

5.5 Alternatives Impact Analysis

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5.5.1 Overview

This section evaluates the comparative environmental impacts of the alternatives that are described in detail in Section 5.4 of this EIR/EIS, including the “No Project” (No Action) Alternative. Section 5.6 presents the comparative environmental impacts in summary tables. Text in this Section 5.5 is intended to be reviewed with the comparative tables in Section 5.6 that provide a summary for each relevant significance criterion.

Information about each alternative, including the No Project alternative, is provided to facilitate a meaningful evaluation, analysis, and comparison of alternatives with the proposed project, including those not within the jurisdiction of the lead agencies. A description of the CEQA and NEPA guidelines related to alternatives evaluations is included in Section 5.1.1. The analyses that follow in this section present the same topical areas, and in the same order, as those presented in Chapter 4 of this EIR/EIS. Each section includes the following:

- **Setting/Affected Environment** – Baseline information is provided for those resources where the study area for alternatives is different from the proposed project’s study area. For most issue areas, the proposed project onshore study area is south of the intersection of Nashua Road and Highway 1. Several alternatives have locations in areas north of the intersection of Nashua Road and Highway 1, or in Moss Landing. Reference is made to the setting for the proposed project in Chapter 4 where the setting/affected environment is the same.
- **Direct and Indirect Effects** – A brief recap of the proposed project effects described in detail in Chapter 4 is provided for the reader’s convenience. An analysis of each alternative is then provided, starting with the No Project Alternative, followed by Alternatives 1 through 5a and 5b. While providing impact conclusions required by CEQA and NEPA, the analyses focus on the differences in impacts of each alternative compared to the proposed project. Similar to the impact analysis in Chapter 4, each of the alternatives is evaluated using the following primary analysis categories:
 - Construction Impacts
 - Operational and Facility Siting Impacts
 - Cumulative Impact Analysis (refer to Section 4.1 and **Table 4.1-2** for a description and list of projects considered in the cumulative scenario)

Within each analysis category, the impacts are summarized in the text. For specific impact statements that correspond to individual significance criteria, see the comparative tables in Section 5.6.

Reference is made to analysis in Chapter 4 for impacts that would be the same as, or similar to, the impacts of the proposed project. Each of the alternatives shares some components of the proposed project, and the impacts for those shared components would be the same as the proposed project. For instance, Alternative 1 shares all project components except the location for the slant wells, and has an additional 5.5 miles of source water pipeline to connect the slant wells at the alternative location to the desalination plant. In each resource section, the impact analysis for the shared components is in the corresponding resource section in Chapter 4, and the conclusions by resource are also summarized in 5.6. The impacts for each alternative incorporate the combined impacts of the shared and different components into the overall analysis and impact conclusion for each resource and accounts for any synergistic or accumulative impacts from all components.

Where applicable, mitigation measures that are applied to the proposed project in Chapter 4 are applied to potentially significant impacts of the alternatives. When an alternative's impact is determined to be increased in severity compared to the significant impact of the proposed project, that conclusion is being drawn from the information about the alternative that was available at the time this EIR/EIS was being prepared. In some circumstances, further analysis and technical studies could conclude that the impact could be mitigated to a less-than-significant level. In those instances, however, until such time as that information is developed and made available, the impact is declared to be significant and unavoidable.

The analysis of each alternative identifies a significance conclusion for each evaluation criterion, based on comparison to the affected environment or no action condition¹, and discusses the severity of impact compared to the proposed project. Impact significance determinations include No Impact (NI), Less than Significant (LS), Less than Significant with Mitigation (LSM), and Significant and Unavoidable (SU). For purposes of CEQA, the impacts of the alternatives compared to those of the proposed project are described using the following terms:

- **Same impact conclusion** – impacts would be identical to those of the proposed project or would be of the same general magnitude such that the level of significance does not change (e.g., for both the proposed project and the alternative, the impact is less than significant);
- **Increased impact conclusion** – impacts would be notably greater than the proposed project such that the level of significance is increased (e.g., from less than significant to less than significant with mitigation); or
- **Reduced impact conclusion** – impacts would be notably less than the proposed project such that the level of significance is reduced (e.g., from less than significant to no impact).

¹ The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project (see Section 15126.6(e)(1) of the CEQA Guidelines). Pursuant to NEPA regulations (40 CFR 1502.14) the EIS “should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public” and Section 1502.14(d), which requires that the alternatives analysis in the EIS “include the alternative of no action.”

Finally, all of the projects that could contribute to cumulative impacts are listed in **Table 4.1-2**. The projects in Table 4.1-2 have occurred² or are anticipated to occur in the reasonably foreseeable future within the study area. Of those projects, the water supply projects that are included within the cumulative scenario for each alternative are described with additional detail in Section 4.1.7.2 and summarized below in **Table 5.5-1** for purposes of clarification. In summary, the Proposed Project, Alternatives 1, 2, and 4 are designed to meet the full project objectives and assume that GWR would not be operational, and as such, GWR is not considered in the cumulative impacts scenario for those alternatives. Whereas the reduced capacity option reflected in Alternative 5a and 5b assumes that GWR would be operational, and GWR is considered in the cumulative impacts scenario. GWR is also considered in the cumulative impacts scenario for the No Project Alternative, as CalAm intends to purchase 3,500 acre-feet/year (afy) from the GWR Project under this alternative. The project proponent for Alternative 3, DeepWater Desal, intends to serve Santa Cruz County and Salinas even if other alternatives, and/or the GWR Project are implemented, and as such, GWR is assessed in the cumulative scenario for this alternative, and for the same reason, Deepwater Desal is considered in the cumulative scenario for all other action alternatives.

**TABLE 5.5-1
 WATER SUPPLY PROJECTS RELEVANT TO THE
 CUMULATIVE SCENARIO FOR EACH ALTERNATIVE**

Alternative	Cumulative Water Supply Project		
	DeepWater Desal Project (No. 34)	People's Project (No. 57)	Pure Water Monterey Groundwater Replenishment (GWR) Project (No. 59)
No Project Alternative	No	No	Yes
Proposed Project	Yes; serving Santa Cruz County and Salinas	No	No
Alternative 1: Slant Wells at Potrero Road	Yes; serving Santa Cruz County and Salinas	No	No
Alternative 2: Open-Water Intake at Moss Landing	Yes; serving Santa Cruz County and Salinas	No	No
Alternative 3: Monterey Bay Regional Water Project (DeepWater Desal)	N/A	No	Yes; serving Monterey District with 3,500afy. If this occurs, Alternative 3 would serve the Monterey District with 6.4 mgd instead of 9.6 mgd, and would serve Santa Cruz County and Salinas with the balance.
Alternative 4: People's Moss Landing Water Desalination Project (People's Project)	Yes; serving Santa Cruz County and Salinas	N/A	No
Alternatives 5: Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)	Yes; serving Santa Cruz County and Salinas	No	Yes; serving Monterey District with 3,500 afy.

² While a cumulative analysis includes past, present and reasonably foreseeable future projects, the category of past projects is captured within the existing setting, or baseline, against which impacts are judged throughout the EIR/EIS, including the cumulative analysis. However, where projects were implemented after 2012 (the baseline year), those projects are set forth within Table 4.1-2 and included in the cumulative analysis.

5.5.2 Geology, Soils, and Seismicity

The evaluation criteria for Geology, Soils, and Seismicity address: erosion and loss of topsoil; exposure of people or structures to effects of fault rupture, seismically-induced groundshaking, ground failure, or landslides; expansive or corrosive soils; subsidence; soils incapable of supporting alternative wastewater systems; coastal erosion/dune retreat; and the potential to degrade marine geologic resources or oceanographic processes. The study area is susceptible to seismic activity, but none of the components intersect active faults. Components proposed near the shoreline are susceptible to coastal erosion.

5.5.2.1 Setting/Affected Environment

The regional geologic setting and general information on seismicity, faults, geologic hazards and seismic hazards in Section 4.2, Geology, Soils, and Seismicity, would apply to the alternatives. Components of the alternatives similar to the proposed project located south of the Nashua Road/Highway 1 intersection would occur within the same local geologic, soils, and seismic setting as that presented in Section 4.2 and the reader is referred to that section for a detailed description. For components unique to the alternatives that are located north of the Nashua Road/Highway 1 intersection, the local geologic setting is presented below.

Local Geology and Seismicity

North of the Nashua Road/Highway 1 intersection, pipeline alignments for the alternatives would extend within or alongside segments of Molera Road, Highway 1, Potrero Road, and Dolan Road in unincorporated Monterey County and occur adjacent to active farmland. The pipelines would be located mostly on Quaternary floodplain (Qfl) and basin (Qb) deposits (see far northern coastal area on **Figure 4.2-1**, Geologic Map of Project Area). The Moss Landing area is also mostly on floodplain and basin deposits with some of the Dolan Road area on marine terrace (Qmt) deposits. No active faults pass through this area and the nearest active fault is the San Andreas Fault Zone, about 12 miles to the northeast (see **Figure 4.2-4**).

Soil Properties

Most of the components of the alternatives would be constructed in developed areas with disturbed ground consisting of an indeterminate mix of fill materials and underlying native sandy loam soil. The location for the Alternative 3 desalination facility is on soil composed mostly of Santa Inez fine sandy loam with some Diablo Clay (NRCS, 2015). The locations for pipelines that would be built on or under the seafloor within Monterey Bay are further characterized in Section 5.5.4, Marine Biological Resources.

The soil properties of linear extensibility (shrink-swell or expansion), corrosion of unprotected concrete, and corrosion of unprotected steel are defined in Section 4.2. The following alternatives' components would be located on expansive soils with a high potential for corrosion of steel: the eastern portion of the parking lot at Potrero Road and the portion of Potrero Road between Alisal Slough and Laguna Road where pipelines would be constructed for Alternatives 1 and 5b, and the desalination facility in the Moss Landing area for Alternative 3. The alternative

components in the Potrero Road and Moss Landing area would not be located on soils with a high potential for corrosion.

5.5.2.2 Direct and Indirect Effects of the Proposed Project – Slant Wells at CEMEX

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina that would create approximately 15 acres of impervious surfaces, up to nine new subsurface slant wells at the CEMEX active mining area, and conversion of the existing test slant well to a permanent well. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities, pump stations, storage tanks, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur.

The following paragraphs briefly summarize the impacts of the proposed project with respect to geology, soils, and seismicity. The detailed impact analysis of the proposed project is provided in Section 4.2.

Impact 4.2-1: Soil erosion or loss of topsoil during construction.

Project construction would involve localized, short-term ground disturbance activities (e.g., grading, excavation, trenching, and drilling). The potential for soil erosion during construction activities would be minimal because project facilities and all conveyance pipelines would be located in relatively flat areas with little topographic relief. Furthermore, project construction activities would be subject to compliance with the state Construction General Permit, the Monterey County Grading Ordinance, and Monterey County Erosion Control Ordinance, which would require the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) and best management practices (BMPs) that would reduce or prevent soil erosion that ensure erosion is minimized. Therefore, soil erosion impacts would be less than significant for all project components.

Grading, excavation, and backfill activities in vegetated areas, including sensitive natural vegetation communities as well as agricultural lands, could result in the loss of topsoil. For the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline, ASR-5 and ASR-6 Wells, and the Carmel Valley Pump Station, the impact would be potentially significant due to the presence of a well-developed topsoil horizon and the potential for it to be lost during excavation and backfilling. The impact associated with topsoil loss would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-2b (Avoid, Minimize, and Compensate for Construction Impacts on Sensitive Communities)** and **4.16-1 (Minimize Disturbance to Farmland)**. These measures require that topsoil be salvaged, stockpiled separately from subsoils, and returned to its appropriate location in the soil profile during backfilling activities. Surface soils at the slant wells and MPWSP Desalination Plant site are sandy and do not have a well-developed soil horizon and there are no sensitive natural communities or crop production. The pipelines and interconnection improvements south of

Reservation Road would be constructed within existing roadways and highly disturbed areas and would have no effect related to the loss of topsoil. Therefore, construction of the subsurface slant wells, MPWSP Desalination Plant and pipelines and interconnection improvements south of Reservation Road would have no impact related to loss of topsoil.

Impact 4.2-2: Exposure of people or structures to substantial adverse effects related to fault rupture.

Faults mapped as inactive by the State of California because they do not display evidence of recent displacement, intersect the proposed new Transmission Main, and the Ryan Ranch-Bishop Interconnection Improvements. This impact would be less than significant, and no impact would result for all other components of the proposed project.

Impact 4.2-3: Exposure of people or structures to substantial adverse effects related to seismically induced groundshaking.

Monterey County will likely experience a large regional earthquake within the operational life of the MPWSP. However, because of the location of project facilities relative to the faults and the limited potential for ground surface rupture associated with these faults, the potential is low for the groundshaking to cause injury, loss of life, or substantial property damage. Completion of a comprehensive geotechnical investigation, adherence to the current building ordinances, and the application of standard engineering practices would ensure that structures are designed to withstand seismic events without sustaining substantial damage or collapsing. This impact would be less than significant.

Impact 4.2-4 Exposure of people or structures to substantial adverse effects related to seismically induced ground failure, including liquefaction, lateral spreading, or settlement; Impact 4.2-5 Exposure of people or structures to landslides or other slope failures.

The potential for ground failure³ is higher in areas composed of granular soils with a shallow depth to groundwater. The Castroville Pipeline and the Source Water Pipeline would be located on soils with a moderate to high potential for liquefaction; the Carmel Valley Pump Station would be located on soils mapped with a moderate liquefaction potential. The other project components would not be located in areas susceptible to liquefaction-induced ground settlement. Only the Main System-Hidden Hills Interconnection Improvements (consisting of a 100-foot-long, 6-inch-diameter buried pipeline) would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the area and the project does not propose activities that would exacerbate an otherwise unstable slope condition. The impact from seismically induced ground failure would be less than significant for all components of the proposed project due to required engineering practices and construction methods.

³ Ground failure includes liquefaction, lateral spreading, or settlement, which would cause the foundation of a structure to be damaged, or pipelines to rupture.

Impact 4.2-6, 4.2-7: Exposure to expansive or corrosive soils.

Unless properly removed or reconditioned, expansive soils (such as clay loam, fine sandy loam, or loamy fine sand) could exert additional pressures on foundations and below-grade facilities, which could lead to pipeline rupture or structural damage. Soils with a high conductivity can corrode unprotected underground metal pipes, electrical conduits, and concrete, which could lead to pipeline failure. Proposed components that would be placed on or in soils with potential for moderate to high expansion potential include the Castroville Pipeline, Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch–Bishop Interconnection Improvements. Project components that would be on or in soils with moderate to high corrosion potential include the MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, ASR Pipelines, and the Ryan Ranch–Bishop Interconnection Improvements. The structural elements would be required to undergo appropriate design-level geotechnical evaluations prior to final design and construction. If expansive and/or corrosive soils are identified during the final geotechnical design study, the project geotechnical engineer would recommend remedies to eliminate damage from expansive and corrosive soils, and those industry-standard recommendations would be implemented, including avoidance and/or removal of expansive and corrosive soils, or the use of cathodic protection. Given all of the existing building requirements and standards, the potential for expansive or corrosive soils to adversely impact project components is low and these impacts are less than significant.

Impact 4.2-8: Exposure of people or structures to substantial adverse effects related to land subsidence.

Overdrafting (long-term withdrawal in excess of recharge) of the Salinas Valley Groundwater Basin has taken place over an extended time, and saltwater has replaced the freshwater in those affected areas, thereby preventing subsidence. The proposed slant wells would be screened in aquifer units composed predominantly of sand and gravel which are less prone to subsidence because of their granular structure. Seawater would replace the water pumped from the slant wells and the continuous replacement of water would keep the pore spaces between the grains filled with water, further supporting the granular structure. Consequently, the soil structure above the slant wells would be unable to subside as a result of pumping and there would be no impact from subsidence associated with the subsurface slant wells.

The proposed ASR-5 and ASR-6 Wells would be located about 1,000 feet below ground surface in the sandstone portions of the Santa Margarita Formation in the Seaside Groundwater Basin. The sandstone structure would be expected to support the granular structure during groundwater pumping, especially considering the depth. Furthermore, for the first 25 years of the proposed project, 700 acre-feet annually would be left in the Seaside Groundwater Basin to restore water extracted in years prior to this project. This means that the overall groundwater levels in the Seaside Groundwater Basin would increase as a result of the proposed project, thus decreasing the potential for subsidence and resulting in no subsidence impacts.

Impact 4.2-9: Have soils incapable of supporting the use of alternative wastewater disposal systems.

The construction of the subsurface slant wells and the ASR wells would require the disposal of water from well drilling and development. The high permeability of the sandy materials at the proposed locations would be suitable for the infiltration of water and the impact would be less than significant. For all other project components, there would be no impact.

Impact 4.2-10: Accelerate and/or exacerbate natural rates of coastal erosion, scour, or dune retreat, resulting in damage to adjoining properties or a substantial change in the natural coastal environment.

The Monterey Bay coastline is expected to retreat due to rising sea level and would result in a beach and surf zone that is inland of its current location. Under a conservative predicted erosion rate, the proposed slant wells would not become exposed during their operational life (anticipated to be 20 to 25 years) and would not contribute to further coastal erosion or changes in the beach environment. However, it is possible that the existing test slant well (that would be converted to a permanent well) might become exposed on the beach during its operational life. If exposed, the subsurface slant well could accelerate and/or exacerbate natural rates of coastal erosion, scour, and dune retreat that could alter the natural coastal environment. The anticipated future presence of this slant well on the beach due to coastal retreat could result in a significant impact.

Mitigation Measure 4.2-9 (Slant Well Abandonment Plan) would reduce the impact to a less-than-significant level by requiring CalAm to monitor coastal retreat rates and initiate well decommissioning if coastal retreat threatens the slant wells.

Impact 4.2-C: Cumulative impacts related to geology, soils, and seismicity.

Proposed project construction would not have a significant contribution to cumulative erosion-related impacts. Project operations would not have a significant contribution to cumulative effects associated with fault rupture, seismic ground shaking, ground failure, landslides, or expansive/corrosive soils. Cumulative effects on topsoil could be significant, but the proposed project's potentially significant contribution to this impact would be reduced to a level that is less than significant with implementation of mitigation measures identified in Impact 4.2-1. Similarly, although cumulative impacts related to coastal erosion could be significant, implementation of the mitigation measures identified in Impact 4.2-10 would reduce the proposed project's contribution to cumulative coastal erosion impacts to less than significant.

5.5.2.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed and the test slant well would be decommissioned. Consequently, there would be no ground disturbance or placement of new structures that could affect or be affected by soils or seismic activity, and thus no construction- or operation-related direct or indirect impacts relative to geology, soils, and seismicity associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to geology, soils, and seismicity, it could not contribute to cumulative effects related to these topics.

5.5.2.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the geologic impact analysis of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

All construction activities and disturbance for the slant wells would occur in the parking lot at the western terminus of Potrero Road in northern Monterey County, near the southern border of the unincorporated community of Moss Landing. The Potrero Road beach parking lot is owned and operated by the California Department of Parks and Recreation (California State Parks) and the 10 slant wells would be buried 5 feet below the hardened sand parking surface. The approximately 4-foot-wide, 12-foot-long, and 6-foot-high electrical control building, the only above-ground structure at this location, would be located at the edge of the parking lot.

Slant well construction, using similar materials, pipe sizes, and construction methods to those described for the proposed project, would occur year-round at the Potrero Road parking lot. Construction of the slant wells would require short-term ground disturbance activities (e.g., grading, excavation, drilling, and the construction of structures) and the entire 1-acre parking lot would be closed during construction. The potential for erosion would be reduced from the 9 acres of disturbed area at CEMEX and construction at Potrero Road would not disturb the dunes or active beach area. The slant wells would be located in relatively flat areas with little topographic relief, which would minimize the potential for soil erosion during construction.

The 36-inch diameter source water pipeline for Alternative 1 would be constructed within Potrero Road and would continue south along Highway 1, then south/southeast along Molera Road, and southwest along Monte Road to the desalination plant site on Charles Benson Road (**Figure 5.4-1**). The construction of an additional 5.5 miles of source water pipeline could increase the potential for erosion compared to the proposed project. However, construction of both the slant wells and pipeline would be required to comply with the numerous existing State and local regulations described in Impact 4.2-1 that would reduce or prevent soil erosion. Thus, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and the slant wells at Potrero Road, construction would result in the *same impact conclusion* as the proposed project, less than significant.

Like the proposed project at CEMEX, surface soils at the Potrero Road site are sandy and do not have a well-developed soil horizon. The site is covered in rural and disturbed habitat and does not support sensitive natural communities or crop production. Similar to the proposed project, however, pipeline construction activities could disturb vegetated areas adjacent to designated farmland. Grading, excavation, and backfill activities in these areas could result in the loss of topsoil (a fertile soil horizon that typically contains a seed base) during excavation and backfilling. Like the proposed project, the potential significant impact from loss of topsoil on agricultural lands would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**. Thus, combining the impacts of the components common with the proposed project with the addition of 5.5 miles of source water pipeline and the reduction in slant well acreage at Potrero Road, construction of Alternative 1 could result in an increased potential for loss of topsoil, but with mitigation, would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The impacts of components that are common with the proposed project (i.e., the desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station) would be identical to the impacts identified for the proposed project, as summarized above in Section 5.5.2.2 (additional details in Section 4.2). The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the only components unique to Alternative 1 (see **Figure 5.4-1**) and they are not located on or near an active fault; therefore, for the exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading, or settlement resulting from seismic events and groundshaking, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the study area and Alternative 1 does not propose activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project relative to exposure of people or structures to landslides or other slope failures because only components shared with the proposed project would be located in an area with moderate to high susceptibility to earthquake-induced landslides, less than significant.

In addition to the Castroville Pipeline, the Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements that are shared with the proposed project, the slant wells at the Potrero Road parking lot and the source water pipeline in Potrero Road would be located on or in expansive soils with moderate to high corrosion potential that can corrode unprotected underground metal pipes, electrical conduits, and concrete. Like the proposed project, this alternative would be subject to existing building requirements and standards to minimize effects of expansive or corrosive soils.

Therefore, the presence of expansive or corrosive soils would result in the *same impact conclusion* as the proposed project, less than significant.

The slant wells at Potrero Road, like the proposed project slant wells at CEMEX, would be screened in aquifer units composed predominantly of sand and gravel, which are less prone to subsidence because of their granular structure. Seawater would replace the water pumped from the slant wells and the continuous replacement of water would keep the pore spaces between the grains filled with water, further supporting the granular structure. Consequently, the soil structure above the slant wells would be unable to subside as a result of pumping resulting in the *same impact conclusion* as the proposed project related to subsidence, no impact.

Alternative 1 would result in a different method of disposing effluent generated during construction and development of the slant wells. Development of the slant wells would require storing water and sandy soil in storage tanks to allow sediment to settle out, and then discharging this water into a buried diffuser system in the parking lot for percolation into the underlying beach sands. Cuttings generated during the drilling process and the well head construction would be drained in a separation unit, with the drainage discharged to the buried diffuser. The high permeability of the sandy materials at Potrero Road would be suitable for the alternative wastewater disposal system for the infiltration of effluent. Like the proposed project, disposal of water from drilling and development of the ASR-5 and -6 wells would occur in sandy soils suitable for the infiltration of water. None of the other Alternative 1 components would require an alternative wastewater disposal system and this alternative would result in the *same impact conclusion* as the proposed project, less than significant.

Unlike the proposed project, the slant well insertion points and source water pipeline of Alternative 1 would be located approximately 70 feet inland of the modeled extent of erosion resulting from the 100-year storm event in the year 2060 (ESA, 2014). Therefore, they would not be exposed to coastal retreat during the project lifetime and would not contribute to coastal erosion or scour because of their set back location inland of the dunes. Therefore, Alternative 1 would not require implementation of **Mitigation Measure 4.2-9 (Slant Well Abandonment Plan)** identified for the proposed project. Alternative 1 would result in a *decreased impact conclusion* relative to coastal erosion compared to the proposed project, no impact.

In summary, this alternative would avoid the proposed project's potential impacts related to coastal erosion at the CEMEX slant well site. Similar to the proposed project, there would be no new facilities on the seafloor and Alternative 1 would not result in impacts on underwater slope stability and landslides. Similar to the proposed project, operation and siting of Alternative 1 would generally result in less-than-significant impacts relative to geology, soils, and seismicity.

Cumulative Analysis

Alternative 1 would avoid impacts related to coastal erosion, and so would have no contribution to cumulative coastal erosion effects.

The geographic scope of analysis for cumulative impacts related to geology, soils, and seismicity for Alternative 1 is defined by the location of the Alternative 1 components, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the subsurface intake system (Potrero Road, instead of CEMEX), and alternative source water pipeline route. Although the geographic scope generally covers a large area, geologic impacts are localized and site-specific. Section 4.2.6 describes that because of the site-specific nature of these impacts, and because the proposed project and projects within the geographic scope would be subject to the same requirements related to erosion control and adherence to building codes, the components common to the proposed project would not have a significant contribution to significant cumulative impacts related to erosion and soil-related and seismic hazards, and that after implementation of **Mitigation Measure 4.6-2b** and **4.16-1**, these components would not have a significant contribution to cumulative impacts related to the loss of topsoil. Of the projects described in **Table 4.1-2** in Section 4.1, the DeepWater Desal Project (No. 34) is the only additional project in the Alternative 1 geographic scope that would have components located near components that are unique to Alternative 1. However, the DeepWater Desal Project facilities would be located north of Potrero Road at Moss Landing and neither the facilities nor their associated impacts would geographically overlap with impacts of Alternative 1 components; therefore, the geological impacts of these components would not combine with impacts of Alternative 1. No other cumulative projects are located in this Potrero Road area or along the alternative source water pipeline route, so no changes or increases in cumulative impacts would occur compared to the proposed project. Similar to the proposed project, with implementation of **Mitigation Measures 4.6-2b** and **4.16-1**, Alternative 1's contribution to a significant cumulative impact on topsoil would be reduced to a level that is less than significant. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative effects related to geology, soils, and seismicity, less than significant with mitigation.

5.5.2.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the geologic impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Similar to the proposed project, construction would involve localized, short-term ground disturbance activities (e.g., grading, excavation, trenching, and drilling). The potential for soil erosion during construction activities would be minimal because facilities on land and all conveyance pipelines would be located in relatively flat areas with little topographic relief. The construction of an additional 6.5 miles of source water pipeline could increase the potential for erosion. However, like the proposed project, Alternative 2 construction activities would be subject to numerous existing State and local regulations that ensure erosion is minimized. Thus, combining the impacts of the proposed project components with the addition of 6.5 miles of source water pipeline and the open water intake system, construction would result in the *same impact conclusion* as the proposed project, less than significant.

There is no farmland at the open-water intake pump station site, and the disturbed nature of the area means that loss of topsoil would not be an issue. Similar to the proposed project, however, pipeline construction activities could disturb vegetated areas adjacent to designated farmland. Grading, excavation, and backfill activities in these areas could result in the loss of topsoil during excavation and backfilling. Like the proposed project, the potential significant impact from loss of topsoil on agricultural lands would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**. Therefore, the potential for loss of topsoil from the construction of the components common with the proposed project and the additional 6.5 miles of source water pipeline would be increased compared to the proposed project. However, because the mitigation measure would salvage and return topsoil to its appropriate location after construction, Alternative 2 would result in the *same impact conclusion* as the proposed project with respect to topsoil impacts, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts from components that are common with the proposed project would be identical to the impacts identified for these components in Section 4.2. The location of the intake system components and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**) and they are not located on or near an active fault; therefore, the components of Alternative 2 located on land would result in the *same impact conclusion* as the proposed project for the exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading, or settlement resulting from seismic events and groundshaking, less than significant. The potential for groundshaking and liquefaction-related impacts on underwater components of Alternative 2 is discussed below.

Only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the study area and the components of Alternative 2 located on land do not include activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project relative to exposure of people or structures to landslides or other slope failures, less than significant. The potential for underwater landslide and slope failure related to underwater components of Alternative 2 is discussed below.

In addition to the Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements that are shared with the proposed project, the Alternative 2 intake system and the portion of the source water pipeline north of Nashua Road/Highway 1 intersection would be located on or in expansive soils with moderate to high corrosion potential that can corrode underground metal pipes, electrical conduits, and concrete. Like the proposed project, this alternative would be subject to existing building requirements and standards to minimize effects of expansive or corrosive soils. Therefore, the presence of expansive or corrosive soils would result in the *same impact conclusion* as the proposed project, less than significant.

Like the proposed project, Alternative 2 would extract water from the Seaside Groundwater Basin through the ASR-5 and -6 wells, but would not extract groundwater from the Salinas Valley Groundwater Basin; as described for the proposed project, this extraction from the ASR wells would have no potential to cause subsidence. This would result in the *same impact conclusion* as the proposed project, no impact.

Alternative 2 would produce the same amount and type of well development water during development of the ASR-5 and -6 wells, but would not produce well development water associated with the subsurface slant wells. The high permeability of the sandy materials at the ASR wells would be suitable for the infiltration of water; therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project related to the suitability of the locations for wastewater disposal, less than significant.

The subsurface pipeline from the Alternative 2 open water intake system to the pump station on Dolan Road would be installed about 100 feet below ground using horizontal directional drilling (HDD) methods as it crosses under the coastline and beneath Highway 1, an area of the coastline that is anticipated to experience coastal erosion during the project lifetime. However, the pipeline is not anticipated to become exposed within the project lifetime (ESA, 2014) nor would it contribute to coastal erosion; therefore, Alternative 2 would have a *reduced impact conclusion* related to coastal erosion compared to the proposed project, no impact.

The underwater components of Alternative 2 (the open water intake system) would have the potential to degrade the physical structure of a geologic resource or alter oceanographic processes, such as sediment transport, such that the result would be measurably different from pre-existing conditions. The Alternative 2 seawater intake structure would be located in Monterey Bay within MBNMS on the slopes of the Monterey Submarine Canyon. No active faults are known to occur in the local area; however, the seawater intake system would be expected to experience seismic shaking during the project lifetime, similar to the proposed project, and could be subject to damage from seismic shaking or seismically induced liquefaction, known to have occurred in the local area. Repairs would be necessary, potentially resulting in impacts on the geologic resources and oceanographic processes at this location on the seafloor, resulting in an increased potential for impact compared to the proposed project. Additionally, because the open-water intake structure in Monterey Bay would be anchored on the slopes of the Monterey Submarine Canyon, the potential for future slope instability and underwater landslide would result in greater potential for adverse impacts on marine geologic resources compared to the

proposed project. Also, placement of an open water intake on the seabed of MBNMS could affect seabed substrate and alter oceanographic processes such as sediment transport in the vicinity of Monterey Submarine Canyon. Although mitigation would be required, measures have not been defined and their efficacy cannot be guaranteed; therefore, impacts on slope stability, landslides, and alteration of geologic resources or marine processes within the Monterey Bay would result in an **increased impact conclusion** compared to the proposed project because they are considered to be significant and unavoidable.

In summary, Alternative 2 would avoid impacts of the proposed project related to coastal erosion at the slant wells at the CEMEX site, but the open water intake structure on the slopes of the Monterey Submarine Canyon in MBNMS could result in an **increased impact conclusion** compared to the proposed project because of the potential degradation of marine geologic resources or oceanographic processes. Alternative 2 would result in a significant and unavoidable impact.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 2 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. In summary, these components could have a significant contribution to potentially significant cumulative impacts related to loss of topsoil, but after implementation of mitigation measures, these components would have a less than significant cumulative impact. Alternative 2 would avoid impacts related to coastal erosion, and so would avoid a contribution to cumulative coastal erosion effects.

The geographic scope of analysis for cumulative geology, soils, and seismicity impacts for Alternative 2 is defined by the location of the Alternative 2 components, and is the same as that described for the proposed project in Section 4.2.6, with the exception that the Castroville Pipeline and Pipeline to CSIP are not included, as well as the different location of the open water intake system and alternative source water pipeline. Although the geographic scope generally covers a large area, geologic impacts are localized and site-specific. Section 4.2.6 describes that because of the site-specific nature of these impacts, and because the proposed project and projects within the geographic scope would be subject to the same requirements related to erosion control and adherence to building codes, the components common to the proposed project would not have a significant contribution to significant cumulative impacts related to erosion and soil-related and seismic hazards, and that after implementation of **Mitigation Measure 4.6-2b** and **4.16-1**, these components would have a less than significant cumulative impact related to the loss of topsoil. The DeepWater Desal Project (No. 34) and the Moss Landing Community Plan (No. 37), described in **Table 4.1-2** in Section 4.1, are the only additional projects located near or overlapping the components unique to Alternative 2. Design and construction of these projects would be required to comply with the same requirements as Alternative 2. Therefore, the cumulative impacts related to erosion and geologic impacts on land would be less than significant.

Both Alternative 2 and the DeepWater Desal project would result in the placement of structures (intakes and outfalls) in Monterey Bay that would be anchored on the slopes of the Monterey

Submarine Canyon. Therefore, the cumulative potential for future slope instability and underwater landslide would be increased compared to either project alone, and the cumulative impact would be significant. Although mitigation measures would be required, they have not been defined and their efficacy cannot be guaranteed. Therefore, cumulative impacts from the underwater landslide risk would remain significant and unavoidable, and the open-water intake component of Alternative 2 would have a significant contribution to that significant cumulative impact. Therefore, Alternative 2 would result in an *increased impact conclusion* compared to the proposed project for cumulative effects related to geology, soils, and seismicity, significant and unavoidable.

5.5.2.6 Direct and Indirect Effects of the Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the geologic impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Similar to the proposed project, construction would involve localized, short-term ground disturbance activities (e.g., grading, excavation, trenching, and drilling). The potential for soil erosion during construction activities would be minimal because facilities on land and all conveyance pipelines would be located in relatively flat areas with little topographic relief. The construction of larger facilities on land (i.e., the desalination plant and data center) and an additional 31.5 miles of desalinated water pipeline could increase the potential for erosion compared to the proposed project. However, like the proposed project, Alternative 3 construction activities would be subject to numerous existing State and local regulations that ensure erosion is minimized.

Thus, although Alternative 3 construction would have a greater potential for erosion due to the substantial additional area of ground disturbance, compliance with these regulations would ensure that it would result in the *same impact conclusion* as the proposed project, less than significant.

There is no farmland at the desalination plant, data center, substation, or open-water intake pump station sites, and the disturbed nature of the area means that loss of topsoil would not be an issue. Similar to the proposed project, however, pipeline construction activities could disturb vegetated areas adjacent to designated farmland. Grading, excavation, and backfill activities in these areas could result in the loss of topsoil during excavation and backfilling. Like the proposed project, the potential significant impact from loss of topsoil on agricultural lands would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**. Therefore, the potential for loss of topsoil from the construction of the components common with the proposed project and the additional 31.5 miles of pipeline would be increased compared to the proposed project. However, because the mitigation measure would salvage and return topsoil to its appropriate location after construction, Alternative 3 would result in the *same impact conclusion* as the proposed project with respect to topsoil impacts, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts from components that are common with the proposed project (i.e., new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station) would be identical to the impacts identified for the proposed project. The location of the intake, discharge, desalination plant, data center, substation, and additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**) and they are not located on or near an active fault; therefore, the components of Alternative 3 located on land would result in the *same impact conclusion* as the proposed project related to exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading, or settlement resulting from seismic events and groundshaking, less than significant. The potential for groundshaking- and liquefaction-related impacts from underwater components of Alternative 3 is discussed below.

Only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the area and the components of Alternative 3 located on land do not include activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project relative to exposure of people or structures to landslides or other slope failures, less than significant. The potential for underwater landslide and slope failure related to underwater components of Alternative 3 is discussed below.

In addition to the Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements that are shared with the proposed project, the intake and discharge systems and the desalinated water pipeline for Alternative 3 north of Nashua Road/Highway 1 intersection would be located on or in expansive

soils with moderate to high corrosion potential. Like the proposed project, this alternative would be subject to existing building requirements and standards to minimize effects of expansive or corrosive soils. Therefore, the presence of expansive or corrosive soils would result in the **same impact conclusion** as the proposed project, less than significant.

Like the proposed project, Alternative 3 would extract water from the Seaside Groundwater Basin through the ASR-5 and -6 wells, but would not extract groundwater from the Salinas Valley Groundwater Basin; as described for the proposed project, this extraction from the ASR wells would have no potential to cause subsidence. This would result in the **same impact conclusion** as the proposed project for subsidence, no impact.

Alternative 3 would produce the same amount and type of well development water during development of the ASR 5 and 6 wells but would not produce well development water associated with the subsurface slant wells. The high permeability of the sandy materials would be suitable for the infiltration of water; therefore, Alternative 3 would result in the **same impact conclusion** as the proposed project related to the suitability of the locations for wastewater disposal, less than significant.

The four subsurface pipelines between the Alternative 3 open water intake/brine disposal systems and the pump station on Dolan Road would be installed about 100 feet below ground using HDD methods as they cross under the coastline and beneath Highway 1, an area of the coastline that is anticipated to experience coastal erosion during the project lifetime. Due to their depth below ground, the pipelines would not become exposed within the project lifetime nor would they contribute to coastal erosion; therefore, Alternative 3 would have a **reduced impact conclusion** related to coastal erosion compared to the proposed project, no impact.

The underwater features of Alternative 3 would have the potential to degrade the physical structure of a geologic resource or alter oceanographic processes, such as sediment transport, such that the result would be measurably different from pre-existing conditions. The Alternative 3 seawater intake and brine disposal systems would be located in Monterey Bay within MBNMS on the slopes of the Monterey Submarine Canyon. No active faults are known to occur in the local area; however, the seawater intake and brine disposal system would be expected to experience seismic shaking during the project lifetime, similar to the proposed project; and could be subject to damage from seismic shaking or seismically induced liquefaction, known to have occurred in the local area. Repairs would be necessary, potentially resulting in impacts on the geologic resources and oceanographic processes at this location on the seafloor. Additionally, because the open-water intake and brine disposal structures in Monterey Bay would be anchored on the slopes of the Monterey Submarine Canyon, the potential for future slope instability and underwater landslide would be increased compared to the proposed project. Also, placement of an open water intake and brine disposal system on the seabed of MBNMS could affect seabed substrate and alter oceanographic processes such as sediment transport in the vicinity of Monterey Submarine Canyon. Although mitigation would be required, measures have not been defined and their efficacy cannot be guaranteed. Therefore, impacts on slope stability, landslides, and alteration of geologic resources or marine processes in the Monterey Bay within MBNMS would be an

increased impact conclusion compared to the proposed project, and are considered to be significant and unavoidable.

In summary, Alternative 3 would avoid impacts related to coastal erosion at the proposed project slant wells at CEMEX, but because of significant and unavoidable impacts related to degradation of marine geologic resources or oceanographic processes as a result of the intake and brine discharge structures on the slopes of the Monterey Submarine Canyon within MBNMS, Alternative 3 would result in an *increased impact conclusion* compared to the proposed project.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 3 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. In summary, these components could have a cumulatively significant impact related to loss of topsoil, but after implementation of mitigation measures, these components would have a less than significant cumulative impact. Alternative 3 would avoid impacts related to coastal erosion, and so would avoid a contribution to cumulative coastal erosion effects.

The geographic scope of analysis for cumulative geology, soils, and seismicity impacts for Alternative 3 is defined by the location of the Alternative 3 components. Although the geographic scope generally covers a large area, geologic impacts are localized and site-specific. Section 4.2.6 describes that because of the site-specific nature of these impacts, and because the proposed project and projects within the geographic scope would be subject to the same requirements related to erosion control and adherence to building codes, the components common to the proposed project would not have a significant cumulative impact related to erosion and soil-related and seismic hazards, and that after implementation of **Mitigation Measure 4.6-2b** and **4.16-1**, these components would have a less than significant cumulative impact related to the loss of topsoil. The Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1) and the GWR Project (No. 59) are the only additional projects located geographically near or overlapping the components unique to Alternative 3. Design and construction of these projects would be required to comply with the same requirements as Alternative 3. Therefore, the cumulative impacts related to erosion and geologic impacts on land would be less than significant.

Alternative 3 would result in the placement of structures (intake and outfall) in Monterey Bay that would be anchored on the slopes of the Monterey Submarine Canyon, resulting in a significant and unavoidable impact relative to underwater slope stability and landslides. However, no reasonably foreseeable cumulative projects would include additional structures in this location. Therefore, a cumulative analysis is not applicable to this impact for Alternative 3.

Overall, the project-level significant and unavoidable impact underwater slope stability and landslides notwithstanding (because no cumulative analysis is applicable to this impact), with implementation of mitigation measures identified in Section 4.2, Alternative 3's contribution to significant cumulative impacts would be reduced to a level that is less than significant. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project for cumulative effects related to geology, soils, and seismicity, less than significant with mitigation.

5.5.2.7 Direct and Indirect Effects of Project Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the geologic impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Similar to the proposed project, construction would involve localized, short-term ground disturbance activities (e.g., grading, excavation, trenching, and drilling). The potential for soil erosion during construction activities would be minimal because project facilities and all conveyance pipelines would be located in relatively flat areas with little topographic relief. The construction of an additional 6.5 miles of desalinated water pipeline could increase the potential for erosion. However, like the proposed project, Alternative 4 construction activities would be subject to numerous existing State and local regulations that ensure erosion is minimized. Thus, combining the impacts of the proposed project components with the Alternative 4 intake, discharge, and desalination plant and addition of 6.5 miles of desalinated water pipeline and the open water intake system, construction would result in the *same impact conclusion* as the proposed project, less than significant.

There is no farmland at the intake, discharge, or desalination plant sites and the disturbed nature of the area means that loss of topsoil would not be an issue. The 16.5-acre parcel would be located within the approximately 200-acre parcel that is currently developed, and as discussed in Section 5.5.2.1, the ground consists of an intermediate mix of fill material and underlying native sandy loam soil. Therefore, no loss of topsoil would result at this site during construction. Similar to the proposed project, however, pipeline construction activities could disturb vegetated areas adjacent to designated farmland. Grading, excavation, and backfill activities in these areas could result in the loss of topsoil during excavation and backfilling. Like the proposed project, the potential significant impact from loss of topsoil on agricultural lands would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**. Thus, combining the impacts of the Alternative 4 components, construction is

expected to result in the *same impact conclusion* the proposed project with respect to topsoil impacts, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts from components that are common with the proposed project would be identical to the impacts identified for these components in Section 4.2. The location of the intake, discharge, desalination plant and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**) and they are not located on or near an active fault; therefore, the components of Alternative 4 located on land would result in the *same impact conclusion* as the proposed project related to exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading or settlement resulting from seismic events and groundshaking, less than significant. The potential for groundshaking- and liquefaction-related impacts from underwater components of Alternative 4 is discussed below.

Only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the study area and the components of Alternative 4 located on land do not include activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project relative to exposure of people or structures to landslides or other slope failures, less than significant. The potential for underwater landslide and slope failure related to underwater components of Alternative 4 is discussed below.

In addition to the Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements, the intake/discharge system and the desalinated water pipeline for Alternative 4 north of Nashua Road/Highway 1 intersection would be located on or in expansive soils with moderate to high corrosion potential that can corrode underground metal pipes, electrical conduits, and concrete. Like the proposed project, this alternative would be subject to existing building requirements and standards to minimize effects of expansive or corrosive soils. Therefore, the presence of expansive or corrosive soils would result in the *same impact conclusion* as the proposed project, less than significant.

Like the proposed project, Alternative 4 would extract water from the Seaside Groundwater Basin through the ASR-5 and -6 wells but would not extract groundwater from the Salinas Valley Groundwater Basin; as described for the proposed project, this extraction from the ASR wells would have no potential to cause subsidence. This would result in the *same impact conclusion* as the proposed project for subsidence, no impact.

Alternative 4 would produce the same amount and type of well development water during development of the ASR-5 and -6 wells but would not produce well development water associated with the subsurface slant wells. The high permeability of the sandy materials would be suitable for the infiltration of water; therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project related to the suitability of the locations for wastewater disposal, less than significant.

Alternative 4 intake and outfall pipelines would be located on and under the seafloor, and would extend inland to the desalination facility from the existing caisson on the beach at the end of Sandholdt Road. The caisson itself is currently being subjected to coastal erosion (ESA, 2014) and would be removed at some point soon, re-located inland, or reinforced in place with coastal armoring. A new pump house proposed for on top of the caisson would extend the use of the caisson and postpone the need to remove it. The Coastal Act provides that seawalls and other forms of construction that alter natural shoreline processes “shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.” The Coastal Act also requires that “new development ... assure stability and structural integrity, and neither create nor contribute significantly to erosion ... or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.” The continued use of the caisson on the beach could result in accelerated erosion, could alter the existing landforms along the coast, and could expose adjacent properties to coastal flooding.

However, the application of shoreline protective measures at the existing caisson could be permitted under the Coastal Act if: (1) there is an existing structure, public beach, or coastal-dependent use that is; (2) in danger from erosion; and (3) the shoreline protection is both required to address the danger (the least environmentally-damaging, feasible alternative) and (4) designed to eliminate or mitigate impacts on sand supply. While the applicant may propose such a measure to protect the caisson during the operations of Alternative 4, the details of the proposed mitigation are unknown and therefore, their efficacy cannot be determined. The impacts identified here would result in an **increased impact conclusion** compared to the proposed project and impacts would be significant and unavoidable.

The underwater features of Alternative 4 would have the potential to degrade the physical structure of a geologic resource or alter oceanographic processes, such as sediment transport, such that the result would be measurably different from pre-existing conditions. The Alternative 4 seawater intake and brine disposal systems would be located in Moss Landing in Monterey Bay within MBNMS on the slopes of the Monterey Submarine Canyon. No active faults are known to occur in the local area; however, the seawater intake and brine disposal system would be expected to experience seismic shaking during the project lifetime, similar to the proposed project, and could be subject to damage from seismic shaking or seismically induced liquefaction, known to have occurred in the local area. Repairs would be necessary, potentially resulting in impacts on the geologic resources and oceanographic processes at this location on the seafloor. Additionally, because the open-water intake and brine disposal structures in Monterey Bay would be anchored on the slopes of the Monterey Submarine Canyon, the potential for future slope instability and underwater landslide would be increased compared to the proposed project. Also, placement of an open water intake and brine disposal system on the seabed of MBNMS could affect seabed substrate and alter oceanographic processes such as sediment transport in the vicinity of Monterey Submarine Canyon. Although mitigation measures would be required, they have not been defined and their efficacy cannot be guaranteed. Therefore, impacts on slope stability, landslides, and alteration of geologic resources or marine processes within the Monterey Bay

within MBNMS would be an *increased impact conclusion* compared to the proposed project, and are considered to be significant and unavoidable.

In summary, Alternative 4 would result in significant and unavoidable impacts related to coastal erosion and degradation of marine geologic resources or oceanographic processes. Therefore, Alternative 4 would result in an *increased impact conclusion* compared to the proposed project.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 4 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. In summary, these components could have a significant cumulative impact related to loss of topsoil, but after implementation of mitigation measures, the impact would be less than significant.

The geographic scope of analysis for cumulative geology, soils, and seismicity impacts for Alternative 4 is defined by the location of the Alternative 4 components. Although the geographic scope generally covers a large area, geologic impacts are localized and site-specific. Section 4.2.6 describes that because of the site-specific nature of these impacts, and because the proposed project and projects within the geographic scope would be subject to the same requirements related to erosion control and adherence to building codes, the components common to the proposed project would have less than significant cumulative impacts related to erosion and soil-related and seismic hazards, and that after implementation of **Mitigation Measure 4.6-2b** and **4.16-1**, these components would have a less than significant cumulative impact related to the loss of topsoil. The DeepWater Desal Project (No. 34) and the Moss Landing Community Plan (No. 37), described in **Table 4.1-2** in Section 4.1, are the only additional projects located near or overlapping the components unique to Alternative 4. Design and construction of these projects would be required to comply with the same requirements as Alternative 4. Therefore, the cumulative impacts related to erosion and geologic impacts on land would be less than significant.

Alternative 4 would result in an increased risk of coastal erosion compared to the proposed project. However, no reasonably foreseeable cumulative projects would include additional structures in this location. Therefore, a cumulative analysis is not applicable to this impact for Alternative 4.

Both Alternative 4 and the DeepWater Desal project would result in the placement of structures (intakes and outfalls) in Monterey Bay that would be anchored on the slopes of the Monterey Submarine Canyon. Therefore, the cumulative potential for future slope instability and underwater landslide would be increased compared to either project alone, and would be significant. Even with mitigation, cumulative impacts from the risk of underwater landslide would remain significant and unavoidable, and the incremental contribution of the open-water intake component of Alternative 4 would result in a significant cumulative impact. Therefore, Alternative 4 would result in an *increased impact conclusion* compared to the proposed project for cumulative effects related to geology, soils, and seismicity, significant and unavoidable.

5.5.2.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

The construction of the components of Alternative 5a and 5b would result in erosion impacts similar to those described and analyzed for the proposed project and Alternative 1, respectively, but reduced in scale due to the construction of fewer slant wells, resulting in a decreased potential for soil erosion in proportion to the decreased amount of ground disturbance necessary to construct fewer wells, but with compliance with relevant State and local regulations, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant.

The potential significant impact associated with loss of topsoil on agricultural lands is associated with several components that would be the same as the proposed project (i.e., Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline), and so would result in the same effect after implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)** and the *same impact conclusion* as the proposed project; less than significant with mitigation.

Operational and Facility Siting Impacts

For the same reasons described previously for the proposed project and Alternative 1, although components of Alternative 5a and 5b are not located on or near an active fault, they would be expected to experience seismic shaking during the project lifetime. Like the proposed project, the structural elements of these alternatives would be required to undergo appropriate design-level geotechnical evaluations prior to final design and construction. Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project relative to exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading, or settlement; less than significant.

For both Alternative 5a and 5b, only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the area and the alternatives do not propose activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant.

Impacts related to expansive and corrosive soils would be the same as described for the proposed project or Alternative 1 because the potentially susceptible facilities would be the same.

Therefore, the presence of expansive or corrosive soils would result in the *same impact conclusion* as the proposed project, less than significant.

The slant wells for both Alternative 5a and 5b, like the proposed project and Alternative 1 slant wells, would be screened in aquifer units composed predominantly of sand and gravel, which are less prone to subsidence because of their granular structure. Seawater would replace the water pumped from the slant wells and the continuous replacement of water would keep the pore spaces between the grains filled with water, further supporting the granular structure. Consequently, the soil structure above the slant wells would be unable to subside as a result of pumping resulting in the *same impact conclusion* as the proposed project on subsidence, no impact.

As described previously for the subsurface slant wells at CEMEX under the proposed project and at Potrero Road under Alternative 1, the Alternatives 5a and 5b subsurface slant wells would each require an alternative wastewater disposal system for infiltration of development water, each of which would have a less-than-significant impact. The total amount of development water generated would be reduced in proportion to the reduced number of slant wells. Additionally, both Alternatives 5a and 5b would produce the same amount and type of well development water as the proposed project during development of the ASR 5 and 6 wells. The high permeability of the sandy materials would be suitable for the infiltration of water; therefore, Alternatives 5a and 5b would result in the *same impact conclusion* related to the suitability of the locations for wastewater disposal as the proposed project, less than significant.

Under Alternative 5a, the existing test slant well that would be converted to a permanent well would be the same as under the proposed project. It is possible that this well might become exposed on the beach during its operational life, potentially accelerating and/or exacerbating natural rates of coastal erosion, scour, and dune retreat. This potentially significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.2-9 (Slant Well Abandonment Plan)**, and therefore would result in the *same impact conclusion* as the proposed project, less than significant with mitigation. Under Alternative 5b, unlike the proposed project but similar to Alternative 1, the slant wells at Potrero Road would not be exposed to coastal retreat during the project lifetime and would have no impact related to coastal erosion because of their location inland of the dunes. Alternative 5b would therefore result in a *reduced impact conclusion* compared to the proposed project relative to coastal erosion, no impact.

In summary, Alternatives 5a and 5b would result in less-than-significant impacts with mitigation for geology, soils, and seismicity, similar to the proposed project. As with the proposed project, these alternatives would not result in impacts related to underwater slope stability and landslides or the degradation of marine geologic resources or oceanographic processes. Unlike Alternative 5a and the proposed project, Alternative 5b would not be affected by coastal erosion during the project lifetime.

Cumulative Analysis

Combined Impacts with GWR Project

The components of the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would overlap with components of Alternatives 5a and 5b, including pipelines and well facilities. As described in the

GWR Project EIR Section 4.8.4.3 (MRWPCA and MPWMD, 2016), standard construction practices to prevent and minimize construction-related erosion would be included in GWR Project contract documents and SWPPPs that are required pursuant to NPDES regulations and permits for construction on 1 acre or more (GWR Impact GS-1). Recommendations of the preliminary geotechnical investigations prepared for the GWR Project will be incorporated into the final design and construction specifications, and construction will comply with applicable codes and requirements of the CBC and applicable ordinances (GWR Impact GS-2). Because the GWR Project will comply with these requirements, and because geologic impacts tend to be localized and site-specific, and most GWR Project components would not overlap geographically with the Alternative 5 components, the combined impacts related to erosion and geologic impacts on land would result in the *same impact conclusion* as the proposed project, less than significant. The GWR Project would not contribute to combined impacts related to the loss of topsoil (GWR Impact GS-2); therefore, impacts would be as described for Alternative 5, and would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Alternative 5 and the GWR Project would not create increased combined impacts related to seismic, liquefaction, and expansive and corrosive soil issues; landslides; land subsidence; or wastewater disposal (GWR Impacts GS-3, GS-4, GS-6, and GS-7); therefore, the combined impacts would have the *same impact conclusion* as the proposed project, less than significant.

As described in the GWR Project EIR, a segment of the Monterey Pipeline along Del Monte Boulevard could become exposed due to projected sea level rise and associated coastal erosion (GWR Impact GS-5), and **Mitigation Measure GS-5** is required to bury the pipeline at a depth below the 2060 100-year lower profile erosion envelope. Because it would not be located in the same locations that Alternative 5 would experience coastal erosion, this impact would not combine with impacts of Alternative 5 related to coastal erosion to create increased combined impacts; and with implementation of applicable mitigation for the GWR Project and for Alternative 5a (**Mitigation Measure 4.2-9**; not applicable to Alternative 5b), this combined impact would have the *same impact conclusion* as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The geographic scope of analysis for cumulative geology, soils, and seismicity impacts for Alternatives 5a and 5b is the same as that for the proposed project and Alternative 1, respectively. Although the geologic setting generally covers a large area, geologic impacts tend to be localized and site-specific. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) is proposed to be located north of Potrero Road at Moss Landing and neither the facilities nor their associated impacts would geographically overlap with the impacts of Alternative 5a or 5b. As described above, some components of the GWR Project would overlap with components of Alternatives 5a and 5b. Various other cumulative projects are located throughout the area. Alternatives 5a and 5b would result in contributions to cumulative impacts that would be similar to the proposed project and Alternative 1, respectively. The cumulative projects would be required to comply with the same requirements as Alternatives 5a and 5b, such as the state Construction General Permit and its required SWPPP that would control and minimize erosion

during construction activities. The design of the cumulative projects would be required to comply with the CBC and County ordinances that would require implementation of the recommendations of required geotechnical investigations. Therefore, the cumulative impacts related to erosion and geologic impacts on land would be less than significant.

As described for the proposed project in Section 4.2.6, the components affecting topsoil (listed above under Construction Impacts) would result in a significant cumulative loss of topsoil; however, no additional projects in the geographic scope would further contribute to this cumulative impact. The contribution of Alternatives 5a and 5b would be reduced to a level that is less than significant with implementation of **Mitigation Measure 4.16-1**.

Alternatives 5a and 5b would have no impact on land subsidence, and therefore would not contribute to cumulative subsidence-related impacts. No other projects would overlap with the footprints of Alternatives 5a and 5b to contribute to cumulative impacts related to seismic, liquefaction, and expansive and corrosive soil issues, landslides, or wastewater disposal.

For impacts related to coastal erosion, under Alternative 5a, none of the cumulative projects would combine with the effects of Alternative 5a to result in a cumulative impact; therefore, a cumulative analysis is not applicable to this impact for Alternative 5a. Alternative 5b would not be subject to coastal erosion and so would not contribute to a cumulative coastal erosion-related impact.

In summary, Alternatives 5a and 5b could result in significant contributions to significant cumulative impacts relative to geology, soils, and seismicity, but these contributions would be reduced to a level that is less than significant after implementation of applicable mitigation measures, thus resulting in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.2.9 References

Environmental Science Associates (ESA), 2014. *Technical Memorandum, Monterey Peninsula Water Supply Project: Analysis of Historic and Future Coastal Erosion with Sea Level Rise*, March 19, 2014.

MPWMD, 2016. Addendum to the Aquifer Storage and Recovery Project Environmental Impact Report/Environmental Assessment and the Pure Water Monterey/Groundwater Replenishment Project Environmental Impact Report for the Hilby Avenue Pump Station. <http://www.mpwmd.net/asd/board/boardpacket/2016/20160620/16/Item-16-Exh-A.pdf>.

MRWPCA and MPWMD, 2016. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B. <http://purewatermonterey.org/wp/wp-content/uploads/Volume-IV-EIR-Certification-and-Project-Approval-Jan-2016.pdf>.

NRCS, 2015. Soil Map Monterey County, California. July 8, 2016.

5.5.3 Surface Water Hydrology and Water Quality

The evaluation criteria used to assess surface water hydrology and water quality impacts from implementation of the alternatives are the same as those used to assess impacts of the proposed project (see Section 4.3.3) and include specific thresholds related to: the degradation of water quality, including impacts on ocean waters within MBNMS from operational discharges; the alteration of drainage patterns in a manner that may result in erosion or flooding; stormwater conveyance capacity; and, flooding and flood risks.

5.5.3.1 Setting/Affected Environment

The study area relevant to the evaluation of surface water hydrology and water quality impacts for all alternatives is the same as that described for the proposed project in Section 4.3.1 and comprises the Salinas River watershed, Carmel River watershed, and the southern portion of the Monterey Bay south of Elkhorn Slough, which is a part of Monterey Bay National Marine Sanctuary (MBNMS). Water quality in the lower Salinas River is impaired by pesticides and nutrients. Excess sediment, which occurs due to various land uses and road designs, is a key issue in the Carmel River. The seawater in Monterey Bay is a mixture of water masses from different parts of the Pacific Ocean and water quality in Monterey Bay is a function, in part, of different constituents present in the water, as well as the seasonal ocean climate which affects ocean temperature and salinity. The waters of Monterey Bay contain numerous legacy pesticides such as organochlorine pesticides, Dieldrin and dichloro-diphenyl-trichloroethane (DDT), as well as chemical products in current use such as organophosphate pesticides, polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). The waters of Monterey Bay exceeded the Ocean Plan 30-day average PCB water quality objective of 1.9×10^{-5} micrograms per liter ($\mu\text{g/L}$)⁴ for most of the years between 2004 and 2013. Monterey Bay also receives point source discharges from pipelines and other structures. Such permitted discharges into Monterey Bay are subject to prohibitions under MBNMS regulations as well as NPDES permit regulations and water quality requirements established by the Central Coast RWQCB. Flooding and flood hazard risks, including those from tsunamis, dam failure, and sea level rise, vary throughout the study area depending on location. FEMA 100-year flood hazard zones in the study area are shown in **Figure 4.3-2**. Areas that are subject to coastal flooding and sea level rise are shown in **Figure 4.3-3**.

