reservoir
- Installation of permanent Zero Liquid Discharge (ZLD) facility and associated infrastructure
- Operation of the WRF up to 24 hours a day 5 days a week for 7 months (maximum) during normal and dry precipitation years
- Extension of the San Simeon Creek Lagoon Surface Discharge pipeline to relocate the discharge point further south to the San Simeon Creek bank (Figure 4).

Water Reclamation Facility Components

The EWSP (and WRF) treat brackish groundwater in the lower San Simeon Creek aquifer. The water goes through several stages of treatment to remove solids, salt, organic chemicals, and other contaminants before being reinjected into the aquifer's freshwater supply. The process is described in more detail below and shown in (Figure 5).

Source Water

The brackish source water for the WRF is pumped from existing Well 9P7 and is a blend of native basin groundwater (San Simeon Creek underflow), deep aquifer brackish water (diluted seawater that occurs from the subterranean dispersion of salts from a deeper saltwater wedge into an overlying freshwater interface zone) and percolated secondary effluent from the CCSD's wastewater treatment plant (WWTP).

Advanced Water Treatment Plant

The AWTP treats the brackish source water to advanced treated water quality standards suitable for injection further upstream into the groundwater basin to augment the CCSD's potable water supply. A portion of the advanced treated water is also conveyed to a point immediately upstream of the San Simeon Creek Lagoon to maintain water levels in the lagoon during dry weather conditions (discussed further below).

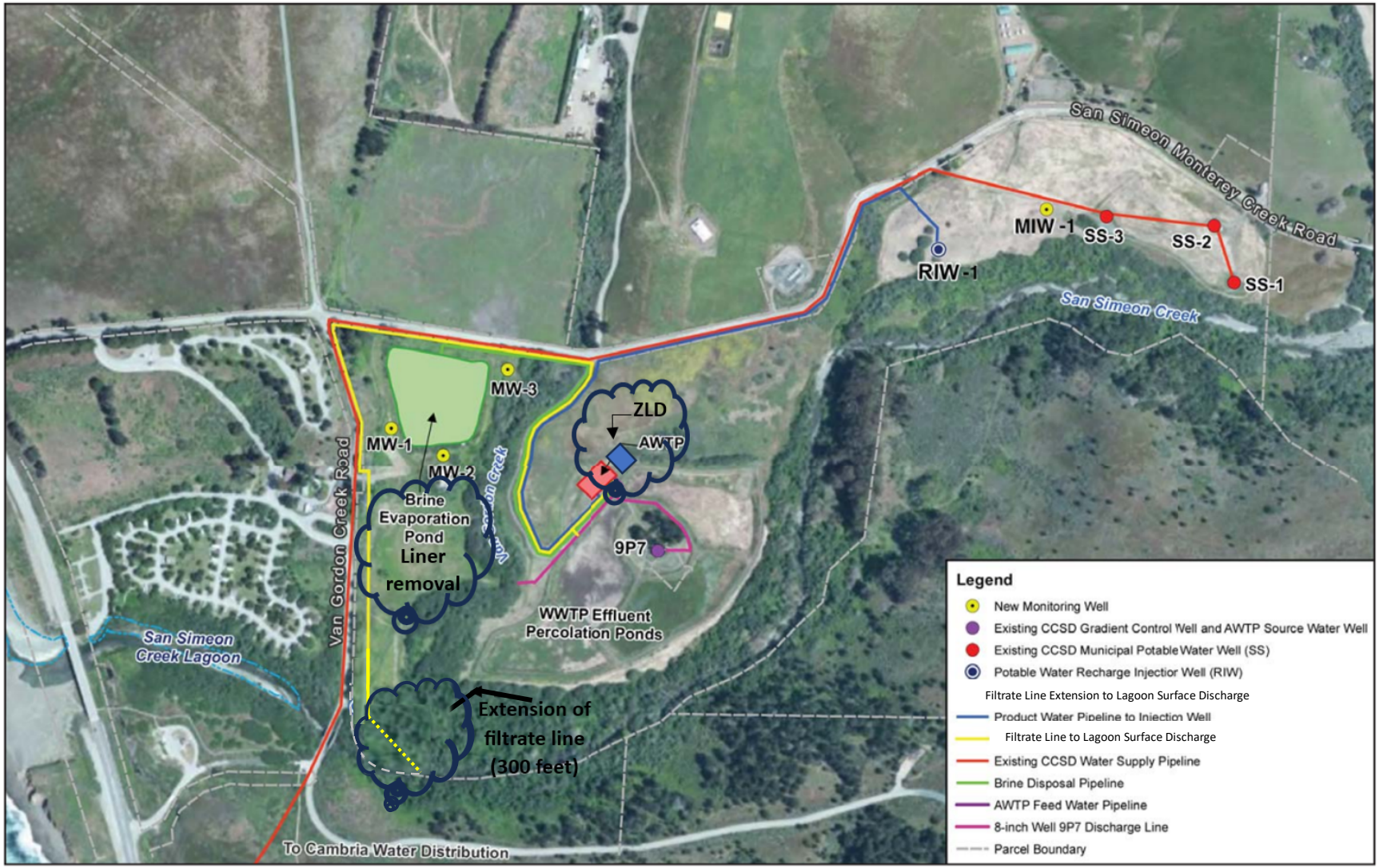
The AWTP uses three main treatment processes: membrane filtration (MF), reverse osmosis (RO), and advanced oxidation process (AOP) that utilizes UV light and hydrogen peroxide. The source water is first pumped from the existing CCSD well 9P7 and conveyed to the AWTP. The treatment process begins with MF, which removes fine particles from the source water. Next, reverse osmosis removes salt and other complex organic matter. The water then undergoes an advanced oxidation process where UV light and hydrogen peroxide are used to remove trace organic compounds that are not fully removed by the RO membranes. Finally, post-treatment stabilizes the water to prevent corrosion of the conveyance pipeline and pumping equipment. The AWTP process flow is shown in Figure 6.