5.5.3.2 Summary of Direct and Indirect Effects of the Proposed Project (Slant Wells at CEMEX)

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina that would create approximately 15 acres of impervious surfaces, up to nine new subsurface slant wells at the CEMEX active mining area and conversion of the existing test slant well to a permanent well. The slant well construction at the CEMEX site would result in 9 acres of disturbance during construction with approximately 0.7 acres of permanent land alteration associated with the wells. The proposed project would also include

⁴ This objective for protection of human health is listed in the Ocean Plan and is discussed further in Section 4.3.2.1, State Regulatory Framework.

improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, pump stations, storage tanks, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur.

The direct and indirect effects of the proposed project have been grouped and summarized below, in the context of the project construction phase, the operational phase and effects resulting from facility siting. For a more detailed analysis and discussion of the following summarizes refer to Section 4.3.5. Overall, the surface hydrology and water quality related impacts of the proposed project would be less than significant with mitigation.

Construction Impacts

Construction activities have the potential to degrade water quality as a result of soil erosion as a result of soil disturbance from grading and excavation as well as the accidental release of hazardous chemicals; from the discharge of dewatering effluent associated with excavations and drilling, and; from discharges associated with cleaning/flushing newly installed pipelines. Construction activities can also permanently or temporarily result in altered drainage patterns that can result in on- and off-site erosion, siltation, and flood risk increases.

Impact 4.3-1: Degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities.

Soil disturbing activities could result in soil erosion and the migration of soil and sediment in stormwater runoff to downgradient water bodies and storm drains. The temporary storage and use of construction chemicals such as adhesives, solvents, fuels, and petroleum lubricants could, if not managed appropriately, result in an accidental release or spills. For all project facilities, mandatory compliance with NPDES Construction General Permit requirements would involve implementation of erosion and stormwater and water quality control measures, which would prevent substantial adverse effects on water quality during construction. The impact would be less than significant for all project components.

Impact 4.3-2: Degradation of water quality from construction-related discharges of dewatering effluent from open excavations and from water extracted during drilling and development of the subsurface slant wells, the ASR-5 and ASR-6 Wells.

The majority of general construction dewatering effluent associated with excavations would be disposed of in accordance with the General Waste Discharge Requirements (Central Coast RWQCB Order R3-2011-0223). However, discharges of dewatering effluent exceeding the water quality limitations in the General WDRs would result in a significant impact. This impact would be reduced to a less-than-significant level with implementation of the **Mitigation Measure 4.7-2b (Soils and Groundwater Management Plan)**. Water produced during the drilling and development of the slant wells and ASR-5 and 6 Wells would be disposed of in accordance with the MRWPCA's NPDES permit (for discharges via the ocean outfall) and General Waiver. All discharges of water produced during well drilling and development would occur in compliance with regulatory requirements that are protective of the receiving waters. Therefore, the impact associated with discharges of water produced during drilling and development of the subsurface slant wells and

ASR-5 and ASR-6 Wells would be less than significant. Overall, impacts associated with discharges of dewatering effluent during construction would be less than significant with mitigation.

Impact 4.3-3: Degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction.

Prior to constructing the connections between existing and new pipelines, segments of existing pipelines would need to be drained and disinfected before being returned to service. Newly installed pipelines (i.e., Source Water Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Brine Discharge Pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR pipelines, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements) would also be disinfected before being put into service. Adherence to the General Waste Discharge Requirements (WDRs) would ensure this impact would be less than significant.

Impact 4.3-8: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff resulting in flooding on- or offsite or the exceeding of the stormwater drainage system capacity.

For all project facilities, mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures to minimize and avoid erosion, siltation, and increased runoff on- and off-site. Implementation of the proposed facilities would not result in substantially altered drainage patterns or increased stormwater runoff as a result of increased impervious surfaces. The subsurface slant wells, MPWSP Desalination Plant, would be required to implement Low Impact Development elements into the final site design, ensuring stormwater runoff is not increased and that flood risks on- or offsite are avoided and that stormwater conveyance structure capacity is not exceeded. The impact would be less than significant. No changes in drainage patterns would result from implementation of the proposed pipelines because they would be underground. This negligible increase in impervious surfaces would not result in substantial impacts related to changes in drainage patterns, erosion or siltation, flooding, or flows in excess of the stormwater drainage system.

Operational Impacts

Operational activities that would result in potential water quality related impacts would include the discharge of desalination brine (either alone, or blended with varying volumes of secondary-treated wastewater depending on the time of year) into the waters of MBNMS. Discharges related to well maintenance activities could degrade the water quality of receiving waters. Summaries of the water quality impacts are provided below.

Impact 4.3-4: Violate water quality standards or waste discharge requirements or degrade water quality from increased salinity as a result of brine discharge from the operation of the MPWSP Desalination Plant.

The modeling and analysis of salinity concentrations, mixing, and dilution at the outfall indicates that for all operational scenarios, and assuming a continuous brine discharge stream, the brine-

only discharges and discharges of brine blended with varying volumes of wastewater will meet Ocean Plan salinity and dissolved oxygen standards and will not result in salinity related toxicity or hypoxia on the ocean floor. Specifically, the discharges would result in salinity levels that would not exceed 2 ppt above ambient salinity levels at the edge of the ZID (located 10 feet to 39 feet from the diffuser depending on discharge scenario). The proposed project, therefore, would not exceed or violate the Ocean Plan salinity standards or degrade water quality in terms of salinity. Therefore, operational discharges from the MPWSP would not increase salinity levels or impact Dissolved Oxygen (hypoxia) in a manner that violates water quality standards or waste discharge requirements or otherwise degrades the water quality of receiving waters in MBNMS. Impacts would be less than significant. While impacts related to water quality from increased salinity have been determined to be less than significant based on model analyses, and although it is likely that monitoring would occur based on the Ocean Plan requirements and associated NPDES permit requirements, implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with the Ocean Plan monitoring requirements as well as consistency with MBNMS guidelines for operation of desalination facilities that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay.

Impact 4.3-5: Violate water quality standards or waste discharge requirements or otherwise degrade the water quality of receiving waters in Monterey Bay as a result of brine discharge from the operation of the MPWSP Desalination Plant.

The model-based analyses of water quality constituent concentrations, mixing, and dilution at the outfall diffuser for all operational scenarios concluded constituent concentrations could become elevated to levels greater than 80 percent of the Ocean Plan water quality objectives for ammonia and cyanide for some operational discharge scenarios (when low wastewater volumes are co-mingled with the brine). For an additional thirteen constituents, there is not enough information to assess concentrations at the edge of the ZID due to differences in Method Reporting Limits (MRLs) used to assess the source waters or due to MRLs being higher than Ocean Plan objectives. Therefore, it is conservatively concluded that Ocean Plan water quality objectives could potentially be exceeded during operations for some operational discharge scenarios, resulting in a significant impact. Significant impacts would be reduced to a less-than-significant level by implementing **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**. Mitigation Measure 4.3-5 would require CalAm to perform an extensive water quality assessment using protocols defined in Appendix II “Minimum Levels” of the 2015 California Ocean Plan prior to implementation of the MPWSP. Operational discharges that cannot be demonstrated to conform to the Ocean Plan water quality objectives may only be released following implementation of additional design features, engineering solutions, and/or operational measures that ensure compliance with objectives. Additionally, future water quality testing and analysis, as required under the NPDES permit process, would ensure that operational discharges under the MPWSP would fully comply with Ocean Plan water quality objectives and NPDES effluent limitations, including limits for toxicity and radioactivity.

Impact 4.3-6: Degrade water quality due to discharges associated with maintenance of the subsurface slant wells and the ASR-5 and ASR-6 Wells.

Routine maintenance activities of the subsurface slant wells would disrupt roughly 6 acres at the CEMEX active mining area for 9 to 18 weeks every 5 years. Further, the effluent produced during slant well cleaning could carry sediment or other contaminants that, if discharged directly to the beach area, could adversely affect water quality in Monterey Bay. As part of routine maintenance of the ASR-5 and ASR-6 Wells, CalAm facility operators would regularly backflush accumulated sediment and turbid water from the two wells. Water produced during routine backflushing would be conveyed to the existing Phase I ASR Pump-to-Waste System. Discharges and land disturbance activities related to periodic maintenance of the subsurface slant wells and routine maintenance of the ASR-5 and ASR-6 Wells would be conducted in accordance with regulatory requirements, such as the General Waiver and the Construction General Permit, designed to protect water quality. Any water quality related impacts would be avoided or minimized to a less-than-significant level.

Facility Siting Impacts

The addition of impervious surfaces or the alteration of drainage patterns (such as through grading) can increase peak stormwater flows, causing erosion or siltation onsite or downstream, increase flood potential, and exceed the capacity of stormwater systems. The subsurface slant wells and portions of the Source Water Pipeline, Castroville Pipeline, and new Transmission Main would be constructed in a 100-year flood hazard area. The near-shore margins of Monterey County, including coastal portions of Marina, Seaside, and Monterey, are subject to flooding in the event of a tsunami. Siting facilities in flood hazard areas can increase the risk of exposing people or structures to loss, injury, or death. The subsurface slant wells, the northernmost portion of the MPWSP Desalination Plant site, and portions of the Source Water Pipeline would be located in areas that could be subject to sea level rise.

Impact 4.3-7: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff or an increase in flooding on- or offsite or the exceeding of storm drain capacity.

Implementation of the subsurface slant wells at the CEMEX active mining area would result in a total increase in impervious surface area of approximately 0.7 acres (30,000 square feet). The proposed MPWSP Desalination Plant site would disturb approximately 25 acres of a 46-acre undeveloped parcel, and would add approximately 15 acres (653,400 square feet) of impervious surfaces. The proposed ASR-5 and ASR-6 Wells at the Fitch Park military housing area would add a total of approximately 0.05 to 0.06 acres (2,000 to 2,500 square feet) of impervious surface. The subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells would be subject to the post-construction stormwater management requirements of the municipal stormwater permit and CalAm would be required to implement post-construction stormwater BMPs into the final site designs. With adherence to the post-construction requirements, the existence and operation of these facilities would result in a less than significant impact related to drainage pattern alteration, storm runoff volume, stormwater conveyance capacity, increased soil erosion, and siltation. The Carmel Valley Pump Station would add approximately 600 feet of impervious surfaces and would result in a less than significant impact. No impact would result from implementation of the proposed pipelines.

Impact 4.3-9: Impedance or redirection of flood flows following construction due to the siting of project facilities in a 100-year flood hazard area.

Portions of the Source Water Pipeline, new Transmission Main, and Castroville Pipeline would be constructed in a 100-year flood hazard area. However, these facilities would be placed underground and would not impede or redirect flood flows. The electrical control cabinet at the slant wells would divert flood flows to the sandy areas immediately surrounding the cabinet, still within the CEMEX active mining area, and would not affect other properties or structures. No impact would result from implementation of all other proposed facilities because none of the other components would be located within a 100-year flood hazard area. Therefore, the impact would be less than significant.

Impact 4.3-10: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami.

The subsurface slant wells at CEMEX, and the Castroville Pipeline would be located in areas subject to flooding from a tsunami. Because the presence of onsite personnel would be minimal, operation of the subsurface slant wells and pipeline operations and maintenance would not expose personnel or structures to significant risks from flooding in the event of a tsunami. The impact would be less than significant.

Impact 4.3-11: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise.

The subsurface slant wells, the northernmost portion of the MPWSP Desalination Plant site, and portions of the Source Water Pipeline would be located in areas that could be subject to sea level rise. However, because the subsurface slant wells and the two pipelines would be constructed underground and designed to withstand inundation, these facilities would not be subject to a significant risk of damage from flooding due to sea level rise. The aboveground facilities at the proposed Desalination Plant site would be constructed on the upper terrace of the site, at an elevation higher than the predicted year 2100 sea level. It would not expose people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise. The impact would be less than significant for the subsurface slant wells, MPWSP Desalination Plant, and Source Water Pipeline, and Castroville Pipeline. All other proposed facilities would have no impact.

Cumulative Impacts

The geographic scope for potential cumulative surface hydrology and water quality impacts consists of the project area and surrounding Salinas River and Carmel River watershed lands as well as marine waters in Monterey Bay. The analysis of potential cumulative impacts on hydrology and water quality considers those cumulative projects listed in **Table 4.1-2** and shown in **Figure 4-1**.

Nearly every project in the cumulative scenario would be subject to the construction general permit, General Waiver, General WDRs, and other local regulations. With implementation of **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)** and mandatory compliance with the NPDES Construction General Permit, General Waiver, and General WDRs,

residual effects of MPWSP discharges of water extracted during well drilling and development would not be expected to combine with those of projects in the cumulative scenario to cause a significant cumulative impact. Therefore, with implementation of mitigation, the proposed project's contribution to any cumulative impact would be less than significant.

The requirements of NPDES permits, which incorporate the Ocean Plan water quality objectives in the case of operational discharges from the MRWPCA outfall, are designed and intended to protect beneficial uses of receiving waters (i.e., Monterey Bay) from the effects of numerous potential sources of pollution, and are therefore protective against significant adverse cumulative impacts. With mandatory compliance with the regulatory requirements and the NPDES effluent limitations, and implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**, the cumulative impact from the discharges resulting from MPWSP and the projects in **Table 4.1-2** is considered less than significant. Additionally, with implementation of mitigation measures, the proposed project's contribution to any cumulative water quality impact in Monterey Bay would be reduced to a level that is less than significant.

Regional alterations to site drainage from multiple projects in the region could cause increased peak flows in creeks, exacerbate erosion and sedimentation, and result in greater non-point source pollution in downstream water bodies. Increased areas of impervious surfaces could also increase flooding of downstream waterways and cause runoff volumes to exceed stormwater conveyance system capacities. Such developments would be required to comply with the Central Coast RWQCB Resolution No. R3-2013-0032, as implemented through the Monterey Regional Stormwater Management Program and NPDES Municipal Stormwater Permit. Further, stormwater requirements are part of a regional program designed to address the potential cumulative effects of past, present, and foreseeable projects within the region; adherence to these requirements would ensure that the alteration of drainage patterns would not cause a significant cumulative impact and the proposed project would result in a less than significant contribution to any cumulative impact.

5.5.3.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no construction would occur and no desalination facility would be built and operated. As such, there would be no construction related hydrology and water quality impacts, such as erosion or dewatering discharges. However, decommissioning of the existing test slant well could result in impacts on water quality, including increased soil erosion and the potential for a hazardous chemical release. See Impact 4.3-1, in Section 4.3.5.1. Mandatory compliance with the NPDES Construction General Permit requirements would require the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which would prevent significant construction-related impacts on water quality. The Plan would be required to identify standard Best Management Practices to be implemented to control erosion and reduce sedimentation. Site monitoring by the applicant's erosion-control specialist would be undertaken and a follow-up report would be prepared that documents the progress and/or completion of required erosion-control measures both during and after slant well decommissioning activities. No synthetic plastic mesh products could be used in any erosion

control materials. All plans would be required to show that sedimentation and erosion control measures are installed prior to any other ground disturbing work.

Also, no brine would be discharged from the MRWPCA outfall and no impacts related to water quality standards, waste discharge requirements, or water quality would occur as a result of operational discharges. Because no facilities would be constructed, there would be no facility siting impacts related to altered drainage patterns, impervious surfaces, flooding, and flood risks.

Under the No Project Alternative, current diversions from the Carmel River would continue consistent with existing conditions in the short-term. However, under the No Project Alternative, CalAm would not meet Milestone 3 by September 30, 2018 (receipt of a CPCN from the CPUC), nor would it meet the subsequent annual milestones associated with the construction and implementation of the MPWSP. CalAm's Effective Diversion Limit (EDL) from the Carmel River would be reduced under the terms of the Cease and Desist Order (CDO) by 1,000 afy in October 2018, and by an additional 1,000 afy in each subsequent year until October 2021. Beginning in January 2022, as with the Proposed Project, CalAm would only be allowed to divert its legal entitlement of 3,376 afy from the Carmel River. See Section 5.4.2 for details on the amounts of water allowed by the CDO to be diverted each year until the CDO expiration. Therefore, under the No Project Alternative, diversions from the Carmel River would be reduced sooner than under the proposed project and Carmel River flows would be restored with a total of an additional 10,000 acre-feet compared to the proposed project, over the period of October 2018 through 2021. The increases to Carmel River flows under the No Project Alternative compared to the proposed project would be beneficial to Carmel River hydrology, water quality, and aquatic habitat (as determined by the RWQCB as part of Order 95-10). For a more detailed discussion regarding the benefits to Carmel River aquatic habitat and species see Section 5.5.6, Terrestrial Biology.

Cumulative Analysis

In addition to the beneficial effect of increased streamflows in the Carmel River that would occur under the No Project Alternative compared to existing conditions, the GWR Project (No. 59 in **Table 4.1-2**) would provide water supply to CalAm that would further reduce CalAm's diversions from the Carmel River, per the terms of the CDO (SWRCB, 2016a). Specifically, for every acre-foot of GWR Project water supply that CalAm is able to deliver to the Monterey District, CalAm must reduce its Carmel River system diversions by one acre-foot. Therefore, if GWR Project water becomes available to CalAm prior to 2022 (when Carmel River diversions would be limited to the 3,376 afy legal limit regardless of other water sources), CalAm's diversions from the Carmel River would be reduced compared to those described in **Table 5.4-3**, leaving more streamflow in the Carmel River than under the No Project Alternative alone. This would be a cumulative beneficial less than significant effect on streamflows in the Carmel River.

5.5.3.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine

discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the surface water hydrology and water quality impact analysis of Alternative 1 focuses primarily on the intake system and source water pipeline that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1. Components that are common to both Alternative 1 and the proposed project are assessed in Section 4.3, Surface Water Hydrology and Water Quality.

Construction Impacts

Components unique to Alternative 1 would have a smaller disturbance area at the Potrero Road parking lot (1 acre) as compared to the proposed project at CEMEX (9 acres), but Alternative 1 would also include an additional 5.5 miles of source water pipeline. Overall, based on the additional 5.5 miles of pipeline under Alternative 1, the construction footprint would be increased as compared to the proposed project. Therefore, Alternative 1 would result in an increased potential for soil erosion and risk of inadvertent releases of hazardous chemicals during general construction activities. Alternative 1 would also have an increased potential for eroded soil and sediment to be transported down gradient via stormwater runoff and degrade the water quality of receiving water bodies, including the Salinas River and Monterey Bay. Mandatory compliance with NPDES Construction General Permit and local grading requirements would involve implementation of a SWPPP, including stormwater BMPs as well as erosion and stormwater control measures, which would prevent substantial adverse effects on water quality during construction. Alternative 1 construction impacts related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities would result in the *same impact conclusion* as the proposed project, less than significant.

Construction-related discharges of dewatering effluent from open excavations and water produced during well drilling of the slant wells would be increased under Alternative 1 because of the increased number of new wells at Potrero Road compared to the proposed project (10 new wells versus 9 new wells and the converted test well at CEMEX) and the 5.5 miles of additional source water pipeline. Most of the dewatering effluent produced during construction excavation is considered a low threat and would be discharged to land or the stormwater drainage system provided it complies with the *General WDRs for Discharges with a Low Threat to Water Quality*. The development water produced during well installation would be pumped to holding tanks to allow sediment to settle out and effluent would be discharged to a buried diffuser system in the parking lot for percolation into underlying beach sands in accordance with the requirements of the General Waiver of WDRs (General Waiver). Impacts from discharges of contaminated dewatering effluent from open excavations and well development that do not meet General Waiver requirements would be reduced to a less-than-significant level with implementation of the same mitigation prescribed for the proposed project, **Mitigation Measure 4.7-2b: Soil and Groundwater Management Plan**. Alternative 1 construction impacts related to the degradation

of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 1 could be increased compared to the proposed project because of the additional 5.5 miles of new pipeline. Like the proposed project however, adherence to the General Waste Discharge Requirements would ensure the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction would result in the *same impact conclusion* as the proposed project, less than significant.

During construction of Alternative 1, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be increased due to the additional 5.5 miles of pipeline. Such an increased potential for altered drainage patterns could result in increased risks related to onsite and/or downstream (offsite) erosion, siltation, and flooding, especially if stormwater conveyance capacity is exceeded. Mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would result in the *same impact conclusion* as the proposed project, less than significant.

Operational Impacts

Operation and maintenance of Alternative 1 would include the same activities as the proposed project. The source water would be the same as the proposed project in terms of water quality characteristics. The brine discharge system and volume of discharge would be the same as the proposed project, and, therefore, impacts would be the same as described in Section 4.3. Discharges would not increase salinity levels in violation of water quality standards or waste discharge requirements, nor otherwise degrade the water quality of receiving waters in Monterey Bay as a result of increased salinity.

Alternative 1 would be subject to the same mitigation as defined for the proposed project, which requires development and approval of a monitoring and reporting plan, consistent with the requirements of the Ocean Plan and MBNMS guidelines, prior to construction and operation. **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with the monitoring requirements and regulatory standards that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay. The monitoring and reporting plan would set forth appropriate response thresholds as well as corrective actions (defined in **Mitigation Measure 4.3-5**) that would be required if the acquired data indicated deleterious effects on receiving water quality or marine resources from discharges. **Mitigation Measure 4.3-4** would minimize or avoid any potential adverse effects from increased salinity (including hypoxia); therefore, Alternative 1 would result in the *same impact conclusion* related to increased salinity as the proposed project, less than significant with mitigation.

Like the proposed project, no heating mechanism or process would increase the temperature of the source water as it passes through the desalination process. Alternative 1 would not increase the temperature of the discharged effluent in a manner inconsistent with the requirements of the SWRCB Thermal Plan and impacts relating to temperature would be the same as the proposed project. However, as described for the proposed project, because constituent concentrations could become elevated to levels greater than 80 percent of the Ocean Plan water quality objectives for ammonia and cyanide for some operational discharge scenarios (when low wastewater volumes are co-mingled with the brine), and there is not enough information to assess concentrations at the edge of the ZID for an additional thirteen constituents due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives, it is conservatively concluded that Ocean Plan water quality objectives could potentially be exceeded during operations for some operational discharge scenarios, resulting in a significant impact. With the implementation of **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**, described in detail in Section 4.3.5.3), impacts related to the violation of regulatory standards and discharge requirements or the degradation of water quality under Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

As described for the proposed project, the routine maintenance of subsurface slant wells and the ASR-5 and ASR-6 Wells would be conducted in accordance with regulatory requirements, such as the General Waiver and Construction General Permit, designed to protect water quality. Alternative 1 impacts related to the degradation of water quality due to discharges associated with maintenance of wells would result in the *same impact conclusion* as the proposed project, less than significant.

Facility Siting Impacts

Under Alternative 1, the disturbance area for maintenance of the slant wells at Potrero Road would be less than that of the proposed project (less than 1 acre at Potrero Road compared to 9 acres at CEMEX) and impervious surfaces for the slant wells would also be reduced (1,250 square feet compared to approximately 30,000 square feet for the proposed project). Therefore, Alternative 1 impacts related to the alteration of drainage patterns such that there is a resultant increase in erosion, siltation, flooding on- or offsite or the exceeding of storm drain capacity would result in a slightly reduced level of impact as compared to the proposed project. With adherence to post-construction stormwater management requirements and post-construction stormwater BMPs, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Under Alternative 1, impacts related to flooding and flood risks, including those from tsunami and sea level rise would result in a slightly reduced level of impact than the proposed project due to the slant wells at Potrero Road not being located in a 100-year flood hazard area (whereas the proposed project slant wells at CEMEX would be within the 100-year flood zone) and also being set further inland behind the coastal dunes. Alternative 1 would result in the *same impact conclusion* associated with flooding and flood risks compared to the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts from construction and operation of Alternative 1 would be the same as those described for the proposed project (which includes consideration of the Deep Water Desal Project), as analyzed in Section 4.3.6, Surface Water Hydrology and Water Quality. Like the proposed project, Alternative 1 could contribute to significant cumulative surface water hydrology and water quality impacts, but with implementation of **Mitigation Measures 4.7-2b, 4.3-4 and 4.3-5**, would have a less than significant contribution to such cumulative impacts (*less than significant with mitigation*).

5.5.3.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore on the seafloor in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station that would be constructed on 3,600 square feet at Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the analysis of Alternative 2 hydrology and water quality impacts focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2. Components that are common to both Alternative 2 and the proposed project are assessed in Section 4.3, Surface Water Hydrology and Water Quality.

Construction Impacts

Components unique to Alternative 2 would have a reduced onshore construction disturbance area compared to the proposed project. While the open-water intake system and an additional 6.5 miles of source water pipeline are proposed under Alternative 2, pipelines required for the return of source water that originated in the Salinas Valley Groundwater Basin would not be implemented. Like the proposed project, Alternative 2 would have 21 miles of total pipeline. Further, the land-based construction area of the intake system pump station (0.08 acres) would be less than the 9 acres associated with the slant wells at CEMEX. For land-based construction, mandatory compliance with NPDES Construction General Permit and local grading requirements, including implementation of a SWPPP and stormwater BMPs as well as erosion and stormwater control measures, would prevent substantial adverse effects on water quality during land-based construction. Alternative 2 construction impacts related to the degradation of water quality associated with soil erosion and inadvertent releases of hazardous chemicals during general land-

based construction activities would result in the *same impact conclusion* as the proposed project, less than significant.

Construction of the open-water intake on the seafloor (versus the proposed project's subsurface intake system) would result in an increased level of impact for construction related water quality impacts within MBNMS because the proposed project would not involve any construction on the seafloor. Water quality impacts associated with construction of the open water intake would include direct disturbance of the seafloor and associated water quality degradation in the form of increased turbidity and the potential release of drilling fluids where the Horizontal Directional Drilling technique of the intake pipeline breaks through the seafloor, and where the seafloor is prepared/graded for the placement of the intake structure. However, any disturbance of the seafloor and resulting increased turbidity would be temporary and short-term in nature (i.e. not chronic or ongoing), occurring only during the construction period, and would be highly localized in extent, occurring only within and immediately adjacent to the construction area at the intake pipeline terminus and where the seafloor is prepared for the intake structure. Any drilling fluids released would be environmentally inert and biodegradable. Water quality would return to ambient conditions following completion of construction activities as a result of the settling of suspended sediment and mixing and dilution driven by wave action and tidal current. Therefore, Alternative 2 would result in an increased level of impact compared to the proposed project because the proposed project would not have any in-water construction. However, because of the temporary and localized nature of the in water construction impacts, Alternative 2 would result in an *increased impact conclusion* compared to the proposed project, less than significant.

Construction-related discharges of dewatering effluent from open excavations would be the same under Alternative 2 as the proposed project since the 21 total miles of pipeline constructed would be the same (the additional 6.5 additional miles of source water pipeline and the elimination of the pipelines related to return water). Most of the dewatering effluent produced during construction excavation would be discharged to land or the stormwater drainage system in compliance with the *General WDRs for Discharges with a Low Threat to Water Quality*. Impacts from discharges of contaminated dewatering effluent from open excavations that do not meet requirements of the General WDRs would be reduced to a less-than-significant level with implementation of the same mitigation prescribed for the proposed project, **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)**. Alternative 2 impacts related to the degradation of water quality from construction-related discharges of dewatering effluent from open excavations would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 2 would be the same as the proposed project. Like the proposed project, adherence to the General WDRs would ensure impacts related to the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction would result in the *same impact conclusion* as the proposed project, less than significant.

During construction of Alternative 2, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be reduced due to the intake

pump station resulting in less land disturbance than the 9 acres for the slant wells under the proposed project. As with the proposed project, mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would result in the *same impact conclusion* as the proposed project, less than significant.

Operational Impacts

Under Alternative 2, the salinity of the brine would be the same as that described for the proposed project and the brine would be mixed with MRWPCA wastewater, when available, in the same volumes as described for the proposed project. Operational discharges would be discharged via the existing diffuser and subject to the same mixing and dilution dynamics as described for the proposed project.

Alternative 2 would be subject to the same mitigation as defined for the proposed project, which requires development and approval of a monitoring and reporting plan, consistent with the requirements of the Ocean Plan and MBNMS guidelines, prior to construction and operation. **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with the monitoring requirements and regulatory salinity standards that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay. The monitoring and reporting plan would set forth appropriate response thresholds as well as corrective actions (defined in **Mitigation Measure 4.3-5**) that would be required if the acquired data indicated deleterious effects on receiving water quality or marine resources from discharges. **Mitigation Measure 4.3-4** would minimize or avoid any potential adverse effects from increased salinity (including hypoxia); therefore, Alternative 2 would result in the *same impact conclusion* related to increased salinity compared to the proposed project, less than significant with mitigation.

As with the proposed project, no heating mechanism or process would increase the temperature of the source water as it passes through the desalination process, and Alternative 2 would not increase the temperature of the discharged effluent in a manner inconsistent with the requirements of the SWRCB Thermal Plan and impacts relating to temperature would be the *same* as the proposed project; no impact.

As described for the proposed project, because constituent concentrations could become elevated to levels greater than 80 percent of the Ocean Plan water quality objectives for ammonia and cyanide for some operational discharge scenarios (when low wastewater volumes are co-mingled with the brine), and there is not enough information to assess concentrations at the edge of the ZID for an additional thirteen constituents due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives, it is conservatively concluded that Ocean Plan water quality objectives could potentially be exceeded during operations for some operational discharge scenarios, resulting in a significant impact. With the implementation of Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives, described in detail in Section 4.3.5.3), impacts related to the violation of regulatory standards and

discharge requirements or the degradation of water quality under Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Furthermore, as described in Section 4.3, Surface Water Hydrology and Water Quality, the concentration of polychlorinated biphenyls (PCBs) in Monterey Bay currently exceeds Ocean Plan water quality objectives under baseline conditions. Unlike the proposed project's use of subsurface slant wells, the open water intake under Alternative 2 would not pre-filter the PCBs through the seafloor and concentrations of the existing PCB-levels would expectedly increase in the brine discharge as compared to the proposed project. Because brine-only discharges form a dense sinking plume with low minimum dilution, increased concentrations of PCBs in the brine discharges would result in an increased level of impact compared to the proposed project. Unlike the proposed project, Alternative 2 could potentially exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID. However, with the implementation of Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives) impacts related to the violation of regulatory standards and discharge requirements or the degradation of water quality under Alternative 2 would result in the same impact conclusion as the proposed project, less than significant with mitigation.

Under Alternative 2, maintenance activities would be the same as those described for the proposed project, except for the new open-water intake in MBNMS. Maintenance of the new open-water intake structure and pipeline would be conducted annually and would result in a temporary short-term disturbance to the seafloor in the area immediately surrounding the intake structure, resulting in localized increases in turbidity. The material removed during intake screen cleaning and pipeline maintenance would be released into the ocean at the well screens and at the end of the intake pipeline, and could also contribute to temporary and localized increased turbidity. Water quality would return to ambient conditions following completion of maintenance activities as a result of the settling of suspended sediment and mixing and dilution driven by wave action and tidal current. Therefore, this would result in an increased level of impact compared to the proposed project because the proposed project proposes no in-water maintenance activities. However, while the impact on water quality would be localized and temporary, Alternative 2 would result in an *increased impact conclusion* compared to the proposed project, less than significant.

Facility Siting

Under Alternative 2, the total impervious area would be reduced compared to the proposed project (0.08 acres for the Dolan Road intake pump station compared to 9 acres for slant wells at CEMEX). Therefore, Alternative 2 would result in a reduced level of impact compared to the proposed project on the alteration of drainage patterns such that there is a resultant increase in erosion, siltation, flooding on- or offsite or the exceeding of storm drain capacity. With adherence to post-construction stormwater management requirements and post-construction stormwater BMPs, Alternative 2 would result in the *same impact conclusion* compared to the proposed project, less than significant.

Under Alternative 2, impacts related to flooding and flood risks, including those from tsunami and sea level rise would have a similar level of impact as the proposed project due to the intake pump station being located in the coastal zone, similar to the slant wells at CEMEX. Subsurface

pipelines would have the same level of impact as the proposed project regarding flood hazards. Impacts associated with flooding and flood risks under Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts from construction of Alternative 2 would be the same as those described for the proposed project, with the exception of the construction of the open-water intake facility and longer source water pipeline; Alternative 2, like the proposed project, would use the existing MRWPCA outfall. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) also would include construction of a new open-water intake and new outfall pipelines at Moss Landing that would result in the same type of localized water quality degradation described for Alternative 2. It is unlikely that both open water intake facilities would be constructed at the same time, but conservatively assuming this would occur, it is unlikely that in-water construction activities could result in a significant cumulative impact on surface water quality. Like Alternative 2, the DeepWater Desal Project would result in elevated turbidity and disturbance of the sea floor in a localized area (i.e. the area comprising the construction footprint and immediate surroundings). Further, any disturbance of the seafloor and increased associated turbidity would be temporary and short-term in nature (i.e. not chronic or ongoing), occurring only during the construction period, and would be highly localized in extent, occurring only within and immediately adjacent to the construction area at the intake pipeline terminus and where the seafloor is prepared for the intake structure. Water quality would return to ambient conditions following completion of construction activities as a result of the settling of suspended sediment and mixing and dilution driven by wave action and tidal current. The potential contribution to cumulative surface water quality impacts from construction of Alternative 2 would be increased compared to the proposed project, but the impact of Alternative 2's contribution would be less than significant.

The increased concentration of PCBs in the brine discharge from Alternative 2 may exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID and would result in a potentially significant impact; however, as described for the proposed project, all existing and proposed outfalls associated with the cumulative projects (same as listed in Section 4.3.6) are greater than 0.26 mile from the MRWPCA outfall. Therefore, the likelihood of discharge plumes from different outfalls or their ZIDs intersecting (the ZID for the proposed project extends up to 39 feet from the outfall, as would occur under Alternative 2) or merging and resulting in exceedances of Ocean Plan defined water quality objectives and adversely affecting beneficial uses of receiving waters (Monterey Bay) is very low. Similar to the proposed project, the impact of Alternative 2's contribution would be significant, but this contribution would be minimized to a level that is not cumulatively significant with implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** (*less than significant with mitigation*).

The contribution to less than significant cumulative surface water quality impacts from maintenance of Alternative 2 would be increased compared to the proposed project. Maintenance of the open-water intake would contribute to temporary and localized increased turbidity. Similarly, maintenance of the DeepWater Desal Project open water intake could result in

additional turbidity. However, given the size and volume of Monterey Bay, any temporary increases in turbidity associated with maintenance activities would result in a less than significant cumulative impact.

5.5.3.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. Under Alternative 3, a new 22 mgd desalination plant and co-located data center (110 acres) at “East Tank Farm Parcel” off Dolan Road would be constructed. The pipelines for the intake and brine discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and 6 wells and ASR pipelines, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the surface water hydrology and water quality impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3. Components that are common to both Alternative 3 and the proposed project are assessed in Section 4.3, Surface Water Hydrology and Water Quality.

Construction Impacts

Components unique to Alternative 3 would have a larger disturbance area as compared to the proposed project (110 acres for the desalination facility and data center with 31.5 miles of additional pipeline compared to 25 acres for the proposed project desalination facility and 21 miles of pipeline). Therefore, construction of Alternative 3 would have an increased potential for soil erosion and risk of inadvertent releases of hazardous chemicals during general construction activities.

Alternative 3 would also have an increased potential for eroded soil and sediment to be transported down gradient via stormwater runoff and degrade the water quality of receiving water bodies, including Monterey Bay. As with the proposed project, mandatory compliance with NPDES Construction General Permit and local grading requirements would involve implementation of a SWPPP, including stormwater BMPs as well as erosion and stormwater control measures, which would prevent substantial adverse effects on water quality during construction. Impacts from land-based construction would be increased compared to the proposed project, and, Alternative 3

would result in the *same impact conclusion* compared to the proposed project related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities, less than significant.

Further, offshore in MBNMS, Alternative 3 would result in approximately 16,700 square feet (about 0.4 acre) of disturbance on the seafloor from construction of an open-ocean intake (3,300 square feet) and brine discharge pipeline and diffusers (13,400 square feet); this would be an increased level of impact compared to the proposed project which proposes no construction on the seafloor. Further, since Alternative 3 would include four pipes, intake structures, and a brine discharge structure, the volume of drilling fluids required for HDD installation would be increased compared to the proposed project (which proposes no in-water construction activities) and Alternative 2 (which proposes only one pipe and one intake structure). Discharges of water produced during installation of the open-water intake would be conducted in accordance with the General Construction Waiver. Due to the substantial size of the Alternative 3 in-water seafloor construction area compared to Alternative 2 (16,700 square feet including an intake and a brine discharge structure versus 3,300 square feet for an intake structure; the proposed project would have no seafloor construction), the two subsurface brine and two subsurface intake pipelines that break through the seafloor in MBNMS (compared to none for the proposed project), and the current lack of available details regarding construction methods, techniques designed to avoid or minimize the degradation of water quality and timing of construction, Alternative 3 would result in an *increased impact conclusion* compared to the proposed project related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities, significant and unavoidable.

Construction-related discharges of dewatering effluent from open excavations would be increased under Alternative 3 because of the larger disturbance area associated with the desalination facility (110 acres versus 25 for the proposed project) and increased pipeline length (31.5 miles in addition to the 21 miles for the proposed project). Most of the dewatering effluent produced during construction excavation is considered a low threat and would be discharged to land or the stormwater drainage system provided it complies with the *General WDRs for Discharges with a Low Threat to Water Quality*. Impacts from discharges of contaminated dewatering effluent from open excavations and well development that do not meet General Waiver requirements could be reduced to a less-than-significant level with implementation of mitigation similar to that prescribed for the proposed project, **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)**. Therefore, Alternative 3 would result in the *same impact conclusion* related to construction impacts and degradation of water quality from construction-related discharges of dewatering effluent from open excavations as the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 3 would be increased compared to the proposed project because of the additional miles of new pipeline (31.5 miles in addition to 21 miles for the proposed project). Like the proposed project however, adherence to the General Waste Discharge Requirements would ensure the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

During construction of Alternative 3, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be increased compared to the proposed project due to the larger disturbance area associated with the desalination facility (110 acres versus 25 for the proposed project) and increased pipeline length (31.5 additional miles). Such an increased potential for altered drainage patterns could result in increased risks related to onsite and/or downstream (offsite) erosion, siltation, and flooding, especially if stormwater conveyance capacity is exceeded. Mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would result in the *same impact conclusion* as the proposed project, less than significant.

Operational Impacts

Operational discharges would be released into MBNMS through a new diffuser structure without blending with wastewater. Discharge volumes would be greater than the proposed project (26 mgd versus 14 mgd) and the co-located data center would increase the temperature of the brine by about +10⁰ C (the discharge from the proposed project would not gain heat). Impacts on water quality were assessed for salinity, temperature, and other Ocean Plan constituents.

Salinity Impacts

Alternative 3 would operate a 25-mgd desalination facility with a 46 percent recovery rate; it would need 55-mgd of source water and would produce a maximum of 27-mgd of brine with a maximum salinity of 66 ppt (compared to 58 ppt for the propose project). The brine would be discharged via a new outfall diffuser with five high velocity duckbill diffuser nozzles (**Appendix D1** provides a discussion of diffuser nozzles). Operational discharges from Alternative 3 would locally increase salinity levels within the BMZ and could violate water quality standards or waste discharge requirements or otherwise degrade the water quality of receiving waters (including hypoxia) in Monterey Bay. The result would be an increased level of impact compared to the proposed project that could be mitigated to less than significant.

Approach to Analysis

Jenkins (2016) assessed the potential impacts of the DeepWater Desal Project from increased salinity against Ocean Plan water quality objectives. The analysis of brine dilution and characterization of salinity increases from discharges was performed using two models: a near field mixing zone model certified by the U.S. Environmental Protection Agency for use in ocean outfall design (detailed in Section 4.3, Surface Water Hydrology and Water Quality); and a 3-dimensional far field dispersion model. These models were used to characterize dilution and salinity, based on the mixing dynamics of a single discharge nozzle, to predict the trajectory of the brine plume following initial dilution in the nearfield of the diffuser, and to assess dilution and salinity increases from the interaction of brine plumes simultaneously discharged through five proposed outfall diffuser nozzles. The salinity increases determined by the modeling are worst-case and would occur only along the seabed (the location of the highest and most conservative salinity levels) as a reflection of the negatively buoyant discharge (discussed in

detail in Section 4.3, Surface Water Hydrology and Water Quality); salinity levels decrease with height in the water column. Therefore, the model analysis completed by Jenkins (2016) represents conservative (i.e., worst-case) salinity increases from operational discharges associated with Alternative 3; in the majority of the water column, incremental salinities would be much less than the reported values.

The models used long-term records of water quality, ocean climate, bathymetry, and meteorological conditions to reflect baseline conditions and ambient receiving water quality appropriate to assessing impacts from operational discharges. Model analyses were conducted to determine salinity increases as short-term maximum values representative of periods of mixing and transport in the local ocean environment when brine dilution would be expected to occur at lowest rates. The low mixing conditions reflect the three ocean climates: upwelling period, relaxation period, and Davidson period (detailed in Section 4.3, Surface Water Hydrology and Water Quality). Additionally, model analysis determined average incremental salinity increases over the long-term (20+ years).

Salinity Impact Results and Discussion

The model analysis by Jenkins (2016) assumed discharges of brine via five diffuser nozzles, each discharging at 5.45 mgd for a combined discharge of 27.26 mgd with a maximum brine salinity of 66.15 ppt at the diffuser. Ambient ocean salinity was assumed to be 33.4 ppt based on the 20 year average salinity record. The dilution results determined that a single diffuser nozzle would dilute brine to within 2 ppt of natural background salinity at a distance of 105 feet from the point of discharge. Additionally, the analysis determined that a single 5.45 mgd diffuser nozzle would achieve dilution of the brine to within 0.1 percent over natural background salinity of 33.4 ppt at the edge of the BMZ (a distance of 328 feet from the point of discharge); thus, discharges would be within the 2 ppt salinity standard defined in the Ocean Plan.

The 3-dimensional model analysis by Jenkins (2016) for each of the three ocean climates determined that the discharge plume characterized by salinity of 2 ppt or greater would extend to a distance of 312 to 315 feet from the diffuser, slightly less than the perimeter of the BMZ (328 feet). The 3-dimensional model analysis also determined that an area of up to 0.6 acres around the outfall diffuser along the seafloor would be characterized by salinities up to 42 ppt, representing an incremental increase of approximately 8.5 ppt.

Long-term model analysis was also conducted to determine average salinity increases and Ocean Plan compliance. Results determined that the median salinity at the edge of the BMZ would be 33.94 ppt assuming an ambient receiving water salinity of 33.39 ppt, within the Ocean Plan objective of 2 ppt. The model analysis determined that 99.9 percent of the time (based on 8,149 model simulations), salinity at the edge of the BMZ would be equal to or less than 35.39 ppt (representing the 2 ppt Ocean Plan objective). A maximum salinity of 35.54 (0.15 ppt above ambient) at the edge of the BMZ was determined to occur during the Davidson current period worst-case condition, when ambient ocean salinity exceeded the 20-year average (natural background) salinity. The probability of occurrence of this over-limit is less than 0.08 percent, or about 1 day in 3.4 years. As described above, while model simulations have identified short-term minor (0.15 ppt) exceedances of the 2 ppt threshold, such exceedances are based on worst-case

model simulations and may not occur under actual operational conditions. Additionally, the salinity increases would occur only along the seabed (the location of the highest and most conservative salinity levels) as a reflection of the negatively buoyant dense operational discharges; salinity levels decrease with height in the water column and would be less than the reported values.

Salinity Impact Summary and Conclusion

Salinity increases would be greater under Alternative 3 compared to the proposed project. Under Alternative 3, a larger desalination facility (22 mgd as compared to 9.6 mgd for the proposed project) would discharge a greater volume of brine (27 mgd of brine as compared to 14 mgd of brine for the proposed project) with a higher maximum salinity (66.2 ppt as compared to 58.2 ppt for the proposed project). The area where salinity levels exceed 2 ppt around the Alternative 3 outfall diffuser would extend up to 315 feet, almost to the boundary of the BMZ (328 feet from the diffuser) and would be greater, as would the potential for hypoxia, than that described for the proposed project (salinity levels would be less than 2 ppt at a distance of up to 39 feet from the diffuser). Model analysis (Jenkins, 2016) identified discharges from Alternative 3 would occasionally (1 day out of 3.4 years) exceed the significance threshold of 2 ppt above natural background salinity at the BMZ boundary by a small margin (i.e., by 0.15 ppt).

As described in detail in Section 4.3.2.2 for the proposed project, the Ocean Plan includes monitoring and reporting requirements for the operation of new desalination facilities (Section III.M.4, “Monitoring and Reporting Program”; SWRCB, 2016b). A monitoring and reporting plan has not been defined and proposed as part of Alternative 3; as such and similar to the proposed project, Alternative 3 would not be consistent with the Plans, Policies, and Regulations described in Section 4.3, Surface Water Hydrology and Water Quality. This would be a significant impact and would result in an increased level of impact compared to the proposed project, which could be reduced to less than significant with the implementation of a monitoring and mitigation plan consistent with Ocean Plan requirements that defines clear performance standards and feasible corrective actions linked to the defined performance standards substantially similar to **Mitigation Measure 4.3-4** (but revised specific to the Alternative 3 project final design and defined operating conditions). Therefore, Alternative 3 would result in the *same impact conclusion* for salinity compared to the proposed project, less than significant with mitigation.

Temperature Impacts

As described in Section 4.3.2, the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) contains water quality objectives relevant to operational discharges that may elevate the temperature of receiving waters. The Thermal Plan specifies that the maximum temperature of discharges shall not exceed the natural temperature of receiving waters by more than 20°F, and the discharge of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at: (a) the shoreline; (b) the surface of any ocean substrate; or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation must be maintained at least 50 percent of the duration of any complete tidal cycle. This impact analysis uses the Thermal Plan’s receiving water temperature limitations as significance thresholds.

Because the desalination source water would be used to cool a data center before entering the desalination facility, the temperature of the brine discharge would be increased up to 10°C (18°F) over ambient receiving ocean water temperature before being released into Monterey Bay (Jenkins, 2016). Based on model analysis, a median temperature difference of 0.11°C (0.2°F) would occur on the seabed at a distance of 328 feet from the outfall diffuser (Jenkins, 2016). The maximum temperature increase near the seabed at a distance of 328 feet from the outfall diffuser would be 0.96°C (1.73°F). The maximum modeled temperature increase is less than the natural temperature variations that occur daily at a depth of 65 feet. This would be an increased level of impact compared to the proposed project since the proposed project (or any other alternatives') discharge would not have any heat gain. Based on the temperature model results for the dispersion of the heated brine effluent, discharges would not exceed temperature related significance thresholds. Therefore, Alternative 3 would result in an *increased impact conclusion* for temperature impacts compared to the proposed project, and would be less than significant.

Other Ocean Plan Constituents

Brine discharges from Alternative 3 would not be combined with wastewater effluent, such as described for the proposed project. Therefore, Alternative 3 discharges are unlikely to exceed the numeric Ocean Plan objectives provided in **Table 4.3-4** for most of the listed water quality constituents because most of the listed constituents originate in wastewater. However, as described in Section 4.3, Surface Water Hydrology and Water Quality, the concentration of polychlorinated biphenyls (PCBs) in Monterey Bay exceeds Ocean Plan water quality objectives under baseline conditions. Unlike the proposed project's use of subsurface slant wells, the open water intake would not pre-filter the PCBs through the seafloor. As such, the source water for the desalination process would be out of compliance with the Ocean Plan numeric Water Quality Objectives (WQO) for PCBs prior to processing at the desalination facility. The nature of reverse osmosis treatment results in the concentration of existing constituents (such as salinity). Therefore, the concentration of the existing PCB-levels through the desalination process would be expected to further increase the PCB-levels in the brine discharge and therefore, exceed the Ocean Plan WQO upon discharge. Also, because brine discharges form a sinking plume and minimum dilution values are typically low, increased concentrations of PCBs in the brine would result in an increased level of impact compared to the proposed project and unlike the proposed project, Alternative 3 could potentially exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID. The average concentration of PCBs observed in receiving the ocean waters of Monterey Bay is 2.32 nanograms per liter (ng/L) as determined through the CCLEAN program. This PCB concentration is already greater under baseline conditions than the Ocean Plan objective of 0.019 ng/L (**Table 4.3-4**). Assuming a concentration factor of 1.85, representing a recovery rate of 46 percent for the Alternative 3 desalination facility, an in-pipe brine PCB concentration of 4.29 ng/L was calculated. This concentration of PCB in the desalination brine would result in a concentration at the edge of the ZID of 2.68 ng/l based on a dilution factor of 20:1 (parts seawater to effluent). Therefore, Alternative 3 would have the potential of a 15.5 percent increase at the edge of the ZID compared to ambient ocean conditions, causing an exceedance of the Ocean Plan water quality objective for PCBs, resulting in an increased level of impact compared to the proposed action and a potentially significant impact. However, with implementation of mitigation substantially similar to **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding**

Water Quality Objectives), but revised specific to the Alternative 3 project final design and defined operating conditions, the significant impact would be reduced to a less-than-significant level and therefore, Alternative 3 would result in the *same impact conclusion* on other Ocean Plan constituents compared to the proposed project, less than significant with mitigation.

Maintenance Activities

Under Alternative 3, open water intake facility maintenance would involve regular cleaning from a boat using an automatic airburst connection and would not disturb the ocean floor. Periodic maintenance of the intake pipelines would temporarily increase turbidity in the immediate area surrounding the intake, but dilution, dispersion, and dynamic mixing by waves and tidal currents would result in turbidity levels rapidly reducing to ambient levels. Alternative 3 would therefore, have an increased potential to degrade of water quality due to discharges associated with maintenance of the intake. However, the impacts would be temporary and localized and Alternative 3 would result in the *same impact conclusion* as the proposed project; less than significant.

Facility Siting Impacts

Under Alternative 3, impervious surfaces would be increased by approximately 36 acres compared to the 15 acres for the proposed project. Impacts related to the alteration of drainage patterns, the amount of surface runoff, increases in flooding, erosion, siltation, or exceed storm drain capacity on or off-site would result in an increased level of impact compared to the proposed project. As for the proposed project, Alternative 3 would be subject to the post-construction stormwater management requirements of the municipal stormwater permit and the applicant would be required to implement post-construction stormwater BMPs into the final site designs. With adherence to the post-construction requirements, impacts related to drainage pattern alteration, storm runoff volume, stormwater conveyance capacity, increased soil erosion, and siltation associated with Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

Under Alternative 3, impacts related to flooding and flood risks, including those from tsunami and sea level rise would result in a slightly reduced level of impact compared to the proposed project due to the inland location of the desalination facility and data center. Impacts associated with flooding and flood risks under Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

The MBNMS Desalination Guidelines (NOAA, 2010) state: “project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges.” Although a combined discharge currently is not proposed for Alternative 3, the DeepWater Desal Project proponent is investigating the feasibility of diluting brine effluent by blending it with Moss Landing Power Plant cooling water through a combined discharge. If proposed by DeepWater Desal, the separate EIR/EIS for the DeepWater Desal Project will evaluate this option in detail, but it is not included as part of Alternative 3.

Cumulative Analysis

Construction of Alternative 3 would result in the same types of impacts as the proposed project (for onshore construction) and Alternative 2 (for offshore construction), but would have a larger

construction-related disturbance area (both onshore and offshore) compared to the proposed project and Alternative 2. The cumulative impacts from onshore construction would be the same as those described for the proposed project, but the contribution of Alternative 3 would be incrementally greater. Onshore construction-related activities could result in a cumulatively significant impact when combined with the water quality and hydrology effects of construction activities associated with the projects listed in **Table 4.1-2** in Section 4.1. However, as described for the proposed project, mandatory compliance with the NPDES Construction General Permit, General Waiver, and General WDRs as well as implementation of mitigation similar to the management plan described under **Mitigation Measure 4.7-2b**, would reduce the contribution of Alternative 3 to a level that is less than significant.

For offshore construction, no other reasonably foreseeable projects would result in offshore disturbance. Therefore, although Alternative 3 would have a significant and unavoidable impact related to offshore construction, a cumulative analysis is not applicable to impacts of offshore construction disturbance for Alternative 3.

Maintenance of the open-water intake would contribute to temporary and localized increased turbidity. However, no other reasonably foreseeable projects in the cumulative scenario for Alternative 3 would contribute to such turbidity impacts. Therefore, although Alternative 3 would have a significant and unavoidable impact related to turbidity during maintenance of the open-water intake, a cumulative analysis is not applicable to impacts of intake maintenance for Alternative 3.

The geographic area associated with the assessment of cumulative water quality impacts from Alternative 3 operational discharges is Monterey Bay, and the cumulative projects include the Sand City Coastal Desalination Plant (No. 6), RUWAP Desalination Element (No. 31), RUWAP Recycled Water Project (No. 35), and Pure Water Monterey's GWR Project (No. 59). The Sand City Coastal Desalination Plant was completed in 2010. The significance thresholds identified for the analysis of cumulative water quality impacts from cumulative projects are defined below. Alternative 3 would have a cumulatively significant impact if operational discharges, in combination with other past, current, or future point discharges, would:

- Exceed the receiving water limitation for salinity of 2 ppt at the edge of the BMZ established in the Ocean Plan, or;
- Exceed water quality objectives established in the Ocean Plan at the edge of the zone of initial dilution (ZID).

Implementation of Alternative 3, or ocean discharges related to other projects, would require coverage under a NPDES permit that would be required to meet the Ocean Plan water quality objectives and limitations for salinity. Further, operation of cumulative projects would be required to adhere to all monitoring and reporting requirements prescribed in the Ocean Plan (described in Section 4.3.2) for discharges and receiving water characteristics and for impacts on all forms of marine life.

As discussed in Section 4.3, Surface Water Hydrology and Water Quality, future water quality testing and analysis, required as part of the NPDES permit process, would determine whether operational discharges under Alternative 3 could comply with Ocean Plan water quality objectives.

The most recent amendment to the Ocean Plan (SWRCB, 2016b) reflects the SWRCB’s process of adapting to the need to regulate discharges from desalination projects. Ocean Plan water quality objectives are incorporated into NPDES permits in the form of specific water quality requirements. As discussed above, under some circumstances, Alternative 3 discharges occasionally could exceed the 2 ppt salinity significance threshold by 0.15 ppt, and could exceed Ocean Plan water quality objectives for PCBs. Because proponents of the DeepWater Desalination Project have not proposed a monitoring and reporting plan that demonstrates methods of compliance with the Ocean Plan objectives that are protective of beneficial uses, and feasible mitigation strategies have not yet been identified, Alternative 3 in combination with other cumulative projects could result in significant cumulative impacts on ocean water quality and Alternative 3 would have a significant contribution to such effects. However, with the implementation of a monitoring plan consistent with Ocean Plan requirements that defines clear performance standards and feasible corrective actions linked to the defined performance standards substantially similar to **Mitigation Measures 4.3-4 and 4.3-5** (but revised specific to the Alternative 3 project final design and defined operating conditions), the contribution of Alternative 3 could be reduced to a level that is less than significant because it would comply with Ocean Plan requirements (*less than significant with mitigation*).

5.5.3.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipelines, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water originating from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSO would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the surface water hydrology and water quality impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4. Components that are common to both Alternative 4 and the proposed project are assessed in Section 4.3, Surface Water Hydrology and Water Quality.

Construction Impacts

Components unique to Alternative 4 would have a reduced land-based disturbance area compared to the proposed project. Land-based construction activities would result in 16 acres of disturbance at the proposed desalination plant site (compared to 25 acres for the proposed project) and the installation of 20 total miles of pipeline (compared to 21 miles of pipeline for the proposed project). Therefore, construction of Alternative 4 would have a *reduced* potential for soil erosion

and risk of inadvertent releases of hazardous chemicals during general construction activities on land. For the same reason, Alternative 4 would also have a reduced potential for eroded soil and sediment to be transported down gradient via stormwater runoff and degrade the water quality of receiving water bodies, including Monterey Bay, compared to the proposed project. As with the proposed project, mandatory compliance with NPDES Construction General Permit and local grading requirements would involve implementation of a SWPPP, including stormwater BMPs as well as erosion and stormwater control measures, which would prevent substantial adverse effects on water quality during land-based construction.

However, offshore in MBNMS, Alternative 4 would result in approximately 43,200 square feet (approximately 1 acre) of disturbance on the seafloor from installation of the open ocean intake, outfall pipeline and diffuser, and laying of 1,100 feet of intake pipeline and 700 feet of brine discharge pipeline on the seafloor, ballasted with concrete collars and protected with riprap armoring. This would result in an increased level of impact on water quality from construction activities compared to the proposed project which proposes no construction on the seafloor. Due to the substantially increased size of the Alternative 4 in-water construction area and the lack of details available regarding construction techniques designed to avoid or minimize the degradation of water quality, Alternative 4 would result in an **increased impact conclusion** related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities compared to the proposed project, significant and unavoidable.

Construction-related discharges of dewatering effluent from open excavations would be reduced under Alternative 4 because of the reduced disturbance area associated with the desalination facility (16 acres versus 25 for the proposed project) and reduced total pipeline length (20 miles as compared to 21 for the proposed project). Most of the dewatering effluent produced during construction excavation is considered a low threat and would be discharged to land or the stormwater drainage system provided it complies with the *General WDRs for Discharges with a Low Threat to Water Quality*. Impacts from discharges of contaminated dewatering effluent from open excavations and well development that do not meet General Waiver requirements could be reduced to a less-than-significant level with implementation of mitigation similar to that prescribed for the proposed project, **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)**. Therefore, Alternative 4 would result in the **same impact conclusion** related to the degradation of water quality from construction-related discharges of dewatering effluent from open excavations compared to the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 4 would be slightly reduced compared to the proposed project because of the reduced length of new pipeline (20 miles as compared to 21 miles for the proposed project). Like the proposed project however, adherence to the General Waste Discharge Requirements would ensure the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction and Alternative 4 would result in the **same impact conclusion** as the proposed project, less than significant.

During construction of Alternative 4, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be reduced compared to the

proposed project due to the smaller disturbance area associated with the desalination facility (16 acres versus 25 for the proposed project) and decreased pipeline length (20 miles as compared to 21 miles for the proposed project). However, although reduced, altered drainage patterns associated with Alternative 4 could result in increased risks related to onsite and/or downstream (offsite) erosion, siltation, and flooding, especially if stormwater conveyance capacity is exceeded. Mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would result in the *same impact conclusion* as the proposed project, less than significant.