Table 3. Project Comparison: Approved Emergency Coastal Development Permit v. Requested Regular Coastal Development Permit

Project Component	Emergency Coastal Development Permit	Regular Coastal Development Permit
Name	Emergency Water Supply Project (EWSP)	Water Reclamation Facility (WRF)
Permit	ZON2013-00589; issued May 15, 2014	DRC2012-00113 (pending)
Permit Limits	Until Stage 3 Water Shortage ends or Regular CDP issued	None proposed
CEQA Determination	Statutorily exempt per PRC 21080(b); NOE issued January 30, 2014, and filed September 9, 2014	TBD
Physical Improvements	• Advanced Water Treatment Plant (AWTP) including concrete pads, Conex containers, UV vessels, water tanks, pump skids, self-contained chemical totes • Extension of existing 8-inch pipeline between Well 9P7 and AWTP (200 linear feet PCV or HDPE) • New 8-inch 1,800 linear feet PCV pipeline between AWTP and RIW • New 4-inch 4,400 linear feet HDPE pipeline between AWTP and Lagoon Surface Discharge • New 4-inch 2,000 linear feet HDPE pipeline between AWTP and Van Gordon Reservoir • Modification of Van Gordon Reservoir to evaporation pond including pond lining and five mechanical spray evaporators • Leachate collection and removal system for Van Gordon Reservoir • Construction of 4 monitoring wells (MW-1, MW-2, MW-3, MW-4) • Construction of Lagoon Surface Discharge • Construction of Recharge Injection Well	• New 100-foot by100-foot concrete pad to support the ZLD facility • Installation of the ZLD facility, consisting of two 40-foot trailers placed on concrete pad • Removal of evaporation pond lining and five mechanical spray evaporators from Van Gordon Reservoir • Removal of leachate collection and removal system for Van Gordon Reservoir • Extension (300 linear feet) of existing leachate conveyance piping