Operational Impacts

Operational discharges associated with Alternative 4 would be released to Monterey Bay through a rehabilitated diffuser structure without blending with wastewater; there would be no heat gain in the brine. Discharge volumes would be increased (17.5 mgd) compared to the proposed project (14 mgd). Operational impacts on MBNMS water quality are assessed below for salinity and other Ocean Plan constituents.

Salinity Impacts

Alternative 4 would operate a 12 mgd desalination facility at a 45 percent recovery rate (based on 30 mgd of source water), producing a maximum of 17.5 mgd of brine (compared to 14 mgd for the proposed project) with a maximum salinity of 62.5 ppt (compared to 58.2 ppt for the proposed project). Brine would be discharged via an existing outfall, proposed to be rehabilitated and fitted with two, 16-inch diameter diffuser ports that the applicant states would be designed to meet Ocean Plan objectives for receiving water salinity limitations.

The Ocean Plan (SWRCB, 2016b) identifies multiport diffusers as the best method for disposing of brine when the brine cannot be diluted by wastewater and they are described as an end-of-pipe system that can be installed on submerged marine outfalls to discharge effluent through numerous ports or openings to enable rapid turbulent mixing that disperses and dilutes brine within a relatively small area. However, no studies or other information have been provided to support the conclusion that two 16-inch diameter diffuser ports proposed by the Alternative 4 proponent would meet the Ocean Plan objectives, and therefore, the areal extent of potentially increased salinity levels around the proposed diffuser is unknown. Discharges from Alternative 4 could locally increase salinity levels and could violate water quality standards, waste discharge requirements or otherwise degrade the water quality (including hypoxia) in Monterey Bay. Similar to the proposed project, a monitoring and reporting plan, consistent with the requirements of the Ocean Plan has not been defined and proposed. As such, Alternative 4 would not be consistent with the Plans, Policies, and Regulations described in Section 4.3, Surface Water Hydrology and Water Quality.

It is feasible that impacts relating to salinity could be reduced to less-than-significant levels and a monitoring and reporting plan, consistent with the requirements of the Ocean Plan could be proposed; with such measures, impacts could be less than significant. However, while the applicant may propose such measures and provide model analyses to demonstrate compliance with Ocean Plan objectives, compliance with the Ocean Plan objectives cannot be assumed at this

time. Therefore, impacts related to operational discharges and impacts on water quality associated with Alternative 4 would have an increased salinity impact and would result in an **increased impact conclusion** compared to the proposed project; significant and unavoidable.

Other Ocean Plan Constituents

As described for Alternative 3, above, brine discharges from Alternative 4 would not be comingled with wastewater effluent, such as described for the proposed project. Therefore, Alternative 4 discharges are unlikely to exceed the numeric Ocean Plan objectives provided in **Table 4.3-4** for most of the listed water quality constituents since most of the listed constituent originate in wastewater. However, as described in Section 4.3, Surface Water Hydrology and Water Quality, the concentration of PCBs in Monterey Bay exceeds Ocean Plan water quality objectives under baseline conditions. Unlike the proposed project's use of subsurface slant wells, the open water intake would not pre-filter the PCBs through the seafloor. As such, the source water for the desalination process would be out of compliance with the Ocean Plan numeric WQO for PCBs, the desalination process would concentrate the PCB-levels and the brine discharge would exceed the Ocean Plan WQO. Also, as described in Section 4.3, brine-only discharges are dense and form a sinking or negatively buoyant plume. Such dense plumes are characterized by low dilution and mixing with receiving waters (as compared to brine that is comingled with municipal secondary treated waste water). Therefore, Alternative 4 operational discharges would be characterized by increased concentrations of PCBs in the brine as compared to the proposed project. This increase would result in an increased level of impact compared to the proposed project and unlike the proposed project, Alternative 4 could potentially exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID.

It is feasible that impacts relating to exceedances of Ocean Plan objectives could be reduced to less-than-significant levels with mitigation similar to **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**. However, while the applicant may propose such measures or provide model analyses to demonstrate compliance with Ocean Plan objectives, the effectiveness of the diffuser design is currently unknown and feasible mitigation cannot be designed without additional information related to facility design, operational protocols, and diffuser dynamics. Therefore, Alternative 4 would result in an **increased impact conclusion** related to operational discharges and water quality for other Ocean Plan constituents compared to the proposed project, significant and unavoidable.

Maintenance Activities

The screened open water intake facility would involve regular maintenance cleaning from a boat using an automatic airburst connection and would not disturb the ocean floor. Periodic maintenance of the intake would increase turbidity temporarily in the immediate area surrounding the intake compared to the proposed project, but dilution, dispersion, and dynamic mixing by waves and tidal currents would result in turbidity levels rapidly reducing to ambient levels. Therefore, Alternative 4 would result in the **same impact conclusion** related to the degradation of water quality due to discharges associated with maintenance of wells and the open water intake compared to the proposed project, less than significant.

Facility Siting Impacts

Under Alternative 4, the desalination facilities would be constructed on 16.5 acres of the Moss Landing Green Commercial Business Park. Because the proposed development area is currently impervious, implementation of the desalination facilities would replace, and not increase, impervious surface area. As a result, there would be no anticipated changes in drainage patterns at the People's Project desalination plant site. When compared to the proposed action, Alternative 4 would reduce the total impervious surfaces by the roughly 15 acres of impervious surfaces that would be created under the proposed project. Impacts related to the alteration of drainage patterns, the amount of surface runoff, increases in flooding, erosion, siltation, or exceed storm drain capacity on or off-site would result in a reduced level of impact compared to the proposed project. As for the proposed project, Alternative 4 would be subject to the post-construction stormwater management requirements of the municipal stormwater permit and the applicant would be required to implement post-construction stormwater BMPs into the final site designs. With adherence to the post-construction requirements, Alternative 4 would result in the *same impact conclusion* related to drainage pattern alteration, storm runoff volume, stormwater conveyance capacity, increased soil erosion, and siltation compared to the proposed project, less than significant.

Impacts related to flooding due to the siting of Alternative 4 in a 100-year flood hazard area would result in an increased level of impact compared to the proposed project and all alternatives because a substantial portion of the 16.5-acre desalination plant site is located within a 100-year flood hazard zone. This area is designated as Zone A, indicating the base flood elevations have not been determined (FEMA, 2009). Based on the limited information available at this time regarding project design and flood hazard mitigation, the impact associated with the siting of project facilities in a 100-year flood hazard zone and the impedance or redirection of flood flows, Alternative 4 would result in an *increased impact conclusion* related to flooding and flood risks from tsunami and sea level rise compared to the proposed project due to the location of the desalination facility, significant and unavoidable.

The existing caisson, proposed to be rehabilitated for the seawater intake and brine disposal system, is located at the coastline, within the surf zone and within the anticipated extent of ongoing coastal erosion (**Appendix C2**). It can be reasonably expected that the existing caisson would continue to be exposed to ongoing coastal erosion, and would at some point be either removed or armored from the ongoing effects sea level rise. A new pump house on the existing caisson, as proposed by this alternative, would require the caisson to remain in place, potentially exposing adjacent properties to flooding from sea level rise. Mitigation would be required to address the flooding, including a coastal retreat strategy or a plan to armor the caisson, and in so doing, the applicant must demonstrate that flooding will not occur. However, while the applicant may propose such measures or provide model analyses to demonstrate compliance with Coastal Act requirements related to armoring, erosion, and sea level rise resilience, the final design is currently unknown and the feasibility of any proposed mitigation cannot determined at this time. Therefore, impacts related to coastal erosion from facility siting would have an increased level of impact as compared to the proposed project and Alternative 4 would result in an *increased impact conclusion* compared to the proposed project; significant and unavoidable.

In addition to physical impacts, Alternative 4 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its lack of a combined discharge compared to the proposed project, which would use an existing operating outfall. One of the guidelines states: “project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges.” Alternative 4 would utilize an existing outfall, but the brine discharge would not be combined with other existing discharges.

Cumulative Analysis

The cumulative impacts from onshore construction would be the same as those described for the proposed project, but the contribution of Alternative 4 would be incrementally greater. Onshore construction-related activities could have a cumulatively considerable contribution to a significant cumulative impact when combined with the water quality and hydrology effects of construction activities associated with the projects listed in **Table 4.1-2** in Section 4.1. However, as described for the proposed project, mandatory compliance with the NPDES Construction General Permit, General Waiver, and General WDRs as well as implementation of mitigation similar to the management plan described under **Mitigation Measure 4.7-2b**, would reduce the contribution of Alternative 4 to a level that is not cumulatively significant (less than significant with mitigation).

The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) also would include construction of a new open-water intake in Moss Landing and new outfall pipelines that would result in the type of localized water quality degradation described for Alternative 4. The proximity of these two projects’ in-water construction activities in Moss Landing could result in a significant cumulative impact on surface water quality. Like Alternative 4, the DeepWater Desal Project would be required to adhere to MBNMS regulations and requirements to ensure the protection of the beneficial uses of Sanctuary waters to prevent significant impacts on water quality in the Monterey Bay. However, until those provisions are defined and demonstrated to ensure compliance with the construction-related recommendations detailed in the MBNMS Desalination Guidelines, the cumulative impact would be significant and unavoidable, and the contribution of Alternative 4 to this impact would be cumulatively significant (*significant and unavoidable*).

The contribution to cumulative surface water quality impacts from operation of Alternative 4 would be increased compared to the proposed project. Maintenance of the open-water intake would contribute to temporary and localized increased turbidity. Similarly, maintenance of the DeepWater Desal Project open water intake could result in additional turbidity, potentially resulting in a significant cumulative impact. Like Alternative 4, the DeepWater Desal Project would be required to adhere to MBNMS regulations and requirements to ensure the protection of the beneficial uses of Sanctuary waters to prevent significant impacts on water quality in the Monterey Bay. However, until those provisions are defined and demonstrated to ensure compliance with the construction-related recommendations detailed in the MBNMS Desalination Guidelines, the cumulative impact would be significant and unavoidable, and the contribution of Alternative 4 to this impact would be significant and unavoidable.

The increased concentration of PCBs in the brine discharge from Alternative 4 may exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID. The proposed outfall

location for Alternative 4 is near the proposed outfall location for the DeepWater Desal project. Therefore, the discharge plumes from these two outfalls or their ZIDs could intersect or merge and result in exceedances of Ocean Plan defined water quality objectives, thereby adversely affecting beneficial uses of receiving waters (Monterey Bay). This would be a significant cumulative impact, and the contribution of Alternative 4 would be cumulatively significant. Because proponents of the People's Project have not demonstrated methods of compliance with the Ocean Plan objectives that are protective of beneficial uses, and feasible mitigation strategies have not yet been identified, Alternative 4 in combination with other cumulative projects would result in significant and unavoidable cumulative impacts on ocean water quality and Alternative 4 would have a cumulatively significant unavoidable contribution to such effects.

5.5.3.8 Direct and Indirect Effects of Alternative 5 - Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Components unique to Alternative 5a and 5b would have a smaller disturbance area at the CEMEX site (the converted test well and six new wells would disturb 1 less acre) and the Potrero Road Site (seven new wells would disturb 7 fewer acres) compared to the proposed project (the converted test well plus nine new wells). Therefore, the overall construction area for Alternatives 5a and 5b would be reduced compared to the proposed project. However, Alternatives 5a and 5b would still have a potential for soil erosion and risk of inadvertent releases of hazardous chemicals during general construction activities. Under Alternatives 5a and 5b, the potential for eroded soil and sediment to be transported down gradient via stormwater runoff and degrade the water quality of receiving water bodies, including the Salinas River and Monterey Bay, would remain. Mandatory compliance with NPDES Construction General Permit and local grading requirements would involve implementation of a SWPPP, including stormwater BMPs as well as erosion and stormwater control measures, which would prevent substantial adverse effects on water quality during construction. Alternatives 5a and 5b would result in the *same impact conclusion* related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities, less than significant.

Construction-related discharges of dewatering effluent from open excavations and water produced during well drilling of the slant wells would be decreased under Alternatives 5a and 5b because of the reduced number of proposed new wells at CEMEX and Potrero Road compared to the proposed project. Dewatering effluent produced during construction excavation would likely be considered a low threat and would be discharged to land or the stormwater drainage system provided it complies with the *General WDRs for Discharges with a Low Threat to Water Quality*.

The development water produced during well installation would be pumped to holding tanks to allow sediment to settle out and effluent would be discharged to the beach sands (Alternative 5a) or into a buried diffuser system in the parking lot for percolation into underlying beach sands (Alternative 5b) in accordance with the requirements of the General Waiver of WDRs (General Waiver). Impacts from discharges of contaminated dewatering effluent from open excavations and well development that do not meet General Waiver requirements would be reduced to a less-than-significant level with implementation of the same mitigation prescribed for the proposed project, **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)**. Alternative 5a and 5b would result in the *same impact conclusion* related to the degradation of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development compared to the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 5a and 5b would be the same as the proposed project and Alternative 1 because proposed pipelines would be the same. Adherence to the General Waste Discharge Requirements would ensure Alternatives 5a and 5a would result in the *same impact conclusion* as the proposed project and Alternative 1 and the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction would be less than significant.

During construction of Alternative 5a and 5b, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be decreased slightly compared to the proposed project due to the reduced number of proposed wells. Although reduced, the potential for altered drainage patterns could result in increased risks related to onsite and/or downstream (offsite) erosion, siltation, and flooding, especially if stormwater conveyance capacity is exceeded, as compared to existing conditions. Mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would be less than significant, which would result in the *same impact conclusion* as the proposed project.

Operational Impacts

Impacts on water quality related to discharges of brine would result in a decreased level of impact compared to the proposed project because of the reduced volumes of brine produced from the smaller desalination plant. Under Alternatives 5a and 5b, a 6.4 mgd desalination plant would be constructed at Charles Benson Road (as compared to a 9.6 mgd facility for the proposed project). The reduced-capacity desalination plant would treat 15.5 mgd of source water at a 42 percent recovery rate and would generate approximately 9 mgd of brine (as compared to 14 mgd of brine for the proposed project) that would be discharged through the MRWPCA's existing ocean outfall. Similar to the proposed project, discharges from Alternative 5a and 5b would meet the Ocean Plan objective for salinity but would degrade the water quality in Monterey Bay in a very localized area, discussed below. Because no heating mechanism or process would increase the temperature of the source water as it passes through the treatment units, thermal impacts on receiving waters are not discussed further.

Salinity Impacts

This analysis of impacts related to increased salinity from operational discharges incorporates the significance thresholds, approach to analysis, and methodologies described in detail under Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality.

Plant Operation and Discharge Scenarios

The reduced-capacity desalination plant proposed under both Alternatives 5a and 5b would treat 15.5 mgd of source water at a 42 percent recovery rate and would generate approximately 9 mgd of brine (as compared to 14 mgd of brine for the proposed project) that would be discharged through the MRWPCA's existing ocean outfall. During the non-irrigation season (November through March), brine would be combined and discharged with varying amounts of secondary treated wastewater. During the irrigation season, only brine would be discharged.

As discussed in detail under Impact 4.3-4, the treated wastewater flow from the MRWPCA Regional Wastewater Treatment Plant varies throughout the year (**Table 4.3-9**). The highest wastewater flows occur during the non-irrigation season (November through March) and the lowest flows during the irrigation season (April through October) when the secondary treated wastewater is processed through the SVRP for tertiary treatment and distributed to irrigators through the CSIP. During the irrigation season, on some days, all of the wastewater flows could be provided to irrigators, and only the brine would be discharged into Monterey Bay through the outfall. The following discharge scenarios are assessed for salinity related water quality impacts (**Table 5.5-2**):

- **Scenario V1, Brine-only:** 8.99 mgd of brine would be discharged alone through the MRWPCA outfall. This operating scenario would occur during the irrigation season.
- **Scenarios V2 to V11, Brine-with-Wastewater:** 8.99 mgd of brine would be discharged with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. These operating scenarios would occur when treated wastewater is available during the non-irrigation season during typical desalination plant operations.
- **Scenario V12, High Brine Only:** as described in Section 3.4.1, following a shutdown of the desalination facility for repair or routine maintenance, CalAm may temporarily (up to 11 days) operate the desalination facility with one additional reverse osmosis module in service to catch up on production; however, the total annual production would not be increased. As with Scenario V1, brine would be discharged without wastewater into Monterey Bay/MBNMS through the outfall during the irrigation season as a result of the MRWPCA wastewater flows being provided to irrigators.
- **Scenarios V13 to V26, High Brine-with-Wastewater:** as with Scenarios V2 through V11, the analysis accounted for different wastewater flows being combined with the higher volume brine discharges.

Approach to Analysis

The approach to analysis for assessing discharges is consistent with the approach described under Impact 4.3-4 for the proposed project (Section 4.3, Surface Hydrology and Water Quality). A detailed description of the model methodology and conservative assumptions applied for

calculating discharge dilution and salinity at the outfall diffuser is provided under Impact 4.3-4, with further details provided in **Appendix D1** and **D2**.

To model the discharge scenarios, Roberts (2016, 2017) combined the ambient conditions for Monterey Bay, the operational scenarios from **Table 5.5-2**, and the effluent water quality characteristics of the brine and the MRWPCA wastewater (**Table 4.3-11**) to calculate flow, salinity, and density for all assessed discharge scenarios (**Table 5.5-3**). The calculated values were then used to compute minimum dilution ratios (Dm) at the edge of the ZID, estimate the gradient of salinity between the diffuser ports and the edge of the ZID, and calculate the salinity beyond the ZID but within the BMZ (see **Appendix D1** for details).

**TABLE 5.5-2
ALTERNATIVE 5 DISCHARGE SCENARIOS MODELED**

Scenario No.	Discharge Scenario	Constituent Flows (mgd)	
		Secondary Effluent	Desal Brine
Typical Discharge Scenarios			
V1	Brine only	0	8.99
V2	Brine + Low (1) SE	1	8.99
V3	Brine + Low (2) SE	2	8.99
V4	Brine + Low (3) SE	3	8.99
V5	Brine + Low (4) SE	4	8.99
V6	Brine + Moderate (5) SE	5	8.99
V7	Brine + Moderate (5.8) SE	5.80	8.99
V8	Brine + Moderate (7) SE	7	8.99
V9	Brine + High (10) SE	10	8.99
V10	Brine + High (14) SE	14	8.99
V11	Brine + High (19.78) SE	19.78	8.99
High Brine Discharge Scenarios (post-shutdown operations)			
V12	High Brine only	0	11.24
V13	High Brine + Low (0.5) SE	0.5	11.24
V14	High Brine + Low (1) SE	1	11.24
V15	High Brine + Low (2) SE	2	11.24
V16	High Brine + Low (3) SE	3	11.24
V17	High Brine + Low (4) SE	4	11.24
V18	High Brine + Moderate (5) SE	5	11.24
V19	High Brine + Moderate (6) SE	6	11.24
V20	High Brine + Moderate (7) SE	7	11.24
V21	High Brine + Moderate (8) SE	8	11.24
V22	High Brine + Moderate (9) SE	9	11.24
V23	Brine + High (10) SE	10	11.24
V24	Brine + High (12) SE	12	11.24
V25	Brine + High (14) SE	14	11.24
V26	Brine + High (16) SE	16	11.24

NOTES: SE = MRWPCA secondary effluent wastewater

SOURCE: Roberts, 2017.

Salinity Impact Results and Discussion

The potential for a salinity-related water quality impact to occur was analyzed from the diffuser port to the edge of the BMZ (328 feet). Discharge scenarios comprised of only brine (Scenarios V1 and V12) and brine with low to moderate volumes of wastewater (Scenarios V2 to V8 for typical operations and V13 to V21 for post shut-down operations) were determined to be dense (i.e., with salinity levels in excess of ambient conditions) and, thus, negatively buoyant. When the brine is mixed with high volumes of wastewater (Scenarios V9 to V11 for typical operations and V22 to V26 for post shut-down operations), the plume would be positively buoyant because the salinity and density of the effluent is substantially lower than that of receiving waters (**Table 5.5-3**).

**TABLE 5.5-3
ALTERNATIVE 5 OPERATIONAL DISCHARGE FLOW, SALINITY AND DENSITY**

Scenario No.	Discharge Scenario	Combined effluent		
		Flow (mgd)	Salinity (ppt) ¹	Density (kg/m ³)
Typical Discharge Scenarios				
V1	Brine only	8.99	58.23	1045.2
V2	Brine + Low (1) SE	9.99	52.48	1040.6
V3	Brine + Low (2) SE	10.99	47.78	1036.8
V4	Brine + Low (3) SE	11.99	43.86	1033.6
V5	Brine + Low (4) SE	12.99	40.55	1030.9
V6	Brine + Moderate (5) SE	13.99	37.70	1028.6
V7	Brine + Moderate (5.8) SE	14.79	35.71	1027.0
V8	Brine + Moderate (7) SE	15.99	33.09	1024.9
V9	Brine + High (10) SE	18.99	27.99	1020.8
V10	Brine + High (14) SE	22.99	23.26	1017.0
V11	Brine + High (19.78) SE	28.77	18.75	1013.3
High Brine Discharge Scenarios (post-shutdown operations)				
V12	High Brine only	11.24	58.23	1045.2
V13	High Brine + Low (0.5) SE	11.74	55.78	1043.3
V14	High Brine + Low (1) SE	12.24	53.54	1041.4
V15	High Brine + Low (2) SE	13.24	49.55	1038.2
V16	High Brine + Low (3) SE	14.24	46.13	1035.5
V17	High Brine + Low (4) SE	15.24	43.16	1033.0
V18	High Brine + Moderate (5) SE	16.24	40.55	1030.9
V19	High Brine + Moderate (6) SE	17.24	38.24	1029.1
V20	High Brine + Moderate (7) SE	18.24	36.19	1027.4
V21	High Brine + Moderate (8) SE	19.24	34.35	1025.9
V22	High Brine + Moderate (9) SE	20.24	32.69	1024.6
V23	Brine + High (10) SE	21.24	31.19	1023.4
V24	Brine + High (12) SE	23.24	28.58	1021.3
V25	Brine + High (14) SE	25.24	26.38	1019.5
V26	Brine + High (16) SE	27.24	24.50	1018.0

NOTES: SE = MRWPCA secondary effluent wastewater

SOURCE: Roberts, 2017.

The results of modeled salinity predictions and minimum dilution values for each discharge scenario, and the distance from the diffuser port at which the dense discharge plume makes contact with the seabed, is shown in **Table 5.5-4** for all dense discharge scenarios. The worst case condition for dilution, as expected, would be when only brine is discharged during the irrigation season (Scenarios V1 and V12). The salinity increment in Scenario V1 at the edge of the ZID (approximately 9 feet from the diffuser port) and at the BMZ was modeled to be 1.59 ppt and 1.32 ppt above ambient, respectively. Scenario V12 would be relatively similar due to the Tideflex diffusers, as discussed under Impact 4.3-4 in Section 4.3. All other discharge scenarios evaluated are shown to have lower incremental salinities (and higher Dm) than Scenario V1. In all scenarios modeled, the Ocean Plan salinity limit of 2 ppt would be met within the ZID, the length of which ranges from approximately 9 to 30 feet from the outfall diffuser for the dense scenarios.

Positively buoyant discharge plumes (i.e., those with densities less than the receiving water) require different analytical procedures than are used for negatively buoyant plumes. The plume dynamics for buoyant plume operational scenarios were assessed using the same procedure as that described under Impact 4.3-4 (see Section 4.3, Surface Water Hydrology and Water Quality).

The modeling results for the buoyant plumes are presented in **Table 5.5-5** and indicate that the dilution would be higher for the buoyant scenarios evaluated than for any of the dense plumes and that buoyant operational discharges would not exceed the significance threshold of 2 ppt at the BMZ.

Salinity Impact Summary and Conclusion

The analysis of salinity levels indicates that all discharge scenarios would result in salinity increases of less than 2 ppt above ambient levels at the edge of the ZID (up to 30 feet from the diffuser for Alternative 5a or 5b, as compared to 39 feet for the proposed project, when considering worst-case post shut-down operations) and at the edge of the BMZ (328 feet from the diffuser). Therefore, Alternative 5 (either 5a or 5b) would not exceed or violate the salinity standards. The salinity increases presented here represent conservative values and would occur only along the seabed. For the majority of the water column, incremental salinities would be much lower than reported values. Therefore, Alternative 5 discharges would not violate water quality standards, waste discharge requirements, or otherwise degrade the water quality (including hypoxia) of receiving waters in Monterey Bay by increasing salinity levels, and would result in a slightly reduced level of impact compared to the proposed project due to the reduced volume of brine discharged (9 mgd as compared to 14 for the proposed project) and the reduced extent of the ZID associated with operational discharges (21 feet from the diffuser as compared to 39 feet for the proposed project for typical operations). However, as described in Section 4.3.2.2, the Ocean Plan includes monitoring and reporting requirements for operation of new desalination facilities (Section III.M.4, “Monitoring and Reporting Program”; SWRCB, 2016b). The Monitoring and Reporting Plan must include provisions for monitoring of effluent and receiving water characteristics and impacts on all forms of marine life. The implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with Ocean Plan objectives and requirements. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* for salinity increases as the proposed project, less than significant with mitigation.

**TABLE 5.5-4
DILUTION MODEL RESULTS FOR ALTERNATIVE 5 DENSE DISCHARGE SCENARIOS**

Scenario No.	Scenario	Predictions			At impact (ZID)		At BMZ	
		SEA	VP		Dilution ^a	Salinity increment (ppt)	Dilution	Salinity increment (ppt)
		Dilution	Dilution	Distance (ft)				
Typical Discharge Scenarios								
V1	Brine only	15.7	16.0	8.6	15.7	1.59	18.8	1.32
V2	Brine + Low (1) SE	16.3	16.9	9.6	16.3	1.17	19.6	0.98
V3	Brine + Low (2) SE	17.4	18.1	10.5	17.4	0.83	20.8	0.69
V4	Brine + Low (3) SE	18.8	19.8	12.4	18.8	0.56	22.6	0.47
V5	Brine + Low (4) SE	20.9	21.6	14.4	20.9	0.35	25.0	0.29
V6	Brine + Moderate (5) SE	24.6	24.9	17.5	24.6	0.18	29.5	0.15
V7	Brine + Moderate (5.8) SE	30.3	29.4	21.4	29.4	0.08	35.3	0.07
V8	Brine + Moderate (7) SE	110.2	67.6	51.4	67.6	0.00	81.1	0.00
V9	Brine + High (10) SE ¹	-	-	-	-	-	-	-
V10	Brine + High (14) SE ¹	-	-	-	-	-	-	-
V11	Brine + High (19.78) SE ¹	-	-	-	-	-	-	-
High Brine Discharge Scenarios (post-shutdown operations)								
V12	High Brine only	15.4	16.1	9.3	15.4	1.61	18.5	1.34
V13	High Brine + Low (0.5) SE	15.8	16.5	9.2	15.8	1.42	19.0	1.18
V14	High Brine + Low (1) SE	16.1	16.8	10.3	16.1	1.26	19.3	1.05
V15	High Brine + Low (2) SE	16.9	17.8	11.0	16.9	0.96	20.3	0.80
V16	High Brine + Low (3) SE	18.1	19.0	12.4	18.1	0.71	21.7	0.59
V17	High Brine + Low (4) SE	19.6	20.3	13.9	19.6	0.50	23.5	0.42
V18	High Brine + Moderate (5) SE	21.5	22.0	15.8	21.5	0.33	25.9	0.28
V19	High Brine + Moderate (6) SE	24.7	24.6	18.2	24.6	0.20	29.5	0.17
V20	High Brine + Moderate (7) SE	30.0	28.8	22.0	28.8	0.10	34.6	0.08
V21	High Brine + Moderate (8) SE	42.4	37.4	29.7	37.4	0.03	44.9	0.02
V22	High Brine + Moderate (9) SE ¹	-	-	-	-	-	-	-
V23	Brine + High (10) SE ¹	-	-	-	-	-	-	-
V24	Brine + High (12) SE ¹	-	-	-	-	-	-	-
V25	Brine + High (14) SE ¹	-	-	-	-	-	-	-
V26	Brine + High (16) SE ¹	-	-	-	-	-	-	-

NOTES: SE = MRWPCA secondary effluent wastewater

¹ See Table 5.5-5 for results of buoyant discharges.

SOURCE: Roberts, 2017

**TABLE 5.5-5
DILUTION RESULTS FOR BUOYANT ALTERNATIVE 5 DISCHARGE SCENARIOS**

Scenario No.	Scenario	Season	Effluent conditions			UM3 simulations		NRFIELD simulations		
			Flow (mgd)	Salinity (ppt)	Density (kg/m ³)	Average dilution	Rise height (centerline) (ft)	Minimum dilution	Rise height (centerline) (ft)	Rise height (top) (ft)
V9	Brine + High (10) SE	Upwelling	18.99	27.99	1020.8	101	28	-	-	-
		Davidson				145	55	-	-	-
		Oceanic				-	-	-	-	-
V10	Brine + High (14) SE	Upwelling	22.99	23.26	1017.0	110	37	-	-	-
		Davidson				172	75	-	-	-
		Oceanic				116	42	-	-	-
V11	Brine + High (19.78) SE	Upwelling	28.77	18.75	1013.3	-	-	100	39	41
		Davidson				-	-	215	97	100
		Oceanic				-	-	134	57	59
V22	High Brine + Mod (9) SE	Upwelling	20.24	32.69	1024.6	91	17	-	-	-
		Davidson				100	15	-	-	-
		Oceanic				138	41	-	-	-
V23	Brine + High (10) SE	Upwelling	21.24	31.19	1023.4	88	20	-	-	-
		Davidson				124	47	-	-	-
		Oceanic				88	18	-	-	-
V24	Brine + High (12) SE	Upwelling	23.24	28.58	1021.3	96	28	-	-	-
		Davidson				133	55	-	-	-
		Oceanic				95	26	-	-	-
V25	Brine + High (14) SE	Upwelling	25.24	26.38	1019.5	100	32	-	-	-
		Davidson				144	64	-	-	-
		Oceanic				104	35	-	-	-
V26	Brine + High (16) SE	Upwelling	27.24	24.50	1018.0	103	36	-	-	-
		Davidson				155	73	-	-	-
		Oceanic				109	41	-	-	-

NOTES: SE = MRWPCA secondary effluent wastewater

SOURCE: Roberts, 2017

Other Ocean Plan Constituents

Consistent with the approach to analysis described under Impact 4.3-5 (see Section 4.3, Surface Water Hydrology and Water Quality), this impact analysis uses the Ocean Plan water quality objectives, applied at the edge of the ZID, as significance thresholds for determining whether or not the discharges would result in a significant impact related to water quality, water quality standards, and waste discharge requirements.

Approach to Analysis

The same approach to analysis was applied to Alternative 5 that was described for the proposed project under Impact 4.3-5 (Section 4.3, Surface Hydrology and Water Quality). Potential water quality impacts were identified by determining whether discharges would exceed the conservative threshold of 80 percent of the Ocean Plan objective. **Appendix D3** documents the data sources and provides further detail on the methodology used to perform the ocean water quality modeling analysis. **Table 4.3-4** provides the suite of constituents and their numeric Ocean Plan water quality objectives.

Results and Impact Discussion

The estimated concentrations for the full suite of Ocean Plan constituents are presented as concentrations at the edge of the ZID and as a percentage of the Ocean Plan numeric water quality objective in **Appendix D3 (Tables 8 and 10; Tables A3 and A4)**. Consistent with the results discussed under Impact 4.3-5 for the proposed project, the model analysis determined that Alternative 5 discharges would not exceed Ocean Plan water quality objectives for the majority of constituents listed in **Table 4.3-4**. Additionally, no exceedances or potential exceedances were determined to occur for discharge scenarios involving brine-only or high volumes of MRWPCA wastewater (see **Appendix D3, Table 4**).

However, consistent with impacts assessed for the proposed project (see Impact 4.3-5), when brine is combined with low to moderate volumes of MRWPCA wastewater, ammonia and cyanide are predicted to exceed 80 percent of the Ocean Plan WQOs at the edge of the ZID. Also, specific to Alternative 5, chlordane is predicted to exceed 80 percent of the Ocean Plan WQOs at the edge of the ZID for a single operational scenario when brine is combined with low (4 mgd) volumes of MRWPCA wastewater. For an additional eleven constituents, there is not enough information to assess concentrations at the edge of the ZID due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives. Only future water quality testing and analysis, such as that required under the NPDES permit process, would determine whether discharges under Alternative 5 would fully comply with Ocean Plan water quality objectives. Therefore, it must be concluded that Alternative 5 could result in a significant impact that could be reduced to less than significant with the implementation of **Mitigation Measure 4.3-5. (Implement Protocols to Avoid Exceeding Water Quality Objectives)**, which would require CalAm to perform an extensive water quality assessment prior to implementation; in addition, operational discharges that cannot be demonstrated to conform to the prescribed performance standards may only be released following implementation of additional design features, engineering solutions, and/or operational measures to ensure compliance with provisions of the Ocean Plan.

Impact Summary and Conclusion – Ocean Plan Water Quality Constituents

The model-based analyses concluded that constituent concentrations would become elevated to levels greater than 80 percent of the Ocean Plan objective (established as a conservative significance threshold for determining impacts) under some of the assessed discharge scenarios involving low and moderate volumes of MRWPCA wastewater. For an additional eleven constituents, there is not enough information to assess concentrations at the edge of the ZID due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives. Therefore, it was concluded that Alternative 5 could result in a significant impact related to water quality standards, waste discharge requirements and water quality of receiving waters in Monterey Bay. Significant impacts would be reduced to a less-than-significant levels by implementing **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

Also, **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)**, described under Impact 4.3-4 (Section 4.3, Surface Water Hydrology and Water Quality), would further reduce and minimize potential impacts by requiring CalAm to implement a comprehensive Monitoring and Reporting Plan (Plan), following approval by the RWQCB and MBNMS, to obtain field monitoring and marine biological resource data in the area affected by a project. The Plan would set forth appropriate response thresholds and trigger corrective actions (defined in **Mitigation Measure 4.3-5**) that would be required if the acquired data indicated deleterious effects to receiving water quality or marine resources from discharges. Therefore, although Alternatives 5a and 5b would produce less brine because of the reduced capacity desalination plant, they would each result in the *same impact conclusion* for meeting Ocean Plan water quality objectives for other constituents compared to the proposed project, less than significant with mitigation.

Facility Siting Impacts

Under Alternative 5a and 5b, the disturbance area for maintenance of the slant wells at the CEMEX site and the Potrero Road site would be slightly reduced as compared to proposed project due to the reduced number of wells at each location (7 wells under Alternatives 5a and 5b as compared to ten wells for the proposed project). Impervious surfaces would remain substantially similar to the proposed project in the context of storm runoff volume generation. Therefore, Alternative 5a and 5b impacts related to the alteration of drainage patterns such that there is a resultant increase in erosion, siltation, flooding on- or offsite or the exceeding of storm drain capacity would be similar as compared to the proposed project. With adherence to post-construction stormwater management requirements and post-construction stormwater BMPs, Alternatives 5a and 5b would result in the *same impact conclusion* compared to the proposed project, less than significant.

Under Alternative 5a and 5b, impacts related to flooding and flood risks, including those from tsunami and sea level rise would remain the same as those described for the proposed project due to all project facilities being located at the same sites despite the reduced number of wells and the reduced desalination facility under Alternatives 5a and 5b as compared to the proposed project. Impacts associated with flooding and flood risks under Alternative 5a and 5b would result in the *same impact conclusion* compared to the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project would produce between 0.94 mgd and 1.17 mgd of RO treated effluent that would be discharged into Monterey Bay through the MRWPCA's existing ocean outfall. GWR Project discharges could combine with discharges of Alternative 5 and potentially violate water quality standards or degrade water quality in the area immediately surrounding the outfall diffuser.

Salinity Impacts

The discharges of the 6.4 mgd desalination plant, combined with effluent from the GWR Project and varying volumes of treated wastewater from the existing MRWPCA Regional Wastewater Treatment Plant, would be discharged into Monterey Bay through the MRWPCA's existing ocean outfall and would locally increase salinity levels that could violate water quality standards, waste discharge requirements, or otherwise degrade the water quality in Monterey Bay, thus resulting in a significant water quality impact from these combined discharges. The analysis of impacts related to discharges that include GWR effluent presented here incorporates the significance thresholds, approach to analysis, and methodologies described in detail under Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, as well as above under the discussion of the operational impacts of Alternative 5.

Combined Desalination Plant and GWR Operation and Discharge Scenarios

Operation of Alternative 5 and the GWR project would result in discharges that would include brine from the Alternative 5 6.4 mgd desalination plant, effluent from the GWR Project, and treated wastewater from the existing MRWPCA Regional Wastewater Treatment Plant. During certain times of the year, a blend of brine and GWR effluent would be discharged. Additionally, the blend of brine and GWR effluent would be further combined with varying amounts of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant, depending on the time of year (see **Table 4.3-8**). A wide range of operational discharge scenarios was assessed for salinity-related water quality impacts (**Table 5.5-6**) as follows:

- **Brine-with-GWR:** 8.99 mgd of brine generated from the Alternative 5 Desalination Plant would be discharged with either 0.94 mgd or 1.17 mgd of GWR effluent under either typical or post shut-down operations. These operating scenarios (C1, C12, C17 from **Table 5.5-6**) would typically occur during the irrigation season when wastewater is not available.
- **Combined Discharge:** The brine and GWR discharge (8.99 mgd of brine and either 0.94 mgd or 1.17 mgd of GWR effluent) would be combined with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant under typical and post shut-down operations. These operating scenarios (**Table 5.5-6**) would typically occur in the non-irrigation season when wastewater is available.

Additionally, potential discharge scenarios would include combinations of treated wastewater with GWR effluent or GWR effluent alone (i.e., without desalination brine). Such discharge scenarios could occur if the GWR Project comes on line before the Alternative 5 Desalination Plant, or if the Alternative 5 desalination plant periodically shuts down. These scenarios would not represent a contribution to combined impacts for Alternative 5, but have been modeled and

**TABLE 5.5-6
MPWSP CUMULATIVE DISCHARGE SCENARIOS MODELED**

Scenario No.	Discharge Scenario	Constituent Flows (mgd)		
		Secondary Effluent	Desal Brine	GWR
Typical Discharge Scenarios				
C1	Brine + High GWR only	0	8.99	1.17
C2	Brine + High GWR + Low (1) SE	1	8.99	1.17
C3	Brine + High GWR + Low (2) SE	2	8.99	1.17
C4	Brine + High GWR + Low (3) SE	3	8.99	1.17
C5	Brine + High GWR + Low (4) SE	4	8.99	1.17
C6	Brine + High GWR + Mod (5) SE	5	8.99	1.17
C7	Brine + High GWR + Mod (5.3) SE	5.3	8.99	1.17
C8	Brine + High GWR + Mod (6) SE	6	8.99	1.17
C9	Brine + High GWR + Mod (7) SE	7	8.99	1.17
C10	Brine + High GWR + High (11) SE	11	8.99	1.17
C11	Brine + High GWR + High (15.92) SE	15.92	8.99	1.17
C12	Brine + Low GWR only	0	8.99	0.94
C13	Brine + Low GWR + Low (1) SE	1	8.99	0.94
C14	Brine + Low GWR + Low (3) SE	3	8.99	0.94
C15	Brine + Low GWR + Mod (5.3) SE	5.3	8.99	0.94
C16	Brine + Low GWR + High (15.92) SE	15.92	8.99	0.94
High Brine Discharge Scenarios (post-shutdown operations)				
C17	High Brine + High GWR only	0	11.24	1.17
C18	High Brine + High GWR + Low (0.5) SE	0.5	11.24	1.17
C19	High Brine + High GWR + Low (1) SE	1	11.24	1.17
C20	High Brine + High GWR + Low (2) SE	2	11.24	1.17
C21	High Brine + High GWR + Low (3) SE	3	11.24	1.17
C22	High Brine + High GWR + Low (4) SE	4	11.24	1.17
C23	High Brine + High GWR + Mod (5) SE	5	11.24	1.17
C24	High Brine + High GWR + Mod (6) SE	6	11.24	1.17
C25	High Brine + High GWR + Mod (7) SE	7	11.24	1.17
C26	High Brine + High GWR + Mod (8) SE	8	11.24	1.17
C27	High Brine + High GWR + Mod (9) SE	9	11.24	1.17
C28	High Brine + High GWR + High (10) SE	10	11.24	1.17
C29	High Brine + High GWR + High (12) SE	12	11.24	1.17
C30	High Brine + High GWR + High (14) SE	14	11.24	1.17
C31	High Brine + High GWR + High (16) SE	16	11.24	1.17

NOTES: SE = MRWPCA secondary effluent wastewater

SOURCE: Roberts, 2017

impacts comprehensively assessed and documented under Impact HS-5 in Section 4.11.4.4 of the GWR Project Final EIR (MRWPCA and MPWMD, 2016; p. 4.11-78 *et seq.*). Additionally, such scenarios have been further investigated for dilution and mixing at the outfall in EIR/EIS **Appendices D1** and **D3**. Because the salinity of discharges that do not include Alternative 5 Desalination Plant brine would be substantially lower than that of ambient conditions and therefore would not exceed the significance threshold of 2 ppt at the BMZ, impacts would be less than significant and these scenarios are not discussed further.

Approach to Analysis

The approach to analyzing the combined discharges of Alternative 5 and the GWR Project is consistent with the approach described under Impact 4.3-4 for the proposed project (Section 4.3, Surface Hydrology and Water Quality). A detailed description of the model methodology and conservative assumptions applied for calculating operational discharge dilution and salinity at the outfall diffuser is provided under Impact 4.3-4, with further details provided in **Appendices D1** and **D2**.

To revise the brine discharge model analysis for the Alternative 5 with GWR Project operational discharge scenarios, Roberts (2016, 2017) combined the site-specific conditions for Monterey Bay receiving waters, the combined discharge scenarios in **Table 5.5-6** and the effluent water quality characteristics of the brine, GWR effluent, and the MRWPCA wastewater to calculate flow, salinity, and density for all assessed combined discharge scenarios (**Table 5.5-7**). The calculated values (**Table 5.5-7**) were then utilized to compute minimum dilution ratios (Dm) at the edge of the ZID, estimate the gradient of salinity between the diffuser ports and the edge of the ZID, and calculate the salinity beyond the ZID but within the regulatory brine mixing zone (BMZ) (see **Appendix D1** for details). These results are presented and discussed below.

Results and Impact Discussion

Alternative 5 was analyzed for potential water quality impacts as a result of combined discharges from the diffuser port to the edge of the BMZ. Of the Alternative 5 combined discharge scenarios assessed (**Table 5.5-6**), discharges comprising brine and GWR effluent only (Scenario C1 and C12), and combined flows comprising brine and GWR effluent as well as low to moderate volumes of wastewater (Scenarios C2 through C8 and C12 through C15 for typical operations; Scenarios C17 through C25 for post shut-down operations) were determined to be dense (i.e., with salinity levels in excess of ambient conditions) and, thus, negatively buoyant. When the Alternative 5 brine is combined with GWR effluent and a high volume of wastewater (Scenarios C9 through C11 and C16 for typical operations; Scenarios C26 through C31 for post shut-down operations), the plume is positively buoyant because the salinity and density of the effluent is substantially lower than that of receiving waters (**Table 5.5-7**).

Model simulations were run for all of the combined discharge scenarios (discussed in detail in Appendices D1 and D2). The results of the salinity predictions and minimum dilution values, the distance between the diffuser port and the point where the plume contacts the seabed, and the incremental salinity increases above background conditions for each dense cumulative discharge scenario at the edge of the ZID and the BMZ are presented in **Table 5.5-8**.

**TABLE 5.5-7
ALTERNATIVE 5 COMBINED OPERATIONAL DISCHARGE FLOW, SALINITY, AND DENSITY**

Scenario No.	Discharge Scenario	Combined effluent		
		Flow (mgd)	Salinity (ppt) ¹	Density (kg/m ³)
Typical Discharge Scenarios				
C1	Brine + High GWR only	10.16	52.19	1040.3
C2	Brine + High GWR + Low (1) SE	11.16	47.59	1036.6
C3	Brine + High GWR + Low (2) SE	12.16	43.74	1033.5
C4	Brine + High GWR + Low (3) SE	13.16	40.48	1030.9
C5	Brine + High GWR + Low (4) SE	14.16	37.67	1028.6
C6	Brine + High GWR + Mod (5) SE	15.16	35.24	1026.6
C7	Brine + High GWR + Mod (5.3) SE	15.46	34.57	1026.1
C8	Brine + High GWR + Mod (6) SE	16.16	33.11	1024.9
C9	Brine + High GWR + Mod (7) SE	17.16	31.23	1023.4
C10	Brine + High GWR + High (11) SE	21.16	25.48	1018.7
C11	Brine + High GWR + High (15.92) SE	26.08	20.82	1015.0
C12	Brine + Low GWR only	9.93	53.27	1041.2
C13	Brine + Low GWR + Low (1) SE	10.93	48.47	1037.3
C14	Brine + Low GWR + Low (3) SE	12.93	41.09	1031.4
C15	Brine + Low GWR + Mod (5.3) SE	15.23	35.01	1026.4
C16	Brine + Low GWR + High (15.92) SE	25.85	20.95	1015.1
High Brine Discharge Scenarios (post-shutdown operations)				
C17	High Brine + High GWR only	12.41	53.29	1041.2
C18	High Brine + High GWR + Low (0.5) SE	12.91	51.25	1039.6
C19	High Brine + High GWR + Low (1) SE	13.41	49.37	1038.0
C20	High Brine + High GWR + Low (2) SE	14.41	46.00	1035.3
C21	High Brine + High GWR + Low (3) SE	15.41	43.07	1033.0
C22	High Brine + High GWR + Low (4) SE	16.41	40.49	1030.9
C23	High Brine + High GWR + Mod (5) SE	17.41	38.21	1029.0
C24	High Brine + High GWR + Mod (6) SE	18.41	36.18	1027.4
C25	High Brine + High GWR + Mod (7) SE	19.41	34.36	1025.9
C26	High Brine + High GWR + Mod (8) SE	20.41	32.71	1024.6
C27	High Brine + High GWR + Mod (9) SE	21.41	31.22	1023.4
C28	High Brine + High GWR + High (10) SE	22.41	29.87	1022.3
C29	High Brine + High GWR + High (12) SE	24.41	27.48	1020.4
C30	High Brine + High GWR + High (14) SE	26.41	25.46	1018.7
C31	High Brine + High GWR + High (16) SE	28.41	23.73	1017.3

SOURCE: Roberts, 2017.

**TABLE 5.5-8
DILUTION MODEL RESULTS FOR ALTERNATIVE 5 COMBINED DENSE DISCHARGE SCENARIOS**

Scenario No.	Scenario	Predictions			At impact (ZID)		At BMZ	
		SEA	VP		Salinity increment (ppt)	Salinity increment (ppt)		
		Dilution	Dilution	Distance (ft)			Dilution ^a	Dilution
Typical Discharge Scenarios								
C1	Brine + High GWR only	16.5	17.3	9.9	16.5	1.14	19.8	0.95
C2	Brine + High GWR + Low (1) SE	17.4	18.3	10.8	17.4	0.82	20.9	0.68
C3	Brine + High GWR + Low (2) SE	18.7	19.3	12.3	18.7	0.56	22.4	0.46
C4	Brine + High GWR + Low (3) SE	21.1	21.8	14.5	21.1	0.34	25.4	0.28
C5	Brine + High GWR + Low (4) SE	24.8	24.9	17.5	24.8	0.17	29.8	0.15
C6	Brine + High GWR + Mod (5) SE	33.2	31.7	23.5	31.7	0.06	38.0	0.05
C7	Brine + High GWR + Mod (5.3) SE	37.7	34.3	25.6	34.3	0.04	41.2	0.03
C8	Brine + High GWR + Mod (6) SE	113.5	68.5	53.5	68.5	0.00	82.2	0.00
C9	Brine + High GWR + Mod (7) SE ¹	-	-	-	-	-	-	-
C10	Brine + High GWR + High (11) SE ¹	-	-	-	-	-	-	-
C11	Brine + High GWR + High (15.92) SE ¹	-	-	-	-	-	-	-
C12	Brine + Low GWR only	16.3	16.9	9.5	16.3	1.22	19.6	1.02
C13	Brine + Low GWR + Low (1) SE	17.1	17.8	10.7	17.1	0.88	20.6	0.74
C14	Brine + Low GWR + Low (3) SE	20.6	21.1	13.9	20.6	0.38	24.7	0.31
C15	Brine + Low GWR + Mod (5.3) SE	34.1	32.6	24.1	32.6	0.05	39.1	0.04
C16	Brine + Low GWR + High (15.92) SE ¹	-	-	-	-	-	-	-
High Brine Discharge Scenarios (post-shutdown operations)								
C17	High Brine + High GWR only	16.2	17.0	10.0	16.2	1.23	19.5	1.02
C18	High Brine + High GWR + Low (0.5) SE	16.5	17.3	10.5	16.5	1.09	19.8	0.91
C19	High Brine + High GWR + Low (1) SE	17.0	17.8	11.1	17.0	0.95	20.4	0.79
C20	High Brine + High GWR + Low (2) SE	18.1	18.8	12.4	18.1	0.70	21.7	0.58
C21	High Brine + High GWR + Low (3) SE	19.6	20.2	14.0	19.6	0.50	23.5	0.41
C22	High Brine + High GWR + Low (4) SE	21.7	22.3	16.0	21.8	0.33	26.1	0.27
C23	High Brine + High GWR + Mod (5) SE	24.7	24.7	18.4	24.7	0.20	29.6	0.16
C24	High Brine + High GWR + Mod (6) SE	30.0	28.7	22.0	28.7	0.10	34.4	0.08
C25	High Brine + High GWR + Mod (7) SE	42.9	37.6	29.8	37.6	0.03	45.1	0.02
C26	High Brine + High GWR + Mod (8) SE ¹	-	-	-	-	-	-	-
C27	High Brine + High GWR + Mod (9) SE ¹	-	-	-	-	-	-	-
C28	High Brine + High GWR + High (10) SE ¹	-	-	-	-	-	-	-
C29	High Brine + High GWR + High (12) SE ¹	-	-	-	-	-	-	-
C30	High Brine + High GWR + High (14) SE ¹	-	-	-	-	-	-	-
C31	High Brine + High GWR + High (16) SE ¹	-	-	-	-	-	-	-

NOTES: SE = MRWPCA secondary effluent wastewater

¹ See Table 5.5-9 for results of buoyant discharges.

SOURCE: Roberts, 2017.

All combined discharge scenarios under Alternative 5 are shown to have incremental salinities that would be lower than that assessed for the brine-only discharge (worst-case scenario, Scenario V1, **Table 5.5-5**). Dilution is increased and incremental salinity is reduced (as compared to the brine-only discharge scenario) as increasing fresh water in the form of GWR effluent and MRWPCA wastewater are co-mingled with the brine. For all combined discharge scenarios, the Ocean Plan salinity limit of 2 ppt is met within the ZID, the length of which ranges from approximately 10 to 30 feet from the outfall diffuser. Further, the computed salinities presented in **Table 5.5-8** would occur only along the seabed. Salinities decrease with height in the water column (see **Appendix D1** for details) and would only be above ambient close to the seabed. For most of the water column, incremental salinities would be much less than the conservative values in **Table 5.5-8**.

Positively buoyant plumes require different analytical procedures than are used for negatively buoyant plumes. The plume dynamics for these scenarios were assessed using the same procedure as that described under Impact 4.3-4 (see Section 4.3, Surface Water Hydrology and Water Quality). In summary, the internal hydraulics of the outfall diffuser was computed, and then the average diffuser port diameter and discharge flows were calculated. Model analyses were then run, accounting for effluent water quality characteristics and receiving water quality conditions.

The results, summarized in **Table 5.5-9**, show that when brine is combined with GWR effluent and moderate to high volumes of wastewater, dilution is high, the plume is positively buoyant and the discharges would not exceed the significance threshold of 2 ppt at the BMZ. These moderate to high volumes of wastewater flow occur during the non-irrigation season (November through March; **Table 4.3-9**).

Impact Summary and Conclusion for Salinity Impacts under Combined Discharge Scenarios

The analysis of salinity levels indicates that all discharges associated with the Alternative 5 combined discharge scenarios would result in salinity less than 2 ppt above ambient levels at the edge of the ZID (up to approximately 30 feet from the diffuser) and at the edge of the BMZ (328 feet from the diffuser). The Alternative 5 combined operational discharges from the MRWPCA outfall would therefore not exceed or violate the salinity standards or degrade water quality in terms of salinity. For all Alternative 5 combined discharge scenarios involving dense, negatively buoyant plumes (worst case scenarios), discharges would result in salinity increases of less than 2 ppt at the point where the discharge plume makes contact with the sea floor following discharge from the outfall diffuser ports and undergoes rapid mixing and dilution (edge of ZID). As discussed in detail under Impact 4.3-4, areas where salinity levels exceed 2 ppt would be confined to a relatively small area adjacent to each diffuser port and above the sea floor, after which the plumes attenuate rapidly with distance from each port. Also, the salinity increases presented here represent conservative values and would occur only along the seabed. For the majority of the water column, incremental salinities would be much lower than the reported values.

The current NPDES Permit (Order No. R3-2014-0013, NPDES Permit No. CA0048551) regulates the wastewater discharge from the existing outfall and would be amended to incorporate the specific effluent limitations, including salinity limitations for receiving waters. Further, implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with the monitoring requirements and regulatory standards protective of the beneficial uses of Monterey Bay.

**TABLE 5.5-9
 DILUTION MODEL RESULTS FOR ALTERNATIVE 5 COMBINED BUOYANT DISCHARGE SCENARIOS**

Scenario No.	Scenario	Season	Effluent conditions			UM3 simulations		NRFIELD simulations		
			Flow (mgd)	Salinity (ppt)	Density (kg/m ³)	Average dilution	Rise height (centerline) (ft)	Minimum dilution	Rise height (centerline) (ft)	Rise height (top) (ft)
C9	Brine + High GWR + Mod (7) SE	Upwelling	17.16	31.23	1023.4	91	20	-	-	-
		Davidson				131	46	-	-	-
		Oceanic				91	18	-	-	-
C10	Brine + High GWR + High (11) SE	Upwelling	21.16	25.48	1018.7	107	33	-	-	-
		Davidson				159	65	-	-	-
		Oceanic				111	37	-	-	-
C11	Brine + High GWR + High (15.92) SE	Upwelling	26.08	20.82	1015.0	115	41	-	-	-
		Davidson				191	89	-	-	-
		Oceanic				124	49	-	-	-
C16	Brine + Low GWR + High (15.92) SE	Upwelling	25.85	20.95	1015.1	115	41	-	-	-
		Davidson				191	89	-	-	-
		Oceanic				124	49	-	-	-
C26	High Brine + High GWR + Mod (8) SE	Upwelling	20.41	32.71	1024.6	92	17	-	-	-
		Davidson				139	41	-	-	-
		Oceanic				101	15	-	-	-
C27	High Brine + High GWR + Mod (9) SE	Upwelling	21.41	31.22	1023.4	91	20	-	-	-
		Davidson				126	64	-	-	-
		Oceanic				91	18	-	-	-
C28	High Brine + High GWR + High (10) SE	Upwelling	22.41	29.87	1022.3	93	24	-	-	-
		Davidson				128	51	-	-	-
		Oceanic				90	21	-	-	-
C29	High Brine + High GWR + High (12) SE	Upwelling	24.41	27.48	1020.4	98	30	-	-	-
		Davidson				138	59	-	-	-
		Oceanic				101	31	-	-	-
C30	High Brine + High GWR + High (14) SE	Upwelling	26.41	25.46	1018.7	101	34	-	-	-
		Davidson				149	68	-	-	-
		Oceanic				106	38	-	-	-
C31	High Brine + High GWR + High (16) SE	Upwelling	28.4	23.73	1017.3	105	37	-	-	-
		Davidson				161	78	-	-	-
		Oceanic				110	43	-	-	-

NOTES: SE = MRW/PCA secondary effluent wastewater

SOURCE: Roberts, 2017

Therefore, because all combined discharge scenarios involving GWR effluent under Alternative 5 would comply with salinity objectives after implementation of mitigation, the combined salinity-related water quality impact in Monterey Bay would result in the *same impact conclusion* compared to the proposed project, less than significant with mitigation.

Other Ocean Plan Constituents

Discharges through the existing MRWPCA outfall could violate water quality standards or waste discharge requirements, or otherwise degrade the water quality in Monterey Bay. Consistent with the approach to analysis described under Impact 4.3-5 (see Section 4.3, Surface Water Hydrology and Water Quality), this impact analysis uses the Ocean Plan water quality objectives, applied at the edge of the ZID, as significance thresholds for determining whether or not the discharges associated with Alternative 5 in combination with discharges from the GWR Project would result in a significant water quality impacts in Monterey Bay.

Based on the analysis, operational discharges under the combined discharge scenario (i.e., with GWR effluent included) would result in specific exceedances of Ocean Plan water quality objectives for a number of constituents. Exceedances of Ocean Plan water quality objectives were identified to occur for discharge scenarios that include brine-with-GWR effluent without MRWPCA wastewater, and brine-with-GWR effluent combined with low and moderate volumes of MRWPCA wastewater. The constituents that would exceed the Ocean Plan water quality objective (or the conservative 80 percent threshold) are ammonia, cyanide, acrylonitrile, bis(2-ethyl-hexyl)phthalate, chlordane, PCBs, TCDD equivalents, and toxaphene. For an additional eleven constituents⁵, there is not enough information to assess concentrations at the edge of the ZID due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives. Therefore, it is conservatively concluded that Ocean Plan water quality objectives could potentially be exceeded during operations for some operational discharge scenarios, resulting in a significant impact.

Combined Desalination Plant and GWR Operation and Discharge Scenarios

The combined discharge scenarios including brine and GWR effluent are summarized in **Table 5.5-8** and are assessed in this EIR/EIS. Additionally, potential discharge scenarios could include combinations of treated wastewater with GWR effluent or GWR effluent alone (i.e., without desalination brine). Specifically, it is possible that a GWR-only discharge of 0.94 mgd or 1.17 mgd of effluent could be discharged alone or discharged with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant without brine from the Alternative 5 Desalination Plant. These scenarios have been previously modeled and impacts comprehensively assessed and documented under Impact HS-5 in Section 4.11.4.4 in the Final EIR for the GWR Project (MRWPCA and MPWMD, 2016; p. 4.11-78 *et seq.*). The GWR Project EIR concluded that discharges comprising GWR effluent and varying amounts of MRWPCA wastewater (i.e., discharges without brine present) would comply with the Ocean Plan water quality objectives and would have a less-than-significant impact on water quality in the Monterey Bay and Pacific Ocean. Further, the GWR Project EIR concluded there would be a beneficial impact on Monterey Bay

⁵ Chlorinated phenolics, 2,4-dinitrophenol, tributyltin, aldrin, benzidine, beryllium, bis(2-chloroethyl)ether, 3,3-dichlorobenzidine, 1,2-diphenylhydrazine, heptachlor, 2,4,6-trichlorophenol

since pollutant loads would be reduced compared to baseline discharges due to diversions of GWR source waters of marginal quality to the Regional Treatment Plant for treatment and disposal that would have otherwise flowed into Monterey Bay. A portion of the pollutants in the new source waters would be removed from the wastewater streams through the treatment processes and disposed of as solids to the adjacent landfill where they would no longer adversely affect Monterey Bay water quality. Therefore, the impact analysis for such discharge scenarios, as well as the results and impact conclusions relating to these scenarios, are not discussed further.