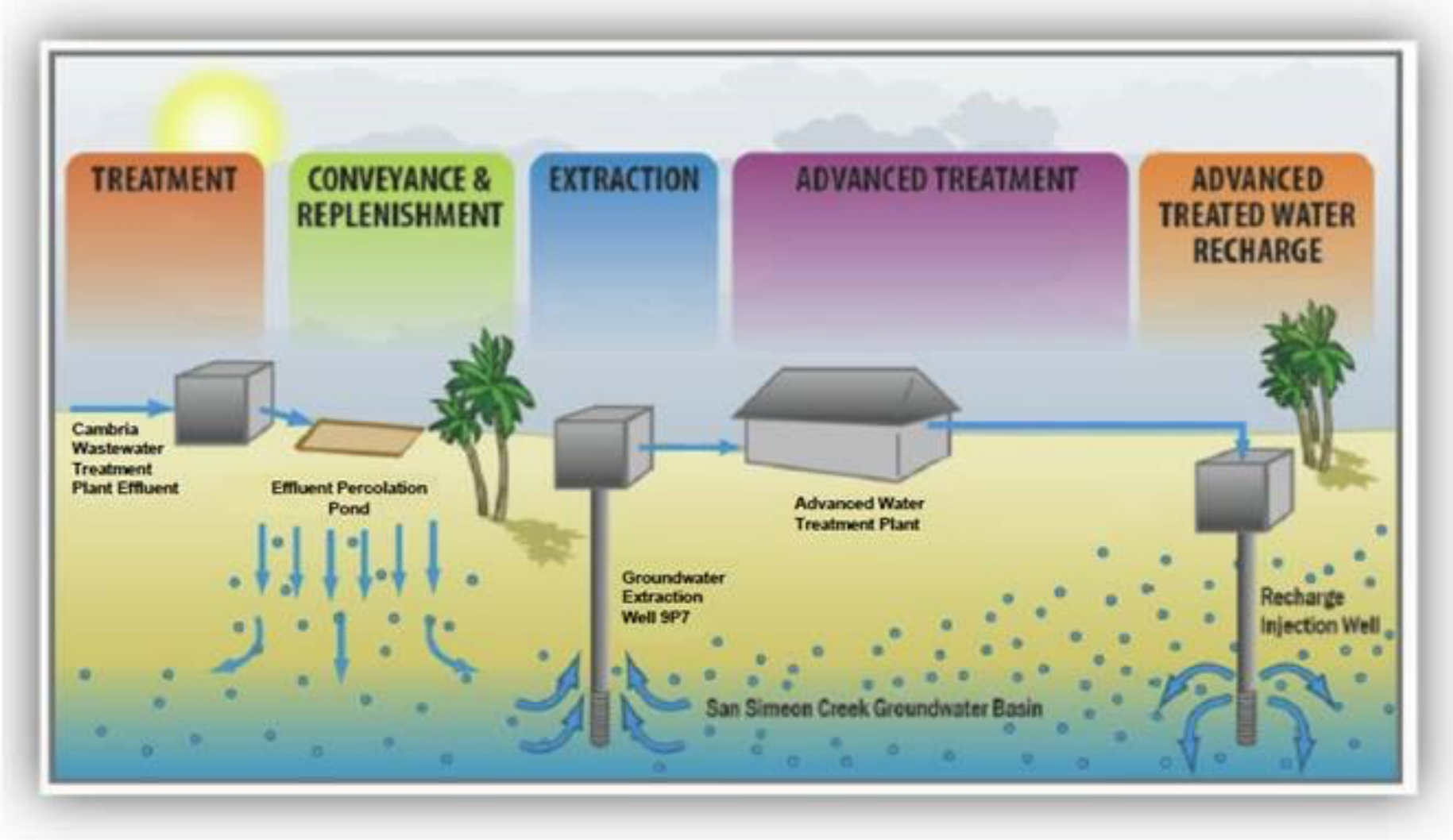
Project Component	Emergency Coastal Development Permit	Regular Coastal Development Permit
	(RIW-1); 100 feet deep; 454 GPM injection • New PG&E pad mount transformer connected to existing PG&E powerline serving Well 9P7 via a new power drop from the well site along the well site access road • New PG&E pad mount transformer connected to an existing PG&E overhead power line along San Simeon Road vie a new power drop along Van Gordon Creek Road	
Area of Improvements/Disturbance	15,000 square feet + 3.6 acres for pond liner	10,000 square feet (ZLD) + 3.6 acres (pond liner)
Earthwork Quantities	50 cubic yards cut; 50 cubic yards fill (AWTP) 200 cubic yards cut; 200 cubic yards fill (pipeline trenching)	50 cubic yards cut; 50 cubic yards fill (ZLD facility)
Vegetation Removal	Van Gordon Reservoir – ruderal, 2 acres of coyote brush and 1 acre of upland mustard vegetation	No new vegetation removal is proposed
Water Production Potential	Between 30 AFY and 250 AFY (500 GPM; includes 100 GPM freshwater for discharge into San Simeon Creek Lagoon and 400 GPM for potable water supply)	Between 30 AFY and 250 AFY (525 GPM; includes 100 GPM freshwater for discharge into San Simeon Creek Lagoon and 425 GPM for potable water supply)
Connections Served	Existing authorized water connections	The WRF would initially serve to satisfy existing connections. As part of future operations, evaluations will be conducted through research studies, biological assessments, and consideration of impacts on other stakeholders. These assessments will determine whether the WRF is sufficient to fulfill existing commitments.
Operation	Water Shortage Emergencies; up to 24 hours/day/7 days/week for 6 months of the year; spray evaporators run approximately 12 hours per day; 2 employees per day for visual inspection	Water Shortage Emergencies and preventative; up to 24 hours per day, 5 days per week, for 7 months per year; up to 6 employees per day in shifts

Project Component	Emergency Coastal Development Permit	Regular Coastal Development Permit
Extraction Well	Well 9P7 (gradient control well; San Simeon aquifer)	Well 9P7 (gradient control well; San Simeon aquifer)
Injection Well	Recharge Injection Well-1 (RIW-1; San Simeon aquifer)	Recharge Injection Well-1 (RIW-1; San Simeon aquifer)
Power	650 KVA (AWTP); 250 KVA (evaporation sprayers)	No new power is proposed
Water Treatment Method	Microfiltration, reverse osmosis, advanced oxidation, ultraviolet light, hydrogen peroxide	Microfiltration, reverse osmosis, advanced oxidation, ultraviolet light, hydrogen peroxide
Chemicals Used	Ammonium hydroxide, sodium hypochlorite, antiscalant, sulfuric acid, hydrogen peroxide, calcium chloride, caustic soda	Ammonium hydroxide, sodium hypochlorite, antiscalant, sulfuric acid, hydrogen peroxide, calcium chloride, caustic soda
Treated Wastewater Storage	Interim Baker tanks, Van Gordon Reservoir	Interim Baker tanks
Brine/Salt Disposal Method	5 mechanical spray evaporators weather controlled; natural evaporation; concentrated slurry pumped to trucks and hauled offsite to a permitted disposal site; dried solids shoveled into barrels and hauled offsite to a permitted disposal site	Zero Liquid Discharge (ZLD) facility; dried solids would be hauled offsite to a permitted disposal site
Access Improvements	n/a	n/a
Construction Commencement	May 22, 2014	Primarily existing; ZLD anticipated within 12 months of CDP approval; pond liner removal anticipated within 6 months of CDP approval
Construction Completed	November 14, 2014	TBD
Operational Date	January 20, 2015	TBD



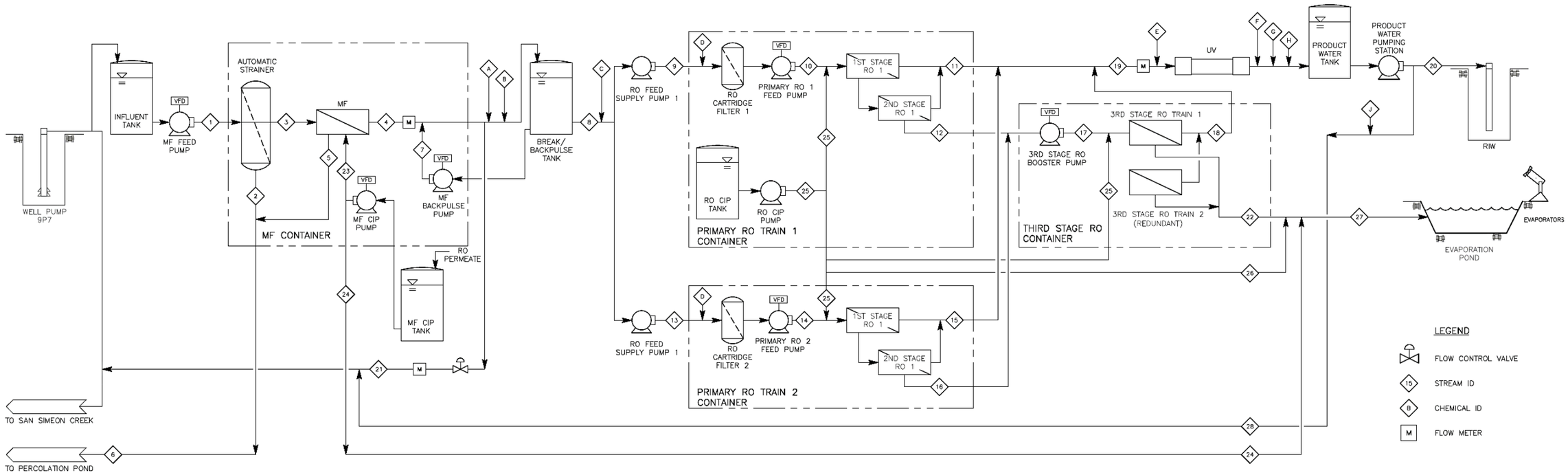
Source: CDM Smith, June 2014 (modified by SWCA)

Figure 4. Proposed Modifications.