Approach to Analysis

Potential water quality impacts were identified by determining whether cumulative operational discharges would exceed the conservative threshold of 80 percent of the Ocean Plan water quality objective. **Figure 5.5-1** illustrates the approach to analysis and summarizes the water quality data sources for assessing cumulative discharge scenarios associated with Alternative 5.

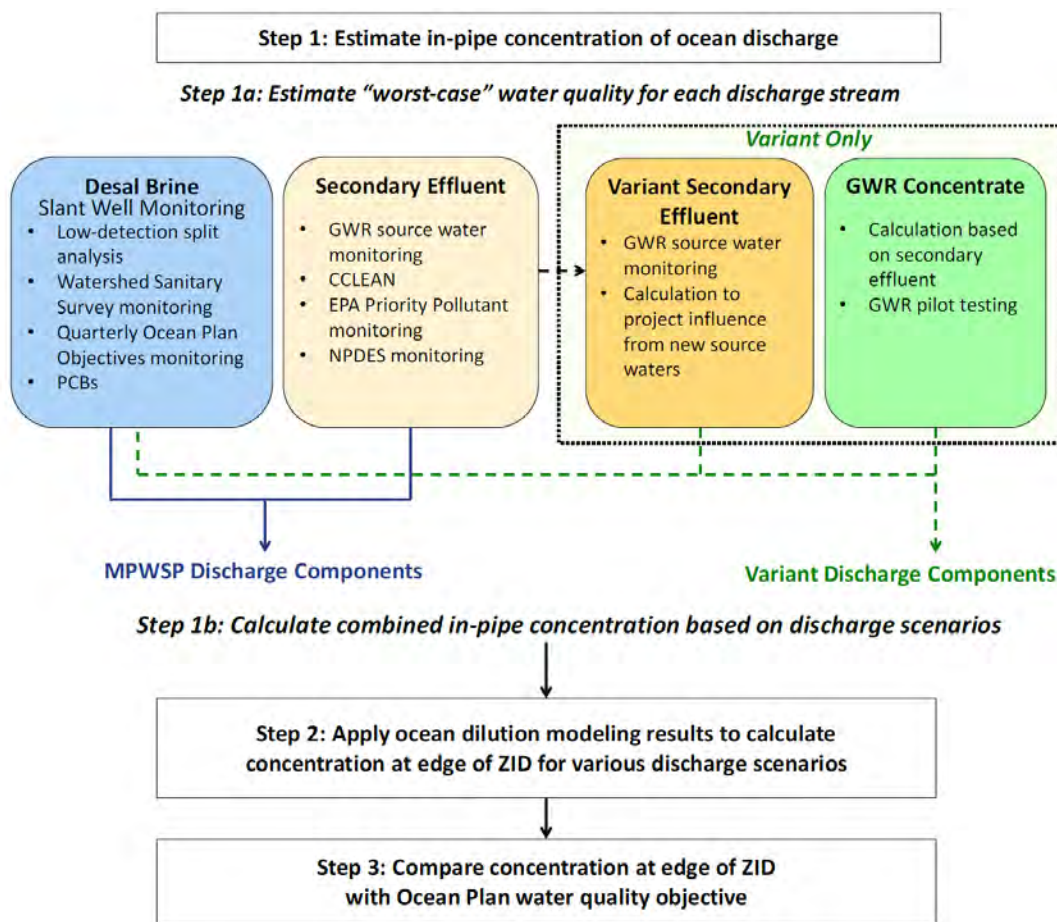


Figure 5.5-1
Summary of Approach to Analysis for
Determining Ocean Plan Compliance for
Alternative 5 and GWR Combined Discharge Scenarios

Results and Impact Discussion

The estimated concentrations for the full suite of Ocean Plan constituents are presented as concentrations at the edge of the ZID and as a percentage of the Ocean Plan numeric water quality objective in the revised **Appendix D3 (Tables A3 and A4)** for the combined discharge scenarios assessed under Alternative 5. The model analysis determined that discharges would not exceed Ocean Plan water quality objectives for the majority of constituents listed in **Table 4.3-4**. Most of the constituents in the desalination brine, GWR effluent, and MRWPCA wastewater were detected at levels sufficiently below the Ocean Plan objectives (i.e., were not detected in any of the component discharge source waters) that the operational discharges would pose no risk of exceeding the objectives for these constituents under the assessed discharge scenarios (**Appendix D3, Table 4**).

A number of constituents were identified at concentrations that have the potential to exceed the conservative threshold of 80 percent of the Ocean Plan objective (the significance threshold for this analysis) under the combined discharge scenario. The identified constituents of concern detected in the source waters are: ammonia, cyanide, acrylonitrile, bis(2-ethyl-hexyl)phthalate, chlordane, PCBs, TCDD equivalents, and toxaphene. **Table 5.5-10** presents these constituents along with the calculated concentration of each constituent at the edge of the ZID for a representative range of discharge scenarios. **Table 5.5-11** presents these constituents along with the calculated constituent concentration at the edge of the ZID expressed as a percentage of the Ocean Plan objective. Water quality constituents would exceed, or have the potential to exceed, the Ocean Plan objective when brine-with-GWR effluent would be discharged without MRWPCA wastewater or combined with low to moderate wastewater flows. When combined discharges included moderate to high flows of wastewater, no exceedances or potential exceedances were determined to occur.

For an additional eleven constituents, there is not enough information to assess concentrations at the edge of the ZID due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives. Only future water quality testing and analysis, such as that required under the NPDES permit process, would determine whether discharges under the combined discharge scenarios associated with Alternative 5 would fully comply with Ocean Plan water quality objectives. Therefore, it must be conservatively concluded that, because the predictive models have shown that certain constituent concentrations would become elevated under combined discharge scenarios in excess of the conservative threshold of 80 percent of the Ocean Plan objective and because, there is not enough information to assess concentrations at the edge of the ZID for eleven constituents, the combination of Alternative 5 and the GWR Project could result in a significant water quality impact in Monterey Bay. However, as described below, the contribution of Alternative 5 to this impact would be mitigated through implementation of **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** to a less-than-significant level.

TABLE 5.5-10
ALTERNATIVE 5 COMBINED OPERATIONAL DISCHARGE SCENARIOS: PREDICTED
CONCENTRATIONS AT THE EDGE OF THE ZID FOR OCEAN PLAN CONSTITUENTS OF CONCERN

Constituent	Ocean Plan Objective	Estimated Percentage of Ocean Plan Objective at Edge of ZID by Flow Scenario ^d											
		Cumulative Operations with Normal Flows					Cumulative Operations with High Desal Brine Flows						
		C1	C3	C5	C8	C10	C11	C17	C19	C22	C27	C29	C31
Objectives for protection of marine aquatic life - 6-month median limit													
Cyanide (µg/L)	1	1.5	1.9	1.7	0.7	0.5	0.6	1.3	1.6	1.8	0.6	0.6	0.6
Ammonia (as N) – 6-mo median ^a (µg/L)	600	1593	1551	1248	473	326	316	1333	1363	1227	335	327	320
Objectives for protection of human health - carcinogens - 30-day average limit^{c,d}													
Acrylonitrile ^b (µg/L)	0.1	0.1	0.1	0.1	0.03	0.02	0.02	0.1	0.1	0.1	0.02	0.02	0.02
Bis(2-ethyl-hexyl)phthalate (µg/L)	4	2.9	2.9	2.3	0.9	0.6	0.6	2.5	2.5	2.3	0.6	0.6	0.6
Chlordane (µg/L)	2.3E-05	5E-05	4E-05	4E-05	1E-05	9E-06	9E-06	4E-05	4E-05	4E-05	1E-05	9E-06	9E-06
PCBs (µg/L)	1.9E-05	3E-05	3E-05	2E-05	9E-06	6E-06	5E-06	3E-05	3E-05	2E-05	6E-06	6E-06	6E-06
TCDD Equivalents (µg/L)	3.9E-09	5E-09	5E-09	4E-09	2E-09	1E-09	1E-09	4E-09	4E-09	4E-09	1E-09	1E-09	1E-09
Toxaphene ^c (µg/L)	2.1E-04	3E-04	3E-04	2E-04	8E-05	5E-05	5E-05	2E-04	2E-04	2E-04	6E-05	5E-05	5E-05

NOTE: Shading indicates constituent is expected to be greater than 80 percent (orange shading) or exceed (red shading) the ocean plan objective for that discharge scenario.

^a Ammonia (as N) represents the total ammonia concentration, *i.e.* the sum of unionized ammonia (NH₃) and ionized ammonia (NH₄).

^b Acrylonitrile, beryllium, and TCDD equivalents represent a special case; they were detected in some source waters, but were also not detected above the MRL in others, and the MRL values were greater than the Ocean Plan objectives. For these constituents, a value of 0 was assumed when it was not detected in a source water and the MRL value was assumed where a non-detect occurred but the MRL was greater than the Ocean Plan objective. This assumption was made to show there is potential for the constituent to exceed the Ocean Plan objective in some flow scenarios.

^c Toxaphene was only detected using the low-detection techniques of the CCLEAN program. It was detected once (09/2011) out of 12 samples collected from the secondary effluent from 2010 through 2015, and during the 7-day composite sample from the test slant well.

^d Operational scenarios modeled for Ocean Plan compliance – C1: Brine + High GWR only; C3: Brine + High GWR + Low (2) SE; C5: Brine + High GWR + Low (4) SE; C8: Brine + High GWR + Mod (6) SE; C10: Brine + High GWR + High (11) SE; C11: Brine + High GWR + High (15.92) SE; C17: High Brine + High GWR only; C19: High Brine + High GWR + Low (1) SE; C22: High Brine + High GWR + Low (4) SE; C27: High Brine + High GWR + Mod (9) SE; C29: High Brine + High GWR + High (12) SE; C31: High Brine + High GWR + High (16) SE.

SOURCE: Trussell, 2017 (Appendix D3)

Impact Summary and Conclusion for Ocean Plan Constituents under Combined Discharge Scenarios

The analysis of potential water quality impacts evaluated a representative range of combined discharge scenarios. The model-based analyses concluded that under certain scenarios, some constituent concentrations would become elevated to levels greater than 80 percent of the Ocean Plan objective. Further, for an additional eleven constituents, there is not enough information to assess concentrations at the edge of the ZID due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives. Therefore, it is conservatively concluded that Ocean Plan water quality objectives could potentially be exceeded during operations for some operational discharge scenarios, resulting in a significant impact. Therefore, Alternative 5

**TABLE 5.5-11
 ALTERNATIVE 5 COMBINED OPERATIONAL DISCHARGE SCENARIOS:
 PREDICTED CONCENTRATIONS AT THE EDGE OF THE ZID EXPRESSED AS PERCENTAGE OF
 OCEAN PLAN OBJECTIVE FOR OCEAN PLAN CONSTITUENTS OF CONCERN**

Constituent	Ocean Plan Objective	Estimated Percentage of Ocean Plan objective at Edge of ZID by Flow Scenario ^d											
		Cumulative Operations with Normal Flows					Cumulative Operations with High Desal Brine Flows						
		C1	C3	C5	C8	C10	C11	C17	C19	C22	C27	C29	C31
Objectives for protection of marine aquatic life - 6-month median limit													
Cyanide (µg/L)	1	150%	189%	173%	71%	55%	56%	135%	158%	176%	55%	56%	57%
Ammonia (as N) – 6-month median ^a (µg/L)	600	266%	258%	208%	79%	54%	53%	222%	227%	205%	56%	54%	53%
Objectives for protection of human health - carcinogens - 30-day average limit													
Acrylonitrile ^b (µg/L)	0.1	94%	92%	74%	28%	19%	19%	79%	81%	73%	20%	19%	19%
Bis(2-ethyl-hexyl) phthalate (µg/L)	4	84%	81%	65%	25%	17%	17%	70%	72%	64%	18%	17%	17%
Chlordane (µg/L)	2.3E-05	199%	193%	155%	59%	40%	39%	167%	170%	153%	42%	40%	40%
PCBs (µg/L)	1.9E-05	169%	156%	121%	45%	30%	28%	149%	147%	124%	32%	30%	29%
TCDD Equivalents (µg/L)	3.9E-09	131%	128%	103%	39%	27%	26%	110%	112%	101%	28%	27%	26%
Toxaphene ^c (µg/L)	2.1E-04	126%	122%	98%	37%	26%	25%	105%	108%	97%	26%	26%	25%

NOTE: Shading indicates constituent is expected to be greater than 80 percent (orange shading) or exceed (red shading) the ocean plan objective for that discharge scenario.

- ^a Ammonia (as N) represents the total ammonia concentration, i.e. the sum of unionized ammonia (NH₃) and ionized ammonia (NH₄).
- ^b Acrylonitrile, beryllium and TCDD equivalents represent a special case; they were detected in some source waters, but were also not detected above the MRL in others, and the MRL values were greater than the Ocean Plan objectives. For these constituents, a value of 0 was assumed when it was not detected in a source water and the MRL value was assumed where a non-detect occurred but the MRL was greater than the Ocean Plan objective. This assumption was made to show there is potential for the constituent to exceed the Ocean Plan objective in some flow scenarios.
- ^c Toxaphene was only detected using the low-detection techniques of the CCLEAN program. It was detected once (09/2011) out of 12 samples collected from the secondary effluent from 2010 through 2015, and during the 7-day composite sample from the test slant well.
- ^d Operational scenarios modeled for Ocean Plan compliance – C1: Brine + High GWR only; C3: Brine + High GWR + Low (2) SE; C5: Brine + High GWR + Low (4) SE; C8: Brine + High GWR + Mod (6) SE; C10: Brine + High GWR + High (11) SE; C11: Brine + High GWR + High (15.92) SE; C17: High Brine + High GWR only; C19: High Brine + High GWR + Low (1) SE; C22: High Brine + High GWR + Low (4) SE; C27: High Brine + High GWR + Mod (9) SE; C29: High Brine + High GWR + High (12) SE; C31: High Brine + High GWR + High (16) SE

SOURCE: Trussell, 2017 (Appendix D3)

in combination with the GWR Project could result in a significant impact related to water quality standards, waste discharge requirements, and water quality in Monterey Bay and could exceed Ocean Plan water quality objectives for certain constituents under low wastewater flow conditions. Impacts would be reduced to a less-than-significant level by implementing **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**. Further, **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)**, described under Impact 4.3-4 (Section 4.3, Surface Water Hydrology and Water Quality), would further reduce and minimize potential impacts by requiring CalAm to implement a comprehensive Monitoring and Reporting Plan, following approval by the RWQCB and MBNMS, to obtain field monitoring and marine biological resource data in the area affected by a project.

With implementation of **Mitigation Measure 4.3-5**, combined discharges of Alternative 5 and the GWR Project would comply with regulatory standards that would ensure combined impacts would be reduced to a less-than-significant level. Therefore, the combined discharges of Alternative 5 and the GWR Project would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

Cumulative impacts on hydrology and water quality for construction of Alternatives 5a and 5b would be the same as those described and analyzed for the proposed project and Alternative 1, respectively. Construction activities associated with either Alternative 5a or 5b would result in a less than significant contribution to any significant cumulative impact, after adherence to mandatory regulatory requirements and implementation of mitigation measures (*less than significant with mitigation*).

Alternative 5 (a and b) would have operation-related impacts on water quality similar to the proposed project, as analyzed in Section 4.3, Surface Water Hydrology and Water Quality), and Alternative 1. The cumulative projects whose water quality impacts could overlap with those of the combined discharges of Alternative 5 and the GWR Project include the same as those described for the proposed project (see Section 4.3.6 and **Table 4.1-2** for details). This analysis assumes that the GWR Project would be implemented and that operation of Alternative 5 would result in the combined discharge scenarios analyzed above under “Combined Impacts with GWR Project.” Therefore, references to Alternative 5 operation in the following paragraph include operation of the GWR Project.

The contribution to cumulative impacts from operation of Alternative 5 would be similar, but reduced compared to those described for the proposed project due to the reduced volume of brine under Alternative 5. Nonetheless, cumulative impacts related to salinity and other water quality constituents in Monterey Bay would be significant, and the contribution of Alternative 5 to these impacts would be cumulatively significant for the same reasons described for the proposed project. Implementation of **Mitigation Measures 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** would ensure that operational discharges associated with Alternative 5 would comply with Ocean Plan water quality objectives, reducing the contribution of Alternative 5 to a level that is less than significant.

5.5.3.9 References

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5.5.4 Groundwater Resources

The evaluation criteria for groundwater resources address the depletion of groundwater quantity, and the degradation of groundwater quality as a result of construction activities, and from operations. All alternatives, including the proposed project, have the potential for limited water supply and quality impacts from the use and disposal of water during excavation, trenching, de-watering, well drilling and dust suppression activities. The proposed project, as well as alternatives that propose to draw source water through subsurface slant wells, have the potential for impacts during operations to groundwater supplies, groundwater levels and groundwater quality, that alternatives proposing open water intakes (Alternatives 2, 3, and 4) would not. This evaluation addresses the physical impacts on groundwater supplies, levels, and quality as a result of project construction and project pumping, and how potential effects of the project pumping might impact neighboring, active wells.

5.5.4.1 Setting/Affected Environment

The groundwater resources setting/affected environment for this alternatives analysis is similar to that described for the proposed project in Section 4.4, Groundwater Resources and generally includes the northern portion of the 150-mile-long Salinas Valley Groundwater Basin (SVGB), and the Seaside Groundwater Basin (SGB); specifically, the areas that could be affected by the installation and operation of the subsurface slant wells and the ASR wells (see **Figure 4.4-1**).

The proposed slant wells (at either the CEMEX or Potrero Road sites) would be located within the 84,400-acre, 132-square-mile subarea of the SVGB known as the 180/400 Foot Aquifer Subbasin (DWR, 2004), the boundaries of which (Elkhorn Slough to the north, the East Side Area to the east, the SGB to the south, and the Pacific Ocean to the west, although the precise locations fluctuate depending on seasonal variations, longer-term climate changes and local groundwater pumping) generally coincide with those of the SVGB Pressure Area (or Subbasin) traditionally recognized by the Monterey County Water Resources Agency (MCWRA) and California Department of Water Resources.

The Pressure Area includes three prominent water supply aquifers: the 180-Foot Aquifer, the 400-Foot Aquifer, and the deeper aquifers.⁶ Shallow groundwater is present directly over the 180-Foot Aquifer, in the Dune Sands Aquifer which is about 60 feet thick at the locations of the proposed slant wells at CEMEX. As shown in **Figure 4.4-2**, the Dune Sands Aquifer transitions into a similar shallow aquifer underlying the Moss Landing Area to the north, referred to as the Perched-A Aquifer. The Perched-A Aquifer differs from the Dune Sand Aquifer in that it is underlain by a defined layer of less permeable, fine-grained sediments (clay) known as the Salinas Valley Aquitard. Water quality of the Perched-A Aquifer and Dune Sand Aquifer is directly influenced and controlled by seawater, as verified by the saline chemistry of the groundwater samples collected from borings drilled along the coast. The SVGB is in overdraft, meaning the existing basin outflow of 555,000 afy exceeds the estimated 504,000 afy of inflow;

⁶ The deeper aquifer units in the SVGB have been referred to as the “Deep Zone,” “900-Foot Aquifer,” and “1,500-Foot Aquifer.” For the purposes of this EIR/EIS, the term “deeper aquifers” is used to describe these units.

this imbalance is documented by seawater intrusion which has been detected several miles inland in the 180-Foot and 400-Foot aquifers.

The ASR-5 and ASR-6 Wells would be located in the SGB. The SGB encompasses 24 square miles at the southwest corner of the Salinas Valley, adjacent to the Pacific Ocean and is divided into four subareas, with the northern two composing the Northern Subbasin and the southern two composing the Southern Subbasin. The proposed ASR injection/extraction wells would be located near the northern border of the Northern Subbasin. There is a groundwater depression in both the shallow and deep aquifers in the Northern Subbasin, resulting in some landward flow along the coast.

5.5.4.2 Direct and Indirect Effects of the Proposed Project (10 slant Wells at CEMEX)

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina that would create approximately 15 acres of impervious surfaces, up to nine new subsurface slant wells at the CEMEX active mining area and conversion of the existing test slant well to a permanent well; the eight operating slant wells (two wells would be on stand-by) would extract a total of approximately 24 mgd of source water.

The proposed project would also include two new injection/extraction wells (ASR-5 and ASR-6 Wells) at the existing SGB aquifer storage and recovery (ASR) system, Carmel Valley Pump Station and about 21 miles of new water conveyance pipelines.

The following paragraphs briefly summarize the impacts of the proposed project with respect to groundwater resources. The detailed impact analysis of the proposed project is provided in Section 4.4.

Impact 4.4-1: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during construction.

The proposed slant wells and ASR wells would be built using a dual-rotary drill rig that may require between 4 to 5 million gallons of water during the drilling, but could use much less, and perhaps none, depending on how the drilling proceeds. The water that may be required for ASR injection/extraction well construction would be less. If the proposed project requires well drilling water, it would be purchased from an outside water purveyor and delivered to the drill site by truck; water would not be extracted from local groundwater sources.

The proposed project pipelines and MPWSP Desalination Plant, and Carmel Valley Pump Station would be built using standard construction methods that would require water for dust suppression, concrete washouts, tire washing, and general site maintenance. Water for these operations would be purchased from a local water purveyor and delivered to each construction site by truck. No impacts on local groundwater supplies would occur.

Impact 4.4-2: Violate any groundwater quality standards or otherwise degrade groundwater quality during construction.

Construction of the slant wells would use drilling fluids, which would not adversely affect groundwater quality. Construction of the ASR-5 and ASR-6 Wells would use additives that are non-corrosive and biodegradable and do not contain chemicals that would degrade groundwater quality. Construction of all other facilities would not occur in groundwater-bearing zones and would have low potential to degrade groundwater quality. Impacts associated with discharges to groundwater and impacts on groundwater quality during construction would be less than significant for all project components.

Impact 4.4-3: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during operations so as to expose well screens and pumps.

The proposed slant wells would extract mostly seawater and some brackish groundwater from a capture zone that is within a localized area adjacent to the coast that currently contains highly brackish groundwater. The drawdown response from extraction of slant wells would occur in the Dune Sand and 180-FTE Aquifer. When water is returned to the Basin to replace the portion of the source water that originated in the Basin by providing desalinated water to Castroville Community Services District (CCSD) and/or to the Castroville Seawater Intrusion Project (CSIP) in lieu of an equal amount of groundwater pumping, groundwater levels in the 400-Foot Aquifer would improve. Localized depressed groundwater levels in the Dune Sands and 180-FTE aquifers would persist but the capture zone would eventually be recharged by seawater. The impact on groundwater supplies would be less than significant.

A localized water level decline of between 1 and 5 feet is expected as a result of proposed project pumping at CEMEX. Neighboring groundwater supply wells that could be affected by proposed project pumping have well screens and pumps that are considerably deeper than the depths at which localized changes in water levels could occur due to proposed project pumping. Proposed project pumping therefore, would not expose screens, cause damage, or reduce yield in neighboring groundwater supply wells and the impact on nearby water supply wells would be less than significant. However, to ensure that a groundwater monitoring program is in place before and during commencement of groundwater pumping operations and to verify that the subsurface intake system performs as expected, CalAm would implement **Applicant Proposed Measure 4.4-3 (Groundwater Monitoring and Avoidance of Well Damage)** which would establish baseline groundwater levels and detect changes to local groundwater elevations and quality, evaluate whether those changes could damage neighboring active wells and require a remedy to mitigate any damage.

Management of the rates and volumes of ASR injection and extraction would ensure that operation of the proposed ASR Wells would remain constant and, therefore, would not cause groundwater mounding, change groundwater gradients, or lower groundwater levels. Operational impacts associated with ASR Wells would be less than significant.

Operation of the proposed Desalination Plant, pipelines, or pump station would not interfere with, extract from, or inject water into the groundwater aquifers in the SVGB or the SGB. Consequently, there would be no impact associated with these facilities.

Impact 4.4-4: Violate any groundwater quality standards or otherwise degrade groundwater quality during operations.

Operation of the proposed slant wells would not violate water quality standards or interrupt or eliminate the potable or irrigation groundwater supply available to other basin users since current groundwater quality in the capture zone is highly brackish and the affected area is used minimally for groundwater extraction. The impact on local groundwater degradation would be less than significant.

Proposed project slant well pumping would not exacerbate seawater intrusion because the slant wells would capture seawater as it crosses the coast and proposed project pumping is therefore, expected to retard future inland migration of the seawater/freshwater interface. The impact on seawater intrusion would be less than significant.

The slant well pumping drawdown could interfere with inland remediation activities at existing groundwater contamination sites, by altering the localized groundwater gradients such that the existing contaminated groundwater plumes become drawn toward currently uncontaminated areas and degrade the existing water quality. This would violate the state non-degradation policy of maintaining the existing water quality. The North Marina Groundwater Model (NMGWM²⁰¹⁶) simulations indicate that a decrease in groundwater elevations is possible and could affect a Carbon Tetrachloride Plume located about 2 miles from the proposed slant wells in the former Fort Ord, resulting in a potentially significant impact. This impact would be reduced to less than significant with the implementation of **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)**, which would require monitoring for changes in the groundwater surface elevation caused by proposed project pumping near the plume.

Operation of the ASR Wells would not interfere with groundwater remediation activities since there are no known contaminated sites undergoing groundwater remediation in the area between the ASR wells and the edge of the groundwater depression. The injection of treated desalinated groundwater into the Santa Margarita Sandstone underlying the ASR Wells would have the same benign reaction as injecting treated Carmel River water. Therefore, groundwater quality impacts would be less than significant for the ASR Wells. All other project components would have no impact on groundwater quality during operations.

Impact 4.4-C: Cumulative impacts related to Groundwater Resources.

The geographic scope of the cumulative analysis for groundwater resources includes portions of the SVGB and the SGB. The geographic scope also includes a vertical element, which includes the underground aquifers in the SVGB and the SGB. In the SVGB, the aquifers of concern are the Dune Sand Aquifer, 180-FTE Aquifer, 180-Foot Aquifer (inland and east of CEMEX), and 400-Foot Aquifer. In the SGB, the aquifer of concern is the surficial shallow aquifer, which is in

the unconfined Paso Robles Formation and the underlying confined Santa Margarita Sandstone. The current and reasonably foreseeable future projects listed in **Table 4.1-2** that are within the geographic scope and have the potential to combine with the groundwater-related impacts of the proposed project are the Salinas Valley Water Project Phase II (No. 1), the Interlake Tunnel (No. 24), and the Regional Urban Water Augmentation Project (RUWAP) Desalination Element (No. 31). These projects are located within the SVGB. The Interlake Tunnel project, which would produce additional surface water storage and supply for downstream groundwater recharge and reduction of saltwater intrusion in the SVGB, would not adversely affect groundwater resources. The proposed project, in combination with the other two identified cumulative projects, would not cause a significant adverse cumulative impact and the proposed project would not have a significant contribution to cumulative adverse groundwater quality and supply-related impacts; the proposed project, in combination with applicable cumulative projects, would have a cumulative beneficial effect on groundwater supply and quality.

5.5.4.3 Direct and Indirect Effects of the No Project Alternative

Under the No Project Alternative, no slant wells would be installed, resulting in no construction-related impacts and no operational drawdown/recharge effects in the Dune Sand Aquifer, the 180-Foot/180-FTE Aquifers or the 400-Foot Aquifer as a result of proposed project pumping. Because no water would be extracted by slant well pumping, no water that originated in the basin would be returned to the SVGB as in-lieu recharge; therefore, the projected beneficial groundwater response from that return water would not occur in the 400-Foot Aquifer. Seawater intrusion under the No Project Alternative would continue migrating inland as it does currently, and the SVGB would not benefit from the retardation of the inland migration afforded by the proposed project pumping. The ASR system would continue to operate as it does currently and the additional ASR wells would not be installed. CalAm would reduce its pumping from the SGB to 1,474 afy by 2021 per the terms of the CDO, and continue to extract its 1,474 afy adjudicated supply thereafter, rather than reducing pumping to 774 afy for 25 years. Therefore, the basin replenishment that would occur under the proposed project (17,500 af over the 25 years) would not occur under the No Project Alternative. Plumes of contaminated water beneath the former Fort Ord property would not be intersected or disrupted by proposed project pumping and ongoing remediation activities would continue. The No Project Alternative would not result in actions that would deplete groundwater supply or interfere with recharge, but also would not provide the beneficial effect of the proposed project on basin replenishment.

Although the No Project Alternative would have no adverse impact on groundwater compared to baseline conditions, because it would not have the benefit of retarding ongoing seawater intrusion compared to the proposed project, a brief discussion of the cumulative scenario under the No Project Alternative is included for purposes of comparison. Existing, ongoing regional groundwater pumping would continue throughout the Salinas Valley, as would efforts to develop a sustainable groundwater management plan. Projects such as the Pure Water Monterey GWR Project (No. 59 in **Table 4.1-2**) would be implemented. The GWR Project would provide additional irrigation water to the CSIP growers in the northern Salinas Valley that would raise groundwater levels in the 400-Foot Aquifer because of reduced groundwater pumping. This

would be a beneficial effect of the GWR Project on groundwater levels in the SVGB; however, the No Project Alternative would not contribute to this cumulative beneficial effect.

5.5.4.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Alternative 1 includes one additional well compared to the proposed project, because the existing test well at CEMEX would be converted to a permanent well. Therefore, the groundwater impact analysis of Alternative 1 focuses primarily on the slant wells at Potrero Road and the source water pipeline; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

Groundwater Supply

Construction of Alternative 1 would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) for drilling the slant wells and for dust suppression; water would be delivered by truck and would not be extracted from local groundwater sources. Alternative 1 would have one additional new well at Potrero Road, and 5.5 miles of additional source water pipeline, and therefore, Alternative 1 would use more water during construction than the proposed project. However, because none of the water used during construction would be drawn from the groundwater basin, Alternative 1 would result in the *same impact conclusion* as the proposed project on groundwater supply during construction; no impact.

Water Quality

Similar to the proposed project, the Alternative 1 slant wells would be drilled using a dual rotary drill rig that would use re-circulated drilling fluids through the first approximately 100 feet of dry dune sands. The remaining length of borehole would be drilled using water present in the sands and added potable water to circulate the drill cuttings if necessary. If potable water were added, drill cuttings would be removed after use, and the water would be clarified and percolated into the sands through the diffuser in the parking lot; the quality of that water would be better than the underlying brackish water, and therefore, would not result in groundwater degradation.

Construction of Alternative 1 would use the same construction techniques as the proposed project, and would include 10 new slant wells drilled in a parking lot inland of the dunes (compared to the 9 new wells at CEMEX), as well as an additional 5.5 miles of source water pipeline. Because the water used for slant well drilling would be re-circulated and then clarified

and discharged into the parking lot, Alternative 1 would result in the *same impact conclusion* on groundwater quality as the proposed project, less than significant.

Operational and Facility Siting Impacts

Groundwater Supply

Modeled Pumping Effects

The potential effects of the proposed project on groundwater resources were modeled with the North Marina Groundwater Model (version 2016, referred to as NMGWM²⁰¹⁶, see **Appendix E2**); the results are presented in Section 4.4, Groundwater Resources. The same model was used to evaluate the impacts on groundwater resources for this alternative at Potrero Road (see **Appendix E2**). Slant wells at Potrero Road would be screened in the Perched-A Aquifer and would only capture water from that aquifer and Monterey Bay (within MBNMS) due in part to the existence and thickness of the underlying Salinas Valley Aquitard (see **Appendix C3**) at this location. In contrast, the slant wells at the CEMEX site would have a capture zone in the Dune Sands Aquifer and the 180-Foot Equivalent Aquifer, because the Salinas Valley Aquitard does not underlie the CEMEX site. Sea level rise over the 63 years of modeled groundwater pumping would not change the projected drawdown in the Perched-A aquifer as it is expected to do at the CEMEX site, because sea level rise would not erode the coastline at Potrero Road and the shoreline would not advance inland toward the slant wells. As a result, the output for all modeling scenarios for Potrero Road shows no changes (unlike the proposed project) between the drawdown contours for current and future sea levels.

Effects on the Perched-A Aquifer

Slant well pumping at Potrero Road would create a cone of depression in the Perched-A Aquifer that would extend up to 5 miles inland, as shown in **Figure 5.5-2**.⁷ The extent of modeled drawdown in the Perched-A Aquifer is almost twice the inland distance modeled at CEMEX for the proposed project because: 1) the Perched-A Aquifer is not as thick as the Dune Sand Aquifer underlying the CEMEX site, and 2) the ocean water capture zone is restricted at Potrero Road to the Perched-A Aquifer (the wells would not also be screened in the 180/180-FTE Aquifers) because the underlying Salinas Valley Aquitard separates the Perched-A Aquifer from the 180-Foot Aquifer. The capture zone created by the slant well pumping, as projected by the NMGWM²⁰¹⁶, would extend south along the coast, north to encompass Elkhorn Slough and inland approximately 2 miles, as shown on **Figure 5.5-2**. The 1-foot drawdown response would be similar in the Perched-A Aquifer with and without modeled return water scenarios (0, 3, 6, and 12 percent), because the resulting in-lieu recharge in the 400-Foot Aquifer would have a negligible effect on recharge in the Perched-A Aquifer. Modeling indicates that pumping under Alternative 1 would influence the Perched-A Aquifer north of Potrero Road and the cone of depression would encompass the mouth of the Elkhorn Slough and about 1 mile inland up the slough (a portion of which is within MBNMS). This effect is shown by the configuration of the model-projected capture zone and 1-foot drawdown contour lines on **Figures 5.5-2** and **5.5-3** and

⁷ The full extent of the Dune Sand Aquifer cone of depression created by pumping 9.6 mgd under Alternative 1 is not shown because it extends out to and intersects a bedrock boundary condition near Prunedale.

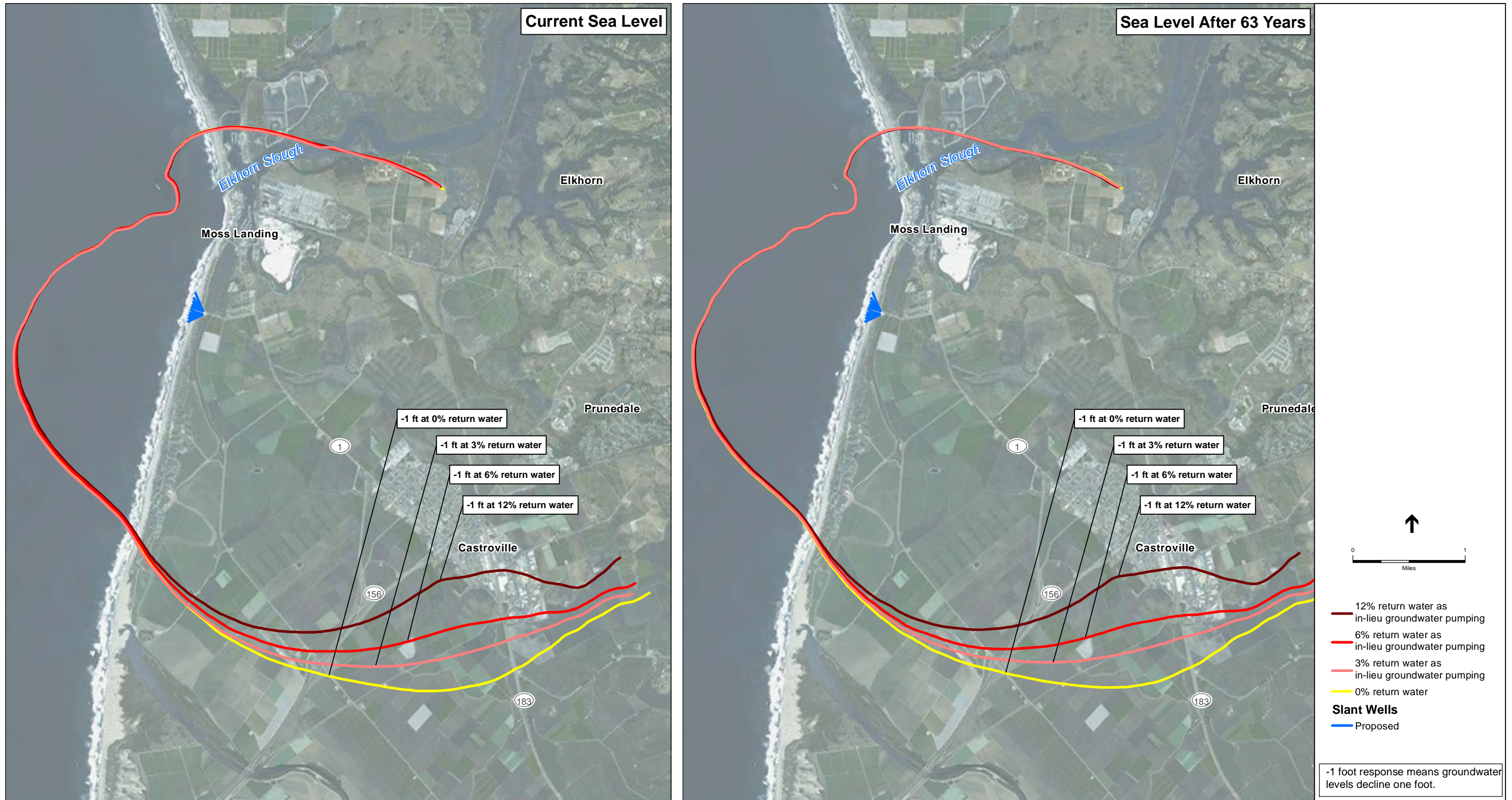
these results suggest a direct or indirect effect of project pumping at Potrero Road on the surface water-groundwater interaction in the Elkhorn Slough. For example, the slant well pumping at Potrero Road could draw in groundwater that would otherwise flow to recharge the Slough, or draw surface water directly from the Slough that would not occur under the proposed project. However, quantification of such an effect is not feasible within the context of the model given the location of Elkhorn Slough relative to the northern boundary of the NMGWM.

Effects on the 180-Foot Aquifer

Figure 5.5-3 shows the effects on the 180-Foot Aquifer from slant well pumping for Alternative 1, for varying percentages of Salinas Valley return water (0, 3, 6 and 12 percent return water). There would be no capture zone created because the proposed slant wells would be drawing water from the Perched-A Aquifer only. The modeled aquifer response shows a cone of depression that extends a maximum of about 4 miles inland with 0 percent return water, and the maximum extent of the cone is reduced by about 2 miles with increased percentages of return water. The modeled drawdown in the 180-Foot Aquifer is not directly due to project pumping because the slant wells at Potrero Road would not be screened in the 180-Foot Aquifer; rather, the water lost through extraction from the Perched-A Aquifer that would have otherwise infiltrated to and recharged the 180-Foot Aquifer may have been interpreted by the model as drawdown due to pumping. Similar to the effects on the Perched-A Aquifer, the response from slant well pumping (1-foot contour line at 0 percent and 3 percent return water) extends north to partially encompass the mouth of the Elkhorn Slough, indicating a possible surface water-groundwater interaction with the Slough. However, quantification of such an effect is not feasible within the context of the model given the location of Elkhorn Slough relative to the northern boundary of the NMGWM.

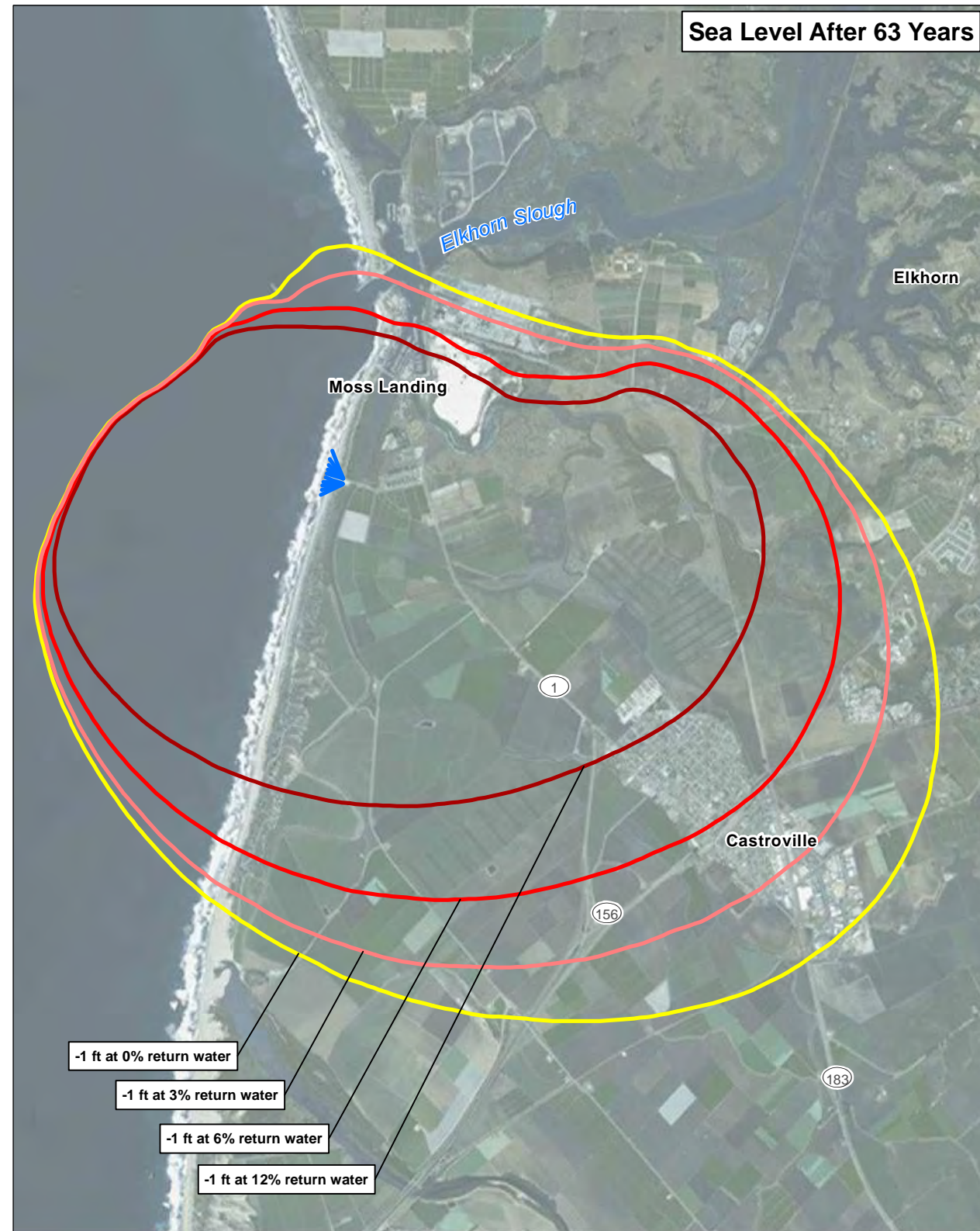
Pumping Response on 400-Foot Aquifer

Figure 5.5-4 shows the effects of the slant well pumping at Potrero Road on the 400-Foot Aquifer. The 1-foot drawdown contour, representing 0 percent return water, shows the largest area of drawdown extending about 2 miles inland and offshore about 0.75 mile. The 1-foot drawdown contour with 3 percent return water extends inland only about 1.5 miles and offshore about 0.5 mile. There is also a localized groundwater level increase in Castroville with 3 percent return water. The 1-foot contour resulting from 6 percent return water shows a groundwater level rise in Castroville, as does the 12 percent return water contour that is almost 5 miles in diameter. The response from slant well pumping, as shown by the 1-foot drawdown contour at 0 percent and 3 percent return water, extends north to partially encompass the mouth of the Elkhorn Slough. Given the depth of the 400-Foot Aquifer and the presence of the Salinas Valley Aquitard, it is unlikely that there would be a direct surface water-groundwater interaction between the Elkhorn Slough and the 400-Foot Aquifer. The water lost through extraction from the Perched-A Aquifer that would have otherwise infiltrated to and recharged the 400-Foot Aquifer was likely interpreted by the model as drawdown in the 400-Foot Aquifer and given the location of Elkhorn Slough relative to the northern boundary of the NMGWM, quantification is not feasible within the context of the model.



SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project
Figure 5.5-2
 Potrero Rd Slant Wells: 1-Foot Response in Dune Sand Aquifer under 24.1 MGD Pumping



0 1 Miles

↑

- 12% return water as in-lieu groundwater pumping
- 6% return water as in-lieu groundwater pumping
- 3% return water as in-lieu groundwater pumping
- 0% return water

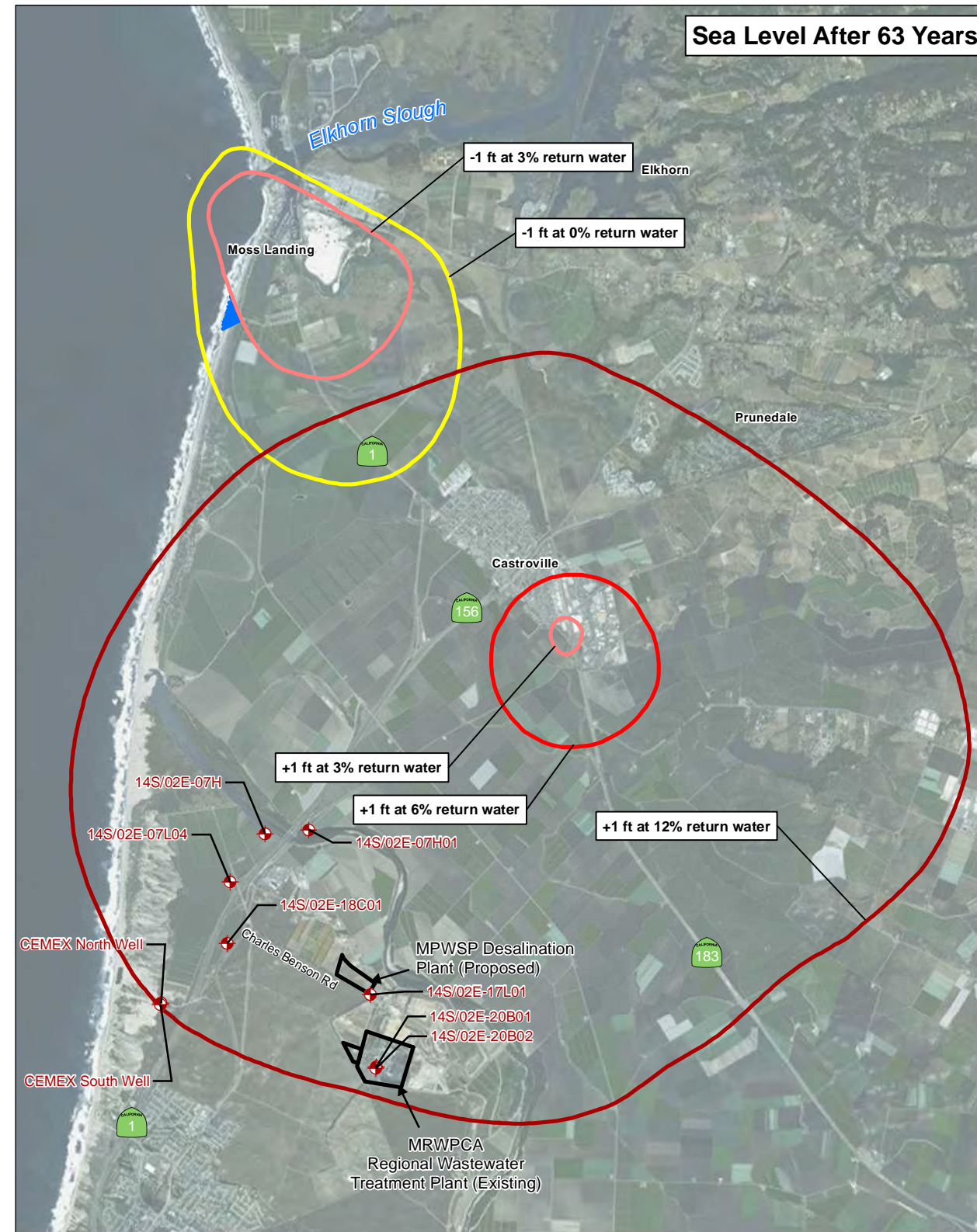
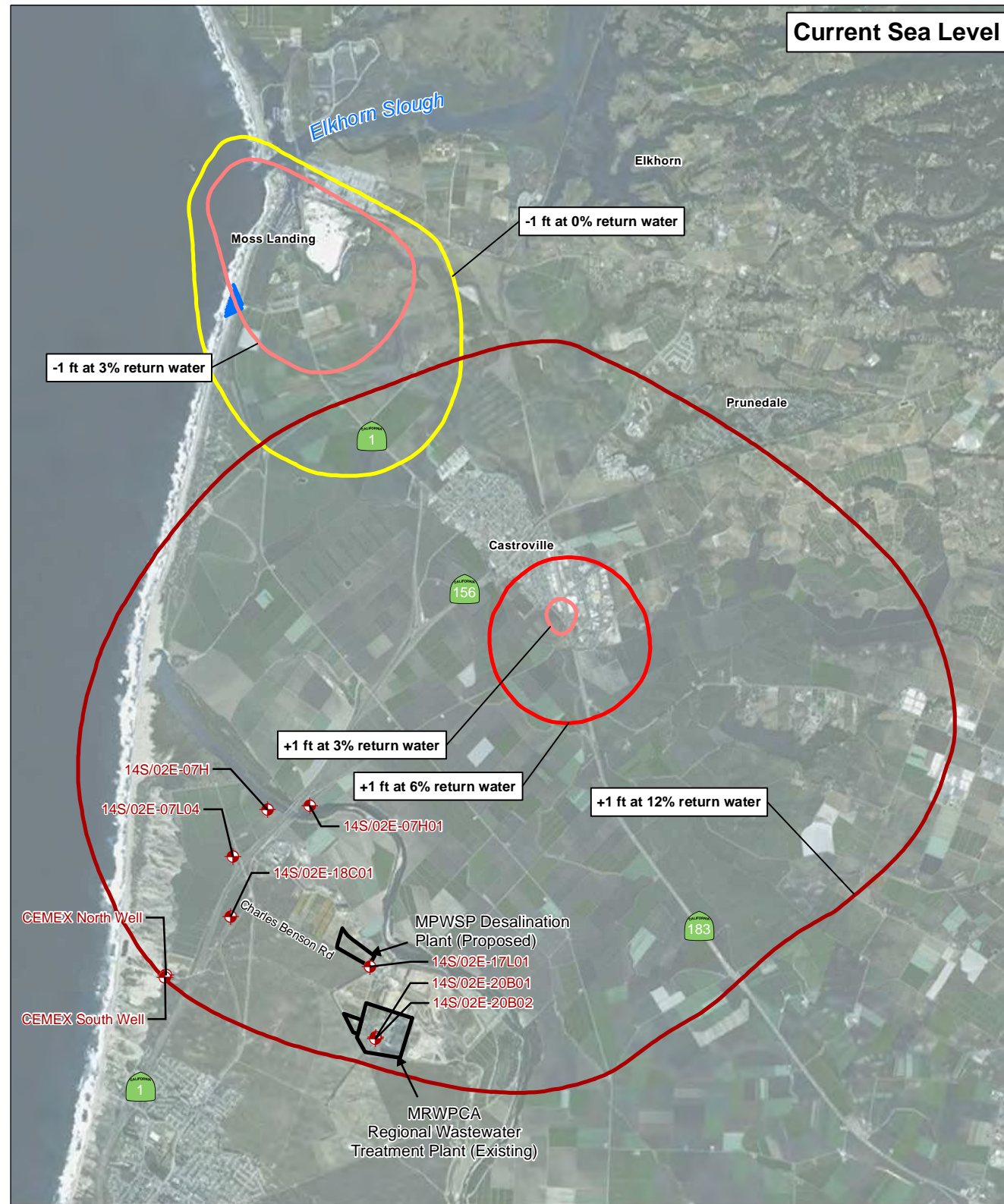
Slant Wells

- Proposed

-1 foot response means groundwater levels decline one foot.

SOURCE: HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project
Figure 5.5-3
 Potrero Rd Slant Wells: 1-Foot Response in 180-Foot Aquifer under 24.1 MGD Pumping



0 1 Miles

↑

- Groundwater Well
- 12% return water as in-lieu groundwater pumping
- 6% return water as in-lieu groundwater pumping
- 3% return water as in-lieu groundwater pumping
- 0% return water
- Slant Wells**
- Proposed

-1 foot response means groundwater levels decline one foot.

+1 foot response means groundwater levels rise one foot

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Analysis and Conclusion of Operational Impacts

Pumping of slant wells at Potrero Road under Alternative 1 would extract mostly seawater and inland brackish water through its capture zone from an area where groundwater is not extracted for beneficial uses by others. There would be some degree of water level increase in areas of the 400-Foot Aquifer as a result of the Salinas Valley return water. No groundwater supply wells are currently pumping within the area of influence of the affected aquifers; therefore, Alternative 1 would have a reduced potential for impact on supply at nearby wells compared to the proposed project. However, like the proposed project, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant. However, like the proposed project, **Applicant Proposed Measure 4.4-3 (Groundwater Monitoring and Avoidance of Well Damage)** would be implemented under Alternative 1, in recognition of the need to provide continued verification that project pumping from Alternative 1 would not impact groundwater levels in neighboring wells or contribute to seawater intrusion within the SVGB.

Water Quality

Similar to the proposed project, Alternative 1 would gradually and locally replace highly brackish groundwater with seawater as project pumping continues. However, this degradation would not violate water quality standards or interrupt or eliminate groundwater supply for other users. Groundwater modeling results show that Alternative 1 slant well pumping would hold back inland migration of the seawater intrusion front similar to the proposed project. However, because the boundary of the capture zone and cone of depression from the slant well pumping at Potrero Road would extend farther north than the proposed project, it would have a greater positive influence on the northern half of the seawater intrusion front compared to the proposed project because it would cover a larger area.

Unlike the proposed project, Alternative 1 groundwater extraction would occur too far north to interfere with groundwater remediation systems currently operating at the former Fort Ord Army base. Therefore, the Alternative 1 intake system would not interfere with active remediation systems or contaminant plumes, the impact would be decreased compared to the proposed project and **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)** would not have to be implemented. Like the proposed project, operation of the ASR system would have a less-than-significant impact related to groundwater quality.

In summary, project pumping at Potrero Road, like the proposed project at CEMEX, would cause the brackish groundwater within the capture zone to become more saline, but not in violation of water quality standards; it would hold back seawater intrusion similar to the proposed project but would have a greater positive effect on the northern portion of the intrusion front; and it would eliminate the potential interference with existing contaminant plumes and remediation systems at the former Fort Ord military base as a result of slant well operation, eliminating the need for mitigation. Therefore, Alternative 1 would result in a *reduced impact conclusion* on groundwater quality compared to the proposed project, less than significant.

Cumulative Analysis

The geographic scope of the cumulative groundwater analysis for Alternative 1 impacts on groundwater supply and quality is the Perched-A Aquifer and coastal area supporting future groundwater and seawater extraction in the Moss Landing/Elkhorn Slough Area. As stated above, Alternative 1 would draw water from the Monterey Bay through the coastal sediment of the Perched-A Aquifer, resulting in a less-than-significant impact on the supply and quality of the water in this aquifer. However, no projects in **Table 4.1-2** in Section 4.1 are located in the same geographic area and have the potential to affect groundwater resources in the Perched-A Aquifer; thus, there would be no potential for cumulative impacts on this resource. Similarly, there are no known present or reasonably foreseeable future cumulative projects in the Santa Margarita Sandstone of the SGB; therefore, there would be no potential cumulative impacts on the SGB. Alternative 1 would have a **reduced impact conclusion** for cumulative impacts compared to the proposed project, no impact.

5.5.4.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located on the seafloor in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water extracted by slant wells that originated in the SVGB, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the groundwater resources impact analysis of Alternative 2 focuses primarily on the intake system and the source water pipeline; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Construction of Alternative 2 would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) for drilling the intake pipeline between the offshore intake structure and the new intake pump station on Dolan Road (as well as new two ASR wells). Alternative 2 would include 6.5 miles of additional source water pipeline, and therefore, would use more water during construction for dust suppression than the proposed project. Water would be delivered by truck and would not be extracted from local groundwater sources. Because none of the water used during construction would be drawn from the groundwater basin, Alternative 2 would result in the **same impact conclusion** as the proposed project on groundwater supply during construction; no impact.

The construction of the ASR injection/extraction wells would use the same techniques as the proposed project and would not result in groundwater quality degradation. The slant wells would not be drilled, but Alternative 2 would include a new subsurface intake pipeline and an additional 6.5 miles of source water pipeline which would increase the potential for impacts on groundwater quality compared to the proposed project. While pipeline trenches may encounter shallow groundwater, the construction operation of laying a pipeline and backfilling the trench would not release contaminants into the shallow groundwater zone. Therefore, impacts associated with discharges to groundwater and impacts on groundwater quality during construction of Alternative 2 would result in the *same impact conclusion* on groundwater quality compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 2 would include a screened open water intake, would not extract source water from groundwater aquifers, and would not include in-lieu recharge of the 400-Foot aquifer because Salinas Valley return water would not be required; the open water intake would not deplete groundwater supplies or interfere with groundwater recharge. Operation of Alternative 2 would have no impact on local groundwater levels in the SVGB, a reduced potential for impact compared to the proposed project. The ASR Wells, however, would be operated the same as the proposed project to prevent mounding and over-extraction. Therefore, Alternative 2 would result in the *same impact conclusion* on groundwater supplies compared to the proposed project, less than significant. **Applicant Proposed Measure 4.4-3** would not be relevant and therefore would not be implemented.

Operation of the screened open water intake would not adversely affect groundwater quality. In fact, unlike the proposed project and Alternative 1, the Alternative 2 screened open water intake would not capture seawater from the seawater-intruded aquifers that would otherwise migrate inland, and Alternative 2 therefore would not temper the continued inland migration of the seawater intrusion front. Unlike the proposed project, the Alternative 2 intake system would not affect the remediation of the contaminated plumes because it would not affect groundwater levels in the SVGB, and **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)** would not need to be implemented. Like the proposed project, operation of the ASR system would have a less-than-significant impact related to groundwater quality. Therefore, the operation of Alternative 2 would result in a *reduced impact conclusion* with respect to groundwater quality compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 2 would not require the construction of subsurface slants wells for the intake system and would extract water directly from an open-water intake, it would have no impact within the SVGB, and could not contribute to a cumulative effect on groundwater supply or quality within the SVGB. There are no known present or reasonably foreseeable future cumulative projects in the Santa Margarita Sandstone of the SGB; therefore, a cumulative analysis is not relevant to the components of Alternative 2 affecting the SGB. Alternative 2 would have a *reduced impact conclusion* for cumulative impacts compared to the proposed project, no impact/not relevant.

5.5.4.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR facilities, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water extracted by slant wells that originated in the SVGB, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSO would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**).

Construction Impacts

Construction of Alternative 3 would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) for installing the intake and brine discharge pipelines between the offshore intake and brine discharge structures and the new pump station on Dolan Road (as well as the ASR-5 and -6 wells). Alternative 3 would include 31.5 miles of additional pipelines, and therefore, would use more water during construction for dust suppression than the proposed project. However, like the proposed project, water would be delivered by truck and would not be extracted from local groundwater sources. Because none of the water used during construction would be drawn directly from the groundwater basin, Alternative 3 would result in the **same impact conclusion** as the proposed project on groundwater supply during construction; no impact.

The construction of the ASR injection/extraction wells would use the same techniques as the proposed project and would not result in groundwater quality degradation. No slant wells would be drilled, but Alternative 3 would include new subsurface intake and discharge pipelines and an additional 31.5 miles of pipeline which would increase the potential for impacts on groundwater quality during construction compared to the proposed project. While pipeline trenches may encounter shallow groundwater, the construction operation of laying a pipeline and backfilling the trench would not release contaminants into the shallow groundwater zone. Therefore, impacts associated with discharges to groundwater and impacts on groundwater quality during construction of Alternative 3 would result in the **same impact conclusion** on groundwater quality as the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 3 would include a screened open water intake, and thus would not extract source water from groundwater aquifers and would not include in-lieu recharge of the 400-Foot aquifer because Salinas Valley return water would not be required; the open water intake would not deplete groundwater supplies or interfere with groundwater recharge. Operation of Alternative 3 would have no impact on local groundwater levels in the SVGB, a reduced potential for impact compared to the proposed project. The ASR Wells, however, would be operated the same as the proposed project to prevent mounding and over-extraction. Therefore, Alternative 3 would result in the *same impact conclusion* on groundwater supplies compared to the proposed project, less than significant. **Applicant Proposed Measure 4.4-3** would not be relevant and therefore would not be implemented.

Operation of the screened open water intake would not adversely affect groundwater quality. In fact, unlike the proposed project and Alternative 1, the Alternative 3 screened open water intake would not capture seawater from the seawater-intruded aquifers that would otherwise migrate inland, and Alternative 3 therefore would not temper the continued inland migration of the seawater intrusion front. Unlike the proposed project, Alternative 3 would not affect the remediation of the contaminated plumes because it would not affect groundwater levels in the SVGB, and **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)** would not need to be implemented. Like the proposed project, operation of the ASR system would have a less-than-significant impact related to groundwater quality. Therefore, the operation of Alternative 3 would result in a *reduced impact conclusion* with respect to groundwater water quality compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 3 would not require the construction of subsurface slant wells for the intake system and would extract water directly from an open-water intake, it would have no impact within the SVGB, and could not contribute to a cumulative effect on groundwater supply or quality within the SVGB. There are no known present or reasonably foreseeable future cumulative projects in the Santa Margarita Sandstone of the SGB; therefore, a cumulative analysis is not relevant to the components of Alternative 3 affecting the SGB. Alternative 3 would have a *reduced impact conclusion* for cumulative impacts compared to the proposed project, no impact/not relevant.

5.5.4.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because the open water

intake would eliminate the need for returning source water extracted by slant wells that originated in the SVGB, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**).

Construction Impacts

Construction of Alternative 4 would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) for installing the intake and brine discharge pipelines between the offshore intake and brine discharge structures and the existing caisson at the end of Sandholdt Road, and between the existing caisson and the desalination plant (as well the ASR-5 and -6 wells). Alternative 3 would include 6.5 miles of additional pipeline, and therefore, would use more water during construction for dust suppression than the proposed project. However, like the proposed project, water would be delivered by truck and would not be extracted from local groundwater sources. Because none of the water used during construction would be drawn directly from the groundwater basin, Alternative 4 would result in the ***same impact conclusion*** as the proposed project on groundwater supply during construction; no impact.

The construction of the ASR injection/extraction wells would use the same techniques as the proposed project and would not result in groundwater quality degradation. No slant wells would be drilled, but Alternative 4 would include rehabilitated as well as new intake and discharge pipelines and an additional 6.5 miles of pipeline which would increase the potential for impacts on groundwater quality compared to the proposed project. While pipeline trenches may encounter shallow groundwater, the construction operation of laying a pipeline and backfilling the trench would not release contaminants into the shallow groundwater zone. Therefore, impacts associated with discharges to groundwater and impacts on groundwater quality during construction of Alternative 4 would result in the ***same impact conclusion*** on groundwater quality as the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 4 would include a screened open water intake, and thus would not extract source water from groundwater aquifers and would not include in-lieu recharge of the 400-Foot aquifer because Salinas Valley return water would not be required; the open water intake would not deplete groundwater supplies or interfere with groundwater recharge. Operation of Alternative 4 would have no impact on local groundwater levels in the SVGB, a reduced potential for impact compared to the proposed project. The ASR Wells, however, would be operated the same as the proposed project to prevent mounding and over-extraction. Therefore, Alternative 4 would result in the ***same impact conclusion*** on groundwater supplies compared to the proposed project, less than significant. **Applicant Proposed Measure 4.4-3** would not be relevant and therefore would not be implemented.

Operation of the screened open water intake would not adversely affect groundwater quality. In fact, unlike the proposed project and Alternative 1, the Alternative 4 screened open water intake would not capture seawater from the seawater-intruded aquifers that would otherwise migrate

inland, and Alternative 4 therefore would not temper the continued inland migration of the seawater intrusion front. Unlike the proposed project, Alternative 4 would not affect the remediation of the contaminated plumes because it would not affect groundwater levels in the SVGB, and **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)** would not need to be implemented. Like the proposed project, operation of the ASR system would have a less-than-significant impact related to groundwater quality. Therefore, the operation of Alternative 4 would result in a *reduced impact conclusion* with respect to groundwater water quality compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 4 would not require the construction of subsurface slant wells for the intake system and would extract water directly from an open-water intake, it would have no impact within the SVGB, and could not contribute to a cumulative effect on groundwater supply or quality within the SVGB. There are no known present or reasonably foreseeable future cumulative projects in the Santa Margarita Sandstone of the SGB; therefore, a cumulative analysis is not relevant to the components of Alternative 4 affecting the SGB. Alternative 4 would have a *reduced impact conclusion* for cumulative impacts compared to the proposed project, no impact/not relevant.

5.5.4.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction of Alternatives 5a and 5b would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) and Alternative 1 for drilling the slant wells and for dust suppression; water would be delivered by truck and would not be extracted from local groundwater sources. Alternatives 5a and 5b would have fewer new wells than the proposed project or Alternative 1, and Alternative 5b would have 5.5 miles of additional source water pipeline and would use more water during construction than Alternative 5a or the proposed project. However, because none of the water used during construction would be drawn from the groundwater basin, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project on groundwater supply during construction; no impact.

Similar to the proposed project and Alternative 1, slant wells would be drilled using a dual rotary drill rig that would use re-circulated drilling fluids through the first approximately 100 feet of dry dune sands. The remaining length of borehole would be drilled using water present in the sands and added potable water to circulate the drill cuttings if necessary. If potable water were added,

drill cuttings would be removed after use, and the water would be clarified and percolated into the sands through the diffuser in the parking lot; the quality of that water would be better than the underlying brackish water, and therefore, would not result in groundwater degradation.

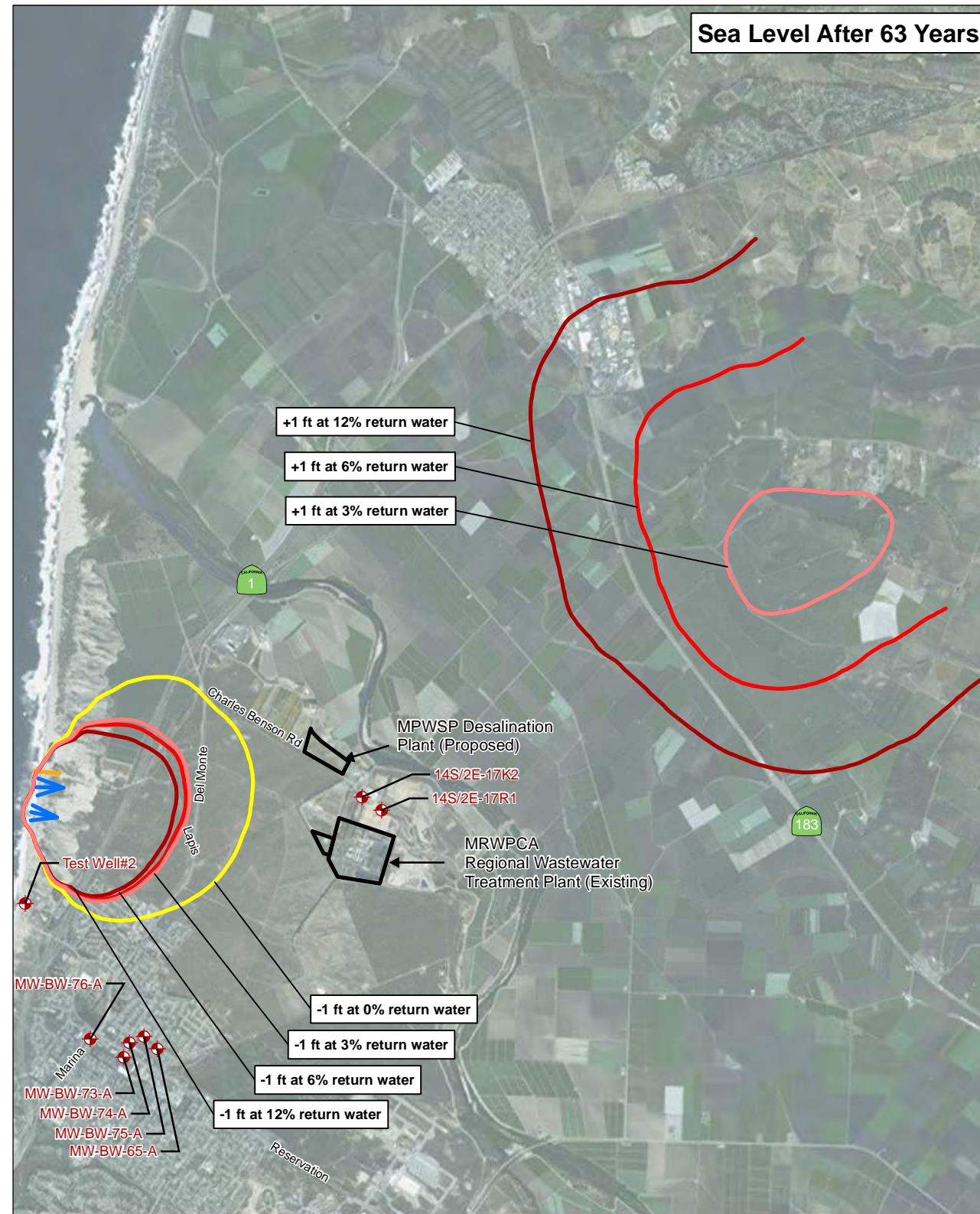
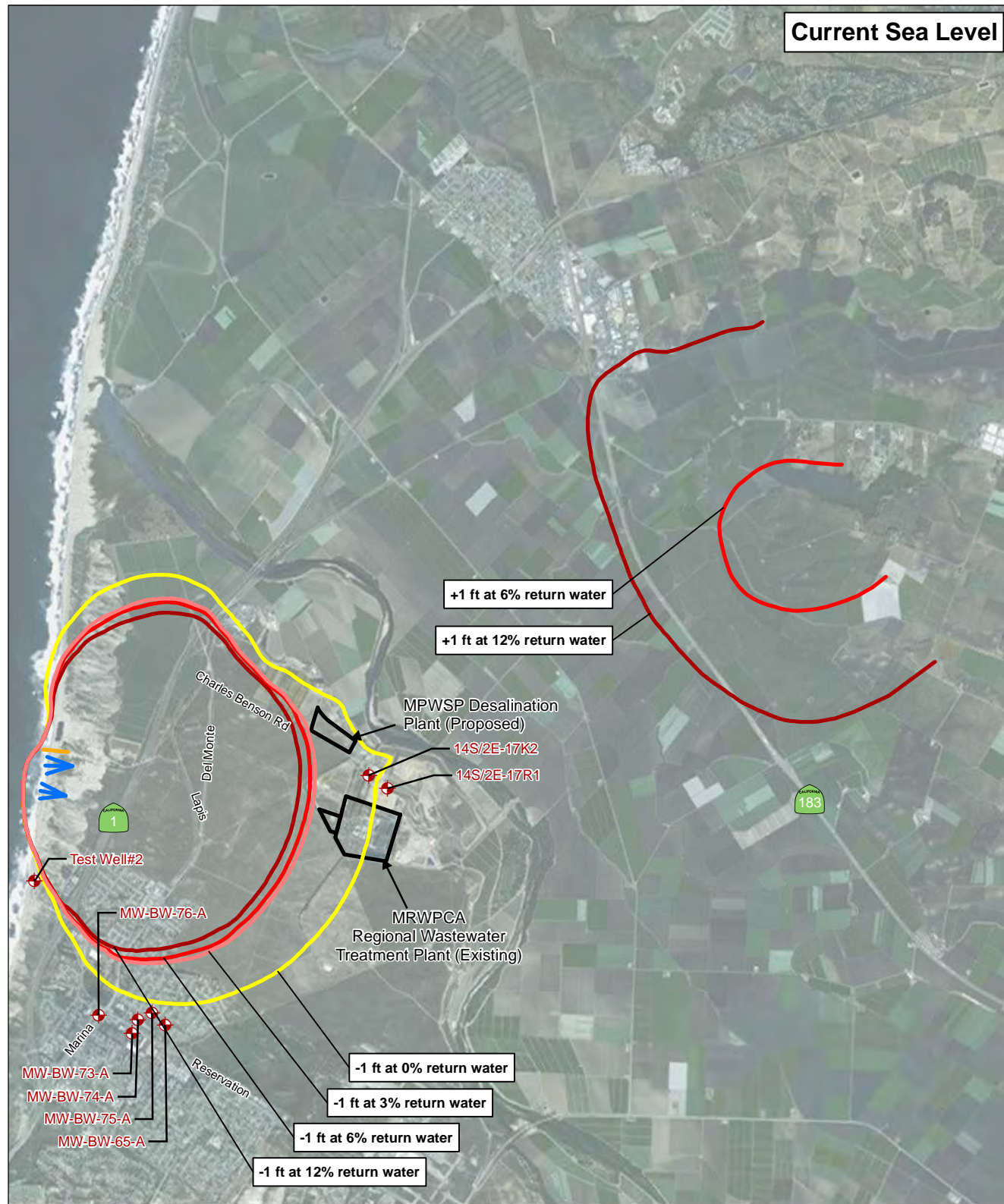
Construction of Alternatives 5a and 5b would use the same construction techniques as the proposed project, but would include 6 new slant wells at CEMEX (compared to 9 new wells for the proposed project) or 7 new slant wells drilled in the Potrero Road parking lot inland of the dunes (compared to 10 new wells for Alternative 1), as well as an additional 5.5 miles of source water pipeline for Alternative 5b. Because the water used for slant well drilling would be re-circulated and then clarified and discharged into the beach or parking lot, Alternatives 5a and 5b would result in the *same impact conclusion* on groundwater quality as the proposed project, less than significant.

Operational and Facility Siting Impacts

Like the proposed project, the operation of Alternative 5a (reduced wells at CEMEX) would create a modeled aquifer response in the Dune Sand Aquifer, 180-FTE Aquifer and 400-Foot Aquifer as shown in **Figures 5.5-5** through **5.5-7**. The size of the capture zone and cone of depression created by Alternative 5a would be similar to or less pronounced than the modeled response (depending on the aquifer) for the proposed project, and similar to the proposed project, no existing active wells would be affected.

The capture zone and the cone of depression resulting from slant well pumping at Potrero Road in Alternative 5b (**Figures 5.5-8** through **5.5-10**), would be similar to or less pronounced than Alternative 1 and no existing wells would be affected. However, as a result of the surface water/groundwater interface, Alternative 5b pumping at Potrero Road, like Alternative 1, would result in loss of water at Elkhorn Slough (see also the potential implications of this effect, in Section 5.5.3, Surface Water Hydrology and Water Quality, and Section 5.5.5, Marine Biological Resources), the impacts of which cannot be quantified because of the location at the boundary of the model domain. However, Alternatives 5a and 5b would not affect neighboring well levels and would result in the *same impact conclusion* on groundwater supply compared to the proposed project, less than significant. CalAm would still implement **Applicant Proposed Measure 4.4-3 (Groundwater Monitoring and Avoidance of Well Damage)** in recognition of the need to provide continued verification that project pumping from Alternatives 5a and 5b would not impact groundwater levels in neighboring wells or contribute to seawater intrusion within the SVGB.

Like the proposed project and Alternative 1, reduced project pumping at CEMEX (Alternative 5a) at Potrero Road (Alternative 5b), would, over time, draw seawater into the capture zone causing the brackish groundwater to increase in salinity. Alternatives 5a and 5b would have less of an effect on seawater intrusion than the proposed project and Alternative 5b would have a greater positive effect on the northern portion of the intrusion front than Alternative 5a. Alternative 5b would eliminate the proposed project's potential interference with existing contaminant plumes and remediation systems at the former Fort Ord military base. Therefore, Alternative 5a would result in the *same impact conclusion* on groundwater quality compared to the proposed project, less than significant with mitigation. By contrast, Alternative 5b would have a *reduced impact conclusion* on groundwater quality compared to the proposed project, less than significant.



0 1 Miles

↑

- ⊕ Groundwater Well
- 12% return water as in-lieu groundwater pumping
- 6% return water as in-lieu groundwater pumping
- 3% return water as in-lieu groundwater pumping
- 0% return water

Slant Wells

- Proposed
- Existing

-1 foot response means groundwater levels decline one foot.

+1 foot response means groundwater levels rise one foot

SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project
Figure 5.5-5
 Alternative 5a Site: 1-Foot Response in Dune Sand Aquifer under 15.5 MGD Pumping



0 1 Miles

↑

- ⊕ Groundwater Well
- 12% return water as in-lieu groundwater pumping
- 6% return water as in-lieu groundwater pumping
- 3% return water as in-lieu groundwater pumping
- 0% return water

Slant Wells

- Proposed
- Existing

-1 foot response means groundwater levels decline one foot.

+1 foot response means groundwater levels rise one foot

SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project
Figure 5.5-6
 Alternative 5a Site: 1-Foot Response in 180-Foot Aquifer under 15.5 MGD Pumping



0 1 Miles

↑

- ◆ Groundwater Well
- 12% return water as in-lieu groundwater pumping
- 6% return water as in-lieu groundwater pumping
- 3% return water as in-lieu groundwater pumping

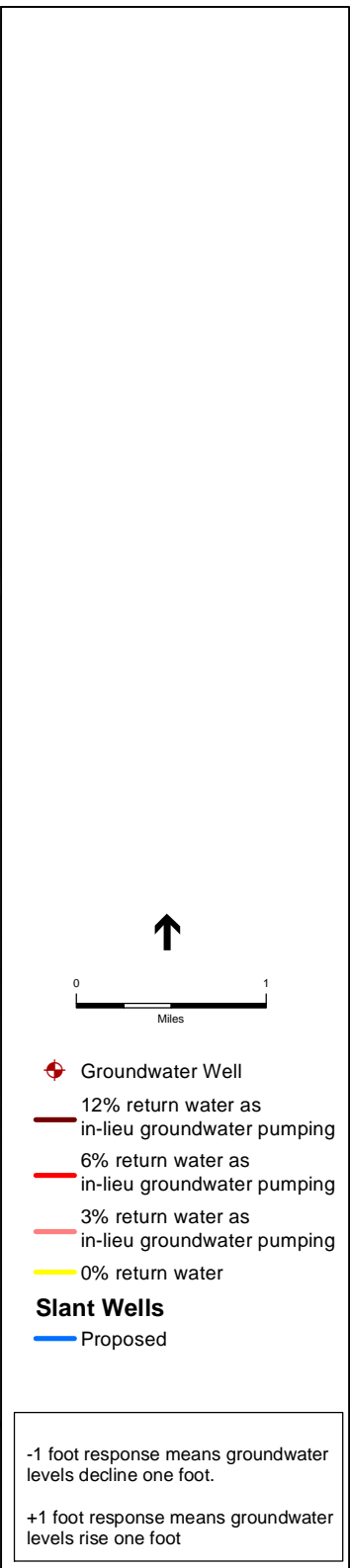
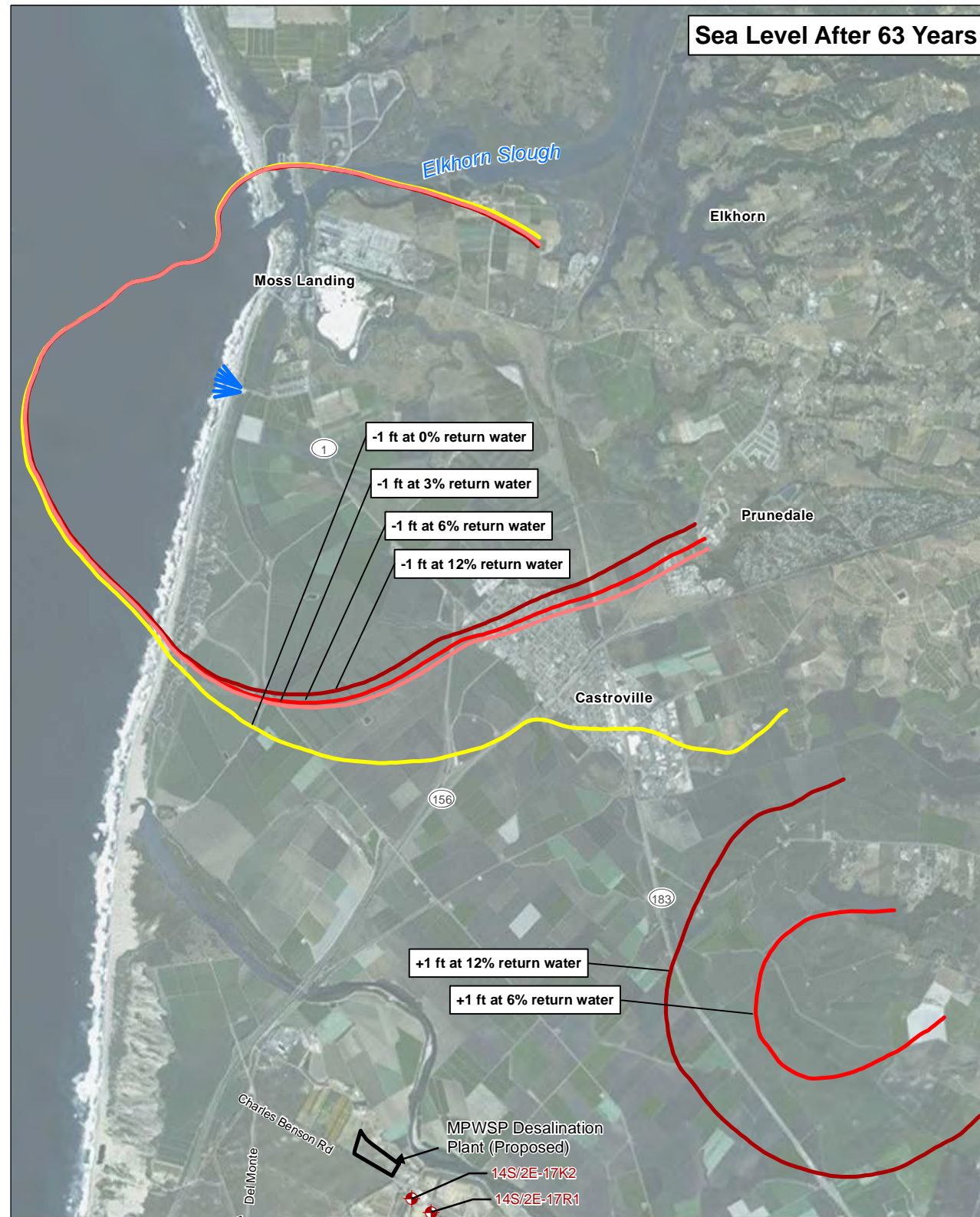
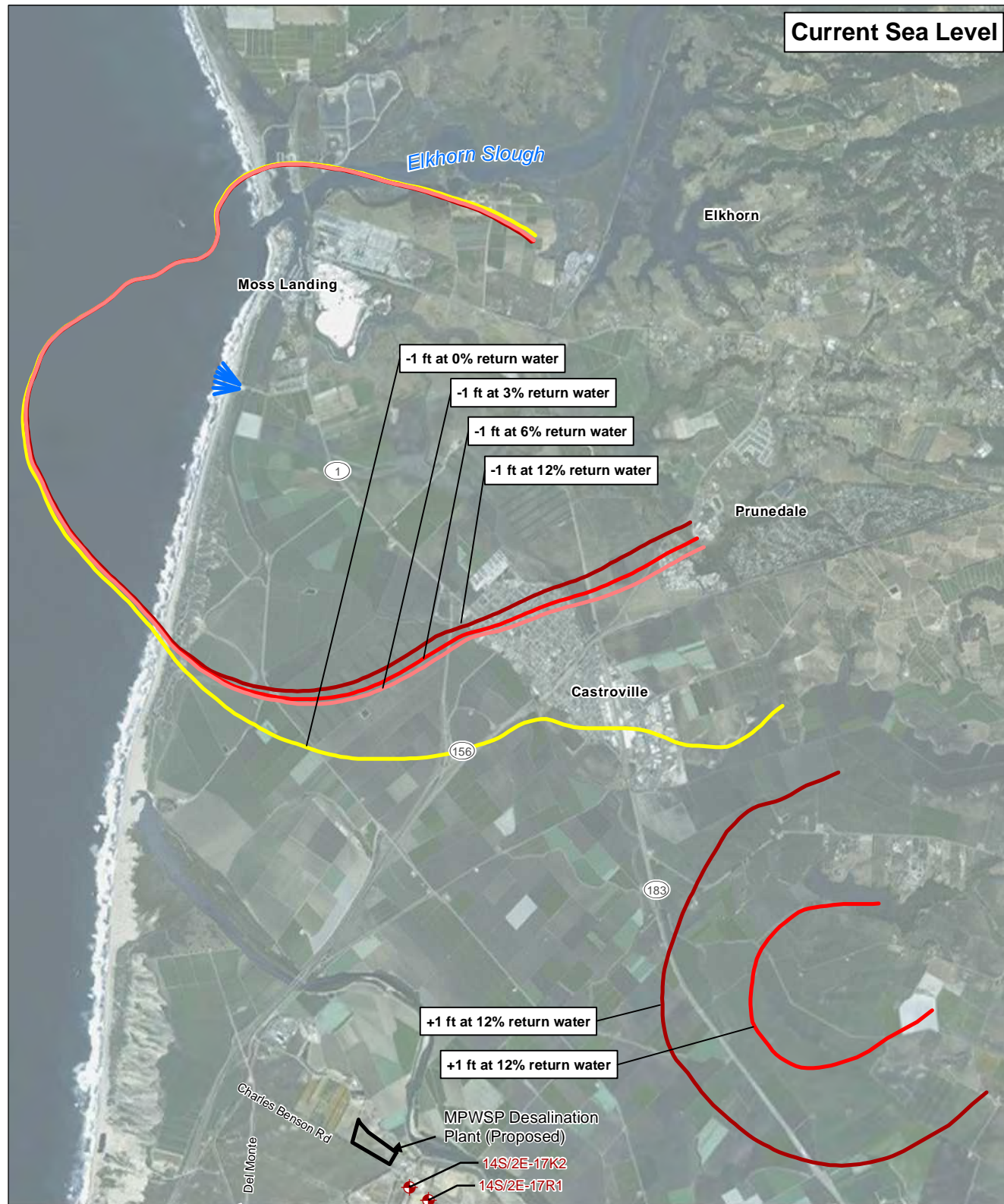
Slant Wells

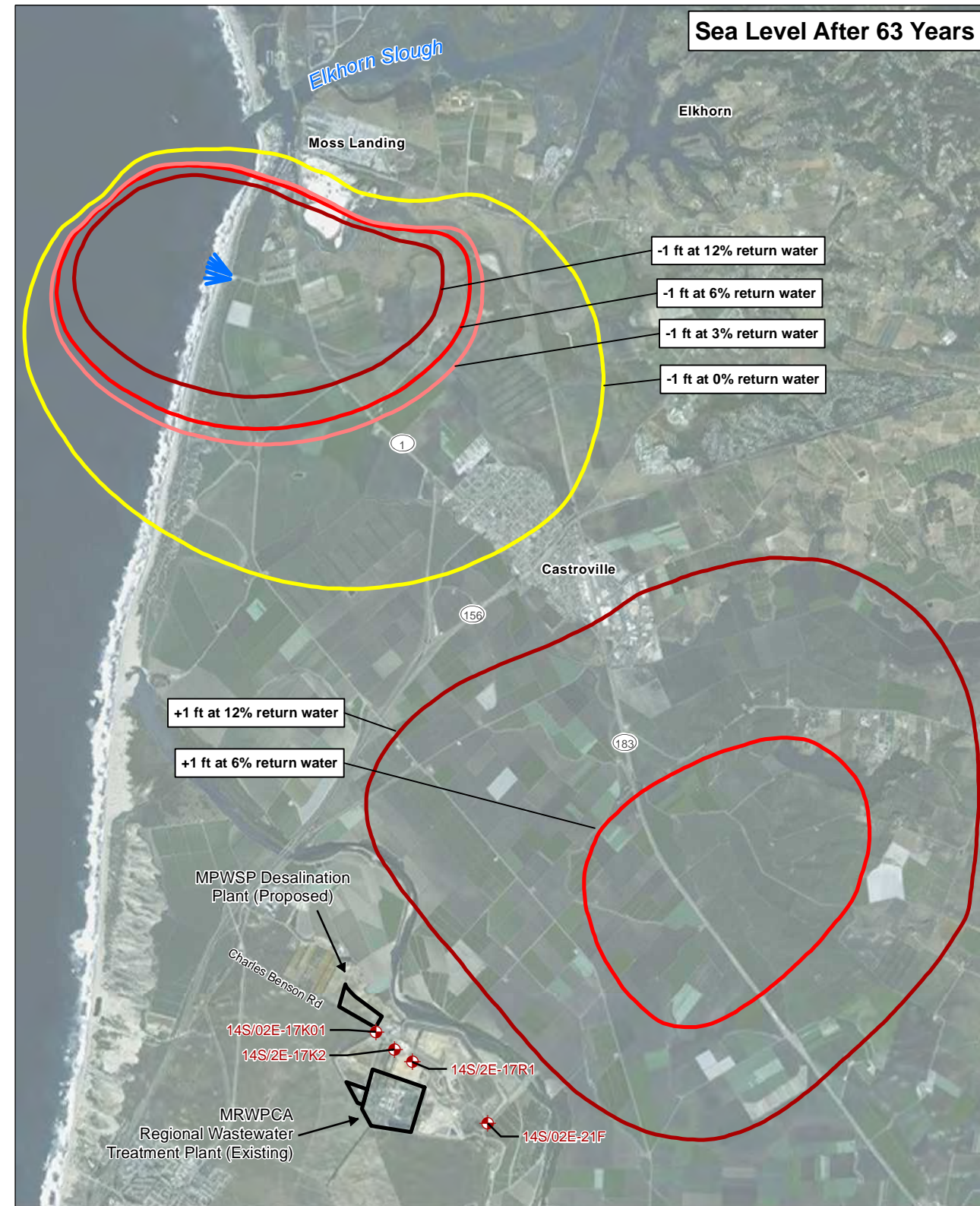
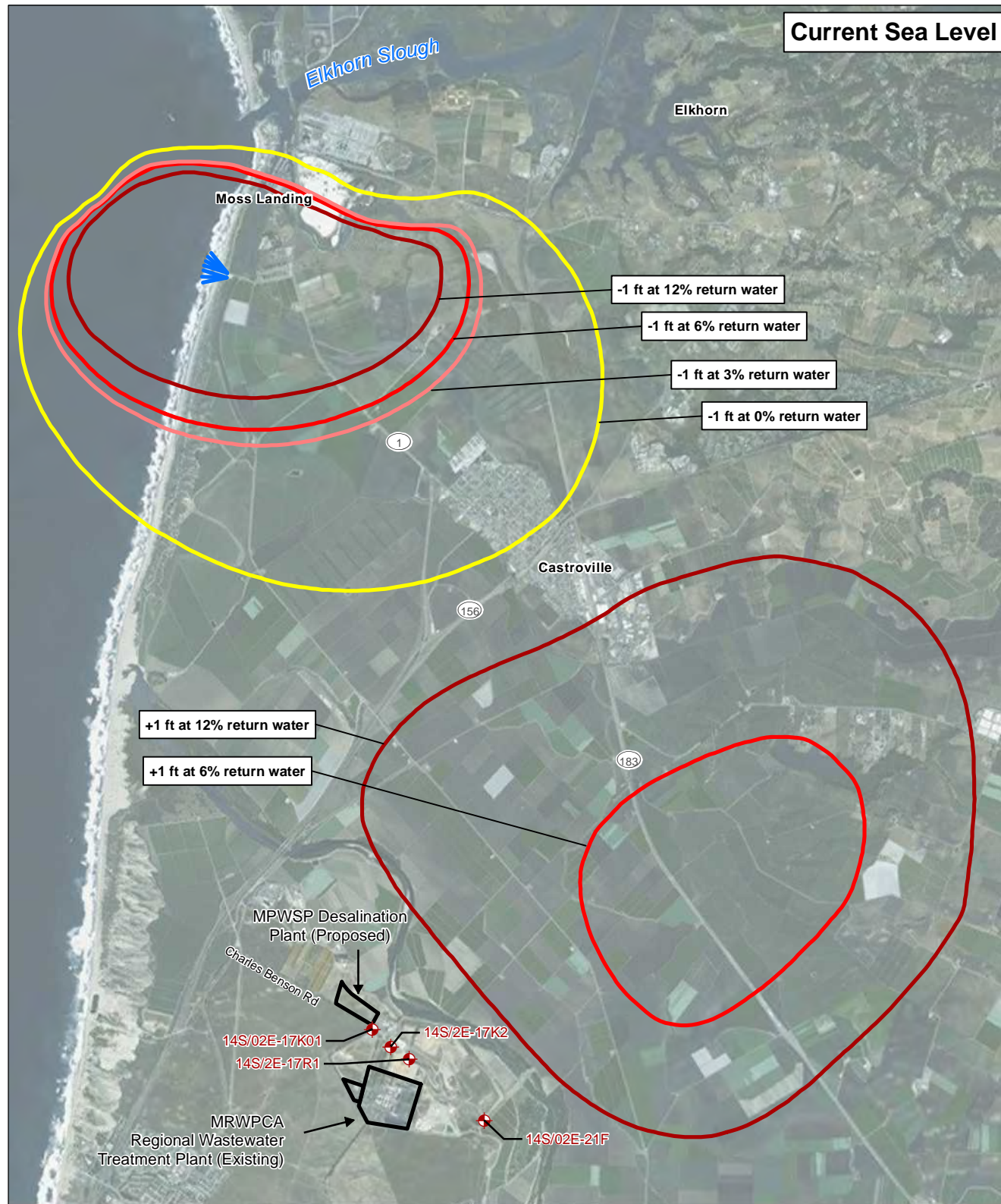
- Proposed
- Existing

+1 foot response means groundwater levels rise one foot

SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project
Figure 5.5-7
 Alternative 5a Site: 1-Foot Response in 400-Foot Aquifer under 15.5 MGD Pumping





0 1 Miles

↑

- Groundwater Well
- 12% return water as in-lieu groundwater pumping
- 6% return water as in-lieu groundwater pumping
- 3% return water as in-lieu groundwater pumping
- 0% return water

Slant Wells

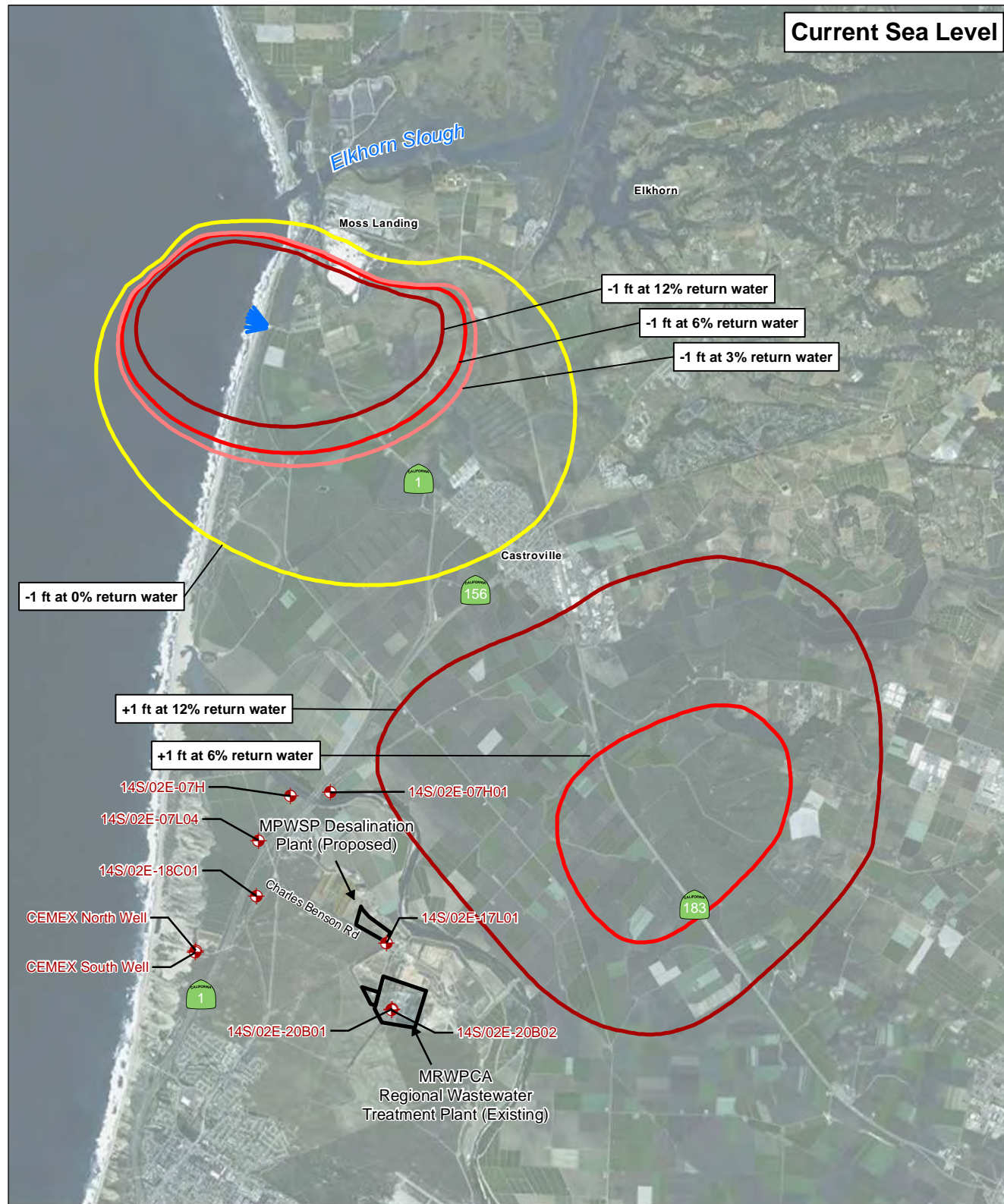
- Proposed

-1 foot response means groundwater levels decline one foot.

+1 foot response means groundwater levels rise one foot

SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project
Figure 5.5-9
 Alternative 5b Slant Wells: 1-Foot Response in 180-Foot Aquifer under 15.5 MGD Pumping



0 1 Miles

↑

- ◆ Groundwater Well
- 12% return water as in-lieu groundwater pumping
- 6% return water as in-lieu groundwater pumping
- 3% return water as in-lieu groundwater pumping
- 0% return water

Slant Wells

- Proposed

-1 foot response means groundwater levels decline one foot.

+1 foot response means groundwater levels rise one foot

SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project
Figure 5.5-10
 Alternative 5b Slant Wells: 1-Foot Response in 400-Foot Aquifer under 15.5 MGD Pumping

Cumulative Analysis

Combined Impacts with GWR Project

With the implementation of the GWR Project, groundwater levels in the 400-Foot Aquifer would rise because of the additional irrigation water provided to the CSIP area, resulting in a less-than-significant impact that is improved compared to Alternative 5 alone and to the proposed project. All other groundwater impacts would be the same in this combined scenario as under Alternative 5 alone.

Impacts of Full Cumulative Scenario

No additional projects would be relevant to the cumulative scenario compared to those addressed in Section 4.4.6 (for the proposed project, relevant to Alternative 5a) and Section 5.5.4.4 (for Alternative 1, relevant to Alternative 5b). In summary, Alternative 5a would result in improved groundwater levels compared to the proposed project because of the improved cumulative effects resulting from the contribution of the GWR Project, and thus would result in the **same impact conclusion** as the proposed project for cumulative impacts on groundwater resources, less than significant.

Although Alternative 5b would result in the same type of groundwater impacts as Alternative 5a, Alternative 5b would affect groundwater in the Perched-A Aquifer, and because no other projects would affect this resource, a cumulative impact analysis is not relevant to this impact. Thus, Alternative 5b would have a **reduced impact conclusion** for cumulative impacts compared to the proposed project, no impact/not relevant.

5.5.4.9 References

- Department of Water Resources (DWR), 2004. *California's Groundwater, Bulletin 118, Central Coast Hydrologic Region, Salinas Valley Groundwater Basin, 180/400 Foot Aquifer Subbasin*. February 27, 2004.
- Monterey Peninsula Water Management District, 2016. Addendum to the Aquifer Storage and Recovery Project Environmental Impact Report/Environmental Assessment and the Pure Water Monterey/Groundwater Replenishment Project Environmental Impact Report for the Hilby Avenue Pump Station. <http://www.mpwmd.net/asd/board/boardpacket/2016/20160620/16/Item-16-Exh-A.pdf>.
- Monterey Regional Water Pollution Control Agency and Monterey Peninsula Water Management District, 2016. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B. <http://purewatermonterey.org/wp/wp-content/uploads/Volume-IV-EIR-Certification-and-Project-Approval-Jan-2016.pdf>.
- United States Geological Survey (USGS), 2011. *Status and Understanding of Groundwater Quality in the Monterey Bay and Salinas Valley Groundwater Basins, 2005: California GAMA Priority Basin Project*, Scientific Investigations Report 2011-5058, 2011.

5.5.5 Marine Biological Resources

The evaluation criteria for marine biological resources address the effects from construction and operation on: any identified marine species, natural community or habitat, including candidate, sensitive or special status species; sustainability of marine species' community or population; and interference with movement of marine species or effects on nursery sites.

5.5.5.1 Setting/Affected Environment

The marine resources study area for the proposed project encompasses the nearshore waters (within 5 miles from shore) of Monterey Bay and extends from the Salinas River southward to the northern limits of Sand City and is described in Section 4.5.1. Several alternatives propose offshore intake and brine discharge facilities located north of the Salinas River, and offshore in Monterey Bay within MBNMS near Moss Landing Harbor and Elkhorn Slough.⁸ This portion of the setting/affected environment contains a large amount of open water including ponds, flooded mudflats, Moss Landing Harbor, Old Salinas River Channel, Moro Cojo Slough, Elkhorn Slough, and Bennett Slough.

Moss Landing Harbor serves as the gateway to the Elkhorn Slough National Estuarine Research Reserve, California's second largest marine wetland administered by the National Oceanic and Atmospheric Administration (NOAA) and managed by the California Department of Fish and Wildlife (CDFW). This expansive tidal wetland is an important habitat for terrestrial and marine species. In addition to NOAA and CDFW, the Elkhorn Slough Foundation and other agencies and organizations protect natural resources and manage many conservation areas within this area, including Moss Landing State Beach, Moss Landing Wildlife Area, and Salinas River State Beach.

Aquatic habitats within MBNMS, Moss Landing Harbor, and Elkhorn Slough include tidal salt marsh, rocky intertidal, sand and gravel beaches, tidal sand and mudflats, pelagic habitat, and subtidal benthic (seafloor) habitat.

Aquatic Habitats

Tidal Salt Marsh. Elkhorn Slough's large tract of tidal salt marsh is an important avian stop along the "Pacific Flyway" migration route, and provides habitat for over 135 aquatic bird, 550 marine invertebrate, and 102 fish species. Elkhorn Slough supports more than 20,000 shorebirds annually, including the western snowy plover (*Charadrius alexandrinus nivosus*), a federally threatened and state species of special concern.

Rocky Intertidal. Where artificial rocky rubble, steel and concrete bulkheads, and pilings are present throughout the Harbor and slough, the mussel *M. californianus* and *M. Trosulus* can both be found, depending on their proximity to the main channels and tidal flows of ocean water. Green algal beds of *Enteromorpha* and *Ulva*, the red algae *Mastocarpus/Gigartinas* and *Polysiphonia*, striped shore crabs (*Pachgrapsus crassipes*), mud flat crabs (*Hemigrapsus oregonensis*), barnacles (*Chtalamus* and *Semibalanus cariosus*), limpets (*Acmaea spp.*), turban

⁸ Moss Landing Harbor is not within MBNMS. Portions of Elkhorn Slough east of Highway 1 are within MBNMS.

snails (*Tegula funebralis*), and hydroids are also present. In addition, under the rocky rubble in some areas of the Harbor, the tube-building crustacean, *Corophium*, has been observed.

Sand and Gravel Beaches. Various invertebrates live in the sand and in wracks of decaying seaweed and other detritus. These include cirrolanid isopods and mole crabs (Oakden and Nybakken, 1977). Polychaete worms, bivalves (i.e., clams, mussels, and scallops) are also regularly present, though typically in lower abundances. In addition, there are numerous shorebird species that use these beaches, such as sanderlings, marbled godwits, and willets that feed at the water's edge, and western snowy plovers and California least terns, both protected species, that nest there. Marine mammals, including California sea lions, harbor seals, and elephant seals, haul-out on isolated beaches and sands spits in Moss Landing's South Harbor. Sand dollars, worms, clams, crabs, and a variety of fish, including surfperch and flatfish, live in the surf zone.

Tidal sand and mud flats. Sheltered and exposed tidal flats support diverse populations of worms dominated by *Notosmastus tenuis* as well as the fat innkeeper worm (*Urechis caupo*); clams including the bentnose clam (*Macoma nasuta* and *M. secta*), gaper clam (*Tresus nuttalli*), Washington clam (*Saxidomus nuttalli*) and littleneck clam (*Prototheca staminea*); and snails (*Tegula spp.*) and provide important foraging area for migrating and resident shorebirds. Exposed tidal flats also support several areas of eelgrass beds (*Zostera marina*) that provide important nursery habitat for juvenile fish, crabs, and shrimp, as well as many other invertebrate species. Sea otters (*Enhydra lutris*) use mudflats within Elkhorn Slough as a pupping ground (Elkhorn Slough Foundation, 2011).

Pelagic Habitat. Monterey Bay, which is within MBNMS, has a high level of phytoplankton primary production due to annual seasonal upwelling, providing the base in a food web including zooplankton, fish, and marine mammals. Fish and marine mammal species occurring in the pelagic environment in this region are largely the same as those described in Section 4.5.1 (Setting/Affected Environment for the proposed project). The close proximity of Monterey Submarine Canyon to the shoreline means that certain fish, sharks, and marine mammals that would normally be found only in deeper offshore waters are frequent inhabitants of the nearshore pelagic environment surrounding Moss Landing. Many organisms found in the nearshore coastal environment use Elkhorn Slough mid-water habitat as nursery or spawning grounds and are therefore, temporary inhabitants (Caffrey et al., 2002). Permanent residents of Elkhorn Slough's pelagic habitat include black surfperch (*Leptocottus armatus*), striped mullet (*Mugil cephalus*), and bay pipefish (*Syngnathus leptorhynchus*). Recent studies of the plankton and larval fish communities inhabiting the coastal waters adjacent to the proposed Deep Water Desal project (Alternative 3) indicate that the plankton community is dominated by calanoid copepods, cyclopod copepods, and euphausiids (AMS, 2016). The larval fish and invertebrate larvae population appears to be dominated by northern anchovy (*Engraulis mordax*), white croaker (*Genyonemus lineatus*), gobies, assorted unidentified larval fish, the bay goby (*Lepidogobius lepidus*), sanddabs (*Citharichthys spp.*), lanternfishes, the blue rockfish complex (*Sebastes*), smelts, Pacific Sardines (*Sardinops sagax*), Dungeness crab (*Metacarcinus magister*), assorted cancer crabs, and market squid (*Doryteuthis opalescens*) (Tenera Environmental, 2014). Krill, a major prey item for many cetaceans, also are found in high concentrations along canyon walls and near canyon heads.

Subtidal Benthic (Seafloor) Habitat. The submarine canyon walls are a mixture of soft substrate and rocky outcrops, providing subtidal habitat for a very diverse biota of benthic organisms, such as corals, sea pens, tunicates, sponges, crinoids, and fishes. Species primarily associated with the freshwater areas of Elkhorn Slough include American shad (*Alosa sapidissima*), threadfin shad (*Dorosoma petenense*), mosquitofish (*Gambusia affinis*), prickly sculpin (*Cottus asper*), and threespine stickleback (*Gasterosteus aculeatus*). Few non-native species have been observed but do include the yellowfin goby (*Acanthogobius flavimanus*), mosquitofish, American shad, and striped bass. Within the Elkhorn Slough, the only permanent benthic resident is the Pacific staghorn sculpin (*Leptocottus armatus*). Other species occurring in the subtidal habitat within the slough are largely the same as those described in Section 4.5.1 (Setting/Affected Environment for the proposed project).

Special-Status Marine Species and Marine Natural Communities

The region assessed as part of the alternatives analysis includes USFWS-designated critical habitat areas for tidewater goby (*Eucyclogobius newberryi*), western snowy plover (*Charadrius alexandrinus nivosus*), and steelhead (*Oncorhynchus mykiss*), each of which is described in **Table 4.5-2** in Section 4.5. Specific to the alternative study area, tidewater goby is known to occur in Bennett Slough and Moro Cojo Slough (CNDDDB, 2010), both of which are part of Elkhorn Slough. Furthermore, Bennett Slough has been federally designated as a critical habitat recovery unit (MNT-1) for the species (USFWS, 2014). Threats to the recovery of the tidewater Goby include: 1) coastal development projects that result in the loss or alteration of coastal wetland habitat; 2) water diversions, alterations of water flow, and groundwater overdraft upstream of coastal lagoons and estuaries that negatively impact the species' breeding and foraging activities; 3) channelization of habitats, and; 4) nonpoint- and point-source pollution or discharge of agricultural and sewage effluents that are likely to impact the species' health or breeding and foraging activities.

Of the three listed salmonid species that occur in the waters of Monterey Bay (Coho salmon, Chinook salmon, and steelhead), only the Chinook salmon are known to occur within Elkhorn Slough. Chinook salmon of unknown origin have been recorded occasionally occurring in Elkhorn Slough (Yoklavich et al., 2002; Tenera Environmental, 2007), although no known critical habitat or access to spawning grounds is known to be present.

Elkhorn Slough, as well as protected habitat areas (e.g., Salinas River State Beach, Moss Landing State Beach, Moss Landing Wildlife Area, conservation lands managed by the Elkhorn Slough Foundation), support numerous special-status species of marine mammals, birds, turtles, and fish. In addition to these species, southern sea otter is a frequent inhabitant within Elkhorn Slough, which is used as both a foraging and a pupping ground. Southern sea otters inhabit open water and haul out on the mudflats in the main slough channel, from Moss Landing Harbor to Hudson Landing, but they are most common in the North Harbor area.

Additional natural communities present in the alternatives study area and not discussed in Section 4.5 include eelgrass and Native Olympia Oysters (*Ostrea lurida*). Eelgrass is a native marine vascular plant that has been afforded special management considerations by CDFW, USFWS, NMFS, and USEPA. Major eelgrass beds exist along the main slough channel east of

Highway 1 and at Seal Bend. In addition to providing refugia for young fish and invertebrates and foraging areas for waterfowl, eelgrass beds stabilize shorelines by dampening wave energy, collecting sediments transported to the shore, and preventing shore erosion. They also improve water quality by collecting and filtering organic matter and suspended sediment. In Elkhorn Slough, eelgrass is threatened by high erosion rates in the main channel; dredging in its historical Moss Landing harbor location; and light limitation caused by turbid water, eutrophication, and high abundance of algae (Elkhorn Slough Foundation, 2016).

Olympia oysters are a sensitive natural community known to provide high biodiversity habitat because they provide physical habitat structure sought by juvenile fish and crustaceans, worms, and foraging fish and birds (NOAA, 2008). They also stabilize sediment, reduce suspended sediment, and improve light penetration, thereby improving the physical conditions that encourage the establishment of submerged aquatic vegetation, such as eelgrass beds. Additionally, a robust population of filter feeders can help modulate plankton blooms (NOAA, 2008). Naturally occurring populations of native oysters within the Elkhorn Slough are extremely rare in most parts of the estuary, including areas where it once thrived. Threats to Olympia oysters include predation from indigenous and non-native marine snails (*Acanthina spirata* and *Urosalpinx cinerea*, respectively), birds, bat rays, and crabs. Limited suitable hard substrate and physical water quality conditions are also important parameters (NOAA, 2008).

5.5.5.2 Direct and Indirect Effects of the Proposed Project (10 slant wells at CEMEX)

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on Charles Benson Road, up to nine new subsurface slant wells at the CEMEX active mining area and conversion of the existing test slant well to a permanent well, and the discharge of brine through the existing wastewater outfall. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur. Accordingly, drilling of the slant wells is the only construction activity that is considered; the operational activities include the pumping of the slant wells and the discharge of brine.

The following paragraphs summarize the direct and indirect effects of the proposed project and some of the impact categories are grouped; for a more detailed analysis and discussion, refer to Section 4.3.5. Overall, the effect of the proposed project on marine biological resource would be less than significant.

Construction Impacts

The subsurface slant wells are the only project components that would involve construction in or near the study area. Since none of the other project facilities would require construction in the study area, construction of the other project facilities would not directly or indirectly affect marine biological resources.

Impact 4.5.1: Have a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH)); or as identified by the CDFW, USFWS, or NMFS during construction.

Impact 4.5.2: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during construction.

Impact 4.5.3: Interfere substantially with the movement of any native resident or migratory fish or marine wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native marine wildlife nursery sites during construction.

Underwater noise associated with drilling during well construction activities, the potential accidental release of drilling fluid, and the possible discharge of clarified⁹ groundwater recovered during drilling operations are the only construction activities that could potentially affect marine biological resources and habitats.

Any drilling noise reaching overlying ocean waters would be below background underwater noise levels as a result of attenuation through the seafloor; underwater noise generated during slant well drilling would have no impact during construction.

Because the drilling operation would be set back approximately 900 feet from the mean high water mark (MHW) on the shoreline and the construction contractor would manage drilling fluids and potential discharges of clarified groundwater in accordance with regulatory requirements, the potential for an accidental release of any hazardous drilling fluids into waters of MBNMS, or increased turbidity in Monterey Bay during slant well construction, would be less than significant (see Section 4.3.5.1 for details). Because construction would not directly disturb marine habitat or cause stress, mortality, or behavioral avoidance as a result of construction noise or water quality degradation, the construction of the proposed project would not have a substantial adverse effect on any marine biological resources in MBNMS including special-status species, would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS; the impact would be less than significant. No impacts would occur from the construction of any other proposed facility because none occur within the marine biological resources study area.

Operation Impacts

Potential operational impacts on marine biological resources would be limited to adverse effects associated with operation of the subsurface slant wells and the discharge of brine generated at the proposed MPWSP desalination plant. Because none of the other project facilities would affect marine biological resources, none of the other facilities are discussed.

⁹ Clarified Water: Water that has been processed to remove suspended sediments and is therefore “clear” and when discharged to the ocean will not result in increased turbidity.

Impact 4.5-4: Result in a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any marine species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH); or as identified by the CDFW, USFWS, and/or NMFS during operations.

Impact 4.5-5: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during operations.

Impact 4.5-6: Interfere substantially with the movement of any native marine resident or migratory fish or marine wildlife species or with established native resident or migratory marine wildlife corridors, or impede the use of native marine wildlife nursery sites during operations.

Impacts on marine biological resources during operations could result from impingement of organisms or through the accumulation of fine particulate material on the seafloor during pumping of the slant wells, from elevated salinity or other constituents in the brine, or from shear stress¹⁰ on plankton from discharged brine.

Impingement of plankton, aquatic species eggs, larval fish and other organic matter on the seafloor or a potential deterioration of seafloor sediments and soft substrate benthic habitat from the operation of the slant wells is not likely because the ocean currents at the seafloor and swimming speeds of aquatic species are greater than the low intake velocity. Furthermore, because squid spawning typically occurs on sand and mud seafloor habitats at depths greater than the intertidal zone where slant wells would be located, potential impacts on market squid eggs from slant well pumping would also not likely occur.

The increased salinity in the brine discharge would meet Ocean Plan water quality objectives at the edge of the BMZ (see Section 4.3.5.2 for details) and would not affect marine habitat by reducing dissolved oxygen content (hypoxia). The model-based analyses of water quality constituent concentrations, mixing, and dilution at the outfall diffuser for all operational scenarios concluded constituent concentrations would become elevated to levels greater than 80 percent of the Ocean Plan water quality objectives for ammonia, and cyanide at the edge of the ZID. For an additional thirteen constituents, there is not enough information to assess concentrations at the edge of the ZID due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives (see Section 5.5.3). Therefore, it is conservatively concluded that Ocean Plan water quality objectives could potentially be exceeded during operations for some operational discharge scenarios, resulting in a significant impact. As discussed in Section 4.3, Surface Water Hydrology and Water Quality, significant impacts would be reduced to a less-than-significant level by implementing **Mitigation Measures 4.3-4** and **4.3-5**, which would ensure that monitoring is conducted to confirm that the brine is discharged at concentrations below Ocean Plan water quality objectives and further ensure compliance with the

¹⁰ Shear stress is a strain in the structure of a substance produced by pressure, when its layers are laterally shifted in relation to each other.

monitoring requirements and regulatory standards that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay. In the event that monitoring reveals non-compliance with Ocean Plan water quality objectives, corrective actions would be implemented (through implementation of **Mitigation Measure 4.3-5**) that would ensure operational discharges adhere to regulatory standards that are protective of beneficial uses.