Source: CDM Smith, June 2014

Figure 5. WRF Process.



Source: CDM Smith, May 2016
Note: Brine removal is shown as evaporation pond included with the EWSP. The WRF would utilize either ZLD or haul-off for brine removal.
Figure 6. AWTP Flow Process.

Recharge Injection Well (RIW-1)

The AWTP-treated product water is pumped for injection into the groundwater basin at the San Simeon Well Field utilizing the recharge injection well (RIW-1) constructed as part of the EWSP and located west of the existing potable supply water Well SS-3. RIW-1 has a 5.0-foot stainless steel sediment trap below the well screen. A total of 425 GPM of treated product water is injected into RIW-1. The wellhead facilities are above grade and include steel pipe, a control valve to control the flow into RIW-1, a flow meter to measure the flow, and isolation valves to remove above-ground equipment. No pumps or noise-generating equipment are located at RIW-1. A small control panel is provided at the wellhead.

Reinjection of the AWTP treated product water, in addition to eventually being available for extraction as potable water, is intended to maintain the water elevation at the potable well field higher than the secondary effluent mound and higher than the mean sea level. This serves as a barrier to prevent secondary effluent and seawater (brackish water) from moving inland to the potable well field and freshwater water aquifer.

Brine Storage, Treatment, and Disposal

The EWSP modified and used Van Gordon Reservoir as a brine evaporation pond. However, during a flood emergency in early January 2017, stormwater drained across San Simeon Creek Road, with a portion of the stormwater entering the EWSP brine evaporation pond. This resulted in a cease-and-desist order from the RWQCB directing the CCSD to stop using the pond for brine disposal. Accordingly, the brine disposal facilities associated with the brine evaporation pond were subsequently decommissioned. The RWQCB approved the final pond closure and termination of the related Title 27 permits at its regional meeting on December 13, 2019.

Instead of using Van Gordon Reservoir for the WRF, the project proposes one of two methods for brine removal. The CCSD-preferred method includes the installation of a new Zero Liquid Discharge (ZLD) facility. The ZLD facility would reduce the amount of brine that must be disposed of by removing virtually all of the liquid from the brine, leaving behind a semi-solid brine concentrate. If the ZLD proves to be inefficient, ineffective, or is otherwise unable to be utilized, the CCSD would collect brine concentrate in storage tanks and once full would haul the waste offsite to an approved disposal facility.

Brine Storage Tanks. With the EWSP, the AWTP-generated waste stream from the RO process (RO concentrate or RO reject water), as well as any chemical cleaning waste, is temporarily sent to two 21,000-gallon Baker tanks for intermediate storage before being pumped to tanker trucks for offsite disposal at a properly licensed and regulated facility. The RO concentrate is conveyed to the brine storage tanks via the rerouted RO concentrate pipeline. Both tanks are staged within spill containment berms, and the truck-fill station is fitted with a drive-on perimeter berm to capture any water that could inadvertently spill during the fill operation. Conventional clay litter or other absorbent material is kept onsite to address incidental spillage. With the ZLD facility, the CCSD would collect the brine wastewater in the two existing 21,000-gallon Baker tanks for intermediate storage before pumping the brine to the ZLD. If the ZLD facility is not utilized, the CCSD would acquire four additional brine storage tanks. The tank(s) would be double walled with a capacity of approximately 60,000 gallons (the final tank selection will be sized based on maximum RO concentrate volume during peak operation). The RO concentrate pipeline would connect from the third stage RO unit to the intermediate storage tank(s) with a four-inch pipeline.

Under prolonged dry weather conditions, the WRF could run up to 24 hours a day, 5 days a week, during the driest time of the year, for approximately seven months. When the project operates 24 hours a day, 5 days a week during the driest time of year, the estimated RO concentrate volume would be approximately 50,000 gallons per day (GPD). Average operations during years of normal precipitation would likely result in an RO concentrate volume of approximately 20,000 GPD.