Impacts due to shear stress caused by the brine discharge would be limited to plankton, because motile organisms would be able to avoid turbulence in the immediate vicinity of the brine discharge. The impact on plankton from shear stress would be less than significant because of the small percentage of plankton abundances potentially affected in the context of plankton abundance in the study area. Moreover, the Ocean Plan (OP) Provisions for Desalination Facilities require modeling and estimating of potential mortality due to shear stress entrainment, and require periodic re-evaluation to ensure the operational procedures employed result in acceptable plankton mortality (SWRCB, 2016). Ongoing evaluations and analysis, as required by the OP, will ensure that plankton losses remain less than significant, even if influencing factors related to plankton or the potential for plankton loss (plankton abundance, ocean conditions, etc.) fluctuate in the future, as is typical for such a dynamic environment.

Therefore, the operation of the proposed project would not have a substantial adverse effect on any marine biological resources in MBNMS including special-status species, would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS; the impact would be less than significant. Because there is little risk that benthic infauna and macrofauna populations would decline due to impingement, shear stress, and increased salinity, impacts are not anticipated on fish, marine mammals (such as the Southern sea otter and California gray whale), seabirds, and other species. Transfer of bioaccumulated contaminants from benthic infauna to higher trophic levels also would be limited by the very small area of seafloor potentially affected. Transfer to predators in higher trophic levels would be proportional (e.g., very limited) to the relative consumption of prey from within and outside of the affected seafloor area. Therefore, the indirect impacts on fish, marine mammals, sea birds, and other species are also determined to be less than significant.

Cumulative Impacts

Impact 4.5-C: Cumulative impacts on marine biological resources. (*Less than Significant*)

The geographic scope for the cumulative analysis of impacts on marine biological resources encompasses the nearshore waters (within 5 miles from shore) of Monterey Bay and extends from north of Moss Landing Harbor southward to the northern limits of Sand City, including the subtidal and intertidal habitats contained therein, and all marine biological communities.

The proposed MPWSP would use subsurface slant wells in-lieu of an open ocean intake. As a result, there are no anticipated or proposed construction activities within the coastal waters of the MPWSP project area that are expected to result in disturbance or effects on marine biological resources. Because any drilling noise reaching ocean waters overlying the slant wells is expected to be below background underwater noise levels, the lack of noise generated by slant well drilling

could not combine with other sources of underwater noise generated by projects in the cumulative scenario to result in increased noise above ambient levels. The Deepwater Desal project would also involve offshore construction, but the Deepwater Desal intake and discharge facilities would be constructed approximately 6.5 miles to the north, and possibly years later than the MPWSP; therefore, noise would not accumulate with the proposed project's construction noise.

While Deepwater Desal is expected to have a high impingement risk due to its open water intake design, the MPWSP's impingement risk is low and is not likely to incrementally increase the impingement risks caused by Deepwater Desal. Therefore, the MPWSP could not contribute to any cumulative impacts related to the impingement or entrainment of fish or invertebrate species, or the impingement of fine organic matter.

The MPWSP and the DeepWater Desal project would discharge a brine solution with an elevated salinity concentration as well as potentially elevated concentrations of contaminants to the ocean through the existing MRWPCA ocean outfall. The distance between the DeepWater Desal proposed outfall and the existing outfall proposed for use by the MPWSP (i.e., 31,511 feet; 9,605 meters; 5.96 miles) leads to the determination that there is no expectation of the two BMZs reaching each other or intermixing discharge waters. The area within the BMZ for the MPWSP that could exceed 2 ppt is estimated at a total volume of approximately 31 cubic meters (1,100 cubic feet) of pelagic habitat and associated marine taxa, including special status fish, invertebrate, and marine mammal species. Since the DeepWater Desal project proposes to discharge more brine than the MPWSP, its BMZ would be larger than that of the MPWSP. Depending on operating conditions, the DeepWater Desal project could result in approximately 150 to 1,500 cubic meters (5,300 to 53,000 cubic feet) of pelagic habitat exceeding 2 ppt around the diffuser structure. Based on the comparative scale of the volume of pelagic habitat that could exceed 2 ppt salinity as compared to the nearshore pelagic habitat available in Monterey Bay, there would be no significant cumulative impacts in Monterey Bay regardless of other external stressors. Therefore, the cumulative effect of the two projects from increased salinity concentrations in their brine discharges on marine biological resources, including special status fish, invertebrates, and marine mammal species, would be less than significant.

However, the proposed MPWSP discharge could be out of compliance with the Ocean Plan for cyanide and ammonia and, for an additional thirteen constituents, there is not enough information to assess concentrations at the edge of the ZID. The implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure that brine constituents from the MPWSP, such as cyanide and ammonia, are discharged at concentrations below Ocean Plan requirements and would result in a less than significant contribution to a cumulative impact related to cyanide and ammonia. The constitution of the brine that would be discharged from the DeepWater Desal project is currently unknown but this analysis assumes that, at a minimum, contaminants detected in the ocean water (CCLEAN, 2015) that currently exceed Ocean Plan water quality objectives (PCBs) would in all likelihood also exceed Ocean Plan water quality objectives at the edge of the DeepWater Desal ZID. If there are no operational actions available for dilution of the brine from the DeepWater Desal project, or feasible mitigation actions to reduce potential increased PCB concentrations, and therein reduce the potential impact on pelagic marine biological resources, then the potential impact on marine

biological resources inhabiting pelagic habitat within the ZID of the DeepWater Desal project would be significant and unavoidable.

The DeepWater Desal project would have to implement operational actions that ensure its brine discharges also achieve the Ocean Plan water quality objectives. Since the MPWSP would be using subsurface intakes, the PCBs drawn into the source water through the ocean floor would be less than ambient ocean water and would not exceed Ocean Plan objectives at the edge of the ZID. Thus, the MPWSP would have a less than significant contribution to a cumulative impact related to PCB concentrations.

As discussed in Impact 4.5-4, impacts on marine organisms caused by shear stress from the proposed project would be concentrated on plankton smaller than 1.0 mm and would be less than significant (0.00261 percent of nearshore planktonic organisms killed). At present, only a preliminary assessment of potential shear stress impacts on planktonic organisms has been performed for the DeepWater Desal project. However, the assessment of potential brine discharge effects on planktonic organisms relative to the volume of the MPWSP brine discharge (Impact 4.5-4) can be used as a basis for estimating similar impacts from the DeepWater Desal project. If the MPWSP and DeepWater Desal were both built and operated, DeepWater Desal is estimated to have a brine discharge of approximately 27 mgd, in comparison to the MPWSP's 14 mgd brine discharge. Assuming that the DeepWater Desal diffuser jets would cause no greater shear impact than the diffusers used on the MRWPCA outfall, DeepWater Desal brine discharges are estimated to cause plankton mortality rates of approximately 447 million individuals per day, assuming plankton densities similar to those measured at the MRWPCA outfall (see Table 4.5-1). As a result, the estimated potential cumulative effect of brine discharge shear stress on planktonic organisms less than 1 mm in size would be approximately 3.8 billion planktonic organisms per day or 0.011 percent of the potential nearshore plankton in Monterey Bay, a small fraction of the plankton less than 1 mm in size inhabiting the nearshore waters near the ocean outfalls. Additionally, the Ocean Plan water quality objectives for brine discharges require modeling and estimating of potential mortality due to shear stress entrainment and require periodic re-evaluation to ensure the operational procedures employed result in acceptable plankton mortality (SWRCB, 2016). No significant cumulative impact from brine discharge shear stress would occur as a result of the MPWSP and DeepWater Desal project.

5.5.5.3 Direct and Indirect Effects of the No Project Alternative

Under the No Project Alternative, no desalination facility would be built and operated, no slant wells would be drilled, the test slant well would be decommissioned and no brine would be discharged through the MRWPCA outfall. Therefore, there would be no impacts on marine habitats and taxa as a result of construction activities or operational discharges. There would be beneficial impacts on steelhead under the No Project Alternative while they are present in terrestrial habitat, due to reductions in withdrawals from the Carmel River. For more information, see Section 5.5.6.3. Because the No Project Alternative would have no other direct or indirect impacts with respect to marine biological resources, it could not contribute to cumulative effects.

5.5.5.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road is the only component unique to Alternative 1 (see **Figure 5.4-1**) that could affect marine biological resources; brine would be discharged through the existing outfall just like the proposed project. Therefore, the marine biological resources impact analysis of Alternative 1 focuses primarily on the effects of the intake system; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

The component unique to Alternative 1 that would involve construction in or near the marine resources study area would be the subsurface slant wells at Potrero Road. Just like the proposed project, underwater noise from the drilling operation would be below background underwater noise levels due to attenuation through the seafloor. Slant well drilling activities would occur in the parking lot approximately 600 feet inland from MHW on the back side of the dunes, and the contractor would discharge drilling liquids in accordance with regulatory requirements (see Section 5.5.3 for analysis of construction related water quality impacts). Although the potential impact would be increased from the proposed project because of the additional slant well at Potrero Road, the construction of Alternative 1 would not have a substantial adverse effect on any marine biological resources in MBNMS including special-status species, would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS. Therefore, Alternative 1 would result in the *same impact conclusions* as the proposed project, less than significant.

Operational and Facility Siting Impacts

Unlike the proposed project, groundwater modeling (see **Appendix E2**) indicates pumping from the slant wells at Potrero Road would result in a cone of depression in the underlying groundwater aquifers that would draw or divert water from Elkhorn Slough. This drawdown impact is discussed in Section 5.5.4, Groundwater Resources, and presented in **Figure 5.5-2**. The modeling cannot predict the amount of water diverted from Elkhorn Slough although it must be conservatively assumed, based on the predicted areal extent of the drawdown, that operations could potentially adversely affect aquatic habitat in Elkhorn Slough due to reduced surface water flow and volumes. This would be an increased level of impact compared to the proposed project and because there is no method to mitigate for impacts on surface water flow and volumes in Elkhorn Slough, Alternative 1 would result in an *increased impact conclusion* on marine species, natural communities or habitat, protected wetlands or waters, and critical habitats compared to the proposed project, significant and unavoidable.

As described for the proposed project, impingement of plankton, larval fish and other organic matter on the seafloor from the operation of the slant wells at Potrero Road would not occur because ocean currents at the seafloor are greater than the low intake velocities from the slant wells, the increased salinity and other constituents in the brine discharge (see Section 5.5.3) would not threaten to eliminate a marine plant or animal wildlife community or cause a marine population to drop below self-sustaining levels, and would not interfere with the movement of native resident or migratory fish or marine wildlife species. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

The brine would be discharged at the same location and at the same concentration as the proposed project (see Section 4.5 for details). Therefore, operational discharge impacts on marine biological resources would be the same as the proposed project, less than significant with implementation of **Mitigation Measures 4.3-4** and **4.3-5**.

In summary, the operation of Alternative 1 would have a greater potential impact on marine biological resources compared to the proposed project. While the operation of Alternative 1 would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS, Alternative 1 could cause potentially significant and unavoidable effects on marine species, natural communities or habitat, protected wetlands or waters, and critical habitats in Elkhorn Slough as a result of the groundwater elevation drawdown from project pumping at Potrero Road.

Cumulative Analysis

Cumulative impacts during construction would be the same as those described for the proposed project in Section 4.5.6; the location of the slant wells at Potrero Road and the additional duration associated with construction of one additional slant well would not change the applicable geographic scope of the analysis or the type or intensity of Alternative 1's contributions to cumulative impacts during construction, which would be less than significant.

During operations, the impacts associated with seawater intake and brine discharge would be the same as those described for the proposed project in Section 4.5.6. Although the additional impact of Alternative 1 on surface water flow and volumes in Elkhorn Slough would be significant and unavoidable, as discussed in Section 5.5.4.3 regarding groundwater impacts, no other projects are located in the same geographic area and have the potential to affect groundwater resources in the Perched A Aquifer, which in turn could result in impacts on surface water in Elkhorn Slough. Because no other projects would affect surface water flows and volumes in Elkhorn Slough, a cumulative impact analysis is not relevant to this impact.

5.5.5.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a

subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented.

Therefore, the open water intake system is the unique component of Alternative 2 (see **Figure 5.4-2**) that could affect marine biological resources and this impact analysis focuses primarily on the potential impacts of construction and operation of the intake system; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

The construction of an open-water intake, including the placement of the intake structure on the seafloor and the installation of the intake pipeline at the breakout face where the pipeline emerges from the seafloor, would result in a temporary localized disturbance of seafloor habitat, associated marine infaunal and epifaunal community, and habitat function that could have a temporary effect on some special-status fish species. The construction barges and drilling methods employed in installing the pipeline itself would pose temporary obstructions (anchor chains) to the movement of marine mammals and sea turtles, temporary disturbance and possible loss of soft substrate habitat and habitat function for special-status fish and marine mammal species under temporary barge anchors, and increased underwater noise from the construction activities. These activities could cause altered behavior (altered foraging and swimming patterns) in some special status fish, marine mammals, and sea turtles. The possible use of barges from outside Monterey Bay could pose a risk of introducing non-native invasive species attached to their hulls or in their ballast water which could indirectly affect marine community composition and habitat function in Monterey Bay.

These potential impacts would be considered significant and substantially more severe than construction impacts of the proposed project. **Mitigation Measure ALT 2-Marine-1** would require actions to avoid or minimize construction impacts on marine biological resources. While these measures would reduce construction-related impacts on marine biological resources, residual impacts may remain significant due to the sensitivity of the resources. Therefore, the construction of Alternative 2 could result in an increased impact on marine biological resources including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans during construction and would result in an ***increased impact conclusion*** compared to the proposed project; significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 1**.

While Alternative 2 would have an increased impact on marine biological resources compared to the proposed project because of the in-water construction described above, Alternative 2 would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife

species in MBNMS. For these potential effects, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant. No impacts would occur from the construction of any other proposed facility because none occur within the marine biological resources study area.

Mitigation Measure ALT 2-Marine-1 applies to the Alternatives 2, 3, and 4 (alternatives with open-water intakes) and would not apply to the proposed project or Alternatives 1, 5a, or 5b.

Mitigation Measure ALT 2-Marine-1: Marine Construction Measures.

CalAm and/or its contractors shall implement avoidance and minimization measures including, but not limited to:

1. Limit marine construction activities to periods of the year in which marine mammals and sea turtles are not migrating through the area;
2. Prior to construction, conduct seafloor habitat surveys of potential anchor chain corridors to determine locations of sensitive habitats, such as hard bottom substrate habitat, and avoid siting anchor chain corridors within these sensitive habitats;
3. The hulls of non-local work vessels and barges shall be cleaned prior to commencing work in Monterey Bay;
4. On-board qualified marine mammal observers (as defined by NOAA Fisheries) shall be present during all offshore construction activities with a requirement to cease all work if marine mammals or turtles come within 50 yards from the work vessels, and;
5. Provide environmental training to all marine work crews prior to start of construction to prevent environmental incidents. Training shall include information about how to identify marine biological resources to be avoided during construction, protocols for reporting to marine mammal observers, the importance of avoiding impacts on marine biological resources, and measures to avoid or minimize impacts during construction.

In summary, the construction of Alternative 2 would have a greater potential impact on marine biological resources compared to the proposed project because of the in-water construction activities. While the construction of Alternative 2 would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS, Alternative 2 could result in potentially significant and unavoidable effects on marine species, natural communities or habitat, protected wetlands or waters in Monterey Bay within MBNMS as a result of residual impacts from in-water construction activities.

Operational and Facility Siting Impacts

Alternative 2 would include a screened open water intake within MBNMS that would be anchored to the seafloor and would result in a permanent loss of approximately 3,300 ft² of soft substrate benthic habitat, affecting marine species dependent on this habitat and habitat function. This would result in a greater impact compared to the proposed project, which proposes subsurface slant wells and no new structures on the seafloor.

Additionally, the same volume of source water as the proposed project would be provided by a screened open water intake. Consistent with the requirements of the Ocean Plan (SWRCB, 2016), the passive narrow-slot wedgewire screens would have a 1-millimeter (mm) slot size, and the screened intake water velocity would be at or below 0.5 feet per second. Although the screen design and operating intake velocity would be consistent with the requirements of the Ocean Plan, Alternative 2 could still result in an increased long-term impact on pelagic planktonic organisms and community through impingement and entrainment. Direct impingement of larger fish and invertebrate organisms is not expected due to the wedgewire screens and the low flow rate. However, as shown in **Table 4.5-8** in Section 4.5, the swimming speeds of several species of plankton, larval invertebrates, and larval fish are below the 0.5 feet per second intake velocity; therefore, such organisms could be entrained. Operation of Alternative 2 would result in 100 percent mortality of all organisms entrained through the open-water intake. A preliminary baseline characterization of the habitat in the vicinity of the Alternative 2 intake indicates that larval northern anchovy, Pacific sardines, white croaker, sanddab, rockfish, smelt, sculpin, Dungeness crab, cancer crabs, and unidentified larval fish are present and could be entrained (Tenera Environmental, 2014).

The Ocean Plan requires mitigation for loss of marine life or habitat due to the operation of an open ocean intake. Such loss is assessed through the conversion of Empirical Transport Modeling (ETM) results into an estimate of the habitat necessary to replace the production lost due to entrainment, called the Area of Production Foregone (APF). The APF is calculated by multiplying the area of habitat present within the estimated source water that would be drawn into the intake, by the proportional entrainment mortality estimated from ETM, to provide a habitat acreage that may be useful for understanding the extent of compensation required to mitigate impacts from entrainment (SWRCB, 2016). Potential APF for the magnitude of the loss under Alternative 2 was estimated (Luster, 2016) at less than 20 acres and therefore, potential operational impacts would be substantially greater than the proposed project and would be significant, with mitigation required per the Ocean Plan. **Mitigation Measure ALT 2-Marine-2** would be required to minimize and mitigate for impacts on marine biological resources from entrainment. While these measures would minimize impacts on marine biological resources, residual impacts may remain significant due to the uncertainty of the efficacy of the mitigation.

Furthermore, Alternative 2 would use the existing MRWPCA outfall and would generate the same volume of brine discharge, with the same salinity characteristics, as the proposed project (see Section 4.5 for details). Unlike the proposed project however, the open water intake would not pre-filter PCBs through the seafloor and the resultant concentration of PCB in the brine would be greater than the proposed project and Alternative 2 could potentially exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID. As described for the proposed project, because other Ocean Plan-regulated constituent concentrations (ammonia and cyanide) could become elevated under certain discharge scenarios, and because there is not enough information to assess concentrations for an additional thirteen constituents at the edge of the ZID, it is conservatively concluded that Ocean Plan water quality objectives could potentially be exceeded during operations for some operational discharge scenarios, resulting in a significant impact. Similar to the Proposed Project (see Section 5.5.3 for water quality analysis related to operational discharges under Alternative 2), Alternative 2 would be subject to the same mitigation as defined for the

proposed project, which requires development and approval of a monitoring and reporting plan, consistent with the requirements of the Ocean Plan and MBNMS guidelines, prior to construction and operation. **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with the monitoring requirements and regulatory salinity standards that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay. The monitoring and reporting plan would set forth appropriate response thresholds as well as corrective actions (defined in **Mitigation Measure 4.3-5**) that would be required if the acquired data indicated deleterious effects on receiving water quality or marine resources from discharges. Implementation of **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** would reduce the potentially significant impact to a less-than-significant level. Overall, considering loss of benthic habitat, impingement/entrainment, and brine discharge effects, the operation of Alternative 2 would result in a greater impact on marine species, natural community, or habitat, during operations and an *increased impact conclusion* compared to the proposed project; impacts would be significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 2, Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)**, and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

At present, there are no known marine species in Monterey Bay with population numbers suspected of dropping below self-sustaining levels with the exception of the California sea otter. Although sea otters feed within the study area, sea otter prey would not be reduced and other species would not be expected to be reduced in number because of entrainment of juvenile larvae and plankton. For the past several decades, the Moss Landing Power Plant has been using approximately 1.2 billion gallons per day of ocean water to cool power plant turbines (Tetra Tech, 2008). The entrainment of larval fish and plankton at the Moss Landing Power Plant has not resulted in effects on local marine species such that populations have been substantially affected. Therefore, the potential would be increased compared to the proposed project for the open-water intake to directly or indirectly threaten a marine plant, animal or wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels or interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS but would result in the *same impact conclusion* as the proposed project, less than significant.

Mitigation Measure ALT 2-Marine-2 applies to the Alternatives 2, 3, and 4 (alternatives with open-water intakes) and would not apply to the proposed project or Alternatives 1, 5a, or 5b.

Mitigation Measure ALT 2-Marine-2: Minimization of and Mitigation for Loss of Marine Life and Habitat.

To ensure that design and operation of the Alternative 2 open ocean intake complies with the requirements of the California Ocean Plan, CalAm and/or its contractors shall:

1. In addition to implementing the required design standard of screening the open ocean intake using a screen with a 1.0-millimeter or smaller slot size screen, and the required operational standard of limiting through-screen velocity at the intake to not exceed 0.15 meters per second (0.5 feet per second), implement the best available technology

feasible to minimize intake and mortality of all forms of marine life in the context of design and operation of an open ocean intake. Submit design of the open ocean intake to the RWQCB, CPUC, and MBNMS for review and approval.

2. Prepare a Marine Life Mortality Report to estimate the marine life mortality resulting from construction and operation of the facility after implementation of the facility's required site, design, and technology measures. The report shall use the methods specified in chapter III.M.2.e.(1) of the Ocean Plan, including using the Empirical Transport Model (ETM)/Area of Production Forgone (APF) approach to estimate entrainment impacts. Submit the draft report to RWQCB, CPUC, and MBNMS with the item 1 design submittal, for review and approval.
3. Based on the results of the report prepared in item 2, implement measures to meet the Ocean Plan fully mitigated standard of replacement of all forms of marine life or habitat lost. This can be accomplished in one of the following two ways or as a combination of both:
 - a. *Mitigation Project*: Implement a mitigation project satisfying the provisions listed in Ocean Plan chapter III.M.2.e.(3), including preparing and submitting a Mitigation Plan as described in subsection (a) and meeting the requirements of subsection (b). Submit the Mitigation Plan to RWQCB, CPUC, and MBNMS for review and approval.
 - b. *Fee-Based Mitigation Program*: If the RWQCB determines that an appropriate fee-based mitigation program has been established by a public agency, and that payment of a fee to the mitigation program will result in the creation and ongoing implementation of a mitigation project that meets the requirements of Ocean Plan chapter III.M.2.e.(3), CalAm may pay a fee to the mitigation program in lieu of completing a mitigation project. If implementation of this option is feasible, CalAm shall adhere to the requirements of chapter III.M.2.e.(4).

For either of the above options, CalAm shall ensure that the requirements of Ocean Plan chapter III.M.2.e.(5 and 6) are met regarding site inspections of mitigation projects and mitigation project performance reporting.

In addition to physical impacts, Alternative 2 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its open water intake. Guidelines state that “all desalination plants should be designed and sited to avoid and minimize impingement and entrainment to the extent feasible. Project proponents should investigate the feasibility of using subsurface intakes as an alternative to traditional intake methods.”

Cumulative Analysis

The geographic scope for the cumulative analysis of the components of Alternative 2 that differ from the proposed project (i.e., the proposed open water intake) includes Monterey Bay, which is within MBNMS. The only project relevant to the cumulative scenario for Alternative 2 is the DeepWater Desal project (No. 34), described in **Table 4.1-2** in Section 4.1. The proximity of the DeepWater Desal Project to the Monterey Canyon increases the potential risk to different fish and marine mammal species.

Assuming both Alternative 2 and the DeepWater Desal project are implemented, each with their proposed open water intakes, the construction of both Alternative 2 and the DeepWater Desal Project would increase the temporary disturbance to marine soft substrate habitats, and increase disturbances to marine mammal and sea turtle movements from work barge anchors, anchor cables and underwater noise. Additionally, the increased magnitude of the marine construction effort required for DeepWater Desal would increase the risk of introducing non-native invasive species from work barges that originate from outside Monterey Bay. As described above, these impacts can be reduced through implementation of mitigation such as **Mitigation Measure ALT 2-Marine-1**; however, it is assumed that residual impacts may remain significant due to the sensitivity of the resources. Therefore, the cumulative impact from construction of Alternative 2 and the DeepWater Desal Project would be significant and unavoidable and Alternative 2 would have a cumulatively significant contribution to this impact, even with implementation of mitigation.

Alternative 2 and the DeepWater Desal Project would result in the combined permanent loss of approximately 20,000 ft² (about 0.5 acre) of benthic habitat. Additionally, the operation of the open-water intake would result in the entrainment of plankton and larval fish, including those of the DeepWater Desal Project (APF of greater than 40 acres), resulting in a cumulative APF estimated at approximately 60 acres (Luster, 2016). However, the existing Moss Landing Power Plant continues to draw 1.2 billion gallons per day for cooling water, which also results in the entrainment of larval fish and plankton. Through a settlement agreement executed on October 9, 2014 between the SWRCB and the current owner of the power plant, the Moss Landing Power Plant must reduce its intake of cooling water to meet an 83.7 percent or greater reduction in mortality from entrainment and impingement impacts beginning with reductions on December 31, 2016 and achieving full compliance by December 31, 2020. The Moss Landing Power Plant owner has indicated its intention to retrofit the power plant's four generating units to reduce entrainment and impingement impacts in compliance with the Once-Through-Cooling (OTC) policy and this would likely occur prior to the operation of any desalination project in Moss Landing. Regardless, the retrofit of the power plant would not offset the adverse cumulative impact attributable to entrainment and impingement at the screened open water intake component of Alternative 2, and these potential losses are considered a significant cumulative impact. As stated above, mitigation such as **Mitigation Measure ALT 2-Marine-2** would be necessary to compensate for the loss of habitat, but the efficacy of the available mitigation options has not been tested. Therefore, Alternative 2 could still result in a cumulatively significant contribution and the cumulative impacts would be significant and unavoidable.

Because the open water intake would not pre-filter the PCBs through the seafloor, the PCB levels in the brine discharge could result in exceedances of Ocean Plan water quality objectives. For the same reasons described for exceedances of salinity objectives in Section 4.5.6, this would result in a cumulatively significant impact related to PCB concentrations. However, implementation of **Mitigation Measure 4.3-5** would reduce the concentration of PCBs in brine discharge to a level that meets Ocean Plan water quality objectives and is therefore less than significant with mitigation.

5.5.5.6 Direct and Indirect Effects of Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting a pump station on Dolan Road to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The construction and operation of the screened open water intake, the brine discharge facility and the HDD construction of the intake and brine discharge pipelines are the unique components of Alternative 3 that could affect marine biological resources.

In addition to the desalination plant and co-located data center, Alternative 3 would include 6.5 miles of additional desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey desalinated water to other areas (total of 31.5 miles of additional pipeline).

Several components of Alternative 3 would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project, but these components would not affect marine biological resources and are not discussed. Therefore, the marine biological resources impact analysis of Alternative 3 focuses primarily on the new intake and discharge; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Alternative 3 would include the construction of a new screened open water intake system and a new brine discharge system in Monterey Bay within MBNMS. Offshore construction activities would be greater than those described for Alternative 2 because of the larger intake system, the additional discharge structure, and the two intake and two brine discharge pipelines; temporary disturbances and/or loss of seafloor habitat and function would be greater than those discussed for Alternative 2. Construction barges used during placement of both intake and discharge structures would pose temporary obstructions (anchor chains), temporary disturbance and possible loss of soft substrate habitat. HDD construction equipment would be used to install the two intake and two discharge pipelines under the ocean floor and would result in increased underwater noise compared to the proposed project. These activities could cause altered behavior (altered foraging and swimming patterns) in some special status fish, marine mammals, and sea turtles. The possible use of barges from outside Monterey Bay could pose a risk of introducing non-native invasive species and result in collisions with marine mammals and sea turtles.

Similar to Alternative 2, mitigation would be required to reduce the short and long-term impacts of construction on marine biological resources in MBNMS. Although implementation of **Mitigation Measure ALT 2-Marine-1** or similar measures would reduce this impact, it would not be reduced to a less-than-significant level for the same reasons described for Alternative 2. Therefore,

compared to the proposed project, the construction of Alternative 3 could result in a substantially increased impact on marine biological resources including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans during construction and would result in an **increased impact conclusion** compared to the proposed project; significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 1**.

Alternative 3 would have an increased impact on marine biological resources compared to the proposed project because of the in-water construction described above, but would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS. Therefore, Alternative 3 would have the **same impact conclusion** as the proposed project, less than significant. No impacts would occur from the construction of any other proposed facility because none occur within the marine biological resources study area.

Operational and Facility Siting Impacts

Anchoring of the Alternative 3 intake and outfall structures with collars and ballast rock would result in approximately 16,700 ft² of permanent loss of seafloor habitat (about 0.4 acres). This would be a significant and substantially greater impact compared to the proposed project, which would not involve placement of any structures on the seafloor.

Additionally, Alternative 3 would draw up to 55 mgd of source water (compared to 24.1 mgd for the proposed project and Alternatives 1 and 2) through a screened open-water intake. A preliminary assessment determined that northern anchovy, Pacific sardines, white croaker, sanddab, rockfish, smelt, sculpin, Dungeness crab, cancer crabs, and unidentified larval fish would all be entrained (Tenera Environmental, 2014).

The potential ETM/APF for this alternative was estimated at greater than 40 acres (Luster, 2016), and similar to Alternative 2, would result in a significant impact, with mitigation required per the Ocean Plan. **Mitigation Measure ALT 2-Marine-2** would be required to minimize and mitigate for impacts on marine biological resources, but similar to Alternative 2, residual impacts may remain due to the uncertainty of the efficacy of the mitigation.

Furthermore, the Alternative 3 brine discharge would result in an increased impact on marine resources within MBNMS compared to the proposed project since both the volume (about 27 mgd compared to about 14 mgd for the proposed project) and concentration of the brine (about 66 ppt compared to about 58 ppt for the proposed project) would be greater. Modeling performed for the alternative by the proponent determined that the area of salinity that would exceed 2 ppt above natural background levels would extend almost to the boundary of the BMZ, up to 315 feet from the outfall diffuser (Jenkins, 2016). Modeling performed for this EIR/EIS (**Appendix D1**) indicates the brine discharge from the proposed project would only exceed 2 ppt above ambient within a small area at the port and above the seafloor; the brine from the proposed project would be under 2 ppt where it contacts the seafloor within 39 feet of the diffuser (see Section 5.5.3 for details). Therefore, Alternative 3 would result in a larger area of the seafloor that would be exposed to increased salinity concentrations, could potentially cause hypoxia as a result of the extent of the seafloor area exposed to salinities exceeding 2 ppt (i.e. the majority of the area

within the BMZ boundary), and could pose direct and indirect impacts on marine fish, invertebrates, marine mammals, and sea turtles in the pelagic waters of the BMZ.

Unlike the proposed project, the open water intake would not pre-filter PCBs through the seafloor; the concentration of PCB-levels in the brine discharge would be greater than the proposed project and would exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID (see Section 5.5.3 for analysis of operational water quality impacts associated with Alternative 3). Implementation of mitigation substantially similar to **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**, but revised specific to the Alternative 3 project final design and defined operating conditions, as described and analyzed in Section 4.3, would reduce the potentially significant impact to less than significant.

In addition, the cooling of the proposed co-located data center would increase the temperature of the brine by up to 10° C above ambient ocean waters (the proposed project would have no heat gain). The increased temperature can be expected to result in potential additional impacts adjacent to the outfall, including the establishment of non-native invasive invertebrate and fish species in Monterey Bay by changing the conditions around the outfall to be more habitable.

Therefore, the operation of Alternative 3 would result in a greater impact on marine species, natural community, or habitat, during operations and would result in an *increased impact conclusion* compared to the proposed project; impacts would be significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 2** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

At present, there are no known marine species in Monterey Bay with population numbers suspected of dropping below self-sustaining levels with the exception of the California sea otter which feeds within the study area. Other species would not be threatened to go extinct because of entrainment of juvenile larvae and plankton. Therefore, the potential for the open-water intake to directly or indirectly threaten a marine plant, animal or wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels would be similar to, and would result in the *same impact conclusion* as the proposed project, less than significant.

Overall, the operations of Alternative 3 would have a greater impact on marine biological resources in MBNMS compared to the proposed project because of the potential impingement and entrainment resulting from the screened open water intake; from the increased area of seafloor that could be exposed to salinity greater than 2 ppt above ambient; from the increased levels of PCBs in the discharge water; and from the increased heat gain from cooling the co-located data center. It is unknown what mitigation measures would be required to protect the marine biological resources, and whether they would be effective in reducing impacts to less than significant. Therefore, impacts on marine biological resources including candidate, sensitive, or special-status species would be significant and unavoidable even with mitigation. However, the operations of Alternative 3 would not substantially threaten a marine plant, animal or wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels, and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS.

In addition to physical impacts, Alternative 3 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its open water intake and lack of a combined discharge. Guidelines state:

- All desalination plants should be designed and sited to avoid and minimize impingement and entrainment to the extent feasible. Project proponents should investigate the feasibility of using subsurface intakes as an alternative to traditional intake methods.
- Project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges.

Cumulative Analysis

The geographic scope for the Alternative 3 cumulative impact assessment is Monterey Bay, within MBNMS. However, for the reasons described in Section 4.5.6 and in Section 5.5.1, no other reasonably foreseeable projects described in **Table 4.1-2** in Section 4.1 would have the potential to combine with the effects of Alternative 3 to cause a cumulative effect on marine biological resources. However, the existing Moss Landing Power Plant continues to draw 1.2 billion gallons per day for cooling water, which also results in the entrainment of larval fish and plankton. Through a settlement agreement executed on October 9, 2014 between the SWRCB and the current owner of the power plant, the Moss Landing Power Plant must reduce its intake of cooling water to meet an 83.7 percent or greater reduction in mortality from entrainment and impingement impacts beginning with reductions on December 31, 2016 and achieving full compliance by December 31, 2020. The Moss Landing Power Plant owner has indicated its intention to retrofit the power plant's four generating units to reduce entrainment and impingement impacts in compliance with the OTC policy, and this would likely occur prior to the operation of any desalination project in Moss Landing. No other reasonably foreseeable projects in the context of Alternative 3 would construct or use an open water intake or new discharge pipeline. However, while GWR would create additional brine discharges in Monterey Bay through an existing outfall, the impacts would be less than significant and would be located several miles to the south. Therefore, a cumulative impact analysis is not relevant to Alternative 3.

5.5.5.7 Direct and Indirect Effects of Project Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system, intake and discharge pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**).

Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipelines, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this

alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented.

The construction and operation of the screened open water intake, the brine discharge facility and the construction of the source water and brine discharge pipelines are the unique components of Alternative 4 that could affect marine biological resources. Therefore, the marine biological resources impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Some of the components of Alternative 4 would utilize existing infrastructure; existing pipelines would be rehabilitated to convey source water and brine between the new desalination plant and the existing caisson on the beach, which would also be rehabilitated. But rather than using HDD to install the entire offshore portion of the pipelines, new intake and discharge pipelines would be laid on the seafloor with concrete collars and protected with approximately 100,000 cubic yards of riprap armoring along the last 1,100 feet and 700 feet, respectively.

Pipeline and intake and discharge system installation activities would result in increased underwater noise, temporary restrictions/barriers to whale and turtle movements, potential vessel collisions with marine mammals and sea turtles, and increased risk of introducing non-native invasive species from the use of construction barges. Similar to Alternatives 2 and 3, mitigation would be required to reduce the short and long-term impacts of construction in MBNMS. Although implementation of **Mitigation Measure ALT 2-Marine-1** or similar measures would reduce this impact, it would not be reduced to a less-than-significant level for the same reasons described for Alternatives 2 and 3. Therefore, the construction of Alternative 4 could result in an increased impact on marine biological resources including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans during construction and would result in an **increased impact conclusion** compared to the proposed project; significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 1**.

Alternative 4 would have an increased impact on marine biological resources compared to the proposed project because of the in-water construction described above, but would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS. Therefore, Alternative 4 would have the **same impact conclusion** as the proposed project, less than significant. No impacts would occur from the construction of any other proposed facility because none occur within the marine biological resources study area.

Operational and Facility Siting Impacts

The permanent structures on the seafloor under Alternative 4 would result in the permanent loss of approximately 43,200 ft² (about 1 acre) of benthic habitat (1,800 feet of pipeline with 12 feet of riprap per side), affecting marine species dependent on this habitat and habitat function.

Additionally, Alternative 4 would require up to 30 mgd of source water (compared to 24.1 mgd for the proposed project, and Alternatives 1 and 2) through a screened open-water intake. A preliminary assessment determined that northern anchovy, Pacific sardines, white croaker, sanddab, rockfish, smelt, sculpin, Dungeness crab, cancer crabs, and unidentified larval fish would all be entrained (Tenera Environmental, 2014).

The potential APF for the magnitude of the intake under Alternative 4 was estimated at greater than 20 acres (Luster, 2016) and, similar to Alternatives 2 and 3, would require mitigation. Although implementation of **Mitigation Measure ALT 2-Marine-2** or similar measures would reduce operational impacts, they would not be reduced to a less-than-significant level due to the uncertainty of the efficacy of the mitigation.

Furthermore, impacts associated with brine discharge would be increased compared to the proposed project since the volume and concentration of the brine would be greater (about 17 mgd compared to about 14 mgd for the proposed project). No dilution modeling conducted by the proponent, if any, has been made available; therefore, it is currently unknown if the proposed 16-inch diffusers would be capable of meeting salinity concentrations and other Ocean Plan water quality objectives. Unlike the proposed project, the open water intake would not pre-filter PCBs through the seafloor and the concentration of the PCB-levels in the brine discharge would be greater than the proposed project. Implementation of a measure similar to **Mitigation Measure 4.3-5** (Implement Protocols to Avoid Exceeding Water Quality Objectives) could potentially reduce the significant impact. However, the design of the diffuser is not consistent with the Ocean Plan which states that brine discharge technologies other than wastewater dilution and multiport diffusers may be used if an owner or operator can demonstrate to the regional water board that the technology provides a comparable level of intake and mortality of all forms of marine life. It has not been demonstrated that the 16-inch diffusers would be effective at reducing the impacts since there has been no modeling conducted by the proponent, it is unknown if other mitigation would be required to protect the marine biological resources within MBNMS, and whether mitigation would be effective in reducing impacts to less than significant. Therefore, the overall operation of Alternative 4 would result in a greater potential impact on marine species, natural community, or habitat, during operations and would result in an *increased impact conclusion* compared to the proposed project; impacts would be significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 2** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

At present, there are no known marine species in Monterey Bay with population numbers suspected of dropping below self-sustaining levels with the exception of the California sea otter which feeds within the study area. Other species would not be threatened to go extinct because of entrainment of juvenile larvae and plankton. Therefore, the potential for Alternative 4 to directly or indirectly threaten a marine plant, animal or wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels would be similar to, and would result in the *same impact conclusion* as the proposed project, less than significant.

In addition to physical impacts, Alternative 4 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its open water intake and lack of a combined discharge. Guidelines state:

- All desalination plants should be designed and sited to avoid and minimize impingement and entrainment to the extent feasible. Project proponents should investigate the feasibility of using subsurface intakes as an alternative to traditional intake methods.
- Project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges.

Cumulative Analysis

The geographic scope for the Alternative 4 cumulative impact assessment is Monterey Bay, within MBNMS. The only project relevant to the cumulative scenario for Alternative 4 is the DeepWater Desal project (No. 34), described in **Table 4.1-2** in Section 4.1.

Cumulative impacts from construction would be of a similar nature to those described for the cumulative scenario under Alternative 2, though increased due to the larger area of temporary construction impacts under Alternative 4. For the same reasons described for Alternative 2, even with mitigation, Alternative 4 would result in a significant contribution to the significant and unavoidable cumulative impacts of construction.

Combined, Alternative 4 (43,200 ft²) and the DeepWater Desal Project (16,700 ft²) would result in the permanent loss or change of approximately 59,900 ft² of benthic habitat. Additionally, the operation of the open-water intake would result in the entrainment of plankton and larval fish, including those of the DeepWater Desal Project (APF of greater than 40 acres), resulting in a cumulative APF estimated at greater than 60 acres (Luster, 2016). However, the existing Moss Landing Power Plant continues to draw 1.2 billion gallons per day for cooling water, which also results in the entrainment of larval fish and plankton. Through a settlement agreement executed on October 9, 2014 between the SWRCB and the current owner of the power plant, the Moss Landing Power Plant must reduce its intake of cooling water to meet an 83.7 percent or greater reduction in mortality from entrainment and impingement impacts beginning with reductions on December 31, 2016 and achieving full compliance by December 31, 2020. The Moss Landing Power Plant owner has indicated its intention to retrofit the power plant's four generating units to reduce entrainment and impingement impacts in compliance with the OTC policy and this would likely occur prior to the operation of any desalination project in Moss Landing. Regardless, the retrofit of the power plant would not offset the adverse cumulative impact attributable to entrainment and impingement at the screened open water intake component of Alternative 4, and these potential losses are considered a significant cumulative impact. As stated above, mitigation to compensate for the loss of habitat would be necessary, but the efficacy of the available mitigation options has not been tested. Therefore, Alternative 4 plus the DeepWater Desal Project could still result in a significant and unavoidable impact, with Alternative 4 having a significant contribution to such cumulative impact (significant and unavoidable).

Because it is unknown if the proposed 16-inch diffusers are capable of meeting salinity concentrations and other Ocean Plan water quality objectives, and because the open water intake

would not pre-filter the PCBs through the seafloor, the salinity, PCB, and other Ocean Plan constituent levels in the brine discharge could result in exceedances of Ocean Plan water quality objectives. For the same reasons described for exceedances of salinity objectives in Section 4.5.6, this would result in a significant cumulative impact related to salinity and other Ocean Plan constituent concentrations. For salinity and other Ocean Plan constituents, it is unknown whether mitigation would be effective in reducing impacts to a level that is less than significant (significant and unavoidable).

5.5.5.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction impacts of Alternatives 5a and 5b would be of the same types as described for the proposed project and Alternative 1, respectively, but reduced in proportion to the reduced number of slant wells. Therefore, Alternative 5 would result in reduced impact on marine biological resources within MBNMS, and would result in the *same impact conclusion* compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

Slant well operation under Alternative 5a would be the same as the proposed project and would not affect marine biological resources. However, for the same reasons explained for Alternative 1, pumping from slant wells at Potrero Road under Alternative 5b would result in drawing or diverting water from Elkhorn Slough. This would result in a greater impact on marine biological habitat and associated species compared to the proposed project and Alternative 1; therefore, Alternative 5b would result in an *increased impact conclusion* compared to the proposed project because of the drawdown and the impact would be significant and unavoidable.

Impacts from brine discharges under Alternatives 5a and 5b would result in a reduced impact compared to the proposed project and Alternative 1 due to the decreased brine discharge volumes (about 9 mgd compared to about 14 mgd for the proposed project and Alternative 1) and reduced distance from the diffuser to the edge of the ZID (up to 30 feet from the diffuser for Alternative 5a or 5b, as compared to 39 feet for the proposed project). Alternative 5 (either 5a or 5b) would not exceed or violate salinity standards defined in the Ocean Plan. As with the proposed project and Alternative 1, Alternative 5 could result in a significant impact related to Ocean Plan water quality objectives for a number of constituents. Implementation of **Mitigation Measure 4.3-4** would require CalAm to monitor the discharges in a manner consistent with Ocean Plan

requirements to ensure the modeled dilutions are being met, and if not, implementation of **Mitigation Measure 4.3-5** would reduce or avoid the impact on water quality and thus reduce or avoid impacts on marine habitats and biota, including special-status species. Alternative 5 would result in the *same impact conclusion* compared to the proposed project, less than significant.

At present, there are no known marine species in Monterey Bay with population numbers suspected of dropping below self-sustaining levels with the exception of the California sea otter which feeds within the study area. The operation of Alternative 5a and 5b would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS. Therefore, Alternative 5a and 5b and would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project (No. 59) described in **Table 4.1-2** in Section 4.1 would discharge reverse osmosis-treated effluent through the MRWPCA's existing outfall. The water quality effects of the various discharge scenarios in the cumulative context of Alternative 5 and the GWR Project are described in Section 5.5.3.8 in the cumulative analysis of surface water quality impacts under Alternative 5. As described therein, all discharges associated with the Alternative 5 cumulative scenario would result in salinity less than 2 ppt above ambient levels at the edge of the ZID and at the edge of the BMZ, and would therefore not exceed or violate the salinity standards or degrade water quality in terms of salinity, and thus be protective of the marine biota and habitat of Monterey Bay. As was determined for other alternatives, with the addition of GWR effluent to operational discharges under Alternative 5, under certain scenarios some constituent concentrations would become elevated to levels greater than 80 percent of the Ocean Plan objective. Also, for an additional eleven constituents, there is not enough information to assess concentrations at the edge of the ZID due to differences in MRLs used to assess the source waters or due to MRLs being higher than Ocean Plan objectives. Therefore, it is conservatively concluded that Ocean Plan water quality objectives could potentially be exceeded during operations for some operational discharge scenarios, resulting in a significant impact. Therefore, Alternative 5 in combination with the GWR Project could result in a significant impact related to water quality. Exceedances of Ocean Plan water quality objectives could result in significant impacts on marine resources, of which these water quality objectives are meant to be protective. However, impacts would be reduced to a less-than-significant level by implementing **Mitigation Measures 4.3-4** and **4.3-5**, which would ensure compliance with Ocean Plan objectives and monitoring requirements. Implementation of these Mitigation Measures would reduce combined impacts, and Alternative 5's contribution, to less than cumulatively significant (less than significant with mitigation). The combined impact of Alternative 5 and the GWR Project would result in the *same impact conclusion* on marine resources related to brine discharges compared to the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The cumulative setting and geographic area for Alternatives 5a and 5b would be the same as that described in Section 4.5.6 and as for Alternative 1, and would include DeepWater Desal. With the exception of impacts related to brine discharge, cumulative impacts from the construction and operation of Alternative 5a would be the same or slightly less than those described for the cumulative impacts for the proposed project, as described in Section 4.5.6. Therefore, Alternative 5a would result in a less than significant contribution to cumulative impacts on marine habitats and associated biological resources and cumulative impacts would be less than significant. Alternative 5b would have the same type and intensity of effects as Alternative 5a, but would result in the additional impact on surface water flows and volumes in Elkhorn Slough, as described above. Although the additional impact of Alternative 5b on surface water flow and volumes in Elkhorn Slough would be significant and unavoidable, as discussed in Section 5.5.4.3 regarding groundwater impacts, no other projects are located in the same geographic area and have the potential to affect groundwater resources in the Perched A Aquifer, which in turn could result in impacts on surface water in Elkhorn Slough. Because no other projects would affect surface water flows and volumes in Elkhorn Slough, a cumulative impact analysis is not relevant to this impact.

5.5.5.9 References

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5.5.6 Terrestrial Biological Resources

The evaluation criteria for Terrestrial Biological Resources address: candidate, sensitive, or special-status species; riparian habitat or other sensitive natural communities; critical habitat; federally protected wetlands, federal “other waters,” and waters of the state; movement of native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or native wildlife nursery sites; consistency with local policies or ordinances protecting biological resources; spread of invasive non-native species; and consistency with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

5.5.6.1 Setting/Affected Environment

The general environmental setting and regulatory framework for components of the alternatives in common with the proposed project would be similar to that described for the proposed project in Section 4.6.

Several alternatives include a pipeline route in common, which extends north from Charles Benson Road along an abandoned railroad alignment to Monte Road, then follows Nashua Road, Molera Road and Highway 1 to either Potrero Road (Alternatives 1 and 5b) or Dolan Road (Alternatives 2, 3, and 4). Vegetation communities and wildlife habitats along these routes are primarily agricultural fields, but with several crossings of tidal rivers and sloughs (Salinas River, Old Salinas River, Tembladero Slough, and Moro Cojo Slough). Salt marsh and brackish marsh vegetation is associated with the latter three, and is therefore in greater abundance than in the study area for the proposed project.

Alternative 1 and 5b slant wells at Potrero Road would be situated in an existing unpaved parking lot, but adjacent to restored and native central dune scrub vegetation with a potential to support special status plant and wildlife species.

The East Tank Farm Parcel (Alternative 3) is a remediated and capped site that supports non-native grassland and seasonal wetlands, with the potential to support California red-legged frog, California tiger salamander, and Santa Cruz long-toed salamander aquatic breeding and upland aestivation habitat (EMC Planning Group, Inc., 2016). This habitat type also supports burrowing owl, nesting birds, and American badger, as well as special-status plants.

The former National Refractories facility site (Alternative 4) is a largely disturbed post-industrial site with magnesium oxide waste, but includes a small drainage and salt marsh vegetation connected hydrologically to Moro Cojo Slough.

5.5.6.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

Impact 4.6-1: Result in substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly, indirectly, or through habitat modification, during construction.

Construction could result in direct impacts on special-status plants through mortality of individuals during earthwork and loss of habitat. Indirect impacts on plants can result from population fragmentation, introduction of non-native weeds, and interference with plant metabolic processes from construction effects such as fugitive dust and sedimentation. Construction can result in direct impacts on wildlife by direct trampling or entrapment of individuals and habitat removal. Indirect impacts on wildlife can occur from harassment, behavior disruption, increased predation, nest abandonment, and degradation of habitat. Significant impacts on special-status plant and animal species could occur during construction at all of the proposed MPWSP facility sites and pipeline alignments; however, all impacts could be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a (Retain a Lead Biologist to Oversee Implementation of Protective Measures), 4.6-1b (Construction Worker Environmental Awareness Training and Education Program), 4.6-1c (General Avoidance and Minimization Measures), 4.6-1d (Protective Measures for Western Snowy Plover), 4.6-1e (Avoidance and Minimization Measures for Special-status Plants), 4.6-1f (Avoidance and Minimization Measures for Smith’s Blue Butterfly), 4.6-1g (Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard), 4.6-1h (Avoidance and Minimization Measures for Western Burrowing Owl), 4.6-1i (Avoidance and Minimization Measures for Nesting Birds), 4.6-1j (Avoidance and Minimization Measures for American Badger), 4.6-1k (Avoidance and Minimization Measures for Monterey Dusky-footed Woodrat), 4.6-1l (Avoidance and Minimization Measures for Special-status Bats), 4.6-1m (Avoidance and Minimization Measures for Native Stands of Monterey Pine), 4.6-1n (Habitat Mitigation and Monitoring Plan), 4.6-1o (Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander), 4.6-1p (Control Measures for Spread of Invasive Plants), 4.6-1q (Frac-out Contingency Plan), 4.12-1b (General Noise Controls for Construction Equipment), and 4.14-2 (Site-Specific Construction Lighting Measures).**

Impact 4.6-2: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during construction.

Project construction could result in significant impacts on sensitive natural communities (including riparian habitat) and critical habitat. The subsurface slant wells, MPWSP Desalination Plant, and Source Water Pipeline would result in significant impacts on central dune scrub; the new Desalinated Water Pipeline would result in significant impacts on central dune scrub, coast live oak woodland, and riparian woodland and scrub; the new Transmission Main would result in significant impacts on central dune scrub, coast live oak woodland, and northern coastal scrub; the Castroville Pipeline would result in significant impacts on central dune scrub, northern coastal scrub, riparian woodland and scrub, and freshwater marsh; the ASR facilities would result in significant impacts on coast live oak woodland, northern coastal scrub, and central maritime chaparral; the Ryan Ranch-

Bishop Interconnection Improvements would significantly impact coast live oak woodland and northern coastal scrub; the Main System-Hidden Hills Interconnection Improvements would result in significant impacts on coast live oak woodland; and proposed project staging areas would significantly impact coast live oak woodland and northern coastal scrub.

Construction of the subsurface slant wells and portions of the Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, new Transmission Main, and a staging area would occur within local coastal zones in areas where certain vegetation communities may be designated environmentally significant habitat areas (ESHA) under Local Coastal Programs (LCPs). Construction within vegetation communities designated as primary habitat or ESHA under an LCP would result in significant impacts on these sensitive natural communities.

Construction of the subsurface slant wells and Source Water Pipeline would result in significant impacts on critical habitat for western snowy plover; and construction of the Carmel Valley Pump Station and Main System-Hidden Hills Interconnection Improvements would result in significant impacts on critical habitat for California red-legged frog. None of the other project facilities would result in significant impacts on critical habitat.

Construction of the Brine Discharge Pipeline and Pipeline to CSIP Pond would result in less-than-significant impacts on sensitive natural communities or critical habitat. All impacts on sensitive natural communities and critical habitat would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, 4.6-1d, 4.6-1n, 4.6-1o, 4.6-1p, 4.6-1q, 4.6-2a (Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas), and 4.6-2b (Avoid, Minimize, and Compensate for Construction Impacts on Sensitive Communities and Environmentally Sensitive Habitat Areas).**

Impact 4.6-3: Result in substantial adverse effects on federal wetlands, federal other waters, and/or waters of the state during construction.

Direct impacts on wetlands include removal of vegetation, soil, or structures and/or the placement of fill in the wetland, or hydrological modifications (i.e. altering the flow of water in or out of the wetland or water). Indirect impacts could occur from construction activities or construction worker foot traffic that inadvertently extend beyond the designated construction work area and into waters or wetland features, trash and debris left in the features following construction, sedimentation of the feature as a result of increased soil erosion from construction work areas, and degradation of water quality from pollutants (e.g., oil, hydraulic fluid) that are conveyed by surface runoff from the construction site to offsite waters. With respect to sedimentation and degradation of water quality from construction pollutants, for all proposed project components, implementation of the BMPs in the project-specific SWPPP would include measures to manage soil erosion and protect water quality in receiving waterbodies.

Construction of the new Desalinated Water Pipeline, Castroville Pipeline, Carmel Valley Pump Station, and Ryan Ranch-Bishop Interconnection Improvements would result in direct impacts on potential waters of the U.S. and/or waters of the State. Construction of the subsurface slant wells, Source Water Pipeline, Castroville Pipeline, Brine Discharge Pipeline and Pipeline to CSIP Pond,

new Transmission Main, and Ryan Ranch-Bishop Interconnection Improvements could result in significant indirect impacts on wetlands/waters if construction activities or construction worker foot traffic were to extend beyond the designated construction work area.

Less than significant impacts on wetlands/waters would occur during construction of the MPWSP Desalination Plant or proposed ASR facilities, and staging areas because no waters of the U.S. or waters of the state occur within or adjacent to these sites. All significant direct and indirect impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, and 4.6-3 (Avoid, Minimize, and or Mitigate Impacts on Wetlands)**.

Impact 4.6-4: Be inconsistent with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

With the exception of the subsurface slant wells and staging areas, all other proposed project facilities have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**.

A significant unavoidable impact would occur resulting from development within primary habitat as designated under the City of Marina LCLUP at the subsurface slant wells, Source Water Pipeline, and potentially the new Desalinated Water Pipeline, new Transmission Main, and a staging area, which would be inconsistent with the City of Marina LCLUP policies. Mitigation Measures 4.6-1d, 4.6-1e, 4.6-1f, 4.6-1n, and 4.6-2b (See Impact 4.6-1 above, for the names of these mitigation measures) would be implemented to reduce impacts to special-status species habitat. No mitigation measures are available that would reduce the project's conflict with City of Marina LCLUP policies, a significant and unavoidable impact.

Impact 4.6-5: Introduce or spread an invasive non-native species during construction.

Project construction activities at the subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, proposed ASR facilities, and new Transmission Main, could contribute to the spread of invasive plants and/or introduce new invasive plants to the project area or adjacent lands with native plant communities through earth moving, transport of vehicles, equipment and materials, and unanticipated sediment dispersal during rain events, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a and 4.6-1p** (see Impact 4.6-1 above, for the names of these mitigation measures).

Construction activities at the Brine Discharge Pipeline, Pipeline to CSIP Pond, Carmel Valley Pump Station, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and staging areas are not expected to result in the introduction or spread of invasive non-native species.

Impact 4.6-6: Result in substantial adverse effects on candidate, sensitive, or special-status species during project operations.

Routine maintenance of the subsurface slant wells would be conducted every 5 years and access to the wells would be from the wellheads. Estimated disturbance area for maintenance is roughly 6 acres which include the access roads and staging. Maintenance activities would be conducted between October and February to avoid the snowy plover nesting season. This maintenance could result in significant impacts on special-status plant and wildlife species with potential to occur in the central dune scrub at the slant wells that are similar to the impacts of slant well construction. Routine maintenance would also result in loss of snowy plover nesting habitat, which would be a significant impact. However, with implementation of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level.

The 3-million-gallon brine storage basin at the MPWSP Desalination Plant could attract waterfowl. Migratory waterfowl could become sick or die from use of the brine storage basin, which would be a significant impact. However, with implementation of **Mitigation Measure 4.6-6 (Installation and Monitoring of Bird Deterrents at the Brine Storage Basin)**, the impact would be reduced to a less-than-significant level.

Maintenance and operations of all other proposed facilities would not result in substantial noise increases, new permanent sources of glare or light, or foreseeable surface disturbance in undeveloped areas. Therefore, no impact or less than significant impacts on special-status species would result from implementation of all other facilities.

Impact 4.6-7: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during project operations.

Routine maintenance of the subsurface slant wells would result in significant impacts on central dune scrub sensitive natural community, primary habitat under the City of Marina LCLUP/ESHA, and critical habitat for western snowy plover. However, with implementation of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level.

Maintenance and operations of all other proposed facilities would not result in foreseeable surface disturbance in undeveloped areas, and would result in negligible impacts relative to this criterion.

Impact 4.6-8: Result in substantial adverse effects on federal wetlands, federal other waters, and waters of the state during project operations.

Periodic maintenance of the subsurface slant wells could adversely affect the CEMEX settling ponds through indirect disturbance by worker foot or vehicle traffic, resulting in a significant impact. However, with implementation of some of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level.

Maintenance and operations of all other proposed facilities would not result in foreseeable surface disturbance in undeveloped areas. Implementation of these facilities would result in negligible impacts relative to this criterion.

Impact 4.6-9: Introduce or spread an invasive non-native species during project operations.

Maintenance activities at the subsurface slant wells would include ground disturbance, which could contribute to the spread of invasive plants and/or introduce new invasive plants to the project area or adjacent lands with native plant communities through earth moving, transport of vehicles, equipment and materials, and unanticipated sediment dispersal during rain events, resulting in a significant impact. However, with implementation of **Mitigation Measures 4.6-1a** and **4.6-1p** (see Impact 4.6-1 above, for the names of these mitigation measures), these impacts would be reduced to a less-than-significant level.

Maintenance and operations of all other proposed facilities would not result in foreseeable surface disturbance in undeveloped areas. Implementation of these facilities would result in negligible impacts relative to this criterion.

Impact 4.6-10: Be inconsistent with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan or other approved local, regional, or state habitat conservation plan.

A portion of the new Transmission Main could conflict with the *1997 Installation-Wide Multispecies Habitat Management Plan (HMP)* for the former Fort Ord area, which is considered a significant impact. Implementation of **Mitigation Measures 4.6-1a, 4.6-1n, and 4.6-2b** (See Impact 4.6-1 and 4.6-2 above, for the names of these mitigation measures) would reduce the impact to a less-than-significant level.

The proposed ASR Facilities and some staging areas are located within the HMP area and would be located within designated development areas. Construction and operations of these facilities would therefore, be consistent with the HMP.

None of the other project components are located within an approved HMP/HCP area.

Impact 4.6-C: Cumulative impacts related to terrestrial biological resources.

The incremental effects of the MPWSP would have a less than significant cumulative effect on special-status species, sensitive natural communities, wetlands or other waters, conflicts with local tree ordinances, and consistency with an adopted habitat conservation plan. Implementation of the MPWSP would have a cumulatively significant contribution to the test slant well impact related to inconsistencies with the City of Marina LCLUP policies. Mitigation Measures 4.6-1d, 4.6-1e, 4.6-1f, 4.6-1n, and 4.6-2b (See Impact 4.6-1 above, for the names of these mitigation measures) would be implemented to reduce impacts on special-status species habitat, but no mitigation measures are available that would reduce the impact of conflicting with the City of Marina LCLUP policies, and it would remain significant and unavoidable.

To facilitate review of the following sections, the full suite of mitigation measures associated with terrestrial biological resource impacts include the following:

- 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.

- 4.6-1b: Construction Worker Environmental Awareness Training and Education Program.
- 4.6-1c: General Avoidance and Minimization Measures.
- 4.6-1d: Protective Measures for Western Snowy Plover.
- 4.6-1e: Avoidance and Minimization Measures for Special-status Plants.
- 4.6-1f: Avoidance and Minimization Measures for Smith's Blue Butterfly.
- 4.6-1g: Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard.
- 4.6-1h: Avoidance and Minimization Measures for Western Burrowing Owl.
- 4.6-1i: Avoidance and Minimization Measures for Nesting Birds.
- 4.6-1j: Avoidance and Minimization Measures for American Badger.
- 4.6-1k: Avoidance and Minimization Measures for Monterey Dusky-Footed Woodrat.
- 4.6-1l: Avoidance and Minimization Measures for Special-status Bats.
- 4.6-1m: Avoidance and Minimization Measures for Native Stands of Monterey Pine.
- 4.6-1n: Habitat Mitigation and Monitoring Plan.
- 4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander.
- 4.6-1p: Control Measures for Spread of Invasive Plants
- 4.6-1q: Frac-out Contingency Plan
- 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas.
- 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities and Environmentally Sensitive Habitat Areas.
- 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands.
- 4.6-4: Compliance with Local Tree Ordinances.
- 4.6-6: Installation and Monitoring of Bird Deterrents at the Brine Storage Basin.
- 4.6-8: Management Requirements within Borderland Development Areas along Natural Resource Management Area Interface.

5.5.6.3 Direct and Indirect Effects of No Project Alternative

The No Project Alternative would avoid the construction-related impacts of the proposed project. Direct or indirect impacts on biological resources, including species, habitat, and wetlands, would not occur because there would be no ground disturbance. However, the decommissioning of the existing test slant well could result in potentially significant but mitigable impacts on terrestrial biological resources, including:

- **Special-Status Species.** See Impact 4.6-1 in Section 4.6.5.1. Implementation of Mitigation Measures 4.6-1a through 4.6-1g, 4.6-1i, 4.6-1n, 4.6-1p, 4.12-1b, and 4.14-2 would reduce impacts to a less-than-significant level.

- Sensitive natural communities and critical habitat. See Impact 4.6-2 in Section 4.6.5.1. Implementation of Mitigation Measures 4.6-1a through 4.6-1d, 4.6-1n, 4.6-1p, 4.6-2a, and 4.6-2b would reduce impacts to a less-than-significant level.
- Introduction or spread of invasive non-native species. See Impact 4.6-5 in Section 4.6.5.1. Implementation of Mitigation Measures 4.6-1a and 4.6-1p would reduce impacts to a less-than-significant level.

Under the No Project Alternative, current diversions from the Carmel River would continue consistent with existing conditions in the short-term. However, under the No Project Alternative, CalAm would not meet Milestone 3 by September 30, 2018 (receipt of a CPCN from the CPUC), nor would it meet the subsequent annual milestones associated with the construction and implementation of the MPWSP. CalAm's Effective Diversion Limit (EDL) from the Carmel River would be reduced under the terms of the CDO by 1,000 afy in October 2018, and by an additional 1,000 afy in each subsequent year until October 2021. Beginning in January 2022, as with the proposed project, CalAm would only be allowed to divert its legal entitlement of 3,376 afy from the Carmel River. See Section 5.4.2 for details on the amounts of water allowed by the CDO to be diverted each year until the CDO expiration. Therefore, under the No Project Alternative, diversions from the Carmel River would be reduced sooner than under the proposed project and Carmel River flows would be restored by a total of 10,000 acre-feet over the period of October 2018 through 2021. The increases to Carmel River flows under the No Project Alternative would be beneficial to Carmel River steelhead habitat.

Cumulative Analysis

In addition to the beneficial effect of increased streamflows in the Carmel River that would occur under the No Project Alternative compared to existing conditions, the GWR Project (No. 59 in **Table 4.1-2**) would provide water supply to CalAm that would further reduce CalAm's diversions from the Carmel River, per the terms of the CDO (SWRCB, 2016). This would also benefit riparian species as discussed in SWRCB Order 95-10. Specifically, for every acre-foot of GWR Project water supply that CalAm is able to deliver to the Monterey District, CalAm must reduce its Carmel River system diversions by one acre-foot. Therefore, if GWR Project water becomes available to CalAm prior to 2022 (when Carmel River diversions would be limited to the 3,376 afy legal limit regardless of other water sources), CalAm's diversions from the Carmel River would be reduced compared to those described in **Table 5.4-3**, leaving more streamflow in the Carmel River than under the No Project Alternative alone. This would be a cumulative beneficial effect on steelhead and riparian habitat in the Carmel River.

Since no construction would occur under the No Project Alternative, and impacts from decommissioning of the test slant well would be less than significant with mitigation, the No Project Alternative contribution to cumulative impacts would be less than significant.

5.5.6.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a

different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the analysis of impacts of Alternative 1 on terrestrial biological resources focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

With respect to effects on special-status species and their habitat, Alternative 1 would reduce the potential for impacts associated with the subsurface slant wells and increase the potential for impacts associated with risk of frac-out using HDD crossings, including the release of bentonite slurry into nearby waterways. Similar to the proposed project, construction of new subsurface slant wells at Potrero Road could result in significant indirect impacts on adjacent sensitive habitats, including central dune scrub, salt marsh, and a tidal slough. Due to the disturbed nature of the location of the Alternative 1 subsurface slant wells, the area would provide lower quality habitat for federal and state-listed endangered species, including western snowy plover (which mainly consists of sensitive central dune scrub vegetation) compared to the proposed project by avoiding disturbance of 9 acres of central dune scrub habitat. Some indirect or temporary impact could occur, but it would be substantially less than what would result from construction of the new subsurface slant wells at the CEMEX mining area. Western snowy plover are not known to breed or winter in the vicinity of the Potrero Road parking lot construction site, but may still occur on the beach west of the site. Other special-status species with potential to occur adjacent to the Potrero Road parking lot could include Smith's blue butterfly, black legless lizard, Monterey spineflower, Menzies wallflower, sand gilia, and other special-status plants, as described in Section 4.6.1.8 and summarized in **Table F-1 of Appendix F**. Special-status plants could be indirectly impacted from population fragmentation, introduction of non-native weeds, and interference with plant metabolic processes caused by construction fugitive dust and sedimentation. Special-status wildlife could be indirectly impacted from harassment, behavior disruption, increased predation, nest abandonment, and degradation of habitat caused by construction noise and soil erosion. Implementation of **Mitigation Measures 4.6-1a through 4.6-1p, 4.12-1b, and 4.14-2** (see Section 5.5.6.2 for the names of these mitigation measures) would reduce these impacts to less than significant.

Additionally, construction of the alternative source water pipeline north of Charles Benson Road could result in significant impacts at multiple river and tidal slough crossings and associated wetlands, including an additional separate pipeline crossing of Tembladero Slough at Molera Road, and of Old Salinas River at Potrero Road, and wetlands adjacent to the pipeline route. Although not anticipated, there is potential for frac-outs to occur using HDD. If a frac-out occurs, bentonite slurry could be released into the Salinas River and/or Tembladero Slough, which could degrade water quality and adversely impact steelhead habitat and/or individual fish by increasing suspended sediments that may inhibit fish respiration and degrade habitat, a significant impact.

Implementation of **Mitigation Measure 4.6-1q** (Frac-out Contingency Plan) would reduce this impact to less than significant.

The Alternative 1 source water pipeline alignment provides lower habitat value for special-status plant and animal species in comparison with the proposed project's Source Water Pipeline alignment, resulting in a less severe impact on special-status plants and animals; nonetheless, identified mitigation measures for construction would be required. All other components and potential impacts under Alternative 1 would be the same as in the proposed project. Thus, with respect to adverse effects on special-status species, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and the slant wells at Potrero Road, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 1 would reduce the amount of impact on designated critical habitat and ESHA compared to the proposed project by using the less sensitive unpaved parking lot at Potrero Road (avoiding 9 acres of central dune scrub, a sensitive natural community, and primary habitat under the City of Marina LCLUP). The Alternative 1 source water pipeline would have less severe impacts on central dune scrub than the MPWSP Source Water Pipeline and impacts on northern coastal scrub and riparian woodland and scrub sensitive natural communities similar to the Castroville Pipeline. Similar types of indirect impacts on western snowy plover critical habitat would occur under Alternative 1 as under the proposed project. Additional potential indirect impacts on Monterey spineflower critical habitat would occur at Potrero Road. All other components and potential impacts under Alternative 1 would be the same as in the proposed project, and could be reduced to less than significant through implementation of **Mitigation Measures 4.6-1a** through **4.6-1e**, **4.6-1n**, **4.6-1o**, **4.6-1p**, **4.6-2a**, and **4.6-2b** (see Section 5.5.6.2 for the names of these mitigation measures). Thus, with respect to riparian habitat, critical habitat, and sensitive natural communities, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and the slant wells at Potrero Road, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Alternative 1 would increase the potential for construction impacts on wetlands at multiple crossings of open water features, but could avoid or minimize those significant impacts to less than significant through the use of trenchless construction methods and implementation of the mitigation measures identified for the proposed project in Section 4.6 (**Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1g**, and **4.6-3**). Therefore, with respect to wetlands, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and slant wells at Potrero Road, although the potential for significant impacts would increase, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Alternative 1 would avoid slant well construction within primary habitat at the CEMEX site. However, similar to the proposed project, the desalinated water pipeline and transmission main under Alternative 1 would be constructed within primary habitat in the City of Marina. The City of Marina LCLUP prohibits development in primary habitat that is not protective of and dependent upon that resource. Therefore, construction of the desalinated water pipeline and

transmission main would conflict with the City of Marina LCLUP policies. Additionally, Alternative 1 would result in the development of the subsurface slant wells at Potrero Road within 100 feet of the Old Salinas River (see **Figure 5.4-1**, inset). This development would conflict with Policy 2.3.3.B4 of the North County LCP/LUP, which requires a setback of 100 feet from the landward edge of vegetation of all coastal wetlands (such as those present along the Old Salinas River) to be provided and maintained in open space use, and requires that no permanent structures except for those necessary for resource-dependent use which cannot be located elsewhere can be constructed in the setback area. Prior to approval of all proposed structures in the setback area, it must be demonstrated that the development does not significantly disrupt the habitat resource. It is noted that the Alternative 1 subsurface slant well construction would occur within the disturbed parking lot area and would not significantly disrupt habitat in this location; nonetheless, because the subsurface slant wells are not a resource-dependent use, they would conflict with this policy. No mitigation is available to reduce this impact to a less-than-significant level. All other facilities common with the proposed project have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, significant and unavoidable, as a result of the impact related to conflict with the Marina LCLUP and the North County LCP/LUP policies.

The additional 5.5 miles of source water pipeline under Alternative 1 would increase the potential for pipeline construction to introduce or spread an invasive non-native species. Locating the subsurface slant wells at Potrero Road would decrease the potential for slant well construction to spread invasive species within central dune scrub. This significant impact could be avoided or minimized to less than significant through implementation of **Mitigation Measures 4.6-1a and 4.6-1p** (see Section 5.5.6.2 for the names of these mitigation measures). Thus, with respect to invasive species, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and the slant wells at Potrero Road, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, disturbance from maintenance of the slant wells at Potrero Road would result in a reduced impact on western snowy plover habitat compared to the proposed project; however, significant indirect impacts could still occur and would be reduced to less than significant with **Mitigation Measure 4.6-1d (Protective Measures for Western Snowy Plover)**. Indirect impacts on central dune scrub habitat, which borders the Potrero Road slant well site, and special-status plants and animals known to occur or with potential to occur in this habitat, would be less severe than operations and maintenance activities at the CEMEX mining facility under the proposed project. Additional indirect impacts on special-status species with potential to occur in the Old Salinas River, adjacent to the east of the parking lot, could occur during operations and maintenance activities under Alternative 1. Noise generated during operation of the pumping wells at Potrero Road would be more severe than at the CEMEX facility due to the relative lower baseline noise

environment; however, this difference would not change the impact level of significance. Operation of the pumping wells would not produce groundborne vibration and, therefore, there would be no impacts on special-status species from vibration. This is the same as described for the proposed project. Operation and maintenance of components common to the proposed project would be the same as described in Impact 4.6-6. Implementation of **Mitigation Measures 4.6-1a through 4.6-1g, 4.6-1i, 4.6-1n, 4.6-1p** (see Section 5.5.6.2 for the names of these mitigation measures), **Mitigation Measure 4.6-6 (Installation and Monitoring of Bird Deterrents at the Brine Storage Basin)**, **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)**, and **Mitigation Measures 4.14-2 (Site-Specific Nighttime Lighting Measures)** would reduce this impact to less than significant. Therefore, with respect to impacts on special-status species, combining the proposed project components with those unique to Alternative 1, operation would result in a reduced impact due to the lower habitat value at the slant well site, but would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, operation and maintenance of the Alternative 1 subsurface slant wells at Potrero Road would occur in and around the well heads at the parking lot. The direct impact on approximately 6 acres of central dune scrub sensitive natural community during operations and maintenance activities at the CEMEX slant wells under the proposed project is avoided under Alternative 1. Indirect impacts on central dune scrub sensitive natural community, which borders the Potrero Road slant well site, would be less severe than operations and maintenance activities at the CEMEX mining facility under the proposed project. Impacts on primary habitat at the CEMEX mining facility during operations and maintenance are avoided under Alternative 1 as compared with the proposed project. Operations and maintenance of the Alternative 1 subsurface slant wells at Potrero Road could result in indirect impacts on vegetation communities or features designated as ESHA under the North County LCP/LUP; however, potential impacts would be less severe than under the proposed project. Similar indirect impacts on western snowy plover critical habitat would occur during operations and maintenance under Alternative 1 as the proposed project. Additional indirect impacts on Monterey spineflower critical habitat would occur during operations and maintenance under Alternative 1 slant wells at Potrero Road as compared to the proposed project.

Alternative 1 would also avoid the proposed project's impacts on steelhead habitat in the Salinas River and Tembladero Slough, but instead may affect steelhead habitat in Elkhorn Slough. As described in Section 5.5.4, the slant wells at Potrero Road could draw in groundwater that would otherwise flow to recharge the slough or draw surface water directly from the slough. The modeling cannot predict the amount of water diverted from Elkhorn Slough although it must be conservatively assumed, based on the predicted areal extent of the drawdown, that operations could potentially adversely affect steelhead habitat in Elkhorn Slough due to reduced surface water flow and volumes. This would be an increased level of impact compared to the proposed project and because there is no method to mitigate for impacts on surface water flow and volumes in Elkhorn Slough, Alternative 1 would result in an *increased impact conclusion* with respect to riparian habitat, critical habitat, or other sensitive natural communities compared to the proposed project, significant and unavoidable.

Under Alternative 1, no maintenance would occur near the CEMEX settling ponds; however, operations and maintenance of subsurface slant wells at Potrero Road have some potential to cause runoff or sediment discharge to nearby Old Salinas River and associated tidal salt marsh. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c** would reduce these potential impacts to less than significant. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternative 1 would result in the *same impact conclusion* with respect to wetlands and other waters during operation, less than significant with mitigation.

Alternative 1 would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site, and the Potrero Road site is disturbed and thus not susceptible to the spread of invasive plants. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 1 would result in a *reduced impact conclusion* with respect the spread of invasive plants during operation, no impact.

Alternative 1 would have the same impact related to inconsistency with an adopted habitat conservation plan because all facilities contributing to this impact would be common with the proposed project. Implementation of **Mitigation Measures 4.6-1a, 4.6-1n, and 4.6-2b** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

Alternative 1 would have no foreseeable operational potential to spread invasive plants, and so would not contribute to cumulative impacts related to invasive plants during operation.

The geographic scope of analysis for cumulative impacts related to terrestrial biological resources for Alternative 1 is defined by the location of the Alternative 1 components as well as biologically linked terrestrial areas within approximately 5 miles of these sites, and is the same as that described for the proposed project in Section 4.6.6, with the exception of the different location of the intake system (Potrero Road, instead of CEMEX), and alternative source water pipeline route. Cumulative impacts, and the contribution of Alternative 1 to those impacts, within former Fort Ord lands and on migrating waterfowl would be exactly the same as described for the proposed project because the components that contribute to these impacts are the same under Alternative 1.

With respect to cumulative impacts on western snowy plover, Smith's blue butterfly, and sensitive dune scrub habitat, the location of subsurface slant wells at the Potrero Road parking lot would reduce Alternative 1 construction-related impacts compared to the proposed project because the Potrero Road parking lot location is disturbed and does not contain habitat or sensitive natural communities. Therefore, locating the subsurface slant wells at the Potrero Road parking lot would reduce potential direct and indirect impacts on western snowy plover, Smith's blue butterfly, and sensitive central dune scrub habitat and the potential to spread invasive species during construction and maintenance. The same cumulative projects listed in Section 4.6.6 would contribute to potential

impacts on western snowy plover, Smith’s blue butterfly, and sensitive vegetation types and wildlife habitat, including projects near the Potrero Road site (e.g., the Moss Landing Community Plan). In combination, these projects would result in significant cumulative impacts due to the potential to adversely affect western snowy plover, Smith’s blue butterfly, and their habitat through heavy equipment use, dust generation, elevated noise levels, and increased human activity. Although it would reduce impacts on western snowy plover and Smith’s blue butterfly, given the sensitivity of these species, and given the potential to affect other special-status species listed above, Alternative 1 could result in a significant contribution to cumulative impacts on special-status species and sensitive habitat types. The impacts of Alternative 1 would be mitigated consistent with what is described for the proposed project in Section 4.6.5 (**Mitigation Measures 4.6-1a through 4.6-1q, 4.6-2**), and therefore, for the same reasons described in Section 4.6.6, Alternative 1’s contribution to cumulative impacts on these biological resources, would be less than significant with mitigation.

Construction of Alternative 1 would reduce impacts on wetlands by avoiding the CEMEX settling ponds, but disturbance at the Potrero Road site and components that are common with the proposed project could result in significant impacts. Thus, with the exception of avoiding the CEMEX settling ponds, the contribution of Alternative 1 to cumulative impacts on wetlands would be the same as described for the proposed project. As a result, the same projects listed in Section 4.6.6 would contribute to potential impacts on wetlands and other waters, potentially resulting in a significant cumulative impact. Alternative 1 components that are common with the proposed project could have a significant cumulative impact on wetlands in the region, as described in Section 4.6.6. After implementation of mitigation measures identified for the proposed project (i.e., **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, and 4.6-3**), Alternative 1 would have a less than significant cumulative impact on wetlands for the same reasons described in Section 4.6.6.

Alternative 1 would avoid construction within the primary habitat at the CEMEX site. However, similar to the proposed project, the desalinated water pipeline and transmission main under Alternative 1 would be constructed within primary habitat in the City of Marina and would conflict with the City of Marina LCLUP policies. Additionally, Alternative 1 would have a significant and unavoidable impact related to placing structures within or adjacent to habitat that is inconsistent with the North County LCP/LUP. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) could place its proposed desalination plant within or adjacent to habitat considered to be ESHA under the North County LCP/LUP, and would conflict with North County LCP/LUP policies, also a significant and unavoidable impact. In combination, these projects would result in a significant cumulative impact, and Alternative 1’s contribution would be significant.

Overall, while some contributions to cumulative impacts would be avoided or reduced, Alternative 1 would result in the *same impact conclusion* as the proposed project, significant and unavoidable.

5.5.6.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the analysis of Alternative 2 on terrestrial biological resources focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

With respect to effects on special-status species and their habitat, by eliminating onshore construction and maintenance activities and structures associated with the subsurface slant wells, Alternative 2 would avoid disturbance of 9 acres of central dune scrub habitat that would occur under the proposed project, eliminating impacts on western snowy plover and reducing overall impacts on special-status species and their habitat. Mitigation for impacts on snowy plover (**Mitigation Measure 4.6-1d**) would not be needed. Construction of the Alternative 2 intake would not have the potential for indirect impacts on sensitive habitats, as none are located adjacent to sites where construction of the intake would occur. Alternative 2 would reduce impacts on special-status species and their habitat compared to the proposed project, but would still result in significant impacts as a result of the components common with the proposed project. Implementation of **Mitigation Measures 4.6-1a through 4.6-1c, 4.6-1e through 4.6-1p, and 4.14-2** would reduce these impacts to less than significant.

Additionally, construction of the Alternative 2 source water pipeline north of Charles Benson Road could result in significant impacts at multiple river and tidal slough crossings and associated wetlands, including an additional separate pipeline crossing of Tembladero Slough at Molera Road, and of Old Salinas River at Potrero Road, and wetlands adjacent to the pipeline route. Although not anticipated, there is potential for frac-outs to occur using HDD. If a frac-out occurs, bentonite slurry could be released into the Tembladero Slough, which could degrade water quality and adversely impact steelhead habitat and/or individual fish by increasing suspended sediments that may inhibit fish respiration and degrade habitat, a significant impact. Implementation of **Mitigation Measure 4.6-1q (Frac-out Contingency Plan)** would reduce this impact to less than significant.

The Alternative 2 source water pipeline alignment provides lower habitat value for special-status plant and animal species in comparison with the proposed project's Source Water Pipeline

alignment, therefore impacts on special-status plants and animals would be less severe; nonetheless, identified mitigation measures for construction would be required. All other components and potential impacts under Alternative 2 would be the same as in the proposed project. Thus, with respect to adverse effects on special-status species, although impacts would be decreased compared to the proposed project, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 2 would reduce the amount of impact on designated critical habitat and ESHA compared to the proposed project construction at the CEMEX slant well site by using industrial land on Dolan Road that is not adjacent to sensitive habitats. The Alternative 2 source water pipeline would have less severe impacts on central dune scrub than the MPWSP Source Water Pipeline and impacts on northern coastal scrub and riparian woodland and scrub sensitive natural communities similar to the Castroville Pipeline. Alternative 2 would avoid impacts on western snowy plover critical habitat. All other components and potential impacts under Alternative 2 would be the same as in the proposed project, and could be reduced to less than significant through implementation of **Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1e**, **4.6-1n**, **4.6-1o**, **4.6-1p**, **4.6-2a**, and **4.6-2b**. Thus, with respect to riparian habitat, critical habitat, and sensitive natural communities, although impacts would be reduced compared to the proposed project, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Alternative 2 would increase the potential for significant construction impacts on wetlands with multiple crossings of open water features and associated wetlands, but could avoid or minimize those significant impacts through the use of trenchless construction methods and implementation of mitigation measures identified for the proposed project in Section 4.6 (**Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1g**, and **4.6-3**), which would reduce these impacts to less than significant. Additionally, the open water intake structure would be constructed on the seafloor in waters of the U.S. and of the State, resulting in discharge of fill material over an estimated 3,300 ft² (0.07 acre), a significant impact that would be reduced to less than significant with implementation of **Mitigation Measure 4.6-3**. Therefore, with respect to wetlands, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and open water intake, although the potential for significant impacts would increase, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Alternative 2 would avoid slant well construction within primary habitat at the CEMEX site. However, similar to the proposed project, the desalinated water pipeline and transmission main under Alternative 2 would be constructed within primary habitat in the City of Marina and would conflict with the city of Marina LCLUP policies. No mitigation is available to reduce this impact to a less-than-significant level. The Alternative 2 source water pipeline between Charles Benson Road and north of the Moro Cojo Slough would traverse agricultural lands without tree cover, and no impact on trees or conflict with local tree ordinances is expected to occur. All other facilities common with the proposed project have the potential to conflict with a local tree

ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. Therefore, although the impact of construction within primary habitat would be reduced, Alternative 2 would result in *the same impact conclusion* as the proposed project, significant and unavoidable, due to the impact related to conflict with the City of Marina LCLUP policy.

Eliminating the subsurface slant wells at CEMEX would decrease the potential for slant well construction to spread invasive species within central dune scrub, but the additional 5.5 miles of source water pipeline under Alternative 2 would increase the potential for pipeline construction to introduce or spread an invasive non-native species. This significant impact could be avoided or minimized to less than significant through implementation of **Mitigation Measures 4.6-1a and 4.6-1p**. Thus, with respect to invasive species, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, eliminating the need for recurring maintenance of slant wells within or adjacent to sensitive central dune scrub habitat would eliminate operational impacts on this habitat type and associated special-status species. Maintenance of the new intake pump station would occur within areas that would be developed and disturbed as part of construction, which are located among already disturbed industrial areas on Dolan Road. Nearby habitat consists of ruderal vegetation, coyote brush, and non-native trees that do not provide high quality habitat for sensitive species (e.g., western snowy plover). Operation of Alternative 2 would eliminate impacts on western snowy plover as they do not occupy this area; therefore, the need for mitigation of those impacts, as described in the proposed project, would also be eliminated. Noise generated during operation of the intake pump station would have a less severe impact on special-status species than the subsurface slant wells under the proposed project. Therefore, with respect to impacts on special-status species, combining the proposed project components with those unique to Alternative 2, operation would result in a reduced impact, compared to the proposed project, due to the lower habitat value where sensitive species are less likely to occur, but would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, Alternative 2 would avoid the proposed project's impacts on steelhead habitat in the Salinas River and Tembladero Slough because it would not draw groundwater that could affect surface water flows, and would avoid maintenance-related impacts within snowy plover critical habitat and central dune scrub, a sensitive natural community, and primary habitat under the City of Marina LCLUP. Construction of other components would result in similar impacts on vegetation communities designated as primary habitat or ESHA under LCPs as the proposed project. Operation and maintenance of the intake pump station and source water pipeline would have similar impacts to those described for the proposed project and could be significant, but impacts would be reduced to a less-than-significant level with implementation of **Mitigation**

Measures 4.6-1a, 4.6-1b, 4.6-1c, 4.6-1n, 4.6-1p, 4.6-2a, and 4.6-2b. Therefore, although it would greatly reduce impacts on critical habitat and other sensitive natural communities compared to the proposed project, Alternative 2 would result in the *same impact conclusion* with respect to riparian habitat, critical habitat, or other sensitive natural communities compared to the proposed project, less than significant with mitigation.

Under Alternative 2, operation and maintenance of the new open water intake at Moss Landing would not result in any potential impacts on jurisdictional wetlands or waters. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternative 2 would result in a *reduced impact conclusion* with respect to wetlands and other waters during operation, no impact.

Alternative 2 would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance that could contribute to the introduction or spread of invasive plants and would have no impact. Therefore, Alternative 2 would result in a *reduced impact conclusion* with respect the spread of invasive plants during operation, no impact.

With respect to inconsistency with an adopted habitat conservation plan, Alternative 2 would have the same impact related to inconsistency with an adopted habitat conservation plan because all facilities contributing to this impact would be common with the proposed project. Implementation of **Mitigation Measures 4.6-1a, 4.6-1n, and 4.6-2b** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

Alternative 2 would have no impact on wetlands or other waters during operation and no foreseeable operational potential to spread invasive plants; therefore, unlike the proposed project, it would avoid contributions to cumulative impacts on these resources.

The geographic scope of analysis for cumulative impacts related to terrestrial biological resources for Alternative 2 is defined by the location of the Alternative 2 components, as well as biologically linked terrestrial areas within approximately 5 miles of these sites, and is the same as that described for the proposed project in Section 4.6.6, with the exception that the Castroville Pipeline and Pipeline to CSIP are not included, as well as the different location of the open water intake system and alternative source water pipeline. Cumulative impacts, and the contribution of Alternative 2 to those impacts, within former Fort Ord lands and on migrating waterfowl would be exactly the same as described for the proposed project because the components that contribute to these impacts are the same under Alternative 2.

Eliminating disturbance associated with the subsurface slant wells at the CEMEX site would eliminate impacts on western snowy plover and reduce overall impacts on special-status species and their habitat and the potential to spread invasive species within sensitive dune scrub habitat

compared to the proposed project. The same projects listed in Section 4.6.6 would contribute to potential impacts on sensitive vegetation types and wildlife habitat that could be affected by Alternative 2 components, including projects near the intake location (e.g., the Moss Landing Community Plan). In combination, these projects would result in significant cumulative impacts due to the potential to adversely affect special-status species and sensitive habitat types. Given the potential to adversely affect special-status species, Alternative 2 could result in a significant contribution to significant cumulative impacts on special-status species and sensitive habitat types. These impacts would be mitigated consistent with what is described for the proposed project in Section 4.6.5 (**Mitigation Measures 4.6-1a through 4.6-1q, 4.6-2**), and therefore, for the same reasons described in Section 4.6.6, Alternative 2's contribution and the overall cumulative impact would be reduced to a level that is less than significant.

Construction of Alternative 2 would have potentially significant impacts on wetlands as a result of multiple river and tidal slough crossings and associated wetlands. Additionally, components that are common with the proposed project could result in significant impacts as described in Section 4.6.5. The same projects listed in Section 4.6.6 would contribute to potential impacts on wetlands and other waters, potentially resulting in a significant cumulative impact. Alternative 2 river and tidal slough crossings, along with components common with the proposed project, could have a significant contribution to cumulative impacts on wetlands in the region. After implementation of mitigation measures identified for the proposed project (i.e., **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, and 4.6-3**), Alternative 2 would result in a less than significant cumulative impact on wetlands for the same reasons described in Section 4.6.6.

Alternative 2 would avoid construction within primary habitat at the CEMEX site. However, similar to the proposed project, the desalinated water pipeline and transmission main under Alternative 2 would be constructed within primary habitat in the City of Marina and would conflict with the City of Marina LCLUP policies. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) could place its proposed desalination plant within or adjacent to habitat considered to be ESHA under the North County LCP/LUP, and would conflict with North County LCP/LUP policies, also a significant and unavoidable impact. In combination, these projects would result in a significant cumulative impact, and Alternative 2's contribution would be significant and unavoidable.

Overall, although the impact related to the conflict with the City of Marina LCLUP policies would be reduced compared to the proposed project, Alternative 2 would result in the *same impact conclusion* as the proposed project, significant and unavoidable.

5.5.6.6 Direct and Indirect Effects of Alternative 3 - Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems

would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSO would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

With respect to effects on special-status species and their habitat, by eliminating onshore construction and maintenance activities and structures associated with the subsurface slant wells, Alternative 3 would avoid disturbance of 9 acres of central dune scrub habitat that would occur under the proposed project, eliminating impacts on western snowy plover and reducing overall impacts on special-status species and their habitat. However, Alternative 3 would result in potentially greater significant impacts (up to 91 acres) on habitat that could support other special-status animal species, including California tiger salamander and California red-legged frog breeding and dispersal or refugia, Santa Cruz long-toed salamander, burrowing owl, nesting birds, and American badger, as well as special-status plants. Additionally, the desalination plant could indirectly reduce the habitat value of adjacent or nearby aquatic breeding habitats by reducing the availability of upland aestivation sites and restricting migration. Construction of the new open-water intake and brine discharge outfall at Moss Landing would have negligible impacts on terrestrial biological resources, if any, because construction on land would be limited to a small parcel of already disturbed land.

The new desalinated water pipeline between the desalination plant and the “Connection to CalAm” point could result in the same impacts described above for these components of Alternative 2 with potential for significant impacts on steelhead habitat and/or individual fish if a frac-out occurs using HDD. The Alternative 3 desalinated water pipeline alignment provides lower habitat value for special-status plant and animal species in comparison with the proposed project’s Source Water Pipeline alignment, resulting in a less severe impact on special-status plants and animals; nonetheless, identified mitigation measures for construction would be required. The addition of approximately 25 miles of desalinated water pipelines to serve other areas likely would result in impacts similar to the desalinated water pipeline; however, alignments are not currently known. All other components and potential impacts on special-status species under Alternative 3 would be the same as in the proposed project.

In comparison with the proposed project, the potentially significant impact on special-status species during construction would be increased but could be reduced to less than significant by implementation of the same mitigation measures identified for the proposed project in Section 4.6. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1e** through **4.6-1q**, and **4.14-2** identified for the proposed project in Section 4.6 would reduce these impacts on special-status species and their habitat to less than significant. Thus, with respect to adverse effects on special-status species, although impacts would be increased compared to the proposed project, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 3 would avoid approximately 9 acres of central dune scrub sensitive natural community and primary habitat under the City of Marina LCLUP, and indirect impacts on snowy plover critical habitat at the CEMEX site. However, construction of the Alternative 3 desalination facility, source water pipeline, and outfall pipeline would occur within or adjacent to vegetation communities or features considered ESHA under the North County LCP. The potential impacts on sensitive natural communities along Dolan Road could be significant and unavoidable even with implementation of **Mitigation Measures 4.6-2a** and **4.6-2b**. Construction of other components would result in similar impacts on vegetation communities designated as primary habitat or ESHA under LCPs as the proposed project. Thus, with respect to riparian habitat, critical habitat, and sensitive natural communities, construction would result in an *increased impact conclusion* compared to the proposed project, significant and unavoidable.

Alternative 3 would increase the potential for significant construction impacts on wetlands with multiple crossings of open water features and associated wetlands as described above for Alternative 2. Additionally, construction impacts would be greater than the proposed project, mainly due to location of the intake and brine discharge structures on the seafloor in comparison with the use of subsurface slant wells. The open water intake structure and brine discharge structure would be constructed on the seafloor in waters of the U.S. and of the State, resulting in discharge of fill material over approximately 16,700 ft² (0.4 acre). Installation of the intake and brine discharge pipelines would result in disturbance-related impacts within waters of the U.S. at their point of emergence from the seafloor. Installation of the pipelines within Dolan Road could result in additional impacts on wetlands and other waters located on either side of the roadway as a result of runoff from active construction sites. Construction of Alternative 3 could result in an unspecified amount of impacts on seasonal freshwater wetlands in the northwest corner of Moss Landing Power Plant East Parcel through direct fill. Implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, and **4.6-3** would reduce impacts to a less-than-significant level. Therefore, with respect to wetlands, although the extent of impacts would increase, Alternative 3 construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Alternative 3 would avoid slant well construction within primary habitat at the CEMEX site. However, similar to the proposed project the desalinated water pipeline and transmission main under Alternative 3 would be constructed within primary habitat in the City of Marina. The City of Marina LCLUP prohibits development in primary habitat that is not protective of and dependent upon that resource. Therefore, construction of the desalinated water pipeline and

transmission main would conflict with the City of Marina LCLUP policies. Alternative 3 would result in the development of the intake and discharge pipelines under the Old Salinas River (also called the Moss Landing Harbor in that location) (see **Figure 5.4-3**, inset). This development could conflict with Policy 2.3.3.B4 of the North County LCP/LUP, which requires a setback of 100 feet from the landward edge of vegetation of all coastal wetlands (such as those present along the Old Salinas River) to be provided and maintained in open space use, and requires that no permanent structures except for those necessary for resource-dependent use which cannot be located elsewhere can be constructed in the setback area. Prior to approval of all proposed structures in the setback area, it must be demonstrated that the development does not significantly disrupt the habitat resource. Because the intake and discharge pipelines are not a resource-dependent use, they would conflict with this policy. No mitigation is available to reduce this impact to a less-than-significant level. The Alternative 3 desalinated water pipeline between Charles Benson Road and north of the Moro Cojo Slough would traverse agricultural lands without tree cover, and no impact on trees or conflict with local tree ordinances is expected to occur. All other facilities common with the proposed project have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. Overall, Alternative 4 would result in the *same impact conclusion* as the proposed project, significant and unavoidable.

Eliminating the subsurface slant wells at CEMEX would decrease the potential for slant well construction to spread invasive species within central dune scrub, but the longer desalinated water pipeline under Alternative 3 would increase the potential for pipeline construction to introduce or spread an invasive non-native species. This significant impact could be avoided or minimized to less than significant through implementation of **Mitigation Measures 4.6-1a** and **4.6-1p**. Thus, with respect to invasive species, combining the impacts of the proposed project components with the longer pipeline, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, eliminating the need for recurring maintenance of slant wells within or adjacent to sensitive central dune scrub habitat would eliminate operational impacts on this habitat type and associated special-status species. Maintenance of the new intake pump station would occur within already-developed and disturbed industrial areas on Dolan Road. Operation of Alternative 3 would eliminate impacts on western snowy plover; therefore, the need for mitigation of those impacts, as described in the proposed project, would also be eliminated. Noise generated during operation of the intake pump station would have a less severe impact on special-status species than the subsurface slant wells under the proposed project. Impacts on waterfowl associated with operation and maintenance activities at the MPWSP Desalination Plant brine storage tank are avoided under Alternative 3. Therefore, with respect to impacts on special-status species, combining the proposed project components with those unique to Alternative 3, operation would result in a reduced impact, but would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, Alternative 3 would avoid the proposed project's impacts on steelhead habitat in the Salinas River and Tembladero Slough because it would not draw groundwater that could affect surface water flows, and would avoid maintenance-related impacts within snowy plover critical habitat and central dune scrub, a sensitive natural community, and primary habitat under the City of Marina LCLUP. Construction of the Alternative 3 desalination facility, source water pipeline, outfall pipeline, and ASR pipelines would occur within or adjacent to vegetation communities or features considered ESHA under the North County LCP/LUP. Operation and maintenance of the intake pump station would have similar impacts to those described for the proposed project and could be significant. All impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, 4.6-1n, 4.6-1p, 4.6-2a, and 4.6-2b**. Therefore, Alternative 3 would result in the *same impact conclusion* with respect to riparian habitat, critical habitat, or other sensitive natural communities compared to the proposed project, less than significant with mitigation.

Operation and maintenance of the new open water intake and brine discharge outfall at Moss Landing would not result in any potential impacts on jurisdictional wetlands or waters. Operation and maintenance of the new desalination plant at Moss Landing Power Plant East Parcel could result in runoff and sediment discharge impacts on seasonal freshwater wetlands in the northwest corner of the parcel and to a drainage parallel to Dolan Road. Implementation of **Mitigation Measures 4.6-1a through 4.6-1c** would reduce these potential impacts to less than significant. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternative 3 would result in the *same impact conclusion* with respect to wetlands and other waters during operation, less than significant with mitigation.

Alternative 3 would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 3 would result in a *reduced impact conclusion* with respect the spread of invasive plants during operation, no impact.

With respect to inconsistency with an adopted habitat conservation plan, Alternative 3 would have the same impact as the proposed project because all facilities contributing to this impact would be common with the proposed project. Implementation of **Mitigation Measures 4.6-1a, 4.6-1n, and 4.6-2b** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

Alternative 3 would avoid the effects of the proposed project on migrating waterfowl, and would have no foreseeable operational potential to spread invasive plants; therefore, unlike the proposed project, it would avoid contributions to cumulative impacts on these resources.

The geographic scope of analysis for cumulative impacts related to terrestrial biological resources for Alternative 3 is defined by the location of the Alternative 3 components as well as biologically linked terrestrial areas within approximately 5 miles of these sites. Cumulative impacts within former Fort Ord lands, and the contribution of Alternative 3 to those impacts, would be exactly the same as described for the proposed project because the components that contribute to these impacts are the same under Alternative 3.

Eliminating disturbance associated with the subsurface slant wells at the CEMEX site would eliminate impacts on western snowy plover and reduce overall impacts on special-status species and their habitat and the potential to spread invasive species within sensitive dune scrub habitat compared to the proposed project. The same projects listed in Section 4.6.6 would contribute to potential impacts on sensitive vegetation types and wildlife habitat that could be affected by Alternative 3 components, including projects near the intake and desalination plant location (e.g., the Moss Landing Community Plan). In combination, these projects would result in significant cumulative impacts due to the potential to adversely affect special-status species and sensitive habitat types. Given the potential to adversely affect special-status species, Alternative 3's contribution to cumulative impacts on special-status species and sensitive habitat types would be significant. These impacts would be mitigated consistent with what is described for the proposed project in Section 4.6.5 (**Mitigation Measures 4.6-1a** through **4.6-1q**, **4.6-2**), and therefore, for the same reasons described in Section 4.6.6, while Alternative 3 could result in a significant cumulative impact on these biological resources, with mitigation, its contribution would be reduced to a level that is less than significant.

Construction of Alternative 3 would have potentially significant impacts on wetlands as a result of multiple river and tidal slough crossings and associated wetlands. Additionally, components that are common with the proposed project could result in significant impacts as described in Section 4.6.5. The same projects listed in Section 4.6.6 would contribute to potential impacts on wetlands and other waters, potentially resulting in a significant cumulative impact. Alternative 3 river and tidal slough crossings, along with components common with the proposed project, could have a significant contribution to cumulative impacts on wetlands in the region. After implementation of mitigation measures identified for the proposed project (i.e., **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, and **4.6-3**), Alternative 3's incremental contribution to cumulative impacts on wetlands would be less than significant for the same reasons described in Section 4.6.6.

Alternative 3 would avoid construction within the primary habitat at the CEMEX site. However, similar to the proposed project, the desalinated water pipeline and transmission main under Alternative 3 would be constructed within primary habitat in the City of Marina and would conflict with the City of Marina LCLUP policies. Additionally, Alternative 3 would have a significant and unavoidable impact related to placing structures within or adjacent to habitat that is inconsistent with the North County LCP/LUP. Alternative 3 is the only reasonably foreseeable project in **Table 4.1-2** in Section 4.1 that would place structures within or adjacent to habitat considered to be ESHA under the Marina LCLUP and North County LCP/LUP policies; therefore, a cumulative impact analysis is not relevant to this impact.

Overall, Alternative 3 would result in a *reduced impact conclusion* compared to the proposed project, less than significant with mitigation.

5.5.6.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

With respect to effects on special-status species and their habitat, by eliminating onshore construction and maintenance activities and structures associated with the subsurface slant wells, Alternative 4 would avoid disturbance of 9 acres of central dune scrub habitat that would occur under the proposed project, eliminating impacts on western snowy plover and reducing overall impacts on special-status species and their habitat. Construction of the new open-water intake and brine discharge pipelines at Moss Landing and new alternative source water pipeline would have negligible impacts on terrestrial biological resources, if any, because construction on land would be limited to an existing 20-foot-diameter intake pump caisson structure located on the beach; Alternative 4 would avoid proposed project impacts on special-status plants and animals known to occur or with potential to occur at the subsurface slant well site and along the Source Water Pipeline; and impacts on special-status plants and animals at the MPWSP Desalination Plant, Brine Discharge Pipeline, and Pipeline to CSIP Pond. As described for Alternative 3, the Alternative 4 desalinated water pipeline alignment provides lower habitat value for special-status plant and animal species in comparison with the proposed project’s Source Water Pipeline alignment, resulting in a less severe impact on special-status plants and animals; nonetheless, construction activities could still result in direct or indirect impacts, which would be potentially significant, and identified mitigation measures for construction would be required. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1e** through **4.6-1q**, and **4.14-2** identified for the proposed project in Section 4.6 would reduce these impacts on special-status species and their habitat to less than significant. Thus, with respect to adverse effects on special-status species, although impacts would be decreased compared to the proposed project, combining the impacts of the proposed project components with the components unique to Alternative 4, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 4 would avoid approximately 9 acres of central dune scrub sensitive natural community and primary habitat under the City of Marina LCLUP, and indirect impacts on snowy plover critical habitat at the CEMEX site. However, the new alternative desalination plant would be situated adjacent to wetland sensitive habitat, consisting of saltmarsh wetlands connected to Moro Cojo Slough, with the potential for direct impacts from construction disturbance or runoff. This habitat also constitutes ESHA and under the North County LCP/LUP. However, Alternative 4 would not include facilities located within designated Critical Habitat, and overall impacts on sensitive habitats, including those on ESHA, would be decreased compared to the proposed project. Nonetheless, construction activities could still result in direct or indirect impacts, which would be potentially significant. Implementation of mitigation measures identified for the proposed project in Section 4.6 (i.e., **Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1e** through **4.6-1q**, **4.12-1b**, and **4.14-2**) would reduce these impacts to less than significant. Thus, with respect to riparian habitat, critical habitat, and sensitive natural communities, construction would result in the *same impact conclusion* compared to the proposed project, less than significant with mitigation.

Alternative 4 would increase the potential for significant construction impacts on wetlands with multiple crossings of open water features and associated wetlands as described above for Alternative 2. Additionally, construction impacts would be greater than the proposed project, mainly due to location of the intake and brine discharge structures on the seafloor in comparison with the use of subsurface slant wells. The open water intake structure and brine discharge structure would be constructed on the seafloor in waters of the U.S. and of the State, resulting in discharge of fill material over approximately 43,200 ft² (about 1 acre). Construction of the desalination plant at the former National Refractories facility could impact salt marsh wetlands located along the site's western margin, and connected to Moro Cojo Slough. Implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, and **4.6-3** would reduce impacts to a less-than-significant level. Therefore, with respect to wetlands, although the extent of impacts would increase, Alternative 4 construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Alternative 4 would avoid slant well construction within primary habitat at the CEMEX site. However, similar to the proposed project, the Desalinated Water Pipeline and Transmission Main under Alternative 4 would be constructed within primary habitat in the City of Marina. The City of Marina LCLUP prohibits development in primary habitat that is not protective of and dependent upon that resource. Therefore, construction of the desalinated water pipeline and transmission main would conflict with the City of Marina LCLUP policies. Additionally, Alternative 4 would result in the development of the intake and discharge pipelines under the Old Salinas River (see **Figure 5.4-4**, inset). This development could conflict with Policy 2.3.3.B4 of the North County LCP/LUP, which requires a setback of 100 feet from the landward edge of vegetation of all coastal wetlands (such as those present along the Old Salinas River) to be provided and maintained in open space use, and requires that no permanent structures except for those necessary for resource-dependent use which cannot be located elsewhere can be constructed in the setback area. Prior to approval of all proposed structures in the setback area, it must be demonstrated that the development does not significantly disrupt the habitat resource. Because the intake and discharge pipelines are not a resource-dependent use, they would conflict with this

policy. No mitigation is available to reduce this impact to a less-than-significant level. The Alternative 4 desalinated water pipeline between Charles Benson Road and north of the Moro Cojo Slough traverses agricultural lands without tree cover, and no impact on trees or conflict with local tree ordinances is expected to occur. All other facilities common with the proposed project have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. Overall, Alternative 4 would result in the *same impact conclusion* as the proposed project, significant and unavoidable.

Eliminating the subsurface slant wells at CEMEX would decrease the potential for slant well construction to spread invasive species within central dune scrub, but the longer desalinated water pipeline under Alternative 4 would increase the potential for pipeline construction to introduce or spread an invasive non-native species. This significant impact could be avoided or minimized to less than significant through implementation of **Mitigation Measures 4.6-1a** and **4.6-1p** (see Section 5.5.6.2 for the names of these mitigation measures). Thus, with respect to invasive species, combining the impacts of the proposed project components with the longer pipeline, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, eliminating the need for recurring maintenance of slant wells within or adjacent to sensitive central dune scrub habitat would eliminate operational impacts on this habitat type and associated special-status species. Noise generated during operation of the intake pump station (see Section 5.5.12.7) would have a less severe impact on special-status species than the subsurface slant wells under the proposed project. Impacts on waterfowl associated with operation and maintenance activities at the MPWSP Desalination Plant brine storage tank are avoided under Alternative 4. Therefore, with respect to impacts on special-status species, combining the proposed project components with those unique to Alternative 4, operation would result in a reduced impact, but would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, Alternative 3 would avoid the proposed project's impacts on steelhead habitat in the Salinas River and Tembladero Slough because it would not draw groundwater that could affect surface water flows, and would avoid maintenance-related impacts within snowy plover critical habitat and central dune scrub, a sensitive natural community, and primary habitat under the City of Marina LCLUP. Additional indirect impacts on Monterey spineflower critical habitat could occur during operations and maintenance at the Alternative 4 intake facility at the existing beach caisson. Operations and maintenance of the Alternative 4 components, including the alternative source water pipeline, outfall pipeline, and components common with the proposed project would have similar potentially significant impacts on sensitive natural communities and critical habitat as the proposed project. All impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, 4.6-1n, 4.6-1p**,

4.6-2a, and **4.6-2b**. Therefore, Alternative 4 would result in the *same impact conclusion* with respect to riparian habitat, critical habitat, or other sensitive natural communities compared to the proposed project, less than significant with mitigation.

Operation and maintenance of the new open water intake and brine discharge outfall at Moss Landing would not result in any potential impacts on jurisdictional wetlands or waters in comparison to the proposed project. Operation of the desalination plant at the former National Refractories facility could impact salt marsh wetlands located along the site's western margin, and connected to Moro Cojo Slough, through runoff and sediment discharge. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c** would reduce these potential impacts to less than significant. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternative 4 would result in the *same impact conclusion* with respect to wetlands and other waters during operation, less than significant with mitigation.

Alternative 4 would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance that could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 4 would result in a *reduced impact conclusion* with respect the spread of invasive plants during operation, no impact.

With respect to inconsistency with an adopted habitat conservation plan, the Alternative 4 would have the same impact as the proposed project because all facilities contributing to this impact (Transmission Main) would be common with the proposed project. Implementation of **Mitigation Measures 4.6-1a**, **4.6-1n**, and **4.6-2b** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

Alternative 4 would have no foreseeable operational potential to spread invasive plants, and so would not contribute to cumulative impacts related to invasive plants during operation.

The geographic scope of analysis for cumulative impacts related to terrestrial biological resources for Alternative 4 is defined by the location of the Alternative 4 components as well as biologically linked terrestrial areas within approximately 5 miles of these sites. Cumulative impacts within former Fort Ord lands, and the contribution of Alternative 4 to those impacts, would be exactly the same as described for the proposed project because the components that contribute to these impacts are the same under Alternative 4.

Eliminating disturbance associated with the subsurface slant wells at the CEMEX site would eliminate impacts on western snowy plover and reduce overall impacts on special-status species and their habitat and the potential to spread invasive species within sensitive dune scrub habitat compared to the proposed project. The same projects listed in Section 4.6.6 would contribute to potential impacts on sensitive vegetation types and wildlife habitat that could be affected by

Alternative 4 components, including projects near the intake and desalination plant location (e.g., the Moss Landing Community Plan). In combination, these projects would result in significant cumulative impacts due to the potential to adversely affect special-status species and sensitive habitat types. Given the potential to adversely affect special-status species, Alternative 4 could result in a cumulatively considerable contribution to significant cumulative impacts on special-status species and sensitive habitat types. These impacts would be mitigated consistent with what is described for the proposed project in Section 4.6.5 (**Mitigation Measures 4.6-1a through 4.6-1q, 4.6-2**), and therefore, for the same reasons described in Section 4.6.6, while Alternative 4 could result in a significant contribution to cumulative impacts on these biological resources, with mitigation, its contribution and the overall cumulative impacts would be reduced to a level that is less than significant.

Construction of Alternative 4 would have potentially significant impacts on wetlands as a result of multiple river and tidal slough crossings and associated wetlands. Additionally, components that are common with the proposed project could result in significant impacts as described in Section 4.6.5. The same projects listed in Section 4.6.6 would contribute to potential impacts on wetlands and other waters, potentially resulting in a significant cumulative impact. Alternative 4 river and tidal slough crossings, along with components common with the proposed project, could have a considerable contribution to significant cumulative impacts on wetlands in the region. After implementation of mitigation measures identified for the proposed project (i.e., **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, and 4.6-3**), Alternative 4's contribution would result in a less than significant cumulative impact on wetlands for the same reasons described in Section 4.6.6.

Alternative 4 would avoid construction within the primary habitat at the CEMEX site. However, similar to the proposed project, the desalinated water pipeline and transmission main under Alternative 4 would be constructed within primary habitat in the City of Marina and would conflict with the City of Marina LCLUP policies. Additionally, Alternative 4 would have a significant and unavoidable impact related to placing structures within or adjacent to habitat that is inconsistent with the North County LCP/LUP. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) could place its proposed desalination plant within or adjacent to habitat considered to be ESHA under the North County LCP/LUP, and would conflict with North County LCP/LUP policies, also a significant and unavoidable impact. In combination, these projects would result in a significant cumulative impact, and Alternative 4's contribution would be significant and unavoidable.

Overall, while some contributions to cumulative impacts would be avoided, Alternative 4 would result in the *same impact conclusion* as the proposed project, significant and unavoidable.

5.5.6.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as

Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Alternative 5a would reduce impacts on sensitive central dune scrub and associated special-status species compared to the proposed project by reducing the area of construction impact at the CEMEX site by approximately 15 percent. However, construction activities in proximity to endangered species habitat (i.e., western snowy plover, Smith’s blue butterfly, and others described in Section 4.6) would result in similar levels of potential direct and indirect effects on individuals and habitat quality compared with the project. Alternative 5b would result in construction of fewer subsurface slant wells at Potrero Road compared to Alternative 1, but would have the same area of disturbance, and so would result in the same types of impacts described for Alternative 1. Under both Alternatives 5a and 5b, the area of disturbance of California annual grassland and associated special-status species, including California tiger salamander, at the desalination plant site may be reduced, but potential significant impacts on special-status species would be the same as the proposed project. All other components and potential impacts under Alternatives 5a and 5b would be the same as in the proposed project and Alternative 1, respectively. Thus, although impacts would be reduced compared to the proposed project because of the smaller area of disturbance, construction would result in the **same impact conclusion** with respect to adverse effects on special-status species as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 5a would reduce the area of sensitive central dune scrub disturbance, but potential significant impacts on central dune scrub sensitive natural community, primary habitat under the Marina LCP, and western snowy plover critical habitat would be the same. Alternative 5b impacts on sensitive natural communities would be the same as described under Alternative 1. Overall, Alternative 5b would have less severe significant impacts on sensitive natural communities and similar significant impacts on critical habitat compared to the proposed project. With respect to riparian habitat, critical habitat, and sensitive natural communities, construction of Alternatives 5a and 5b would result in the **same impact conclusion** as the proposed project, less than significant with mitigation.

The same impacts on jurisdictional wetlands and other waters would occur during construction of Alternative 5a as under the proposed project. Construction impacts resulting from Alternative 5b would result in greater potential impacts on jurisdictional wetlands and other waters associated with multiple crossings of jurisdictional features by the new alternative source water pipeline. **Mitigation Measures 4.6-1a through 4.6-1c, 4.6-1g, and 4.6-3** would be relevant to both Alternatives 5a and 5b. Construction would result in the **same impact conclusion** as the proposed project, less than significant with mitigation.

Alternative 5a would result in the same significant unavoidable impact from conflict with the Marina LCLUP as the proposed project, and Alternative 5b would result in the same significant unavoidable impact from conflict with the Marina LCLUP and the North County LCP/LUP as

Alternative 1. Therefore, Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, significant and unavoidable.

Less ground disturbance would occur at the desalination plant site under Alternatives 5a and 5b than under the proposed project and therefore the potential impact resulting from the spread of non-native, invasive species at this site would be less. Alternative 5b would include a longer source water pipeline as described for Alternative 1, increasing the potential to spread invasive species along that alignment compared to the proposed project or Alternative 5a. Impacts would be significant and would require implementation of **Mitigation Measure 4.6-1p (Control Measures for Spread of Invasive Plants)** to reduce impacts to less than significant. Thus, with respect to invasive species, construction would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, operation of the pumping wells (from both Alternative 5a and 5b) would not produce groundborne vibration and therefore, there would be no impacts on special-status species from vibration. This is the same as described for the proposed project and for Alternative 1. Disturbance from maintenance of the slant wells and the resulting impact on western snowy plover habitat would be similar to the proposed project under Alternative 5a (CEMEX site) and decreased compared to the proposed project under Alternative 5b (Potrero Road site); under either alternative, significant indirect impacts could still occur and would be reduced to less than significant with **Mitigation Measure 4.6-1d**. All other components would result in the same potentially significant impacts described for the proposed project, and thus would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, under Alternative 5a, similar impacts on central dune scrub sensitive natural community, primary habitat under the City of Marina LCLUP, and western snowy plover critical habitat would occur at the CEMEX facility subsurface slant wells and source water pipeline during operations and maintenance activities as the proposed project. The area of disturbance would be reduced under Alternative 5a but potential significant impacts on central dune scrub sensitive natural community, primary habitat under the City of Marina LCP, and western snowy plover critical habitat would be the same. Under Alternative 5b, impacts on sensitive natural communities during operations would be the same as described under Alternative 1, and would be potentially significant. Impacts of both Alternatives 5a and 5b would be mitigated to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a through 4.6-1d, 4.6-1n, 4.6-1p, 4.6-2a, and 4.6-2b**.

Alternative 5a would reduce impacts on steelhead habitat compared to the proposed project. Although slant well pumping under Alternative 5a would not directly pull surface water from the Salinas River, like the proposed project slant well pumping, it could draw in groundwater that would otherwise discharge to the river. Alternative 5a would remove less groundwater from the river recharge system compared to the proposed project – approximately 270 afy compared to the proposed project's 400 afy, proportional to the reduced capacity of the Alternative 5a desalination

plant. This would represent 0.11 percent of the total annual flow volume of the Salinas River, compared to the proposed project's 0.16 percent. Similarly, Alternative 5a would remove approximately 47 afy from Tembladero Slough, compared to the proposed project's 65 afy. These impacts would be reduced compared to the proposed project and would remain less than significant. Alternative 5b, similarly, would reduce impacts on Elkhorn Slough compared to those described for Alternative 1; however, because impacts cannot be quantified with the information available, it is assumed this impact would remain significant and unavoidable. Therefore, with respect to riparian habitat, critical habitat, or other sensitive natural communities, Alternative 5a would result in the *same impact conclusion* as the proposed project, less than significant with mitigation, and Alternative 5b would result in an *increased impact conclusion* compared to the proposed project, significant and unavoidable.