Zero Liquid Discharge

Assuming the ZLD pilot program is successful, the CCSD anticipates constructing a permanent ZLD facility to treat the RO wastewater. Construction of the ZLD facility is anticipated to require the pouring of an approximately 100’ by 100’

concrete pad that would house two 40-foot-long trailers that contain the ZLD equipment. The ZLD facility would be located on a previously graded and disturbed area immediately adjacent (northeast) to the AWTP.

Offsite RO Concentrate Disposal

Liquid or semi-solid brine concentrate from the RO treatment process would be hauled away to a permitted disposal site, such as the South San Luis Obispo County Sanitation District (SSLOCSD), which is in Oceano, approximately 53 miles south of the project site. SSLOCSD is a fully permitted 7.6-acre wastewater treatment, storage, and disposal facility.

Without the ZLD facility, under normal operations, three truck trips per day would be needed to haul the liquid RO concentrate to SSLOCSD, assuming a 4,500 to 6,000-gallon truck would be used. Up to nine truck trips per day would be required during peak operation.

Under prolonged dry weather conditions, the WRF could run up to 24 hours a day, 5 days a week, during the driest time of the year, for approximately seven months. When the project operates 24 hours a day, 5 days a week during the driest time of year, the estimated RO concentrate volume would be around 50,000 gallons per day (GPD). Average operations during years of normal precipitation would likely result in an RO concentrate volume of roughly 20,000 GPD. Until the ZLD pilot program is completed, it is unknown how much concentrate will be produced during normal and dry-year operations. However, CCSD estimates that semi-solid brine concentrate disposal would require approximately one truck trip per month, rather than the three to nine truck trips per day that would be required for liquid brine disposal for similar operations of the EWSP. If the CCSD were to reach the SSLOCSD daily brine disposal limit, currently set at 50,000 GPD, an alternative disposal site, such as Kettleman Hills Hazardous Waste Facility, could be utilized.

Van Gordon Reservoir

Van Gordon Reservoir is not currently in use but is an existing effluent storage basin for the CCSD WWTP. The reservoir was legally established in 1980 and has been intermittently used for effluent storage over the years, with the last use as effluent storage in 1994. The reservoir was mowed prior to the liner installation for the EWSP project, and approximately 2 acres of coyote brush and 1 acre of upland mustard vegetation were removed. As part of the WRF project, the CCSD proposes to decommission the reservoir and restore the area to pre-EWSP conditions. To achieve this, the pond liner would be removed, and native vegetation would be planted.

San Simeon Creek Lagoon Surface Discharge

To maintain and enhance the San Simeon Creek Lagoon, MF effluent and/or de-chlorinated and oxygenated treated AWTP product water is pumped during dry weather conditions for surface discharge to the upstream end of San Simeon Creek Lagoon. The filtrate (lagoon water) pipeline (constructed with the EWSP) delivers the lagoon water from the AWTP to a surface discharge structure. The discharge structure, located just north of the San Simeon Creek tree line (Figure 3), dissipates velocity to create a sheet flow of lagoon water before entering the upstream end of the San Simeon Creek Lagoon. The quantity of lagoon water delivered depends on the results of monitoring and surveys performed under the Adaptive Management Plan (AMP) but is anticipated to be approximately 100 GPM when the creek is dry.

When treated product water is blended with the MF effluent for lagoon surface water discharge, it is de-chlorinated at the AWTP to reduce the high chlorine residual in the water. Sodium bisulfite is used to de-chlorinate the product water to meet the Regional Water Quality Control Board's (RWQCB) low-threat discharge permit requirements, with a maximum limit of 0.02 milligrams per liter (mg/l) for chlorine residual. Also included in the treated product water de-chlorination process is an in-line aeration system to ensure the water provided to the lagoon has sufficient dissolved oxygen before discharge.

The water discharged to the lagoon is treated and tested to meet RWQCB conditions specified within RWQCB Order No. R3-2011-0223, National Pollutant Discharge Elimination System (NPDES) Permit No. CAG993001, *General Permit for Discharges with Low Threat to Water Quality* (and its associated December 8, 2014, Monitoring and Reporting Program issued to the CCSD).

The WRF project would involve extending the filtrate pipeline to relocate the discharge point further south to the San Simeon Creek bank (Figure 4). The filtrate pipeline would be routed/placed by hand to protect the riparian habitat. This discharge location was identified to avoid interfering with Well 16D1 water quality samples and more efficiently deliver surface water into the upper San Simeon Creek Lagoon area.

At the relocated discharge point, articulating concrete block (ACB; ArmorFlex) lining or similar erosion prevention measures (approximately 87 square feet) would be installed to protect the San Simeon Creek channel bank. ArmorFlex would further protect the channel from potential erosion.

Monitoring Wells

The WRF includes five monitoring wells installed as part of the EWSP (MW-1, MW-2, MW-3, MW-4, and MIW-1; Figure 3). MW-1, MW-2, and MW-3 are up-gradient and down-gradient from the existing brine evaporation pond. MW-4 was installed outside the tree drip line and approximately 150 feet up-gradient from the lagoon water discharge structure to replace the existing Well MW-16D1. MW-4 was constructed in response to RWQCB concerns over the 100 GPM filtrate product water potentially biasing its testing towards higher quality results. MW-4 is used to monitor groundwater quality downgradient of the percolation ponds. These wells are approximately 3.0 feet in height. MW-1 is located between RIW-1 and the existing production wells at the well field.

Pipelines and Conveyances

Yard Piping**.** All yard piping was installed below ground at the AWTP site during the construction of the EWSP.

Existing Conveyance Piping**.** The EWSP includes five interconnecting pipelines, as described below. The conveyance piping totals approximately 4,630 linear feet (LF), most of which was installed above grade (480 LF was installed below grade).

> *AWTP Feed Water Pipeline***.** This pipeline delivers the source water from CCSD Well 9P7 to the AWTP. This pipeline also connects with the Well 9P7 Discharge Pipeline, which was constructed initially to discharge pumped groundwater from Well 9P7.
>
> *Product Water Pipeline***.** This pipeline delivers the AWTP product water from the AWTP to RIW-1, where it is injected into the basin.
>
> *Filtrate Pipeline***.** This pipeline delivers de-chlorinated MF effluent/product water from the AWTP to the surface discharge structure near the confluence of San Simeon and Van Gordon Creeks. The pipeline conveyance consists of a direct burial pipeline above and below the ground surface. The pipeline was a direct burial installation within the existing service road from the AWTP to the eastern edge of the Van Gordon Creek riparian corridor.
>
> To avoid impacts to the Van Gordon Creek riparian corridor, a reach of this pipeline was installed using horizontal directional drilling under Van Gordon Creek. At the western edge of the Van Gordon Creek riparian corridor, the pipeline continued outside the Van Gordon Creek tree line and along the ground surface to the surface discharge structure. The discharge structure is located north of the San Simeon Creek tree line.
>
> *MF Backwash Waste Discharge Pipeline***.** This pipeline delivers the backwash water from the AWTP's MF system to an existing percolation pond.
>
> *RO Concentrate Disposal Pipeline***.** This double-contained pipeline delivers concentrate from the AWTP's RO process and chemical cleaning waste to the brine storage tanks for offsite hauling.

New Conveyance Piping. An extension of the existing filtrate pipeline is proposed. The new above-grade conveyance piping would total approximately 300 LF. This modification will avoid biasing Well 16D1 water quality samples (as requested by the RWQCB) and will more efficiently deliver water into San Simeon Creek to maintain water levels at San Simeon Creek Lagoon. The current surface discharge structure would be removed and relocated further south to the San Simeon Creek bank. At the discharge point, an articulating concrete block (ArmorFlex or similar) lining would be installed to protect the northern San Simeon Creek channel bank from erosion. The lining would allow for the continued growth of riparian

vegetation, further protecting the channel from potential erosion and avoiding/reducing sedimentation within the water bodies.

Operations

Water Reclamation Facility Production Flows

Table 4 summarizes recoveries, waste flows, and treatment process capacities for MF and RO systems required to meet the production goals to maintain the operational stability of the San Simeon aquifer without impacting environmentally sensitive habitat areas (ESHA) in Van Gordon Creek and San Simeon Creek.

The AWTP source water flow rate would be about 525 GPM. Assuming process-associated losses and a 100 GPM flow of treated product water to recharge San Simeon Creek Lagoon, the AWTP's daily average treated product water flow rate would be 425 GPM. Therefore, 425 GPM of treated product water would be pumped to RIW-1 and would incur at least 60 days residence time before reaching existing potable production Wells SS-1 and SS-2. A total of 400 GPM extraction from existing potable production Wells SS-1 and SS-2 (or a combination of both) could occur during WRF operation.

Table 4. AWTP Design Flows

Parameter	Unit	Average Flow
MF Recovery	%	92
RO recovery	%	92
Influent flow to AWTP	GPM	525
MF filtrate production (581 GPM x 92%)	GPM	425
MF filtrate flow to San Simeon Creek Lagoon	GPM	100
MF filtrate flow to RO feed	GPM	425
RO permeate production (425 GPM x 92%)	GPM	425
UV feed flow	GPM	425
AWTP product water flow for well RIW-1 injection	GPM	425
Automatic strainer backwash and MF backwash waste	GPM	37
RO concentrate and membrane cleaning waste	GPM	35

Source: CDM Smith, Cambria Emergency Water Supply Project Description Table 2-2*, October 2014. Modified to reflect production flow reductions required to achieve the 60-day retention time.*

Water Reclamation Facility Hours of Operation

During normal precipitation years, it is anticipated that operation of the WRF could 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.

The plant would not need to be operated during wet or normal rainfall periods except for gradient control purposes to prevent saltwater intrusion into the freshwater water aquifer. During such periods of inactivity, the AWTP would be maintained in a ready state, which may include routine operation of equipment and valves and decalcifying the RO elements. Production start and end dates may vary due to well levels, previous wet season rainfall totals, date of flow cessation at Palmer Flats, and projected demands/supply shortfalls based on the CCSD Annual Water Supply and Demand Assessment. The CCSD may also adjust the WRF operational period based on the amount and timing of seasonal rainfall and the groundwater levels within the lower San Simeon aquifer. Other considerations that would influence the timing and duration of plant operation include the AMP, riparian water use, and licensed diversion totals.

Water Reclamation Facility Purpose

The WRF was designed and constructed to improve the reliability of the CCSD's potable water supply during drought conditions and other dry periods. The Emergency CDP authorizes the WRF to operate during CCSD Stage 3[3] Water Shortage declarations. (Note that the CCSD re-classified their water stages with the adoption of the 2020 Water Shortage Contingency Plan (WSCP), and the 2014 Stage 3 condition now correlates to WSCP Stage 5 and Stage 6 conditions.) The WRF is designed to provide a reliable water supply to the CCSD's service connections. The CCSD water system currently serves 4,034 service connections (commercial and residential) while delivering an average of 520 AFY of water to its customers. The WRF would initially serve to satisfy existing connections, as defined above, but during future operations, impact assessments would be determined based on research studies, biological assessments, and impacts on other stakeholders to determine whether this mechanism would be adequate to serve existing commitments.

Attachments

1. County of San Luis Obispo Emergency Coastal Development Permit ZON2013-00589
2. Cambria Community Services District Resolution 05-2014 and Notice of Exemption for the Emergency Water Supply Project
3. Emergency Water Supply Project As-Built Plans
4. Water Reclamation Facility Proposed Plans
5. Adaptive Management Plan
6. In-stream Flow Study
7. Warren Settlement Agreement

[3] The pre-2020 Stage 3 Water Shortage condition correlated to a Water Shortage Emergency. This stage was triggered when the water supply and demand model indicated groundwater levels would be insufficient to provide water for human consumption, sanitation and fire protection, water delivery capabilities were impaired such that the water supply or delivery system was incapable of providing water for human consumption, sanitation and fire protection, or the CCSD Board of Directors found that the ordinary demands and requirements of water consumers could not be satisfied without depleting the water supply of the district to provide water for human consumption, sanitation and fire protection. The current Stage 5 water condition correlates to an Extreme Water Shortage Emergency. This stage is triggered when the dry season starts prior to April 1, rainfall is at 26-40% of normal, well levels are at 61-70% of normal, or the 9P2/SS4 gradient is at 61-70% of normal. The purpose of this stage is to reduce water consumption by up to 50% and provides restrictions of water use allotments and penalties for violation. The current Stage 6 water condition correlates to an Exceptional Water Shortage Emergency. This stage is triggered when the dry season starts prior to April 1, rainfall is at or below 25% of normal, well levels are at or below 60% of normal, or the 9P2/SS4 gradient is at or below 60% of normal. The purpose of this stage is to reduce water consumption by more than 50% and provides restrictions of water use allotments and penalties for violation. See CCSD Municipal Code Chapter 4.12 and the 2020 Urban Water Management Plan for more details on water shortage stages.