Under Alternative 5a, operation and maintenance of a reduced number of subsurface slant wells at CEMEX would reduce the potential for impacts on jurisdictional wetlands and other waters. Under Alternative 1, no maintenance would occur near the CEMEX settling ponds; however, operations and maintenance of subsurface slant wells at Potrero Road have some potential to cause runoff or sediment discharge to nearby Old Salinas River and associated tidal salt marsh. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c** would reduce these potential impacts to less than significant. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* with respect to wetlands and other waters during operation, less than significant with mitigation.

Alternative 5a would result in the same potential as the proposed project to spread invasive plants at the CEMEX site during operation (significant, but reduced to less than significant implementation of **Mitigation Measures 4.6-1** and **4.6-1p**). Alternative 5b would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site, and the Potrero Road site is disturbed and thus not susceptible to the spread of invasive plants. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 5a would result in the *same impact conclusion* as the proposed project, less than significant with mitigation, and Alternative 5b would result in a *reduced impact conclusion* with respect the spread of invasive plants during operation, no impact.

Alternatives 5a and 5b would have the same impact related to inconsistency with an adopted habitat conservation plan because all facilities contributing to this impact would be common with the proposed project. Implementation of **Mitigation Measures 4.6-1a**, **4.6-1n**, and **4.6-2b**, would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, operation of Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

Combined Impacts with GWR Project

Construction of GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) facilities may adversely affect, either directly or through habitat modification, special-status plant and wildlife species and their habitat. Significant impacts on special-status plant and animal species could occur during construction at all of the proposed GWR Project facility sites including impacts on some of the same resources as Alternatives 5a and 5b: sandmat manzanita, Monterey ceanothus, Monterey spineflower, Eastwood's goldenbush, and Kellogg's horkelia; roosting special-status bat species and nesting raptors, migratory birds, tricolored blackbird, western burrowing owl, California horned lark, white-tailed kite, or other protected avian species; Smith's blue butterfly; California tiger salamander, California red-legged frog; western pond turtle; California legless lizard; coast horned lizard; Monterey dusky-footed woodrat; Monterey ornate shrew; and American badger. The GWR Project also would include construction of facilities that could adversely affect jurisdictional wetlands and other waters and could result in the removal and/or trimming of protected trees. All impacts could be reduced to a less-than-significant level with implementation of mitigation approved as part of the adopted Mitigation Monitoring and Reporting Program for the GWR Project (MRWPCA and MPWMD, 2016). For the same reasons described for the proposed project and Alternatives 5a and 5b, the GWR Project could have a cumulatively significant impact on these resources, but after implementation of adopted mitigation measures, the GWR Project, in combination with the contribution of Alternatives 5a and 5b would result in a less than significant impact on these resources.

Operation of the GWR Project would affect the hydrology of the Salinas River with a potential reduction of up to 1 percent of the average annual flow, which would not be substantial in relation to total flows. In combination with the effects of Alternative 5a, the total effect would be a potential reduction of up to 1.11 percent of the average annual flow. These combined diversions would not result in significant cumulative impact on Salinas River flows or the associated riparian habitats, and the contribution of Alternative 5a would be less than significant. Alternative 5b would result in impacts on steelhead habitat in Elkhorn Slough, which was determined to be significant and unavailable. However, GWR would not affect steelhead habitat in Elkhorn Slough. Therefore, the GWR Project's effects on the hydrology of the Salinas River would not combine with potential effects of Alternative 5b and would not contribute to a significant impact on the hydrology of Elkhorn Slough.

Several components of Alternatives 5a and 5b that are common with the proposed project would be located within the *1997 Installation-Wide Multispecies Habitat Management Plan* (HMP) for the former Fort Ord area and construction and operations of these facilities could be inconsistent with the HMP. The GWR Project components located within the boundaries of former Fort Ord could be inconsistent with the local requirements for HMP plant species. Implementation of mitigation approved as part of the adopted Mitigation Monitoring and Reporting Program for the GWR Project (MRWPCA and MPWMD, 2016) would reduce the GWR Project's impact. Similarly, implementation of **Mitigation Measures 4.6-1a, 4.6-1n, and 4.6-2b** for Alternatives 5a and 5b would reduce potential impacts to a less-than-significant level, and for the same reasons described in Section 4.6.6 for the proposed project, the contribution of Alternatives 5a and 5b to a

cumulative impact on the HMP would be less than significant. Alternative 5a, in combination with GWR, would result in significant unavoidable impacts because of conflict with City of Marina LCLUP policies. Alternative 5b, in combination with GWR, would result in significant unavoidable impacts because of Alternative 5b's conflict with the Marina LCLUP and the North County LCP/LUP policies and because of significant unavoidable impacts on steelhead habitat within Elkhorn Slough. Thus, considering either Alternative 5a or 5b together with the GWR Project, would result in significant and unavoidable cumulative effects.

Impacts of Full Cumulative Scenario

The cumulative scenario for Alternatives 5a and 5b would be the same as described in Section 4.6.6 for the proposed project, but as described above, would include the additional GWR Project. Contributions to cumulative impacts resulting from construction of Alternatives 5a and 5b would be reduced compared to those described for the proposed project, which is described in Section 4.6.6, consistent with the reduced impacts associated with fewer slant wells and a reduced desalination plant footprint as described above. While these impacts could result in cumulatively significant impacts, as described for the proposed project, these impacts would be mitigated consistent with what is described for the proposed project in Section 4.6.5. Following implementation of these mitigation measures, for the same reasons described for the proposed project in Section 4.6.6, the contributions of Alternatives 5a or 5b would result in a less than significant cumulative impact with the exception of the significant and unavoidable impact related to inconsistencies with the City of Marina LCLUP (Alternative 5a) and the City of Marina LCLUP and North County LCP/LUP (Alternative 5b). Construction of Alternative 5a and 5b could result in a significant cumulative impact on wetlands, but mitigation measures described as part of the proposed project (i.e., **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, and 4.6-3**), would reduce the contribution of Alternative 5a and 5b to less than significant.

Overall, while some contributions to cumulative impacts would be reduced, the project footprint of the combined projects would result in an increased level of impact, and Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, significant and unavoidable.

5.5.6.9 References

- EMC Planning Group, Inc., 2016. Habitat Assessment for the California Red-Legged Frog, California Tiger Salamander, and Santa Cruz Long-Toed Salamander, Monterey Bay Regional Water Project, Moss Landing, Monterey County, California. Prepared for Deep Water Desal, LLC. Feb. 26, 2016.
- Monterey Regional Water Pollution Control Agency and Monterey Peninsula Water Management District (MRWPCA and MPWMD), 2016. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B. <http://purewatermonterey.org/wp/wp-content/uploads/Volume-IV-EIR-Certification-and-Project-Approval-Jan-2016.pdf>.
- State Water Resources Control Board (SWRCB), 2016. *Order WR 2016-0016, In the Matter of Application of California American Water Company, To Amend State Water Board Order 2009-0060*. Adopted July 19, 2016.

5.5.7 Hazards and Hazardous Materials

The evaluation criteria for Hazards and Hazardous Materials address: hazards to the public or the environment from accidental spills during construction, and during operation; encountering hazardous materials from, or locating facilities on a hazardous materials site; handling hazardous materials near a school, and; increased risk of wildland fires during construction. Construction of all facilities will involve the use of hazardous materials (e.g. fuel, lubricants, paints, and solvents) but only the slant wells, the desalination plant, the ASR wells, and the Carmel Valley Pump Station would use hazardous materials during operation. Proposed facilities near the wildlands of the former Fort Ord, and in Carmel Valley, are located in or near areas classified by CAL FIRE as High or Very High Hazard Severity Zones.

5.5.7.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.7, Hazards and Hazardous Materials. The setting for the components north of the Nashua Road/Highway 1 intersection is presented below.

Hazardous Materials Sites in the Moss Landing Area

The hazardous materials sites discussed below are the only active hazardous materials sites in the Moss Landing area and would have the potential to overlap with the components unique to Alternatives 2, 3, and 4. There are no hazardous sites that overlap with the components unique to Alternatives 1 or 5b and there are no known hazardous materials sites within Monterey Bay in MBNMS.

Former National Refractories

The former refractory property, which is the site for the Alternative 4 desalination plant, is located at the southeast corner of Highway 1 and Dolan Road. It was used as a mineral extraction and processing facility and a brick production plant until the bankruptcy of National Refractories in 2002 (CapRock, 2013, 2016). This facility had several onsite landfills, settling ponds, borrow areas, above and below ground storage tanks, and underground fuel lines. The refractory had historic releases of hexavalent chromium, other metals (barium, total chromium, molybdenum, nickel, and zinc), solvents, and fuels to soil and groundwater. Most of the historical structures have been removed. Site investigation and remediation activities are in progress.

Fuel contamination was released from the former USTs located about 200 feet south of Dolan Road. The contamination in soil and groundwater is reportedly limited to the former refractory property and is being remediated by a soil vapor extraction system.

Chromite ore piles have been removed from the property, eliminating a source of hexavalent chromium. However, hexavalent chromium is reportedly present in groundwater throughout the former refractory property and may extend for an unknown distance to areas north of Dolan Road and south of the former refractory property. Some of the source of hexavalent chromium in

groundwater is from the onsite historical use of chromium. Background studies also revealed that naturally-occurring chromium-bearing minerals in the local Aromas Red Sands Formation are a source of the hexavalent chromium detected in the Aromas Aquifer. Remediation activities for hexavalent chromium in groundwater have consisted of the injection of a lactate solution to stimulate microbial activity to transform hexavalent chromium to the less toxic trivalent chromium, which largely precipitates out of groundwater. Hexavalent chromium concentrations have been reduced but are still above action levels in some areas. The depth to groundwater ranged from 16.65 to 29.96 feet below the ground surface on November 11, 2015 (CapRock, 2016).

Dynegy Moss Landing (aka Moss Landing Power Plant)

The Dynegy Moss Landing site, also known as the Moss Landing Power Plant, is located along the north side of Dolan Road extending from Highway 1 east to Via Tanques Road (DTSC, 2016). This site is located north across Dolan Road from the Alternative 4 desalination plant site; and directly west of the Alternative 3 desalination plant site. Portions of the Alternative 2 and 3 intake pump station and intake pipeline would overlap with the area of contamination reported at this site. PG&E is the original owner and retains responsibility for environmental cleanup. Dynegy, current owner, took control of the facility in 2007. Nine power generation units have been used at the site since its inception. Fuel oil was burned to generate power before switching to natural gas. The constituents of concern at the facility are petroleum hydrocarbons, volatile organic compounds, polynuclear aromatic hydrocarbons, metals, polychlorinated biphenyls (PCBs), and asbestos. Soil and groundwater investigation and cleanup are in progress. The extent of soil and groundwater contamination is both onsite and offsite. The property has land use restrictions that prohibit onsite soil excavation and groundwater extraction without the approval of the DTSC. The power generation and subsequent investigation and cleanup activities are in the western portion of the property and contamination has not been reported in the eastern portion of the property.

Calera Corporation Moss Landing Cement Company

The Calera Corporation Moss Landing Cement Company is located at 7696 Highway 1 in Moss Landing just southeast of the Highway 1 and Dolan Road intersection. It is located west-southwest of the Alternative 3 desalination plant site and adjacent to the Alternative 4 desalination plant site. The site had seven containment structures that have not been used since 2011. Remediation was conducted in 2011 and the site owners are planning to submit a case closure request (RWQCB, 2016). The GeoTracker website provided summary information but no investigation or cleanup reports.

Other Hazards Considerations

There are no airports within 2 miles and no schools within 0.25 mile of the components located north of the Nashua Road/Highway 1 intersection; the area is not within a very high or high fire hazard severity zone (CAL FIRE, 2007, 2008).

5.5.7.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.7-1: Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during construction.

Petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents would be utilized to fuel and maintain construction vehicles and equipment for all project components. The proposed slant wells would use drilling fluids, such as bentonite mud and foam to assist the rotary drilling techniques. The construction contractor would pump out all of the sand-bentonite mud slurry and put it in a storage container for offsite hauling and disposal. Installation of the ASR Wells may use non-corrosive, environmentally inert, biodegradable additives to keep the drill hole open. Construction activities are required to comply with numerous hazardous materials and stormwater regulations, (such as the Hazardous Materials Business Plan (HMBP), Stormwater Pollution Prevention Plan (SWPPP), and California Fire Code) designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner. Through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would be less than significant for all project components.

Impact 4.7-2: Encountering hazardous materials from other hazardous materials release sites during construction.

The proposed project involves excavation, trenching, and grading for the construction of water conveyance pipelines, building footings, and utilities. Some sites with known soil and/or groundwater contamination are located within 0.25 mile of project facilities and may have affected subsurface conditions at various locations along the project area. If substantial hazardous materials are present in excavated soils, health and safety risks to workers and the public could occur. Such risks could occur from stockpiling, handling, or transportation of contaminated soils. The dewatering of contaminated groundwater could also present risks to public health and safety, and the environment, if the contaminated groundwater (i.e., dewatering effluent) is not handled properly. The potential for contaminated soil and groundwater to be released into the environment during project construction would be considered a significant impact. These impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.7-2a (Health and Safety Plan)**, which requires that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations and **4.7-2b (Soil and Groundwater**

Management Plan), which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater.

Impact 4.7-3: Location on a known hazardous materials site.

Portions of the new Transmission Main and ASR Pipelines would be located in the former Fort Ord Seaside Munition Response Areas, a known former hazardous materials site that is identified on the National Priorities List. Construction activities within this area have the potential to encounter undiscovered unexploded ordnance, which, if not identified and properly handled, could cause injury to or death of construction workers or result in wildfire. Compliance with the City of Seaside's Ordnance Remediation District regulations and the environmental protection provisions of the Findings of Suitability for Early Transfer (FOSET) agreement between Fort Ord Reuse Authority and the City of Seaside would ensure that project impacts are less than significant. None of the other project components are located within a known hazardous materials site.

Impact 4.7-4: Handle hazardous materials or emit hazardous emissions within 0.25 mile of a school during construction.

The new Desalinated Water Pipeline, new Transmission Main, ASR Pipelines, and Ryan Ranch-Bishop Interconnection Improvements Pipeline would be located within 0.25 miles of a school and, as discussed in Impact 4.7-1, would require the use of fuel, lubricants, paints, and solvents. The HMBP and SWPPP discussed under Impact 4.7-1, above, impose performance standards on the construction activities that would ensure the risk of release of hazardous materials during construction would be low. Therefore, the potential for a hazardous materials release during construction to result in increased exposure to hazardous materials at the nearby schools is remote; this impact is less than significant. None of the other proposed project components are located within 0.25-mile of a school. No impact would result.

Impact 4.7-5: Increased risk of wildland fires during construction.

The new Transmission Main, ASR Pipelines, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station are proposed in or near areas classified by CAL FIRE as High or Very High Fire Hazard Severity Zones. California regulations governing the use of construction equipment in fire prone areas are designed to minimize the risk of wildland fires (e.g., PRC Sections 4411 et seq.). In addition, the California Fire Code addresses the fire safety of general construction operations. The construction contractor must comply with these regulations and any additional requirements imposed by CAL FIRE or the local fire protection departments. With compliance, the impact associated with an increased risk of wildland fires during construction would be less than significant.

None of the other project facilities are located within or near an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone; however, construction activities could temporarily increase fire risk. Compliance with California Fire Code regulations would ensure that the potential impact associated with an increased risk of fire during construction of all other project components would be less than significant.

Impact 4.7-6: Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during project operations.

Operation and maintenance of the proposed subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, and Carmel Valley Pump Station would involve the routine use and storage of hazardous materials. Through compliance with existing state and federal laws and regulations regarding hazardous materials storage and management, the potential for environmental impacts due to the accidental release of hazardous materials would be less than significant. Operation of all pipelines, Ryan Ranch-Bishop Interconnection Improvements, and the Main System-Hidden Hills Interconnection Improvements would have no impact related to the inadvertent release of hazardous materials.

Impact 4.7-C: Cumulative impacts related to hazards and hazardous materials.

Proposed project construction and operation would not have a significant contribution to cumulative impacts on the public or the environment through the transport, use, disposal, or accidental release of hazardous materials or to cumulative effects associated with wildfire risk because the likelihood that the proposed project and cumulative projects in the vicinity of project components would be under construction at the same time is remote. The proposed project's contribution could result in a potentially significant cumulative impact from the potential release of or exposure to hazardous materials in soil or groundwater from more than one project, but implementation of mitigation measures identified in Impact 4.7-2 would reduce the overall cumulative impact to a less-than-significant level.

5.5.7.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related use of hazardous materials, no chance of encountering or releasing hazardous materials or of locating a facility on an existing hazardous materials site associated with the No Project Alternative. However, decommissioning of the existing test slant well could result in potentially significant but mitigable impacts related to hazards and hazardous materials, including the potential to encounter contaminated soil/and or groundwater. See Impact 4.7-2 in Section 4.7.5.1. Implementation of Mitigation Measures 4.7-2a and 4.7-2b would reduce the impacts to a less-than-significant level.

Because the No Project Alternative's impact would be less than significant with mitigation, its contribution to cumulative effects related to hazards or hazardous materials would be less than significant.

5.5.7.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.3.3.2, Intake Option 3 – Subsurface Slant Wells at Potrero Road). The desalination plant, brine discharge pipeline, Castroville

Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

Petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents would be used to fuel and maintain construction vehicles and equipment for all components of Alternative 1. The 5.5 miles of additional source water pipeline, and the one additional well required for Alternative 1 (10 new wells at Potrero Road versus 9 new wells plus the converted test well at CEMEX) would increase the potential for accidental spills compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would result in the *same impact conclusion* as the proposed project, less than significant.

Alternative 1 would involve excavation, trenching, and grading for the construction of water conveyance pipelines and building footings. If substantial hazardous materials are present in excavated soils, health and safety risks to workers and the public could occur. The dewatering of contaminated groundwater could also present risks to public health and safety, and the environment, if the contaminated groundwater (i.e., dewatering effluent) is not handled properly. The change from the CEMEX site to the Potrero Road site would not result in encountering any additional known hazardous materials sites and the potential impact would be the same as the proposed project. The potential impact at common component locations would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.7-2a (Health and Safety Plan)**, which requires that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations and **4.7-2b (Soil and Groundwater Management Plan)**, which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater. Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

No component unique to Alternative 1 would be located within 0.25 mile of a school and the potential for Alternative 1 to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

No component unique to Alternative 1 would be located in a High or Very High Fire Hazard Safety Zone and Alternative 1 would result in a the same level of impact and the *same impact conclusion* as the proposed project, less than significant.

Operational and Facility Siting Impacts

Operations and maintenance activities associated with Alternative 1 would involve the same storage and use of hazardous materials and the transport of hazardous wastes generated during operations as the proposed project and compliance with applicable laws, permits and regulations would result in the *same impact conclusion* as the proposed project, less than significant.

No component unique to Alternative 1 would be located on a known hazardous material site. Therefore, the potential to create a hazard to the public would be the same as the proposed project and Alternative 1 would have the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 1 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. The geographic scope of analysis for cumulative impacts related to hazards and hazardous materials for the components that differ from the proposed project is defined by the location of the Alternative 1 intake system and associated pipelines north of the Nashua Road/Highway 1 intersection. Of the cumulative projects described in **Table 4.1-2** in Section 4.1, the DeepWater Desal Project (No. 34) is the only additional project that would have components located near Alternative 1 components; however, the DeepWater Desal Project facilities would be located north of Potrero Road at Moss Landing and would not geographically overlap with Alternative 1 components; therefore, the impacts of these components would not combine with impacts of Alternative 1. No other cumulative projects are located in this Potrero Road area, and no changes or increases in cumulative impacts would occur. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 1's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is less than significant. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see

Figure 5.4-2). Therefore, the hazards and hazardous materials impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Petroleum products would be used to fuel and maintain construction vehicles and equipment for all components of Alternative 2. The 6.5 miles of additional source water pipeline, the new screened open water intake and the elimination of the Castroville Pipeline would increase the potential for accidental spills compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would result in the *same impact conclusion* as the proposed project, less than significant.

The construction of the open water intake system, including a pump station on Dolan Road and the installation of the intake pipeline (HDD technique), and the additional 6.5 miles of source water pipeline (open trench and HDD construction), would result in an increase in potential of encountering hazardous materials in soil and groundwater from the known hazardous materials sites in the Moss Landing area compared to the proposed project, resulting in a potentially significant impact. The potential release of or exposure to hazardous materials in soil or groundwater would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.7-2a (Health and Safety Plan)** which would require that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations, and **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)** which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater, when encountered. Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

No component unique to Alternative 2 would be located within 0.25 mile of a school and the potential for Alternative 2 to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant.

No component unique to Alternative 2 would be located in a High or Very High Fire Hazard Safety Zone and Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant.

Operational and Facility Siting Impacts

In addition to portions of the new Transmission Main and ASR Pipelines, the Alternative 2 pump station on Dolan Road would be located on or near the known hazardous material sites at Moss Landing. Therefore, the potential to create a hazard to the public would be increased compared to the proposed project. However, compliance with regulations would ensure that project impacts are less than significant. Therefore, Alternative 2 would have the *same impact conclusion* as the proposed project, less than significant.

Operations and maintenance activities associated with Alternative 2 would involve the same storage and use of hazardous materials and the transport of hazardous wastes generated during operations as the proposed project and compliance with applicable laws, permits and regulations would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 2 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. The geographic scope of analysis for cumulative impacts related to hazards and hazardous materials for the components that differ from the proposed project is defined by the location of the Alternative 2 open water intake system and associated pipelines north of the Nashua Road/Highway 1 intersection. Alternative 2 would not contribute to cumulative impacts related to proximity to schools or airports, or location within a very high or high fire severity hazard zone.

The DeepWater Desal Project (No. 34) and the Moss Landing Community Plan (No. 37), described in **Table 4.1-2** in Section 4.1 are located geographically near or overlap the Alternative 2 components. Various proposed surface construction projects are included in the Moss Landing Community Plan and the estimated time of construction is unknown. These projects would be required to comply with the same requirements as Alternative 2. All project components involving the handling, storage, and disposal of hazardous materials would be required to prepare a HMBP and comply with applicable regulations, including those governing containment, site layout, and emergency response and notification procedures in the event of a spill or release. Transportation and disposal of wastes, such as spent cleaning solutions, would also be subject to regulations for the safe handling, transportation, and disposal of chemicals and wastes. Such regulations include standards to which parties responsible for hazardous materials releases must return spill sites, regardless of location, frequency, or size of release, or existing background contaminant concentrations. Compliance with existing laws and regulations regarding hazardous materials transport would reduce the risk of environmental or human exposure to such materials and would reduce impacts of each project to a level and geographic scope such that they would not combine with one another to cause significant cumulative impacts. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 2's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is less than significant. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.6 Direct and Indirect Effects of the Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The 2 pipelines for the intake and 2 pipelines for the

discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Petroleum products would be used to fuel and maintain construction vehicles and equipment for all components of Alternative 3. The 6.5 miles of additional source water pipeline, the new screened open water intake and discharge, the 25 miles of additional desalinated water pipeline, and the larger desalination facility and co-located data center would increase the potential for accidental spills during construction compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

The construction of the open water intake system, including a pump station on Dolan Road and the installation of the 2 intake and 2 discharge pipelines (HDD technique), and the additional 31.5 miles of additional pipeline (open trench and HDD construction), would result in an increase in potential, of encountering hazardous materials in soil and groundwater from the known hazardous materials sites in the Moss Landing area compared to the proposed project, resulting in a potentially significant impact. The potential release of or exposure to hazardous materials in soil or groundwater would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.7-2a (Health and Safety Plan)** which would require that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations, and **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)** which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater, when encountered. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

No component unique to Alternative 3 would be located within 0.25 mile of a school and the potential for Alternative 3 to emit hazardous emissions within 0.25 miles of a school would be the

same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

No component unique to Alternative 3 would be located in a High or Very High Fire Hazard Safety Zone and Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

Operational and Facility Siting Impacts

In addition to portions of the new Transmission Main and ASR Pipelines, the Alternative 3 pump station on Dolan Road would be located on or near the known hazardous material sites at Moss Landing. Therefore, the potential to create a hazard to the public would be increased compared to the proposed project. However, compliance with regulations would ensure that project impacts are less than significant. Therefore, Alternative 3 would have the *same impact conclusion* as the proposed project, less than significant.

Operations and maintenance activities associated with Alternative 3 would involve increased volumes of hazardous materials storage and use of hazardous materials and the transport of hazardous wastes generated during operations as the proposed project because of the much larger desalination plant capacity. However, Alternative 3 compliance with applicable laws, permits and regulations would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 3 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. The geographic scope of analysis for cumulative impacts related to hazards and hazardous materials for components that differ from the proposed project is defined by the location of the Alternative 3 components located north of the Nashua Road/Highway 1 intersection. Alternative 3 would not contribute to cumulative impacts related to proximity to schools or airports, or location within a very high or high fire severity hazard zone.

The Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1) is located in the Moss Landing area. The contributions of the Moss Landing Community Plan projects to hazards and hazardous materials-related impacts would be as described under Alternative 2. As described for Alternative 2, compliance with existing laws and regulations regarding hazardous materials transport would reduce the risk of environmental or human exposure to such materials and would reduce impacts of each project to a level and geographic scope such that they would not combine with one another to cause significant cumulative impacts. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 3's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is less than significant. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water originating from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Petroleum products would be used to fuel and maintain construction vehicles and equipment for all components of Alternative 4. The installation of the intake and discharge pipelines, the new screened open water intake and brine discharge system, the 6.5 miles of additional desalinated water pipeline, and the larger desalination facility would increase the potential for accidental spills compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would result in the *same impact conclusion* as the proposed project, less than significant.

The construction of the open water intake system, including the pump station at the caisson, the installation of the intake and brine discharge pipelines (HDD technique), and the additional 6.5 miles of desalinated water pipeline (open trench and HDD construction), would result in an increase in potential of encountering hazardous materials in soil and groundwater from the known hazardous materials sites in the Moss Landing area compared to the proposed project, resulting in a potentially significant impact. The potential release of or exposure to hazardous materials in soil or groundwater would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.7-2a (Health and Safety Plan)** which would require that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations, and **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)** which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater, when encountered. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

No component unique to Alternative 4 would be located within 0.25 mile of a school and the potential for Alternative 4 to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant.

No component unique to Alternative 4 would be located in a High or Very High Fire Hazard Safety Zone and Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant.

Operational and Facility Siting Impacts

In addition to portions of the new Transmission Main and ASR Pipelines, the Alternative 4 desalination plant would be located on or near a known hazardous material site at Moss Landing. Therefore, the potential to create a hazard to the public would be increased compared to the proposed project. However, compliance with regulations would ensure Alternative 4 would have the *same impact conclusion* as the proposed project, less than significant.

Operations and maintenance activities associated with Alternative 4 would involve an increased volume of storage and use of hazardous materials and the transport of hazardous wastes generated during operations compared to the proposed project due to the larger desalination capacity. However, Alternative 4 compliance with applicable laws, permits and regulations would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 4 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. The geographic scope of analysis for cumulative hazards and hazardous materials impacts is defined by the location of the Alternative 4 open water intake system, desalination facility, and associated pipelines north of the Nashua Road/Highway 1 intersection. Alternative 4 would not contribute to cumulative impacts related to proximity to schools or airports, or location within a very high or high fire severity hazard zone.

The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) and the Moss Landing Community Plan (No. 37) are located in the Moss Landing area. The contributions of these projects to hazards and hazardous materials-related impacts would be as described under Alternative 2. As described for Alternative 2, compliance with existing laws and regulations regarding hazardous materials transport would reduce the risk of environmental or human exposure to such materials and would reduce impacts of each project to a level and geographic scope such that they would not combine with one another to cause significant cumulative impacts. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 4's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is less than significant. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1 (5.5 additional miles compared to the proposed project). Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction of Alternatives 5a and 5b components would have a slightly reduced footprint because of the reduced number of wells and smaller sized desalination plant compared to the proposed project and Alternative 1, respectively, resulting in a similar level of potential for accidental spills compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would result in the *same impact conclusion* as the proposed project, less than significant.

Similar to the proposed project and Alternative 1, the implementation of **MMs 4.7-2a** and **4.7-2b** would reduce the potential for harmful exposure to hazardous materials present in soil or groundwater during construction of Alternative 5a or 5b, respectively, to a less-than-significant level and would result in the *same impact conclusions* compared to the proposed project; less than significant with mitigation.

No components of Alternative 5a or 5b would be located within 0.25 mile of a school and the potential for Alternative 5a or 5b to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 5a or 5b would result in the *same impact conclusion* as the proposed project, less than significant.

No component of Alternative 5a or 5b would be located in a High or Very High Fire Hazard Safety Zone and Alternative 5a or 5b would result in the *same impact conclusion* as the proposed project, less than significant.

Operational and Facility Siting Impacts

Other than portions of the new Transmission Main and ASR Pipelines, no other components of Alternative 5a or 5b would be located on or near the known hazardous material site at Moss Landing. Therefore, the potential to create a hazard to the public would be increased compared to the proposed project and compliance with regulations would ensure Alternative 5a or 5b would have the *same impact conclusion* as the proposed project, less than significant.

Operations and maintenance activities associated with Alternative 5a or 5b would involve reduced storage and use of hazardous materials and the transport of hazardous wastes generated during operations compared to the proposed project, and compliance with applicable laws, permits and regulations would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative hazards and hazardous materials impacts for Alternatives 5a and 5b is the same as for the proposed project and Alternative 1, respectively. In addition to the projects identified as relevant to the cumulative analyses for the proposed project and Alternative 1, the GWR Project (No. 58 in **Table 4.1-2** in Section 4.1) is relevant to both Alternatives 5a and 5b. The GWR Project would be subject to compliance with existing laws and regulations regarding hazardous materials transport that would reduce the risk of environmental or human exposure to such materials and would reduce impacts of each project to a level and geographic scope such that they would not combine with one another to cause significant cumulative impacts. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 5a and 5b's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is less than significant. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.9 References

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- CapRock Geology, Inc., 2013, *Workplan, Moss Landing Commercial Park, Moss Landing, California*, October 7, 2013.
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- Department of Toxic Substances Control (DTSC), 2016, *Dynegy Moss Landing, Case Summary*. Available online at http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=80001833. Accessed July 9, 2016.
- RWQCB, 2016. *Calera Corporation Moss Landing Cement Company - Summary of May 06, 2016 Telephone Conference Call*, June 17, 2016.

5.5.8 Land Use, Land Use Planning, and Recreation

The evaluation criteria for Land Use, Land Use Planning, and Recreation address: consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating and environmental effect; and disrupting or precluding public access to or along the coast during construction.

5.5.8.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.8, Land Use, Land Use Planning, and Recreation. The setting for the components north of the Nashua Road/Highway 1 intersection is presented below.

Pipeline Alignments North of Nashua Road/Highway 1 Intersection

Lands adjacent to the pipeline alignments north of the Nashua Road/Highway 1 Intersection that are part of Alternatives 1, 2, 3, 4 and 5b are used for agricultural, light and heavy industrial, commercial, residential, and public/quasi-public purposes. Local Coastal Program (LCP) land use plan designations for lands adjacent to the pipeline alignments include: Agricultural Preservation, Recreation and Visitor Serving, Residential – Medium Density, Outdoor Recreation, General Commercial, Wetlands and Coastal Strand, Industrial – Coast Dependent – Heavy, and Heavy Industrial. The zoning designations of lands adjacent to the pipeline alignments for Alternatives 1, 2, 3, 4 and 5b include: Coastal Agricultural Preservation (CAP), Agricultural Conservation (AC), Heavy Industrial (HI) and Resource Conservation (RC). All pipeline segments north of the Nashua Road/Highway 1 intersection would occur within the Coastal Zone. Nearby recreational lands and facilities include Salinas River State Beach, the Elkhorn Slough National Estuarine Research Reserve (“Elkhorn Slough”) and the Moro Cojo Slough State Marine Reserve (“Moro Cojo Slough”). The Monterey Bay Sanctuary Scenic Trail alignment follows Highway 1 through Moss Landing. However, the segment that passes through Moss Landing is either undeveloped or limited to the Highway 1 shoulder.

Potrero Road Parking Lot

The Potrero Road parking lot (part of Alternatives 1 and 5b) is located at the western terminus of Potrero Road and serves Salinas River State Beach. Lands adjacent to the parking lot include the Salinas River State Beach to the west and the Old Salinas River channel and fringing marshes to the north, south, and east. The nearest development is a small neighborhood located approximately 800 feet to the northeast. The LCP land use plan designation for lands adjacent to the Potrero Road parking lot is Scenic and Natural Resource Recreation. The zoning designation of lands adjacent to the parking lot is Open Space Recreation (OR). The parking lot lies within the Coastal Zone. Recreational resources in the vicinity of the Potrero Road parking lot include Salinas River State Beach.

Moss Landing

The stretch of Moss Landing beach in the vicinity of components of Alternatives 1, 2, 3, 4, and 5b is located on the west side of Moss Landing's southern peninsula, approximately 250 feet west of Sandholdt Road. Land uses in this area include Moss Landing Beach, the Monterey Bay Aquarium Research Institute, restaurants, and various commercial and marine-related light-industrial developments. Sandholdt Lot, Salinas River State Beach, is located approximately 150 feet to the south of this area. The LCP land use plan designations are Industrial – Coast Dependent – Light and Education – Scientific. The zoning designations are Light Industrial (LI) and Public/Quasi-Public (PQP). The area lies within the Coastal Zone. Nearby recreational lands and facilities include the Salinas River State Beach and the Elkhorn Slough National Estuarine Research Reserve.

Moss Landing Green Commercial Park

The Moss Landing Green Commercial Park is located east of Highway 1 and south of Dolan Road, in Moss Landing. The site is the location of the Alternative 4 desalination plant and it includes various tanks, warehouses, and administrative structures remaining from the former National Refractories & Minerals Corporation's magnesium production operations. The LCP land use plan designation is Industrial – Coast Dependent – Heavy. The zoning designation is Heavy Industrial (HI). The site lies within the Coastal Zone. Nearby recreational resources and facilities include the Monterey Bay Sanctuary Scenic Trail and Elkhorn Slough.

East Tank Farm Parcel

The East Tank Farm Parcel is located north of and adjacent to Dolan Road, approximately 2 miles east of Highway 1 and is the Alternative 3 desalination plant site. The former fuel oil storage site has been remediated and is presently clear of development except for one storage tank and appurtenant facilities. The site is bordered by lands used for agricultural and light industrial activities. The LCP land use plan designation is Heavy Industrial. The zoning designation is Heavy Industrial (HI). The site lies within the Coastal Zone. Recreational facilities and resources in the vicinity include Elkhorn Slough and Moro Cojo Slough.

Regulatory Framework

Regulatory requirements applicable to the proposed project that are related to land use and recreation are presented in Section 4.8.2, Regulatory Framework. Many of the plans, policies, and regulations identified in that section would also apply to the components unique to the project alternatives, including: the National Marine Sanctuaries Act; the California Coastal Act; and the Monterey County Local Coastal Program (LCP). In addition, the Salinas River State Beach General Plan and the Moss Landing Community Plan would apply to components of project alternatives. With respect to land use and recreation, key tenets of these regulatory requirements include prioritizing coastal dependent land uses, maximizing public access to and along the coast, and preserving and enhancing recreational opportunities. The consistency analyses presented in the impacts subsections below consider each alternative's conformity with these principles.

Salinas River State Beach General Plan

The Salinas River State Beach General Plan (General Plan) outlines a framework for park management, providing for protection of natural resources; improving park access; and for the siting, design, and construction of future park improvements in a manner that avoids environmental effects. Prominent among the General Plan's guiding principles is the provision and management of recreational opportunities consistent with resource management and protection. Alternatives' components that could occur on Salinas River State Beach include the subsurface slant wells and Source Water Pipeline (Alternatives 1 and 5b).

Moss Landing Community Plan

The Moss Landing Community Plan (MLCP) Area encompasses the Moss Landing neighborhoods of Elkhorn, Dolan, North Harbor, Island, South Harbor, Village Center, and Heights. The MLCP is a component of and contains community-specific policies that supplement the more general North County Land Use Plan policies to achieve the basic goals of the California Coastal Act, including maximizing public access and recreational opportunities in the coastal zone, among others. The MLCP is presently undergoing a comprehensive update. All alternatives' components sited along and north of Potrero Road would be subject to the MLCP.

Monterey County Land Use Plan and Zoning Designations

This subsection includes an evaluation of the potential for alternatives' components' to conflict with existing Monterey County land use plan and zoning designations. As noted previously, all facilities would be located within Monterey County's coastal zone on lands for which land uses have been classified and zoned pursuant to the North County Land Use Plan and the Monterey County Coastal Implementation Plan (Title 20, Zoning Ordinance), respectively. As discussed below, all alternatives' facilities would require a use permit from Monterey County and would be subject to review and approval pursuant to the provisions of the Local Coastal Plan and other applicable land use policies and regulations. The following is an assessment of established land use plan and zoning designations for alternatives' facilities north of the Nashua Road/Highway 1 intersection.

- Pipelines north of the Nashua Road/Highway 1 intersection would be sited primarily within existing road rights-of-way or utility corridors. Similarly, the Potrero Road subsurface slant wells (Alternatives 1 and 5b) would be sited beneath an existing parking lot at the western terminus of Potrero Road. Road rights-of-way do not have land use or zoning designations in Monterey County; nor does the Potrero Road parking. Nevertheless, because all pipelines and subsurface slant wells would be buried below ground surface, none would have the opportunity to conflict with existing land use or zoning designations.
- The existing caisson at Sandholdt Road that would be utilized for an intake pump system (Alternative 4) would occur on lands designated for Industrial – Coast Dependent – Light and zoned Light Industrial (LI). The Industrial – Coast Dependent – Light land use designation is intended primarily to support marine-related industry, including fishing, canning, boat storage, and other related support facilities and infrastructure. The pump station would be in keeping with the types of industrial facilities envisioned for this classification. The zoning regulations for LI zoning districts allow public utility facilities with a coastal development permit (Section 20.26.060.X). Public utility facilities include

those for the production, storage, transmission, distribution, and recovery of water, sewage, energy, and other similar utilities (Section 20.06.910).

- The intake pump station on Dolan Road (Alternatives 2 and 3), the desalination plant and other facilities at the East Tank Farm Parcel (Alternative 3), and the desalination plant at Moss Landing Green Commercial Park (Alternative 4), would each occur on lands designated for industrial land uses and zoned for heavy industry (HI). The land use designations for the intake pump station site and Moss Landing Green Commercial Park prioritize coastal-dependent industry; the designation for the East Tank Farm Parcel allows for general heavy industry. Each facility would be in keeping with the envisioned uses for its respective land use classification. The zoning regulations for the HI zoning district allow for public utility facilities with a coastal development permit (20.28.060.U).

5.5.8.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.8.5.

Impact 4.8-1: Consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating an environmental effect.

The proposed MPWSP would not be expected to conflict with applicable policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Although construction of the Source Water Pipeline, new Desalinated Water Pipeline, new Transmission Main, and the Ryan Ranch–Bishop Interconnection Improvements, and ASR pipelines could affect recreational facilities, any disruptions would be temporary and limited to the construction phase. Therefore, the proposed project would not substantially conflict with plans, policies related to land use or recreation. The impact would be less than significant.

Impact 4.8-2: Disrupt or preclude public access to or along the coast during construction.

The proposed new Transmission Main and optional alignment would intersect three Fort Ord Dunes State Park entrances. The effects of the new Transmission Main construction on vertical and lateral public accessways within Fort Ord Dunes State Park would be significant. **Mitigation Measure 4.9-1, Traffic Control and Safety Assurance Plan**, which would require the implementation of a traffic control safety plan for project construction activities that could affect the public right-of-way, (including roads and trails leading into Fort Ord Dunes State Park), and include measures that would provide for continuity of vehicular, pedestrian, and bicyclist access, would reduce the effects on public access to a less-than-significant level.

Impact 4.8-C: Cumulative impacts related to land use and recreation.

The proposed project would not have a significant contribution to cumulative impacts related to conflicts with plans, policies, and regulations adopted to protect public access or recreational facilities because any effects associated with construction would be temporary and no long-term effects would result. Cumulative effects on coastal public access during construction could be significant if the Fort Ord Dunes Campground project (No. 46 in **Table 4.1-2**) was constructed at the same time as the new Transmission Main, but the proposed project's contribution to this impact would be reduced to a less-than-significant level with implementation of the mitigation measure identified in Impact 4.8-2.

5.5.8.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated and the existing test slant well would be decommissioned. Consequently, there would be no construction- or operations-related impacts on land use, land use planning, or recreation associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to land use, land use planning, or recreation, it could not contribute to cumulative effects related to these topics.

5.5.8.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Similar to the proposed project, and based upon an initial review of consistency, components of Alternative 1 that are common with the proposed project would not be expected to conflict with applicable land use policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Although construction of the Source Water Pipeline, new Desalinated Water Pipeline, new Transmission Main, Ryan Ranch–Bishop Interconnection Improvements, and ASR pipelines could affect recreational facilities, any disruptions would be temporary and limited to the construction phase.

Alternative 1 facilities at Potrero Road would also be subject to the Salinas River State Beach General Plan. The subsurface slant wells and Source Water Pipeline are coastal-dependent land uses because they depend upon proximity to the coast in order to function. These facilities would

generally occur in areas without land use or zoning regulations and would be permissible on adjacent lands with a coastal development permit (CDP). Subsurface slant well and pipeline construction activities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, would disrupt public access and recreational opportunities in the coastal zone through increased traffic and potential lane closures, and through the temporary closure of the Potrero Road parking lot and coastal access. During the 24-month construction period, travel to or along the coast could take longer than usual and parking options for Salinas River State Beach visitors would be limited to two of three existing options (Sandholdt Road lot or Monterey Dunes Way lot). These effects would be limited to the construction period and alternative recreational beach access opportunities in the area would remain open. For these reasons, components unique to Alternative 1 would not result in conflicts with plans, policies or regulations related to land use or recreation. Additional discussion of traffic and transportation is provided in Section 5.5.9. Public beach access is discussed further below.

Therefore, Alternative 1 would not conflict with plans and policies related to land use or recreation adopted for the purpose of avoiding or mitigating an environmental effect, and would result in the *same impact conclusion* as the proposed project, less than significant.

Alternative 1 would result in construction-related impacts on public access to or along the coast for the new Transmission Main. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

The Alternative 1 subsurface slant well installation would require complete closure of the Potrero Road parking lot for the 24-month construction period and closure of the parking lot would temporarily disrupt public access to the shore at that location. Nearby alternative beach access opportunities at the end of Sandholdt Road (approximately 0.6 mile north) and Monterey Dunes Way (approximately 1 mile south) would remain open. However, because existing vertical access from Potrero Road would be precluded, the effect would result in an increased level of impact on recreational access compared to the proposed project. However, implementation of **Mitigation Measures ALT 1-REC-1a (Public Notification)** and **ALT 1-REC-1b (Beach Access Management Plan)**, listed below, would reduce impacts to less than significant. These measures provide for the maintenance of existing public access where feasible and safe, posting of public notice in advance of any closures, and the development of a plan for managing public safety in and around the work areas and accessways. Lateral public access seaward of the Potrero Road parking lot would remain open and unimpeded.

Mitigation Measures ALT 1-REC-1a and ALT 1-REC-1b apply to the Alternatives 1 and 5b work at the Potrero Road parking lot and Alternative 4 beach construction and would not apply to the proposed project or other alternatives.

Mitigation Measure ALT 1-REC-1a: Public Notification.

Two weeks prior to construction, CalAm shall post signs notifying the public of the dates of construction operations and locations of beach or beach access closure. The signs shall be printed on weather-proof materials and posted at public access points and other highly visible locations for the duration of the closure period. In addition, the signs shall include a

map showing the nearest alternative access point. At the end of the closure period, CalAm or its contractors shall retrieve all notice materials.

Mitigation Measure ALT 1-REC-1b: Beach Access Management Plan.

Prior to commencement of construction activities, CalAm shall submit a Beach Access Management Plan to the CPUC, MBNMS, and California State Parks Department for review and approval. The Beach Access Management Plan shall provide for maintenance of clear public access routes through to the beach, such that physical construction interference shall be kept to a minimum. The plan shall describe the strategies that the construction contractor(s) will employ during construction to maintain beach access to the maximum extent feasible while ensuring public safety. As appropriate, the plan shall include, but not be limited to: construction fencing, signs, use of enclosed storage areas, construction and construction worker vehicle parking and access routes, and nightly removal of equipment to a designated area. CalAm shall ensure that its construction contractor(s) implement the provisions of the approved plan throughout construction at the Potrero Road parking lot. CalAm shall also provide the public with contact information in order to report immediate hazards related to the project. This information shall be provided in a public notice posted on-site prior to the commencement of any project-related activity.

Therefore, Alternative 1 would have a greater potential to disrupt recreational access than the proposed project, but after implementation of the mitigation measures above, would result in the *same impact conclusion* as the proposed project during construction, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 1 would not result in any above-ground facilities that would permanently affect coastal public access. The above-ground facilities proposed within the Coastal Zone at Potrero Road would be relatively small and would not block public access to the beach. No other project components have the potential to permanently affect public access. Therefore, Alternative 1 would result in the *same impact conclusion* on land use and recreation as the proposed project, less than significant.

Cumulative Analysis

No facility siting and operations-period effects would occur that could contribute to cumulative effects. Therefore, the geographic scope of analysis for cumulative impacts related to land use and recreation for Alternative 1 is defined by the lands and recreational resources that would be affected by Alternative 1 construction, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the intake system (Potrero Road, instead of CEMEX), and alternative source water pipeline route. Concurrent construction and operation of Alternative 1 and projects in the cumulative scenario, including the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1), would increase the duration and geographic extent of recreational access disruptions within the study area. The impacts of Alternative 1 on recreational access and access to the shore at the Potrero Road location would be significant, and if other projects were to affect recreational or public shore access concurrently, the cumulative impact would be significant and the contribution of Alternative 1 would be significant. With implementation of **Mitigation Measures 4.9-1, ALT 1-REC-1a, and ALT 1-REC-1b**, this

contribution and overall impact would be reduced to a level that is less than significant. Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.8.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction

Based upon an initial review of consistency, components of Alternative 2 that are common with the proposed project would only have temporary effects during construction activities, and would not be expected to conflict with applicable land use policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Facilities in Moss Landing that are unique to Alternative 2 would be subject to the Moss Landing Community Plan. The effects of components unique to Alternative 2 are presented below.

- The intake structure, intake pump station, and the Source Water Pipeline are coastal-dependent land uses, because they depend upon proximity to the coast in order to function. The intake structure and pipelines would generally occur in areas without land use or zoning regulations and would be permissible on adjacent lands with a CDP. The intake pump station would occur on a site reserved for heavy industrial uses, where public utility facilities are permissible with a CDP.
- Intake pump station and pipeline construction activities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, would disrupt public access and recreational opportunities in the coastal zone through increased traffic and potential lane closures. During the construction period, travel to or along the coast could take longer than usual. Similarly, recreational boating and other open-water recreational activities in MBNMS could be disrupted in the vicinity of offshore barges during intake structure construction (approximately 1,300 feet offshore). These effects would be limited to the construction period and would not preclude other public access or recreational opportunities in the area. For these reasons, components unique to Alternative 2 would not

result in conflicts with plans, policies or regulations related to land use or recreation. Additional discussion of traffic and transportation is provided in Section 5.5.9. Public beach access is discussed further below.

Installation of the intake structure, intake pump station at Dolan Road, and the additional length of pipeline would not conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and overall Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant.

There are other facilities unique to Alternative 2 that would substantially disrupt or preclude public shoreline access. Construction-related impacts on public access to or along the coast for the new Transmission Main would result in the same significant impact. However with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 2 would not result in any above-ground facilities that would conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and would not affect coastal public access. Therefore, Alternative 2 would result in the *same impact conclusion* on land use and recreation as the proposed project, less than significant.

Cumulative Analysis

No facility siting and operations-period effects would occur that could contribute to cumulative effects. Therefore, the geographic scope of analysis for cumulative impacts related to land use and recreation for Alternative 2 is defined by the lands and recreational resources that would be affected by Alternative 2 construction, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the seawater intake system (Moss Landing), and alternative source water pipeline route. Concurrent construction and operation of Alternative 2 and projects in the cumulative scenario, including the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1), would increase the duration and geographic extent of recreational access disruptions within the study area. The impacts of Alternative 2 on recreational access would be significant, and if other projects were to affect recreational access concurrently, the cumulative impact would be significant and the contribution of Alternative 2 would be cumulatively significant. With implementation of **Mitigation Measure 4.9-1**, this contribution would be reduced to a level that is less than significant. Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.8.6 Direct and Indirect Effects of Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and

co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction

Similar to the proposed project, and based upon an initial review of consistency, effects from construction of components of Alternative 3 that are common with the proposed project would be temporary, and therefore would not be expected to conflict with applicable land use policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Alternative 3 facilities in Moss Landing would also be subject to the Moss Landing Community Plan. The effects of components unique to Alternative 3 are presented below.

- The proposed screened open water intake and brine disposal structures in MBNMS, the intake pump station, the source water pipeline, and the brine discharge pipeline are coastal-dependent land uses because they depend upon proximity to the coast in order to function. The intake/outfall structures and pipelines would generally occur in areas without land use or zoning regulations and would be permissible on adjacent lands with a CDP. The intake pump station would occur on a site reserved for heavy industrial uses, where public utility facilities are permissible with a CDP. The East Tank Farm Parcel land use and zoning designations allow public utility facilities and other industrial-type facilities with a CDP.
- Intake pump station, pipelines, and East Tank Farm Parcel facilities construction activities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, would disrupt public access and recreational opportunities in the coastal zone through increased traffic and potential lane closures. During the 24-month construction period, travel to or along the coast could take longer than usual. Similarly, recreational boating and other open-water recreational activities could be disrupted in the vicinity of offshore barges during intake/outfall construction (approximately 1,300 feet offshore). These effects would be limited to the construction period and would not preclude other public access or recreational opportunities in the area. For these reasons, components unique to Alternative 3 would not result in conflicts with plans, policies or regulations related to land use or recreation. Additional discussion of traffic and transportation is provided in Section 5.5.9. Public beach access is discussed further below.

Installation of the intake/outfall, intake pump station and East Tank Farm Parcel facilities along Dolan Road, and the additional length of pipelines would not conflict with plans and policies related to land use or recreation and would be compatible with existing land use and zoning designations. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

Similar to the proposed project, construction-related impacts on public access to or along the coast would be significant for the new Transmission Main. Facilities unique to Alternative 3 would not preclude public shoreline access but would disrupt public access and recreational opportunities in the coastal zone during the 24-month construction period through increased traffic and potential lane closures; travel to or along the coast could take longer than usual. Similarly, recreational boating and other open-water recreational activities could be disrupted in the vicinity of offshore barges during intake/outfall construction (approximately 1,300 feet offshore). With implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 3 would result in the *same impact conclusion* on coastal public access as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 3 would not result in any above-ground facilities that would conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and would not affect coastal public access. Therefore, Alternative 3 would have the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

No facility siting and operations-period effects would occur that could contribute to cumulative effects. Therefore, the geographic scope of analysis for cumulative impacts related to land use and recreation for Alternative 3 is defined by the lands and recreational resources that would be affected by Alternative 3 construction. Concurrent construction and operation of Alternative 3 and projects in the cumulative scenario, including the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1), would increase the duration and geographic extent of land use and recreational access impacts within the study area. The impacts of Alternative 3 on recreational access and recreational boating during construction would be significant, and if other projects were to affect recreational access concurrently, the cumulative impact would be significant and the contribution of Alternative 3 would be cumulatively significant. With implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, this contribution would be reduced to a level that is less than significant. Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.8.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of

water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction

Similar to the proposed project, and based upon an initial review of consistency, effects from construction of components of Alternative 4 that are common with the proposed project would be temporary, and therefore would not be expected to conflict with applicable land use policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Facilities in Moss Landing that are unique to Alternative 4 would also be subject to the Moss Landing Community Plan. The effects of components unique to Alternative 4 are presented below.

- The screened open water intake, the brine discharge structure and the use of the existing caisson at the end of Sandholdt Road along with the desalinated water pipeline, source water pipeline and outfall pipeline, are all coastal-dependent land uses, because they depend upon proximity to the coast in order to function. The pipelines would generally occur in areas without land use or zoning regulations and would be permissible on adjacent lands with a CDP. The intake pump system would occur on a site reserved for light industrial uses, where public utility facilities are permissible with a CDP. The Heavy Industrial zoning designation for the Moss Landing Green Commercial Park, on which the desalination facility would be built, also allows for public utility facilities and water system facilities with a CDP. However, the site’s land use plan designation prioritizes coastal-dependent uses. A desalination plant (as opposed to an intake structure) may or may not be considered a coastal-dependent land use. Such a determination would be made by the appropriate regulatory body (e.g., Monterey County and/or California Coastal Commission) at time of permitting. If the use is found to not be coastal-dependent, a variance or other exception would be required for the Alternative 4 desalination plant to gain CDP approval at the proposed location.
- Activities associated with construction of the intake pump system, pipelines, and Moss Landing Green Commercial Park facilities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, would disrupt public access and recreational opportunities in the coastal zone through increased traffic and potential lane closures. During the construction period, travel to or along the coast could take longer than usual. Similarly, recreational boating and other open-water recreational activities could be disrupted in the vicinity of offshore barges during intake/outfall construction (approximately 300 to 1,400 feet offshore). These effects would be limited to the construction period and would not preclude public access or recreational opportunities in

the area. For these reasons, components unique to Alternative 4 would not result in substantial conflicts with plans, policies or regulations related to land use or recreation. Additional discussion of traffic and transportation is provided in Section 5.5.9. Public beach access is discussed further below.

Installation of the intake/outfall structures, the intake pump station on top of the existing caisson, the desalination plant, and the additional length of pipelines would not conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Overall, construction of Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant.

Construction-related impacts on public access to or along the coast would be significant for the new Transmission Main, and with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

The public beach access effects of components unique to Alternative 4 are presented below.

- The existing caisson that would be used for the intake pump station is located between Moss Landing Beach and Sandholdt Road and could require construction access from the beach. The beach is generally narrow at this location and would not likely accommodate both on-beach construction and public access. If beach construction were to be required, lateral public access would likely be precluded. The effect would be significant. With implementation of feasible mitigation, such as that described in **Mitigation Measures ALT 1-REC-1a (Public Notification)** and **ALT 1-REC 1b (Beach Access Management Plan)**, the significant impact would be reduced to a less-than-significant level. Nearby alternative lateral beach access opportunities would remain open.

The effects of Alternative 4 on coastal public access would be increased compared to the proposed project because the construction activities associated with the rehabilitation of the existing caisson and construction of the new pump house would temporarily preclude lateral public access along the shoreline during the 24-month construction period. Implementation of feasible mitigation, such as measures described in **Mitigation Measures ALT 1-REC-1a** and **ALT 1-REC-1b** would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 4 would not result in any above-ground facilities that would conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and would not affect coastal public access. Therefore, Alternative 4 would have the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

No facility siting and operations-period effects would occur that could contribute to cumulative effects. Therefore, the geographic scope of analysis for cumulative impacts related to land use and recreation for Alternative 4 is defined by the lands and recreational resources that would be affected by Alternative 4 construction. Concurrent construction and operation of Alternative 4

and projects in the cumulative scenario, including the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1), would increase the duration and geographic extent of recreational access disruptions within the study area. The impacts of Alternative 4 on recreational access and access to the shore at Moss Landing would be significant, and if other projects were to affect recreational or public shore access concurrently, the cumulative impact would be significant and the contribution of Alternative 4 would be cumulatively significant. With implementation of **Mitigation Measures 4.9-1**, **ALT 1-REC-1a**, and **ALT 1-REC-1b**, this contribution would be reduced to a level that is less than significant. Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.8.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction

Because Alternative 5a facilities would be constructed in the same areas as the proposed project, Alternative 5a would temporarily disrupt public access and recreational facilities, but would not conflict with applicable regulatory requirements related to land use or recreation adopted for the purpose of avoiding or mitigating an environmental effect, and Alternative 5a facilities would be similarly compatible with existing land use and zoning designations as the proposed project. Impacts of Alternative 5a would, therefore, result in the *same impact conclusion* as the proposed project, less than significant.

The effects of Alternative 5b would be the same as described for Alternative 1. Installation of fewer subsurface slant wells at Potrero Road would not disturb any less area than Alternative 1 since the parking lot is so small, and the construction of the additional length of pipeline from the slant well intakes would not result in a potential conflict with applicable plans, policies, and regulations related to land use and recreation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, Alternative 5b would have result in the *same impact conclusion* as the proposed project, less than significant.

The public shoreline access effects of Alternative 5a would be the same as the proposed project and with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 5a would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

The public shoreline access effects of Alternative 5b would be the same as described for Alternative 1. Impacts associated with the subsurface slant wells at Potrero Road would be

increased compared to the proposed project, because construction would require the complete closure of the Potrero Road parking lot and trails, which would temporarily preclude vertical public access to the shore and MBNMS during the 24-month construction period. However, with implementation of **Mitigation Measures ALT 1-REC-1a** and **ALT 1-REC-1b**, Alternative 5b would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternatives 5a and 5b would not result in any above-ground facilities that would conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and would not affect coastal public access. Therefore, Alternatives 5a and 5b would have the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would not affect vertical or lateral public access to the shore. Therefore, it would not have impacts that could combine with those of Alternative 5a or 5b; combined impacts would be as described for Alternatives 5a and 5b, above.

Impacts of Full Cumulative Scenario

The geographic scope of impacts and the cumulative scenario relevant to Alternatives 5a and 5b would be as described for the proposed project and Alternative 1, respectively, with the exception that the GWR Project also would be relevant to the cumulative scenario. As noted above, the GWR Project would not contribute to the same potential cumulative effects to which Alternatives 5a and 5b would contribute. Therefore, cumulative impacts would be identical to those described for the proposed project and Alternative 1, and with mitigation identified in those analyses, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.9 Traffic and Transportation

The evaluation criteria for Traffic and Transportation address: temporary traffic increases on regional and local roadways from construction vehicle trips; temporary reduction in roadway capacities and increased traffic delays during construction, increased traffic safety hazards during construction; impaired emergency access during construction; temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction; construction vehicle related wear-and-tear on designated haul routes; parking interference during construction; and, long-term traffic increases on regional and local roadways during operation and maintenance. Construction of all facilities would require the use of equipment and vehicles that would travel on local and regional roadways in Monterey County. Pipeline installation could also occupy roadways.

5.5.9.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.9, Traffic and Transportation. The setting for the components north of the Nashua Road/Highway 1 intersection is presented in **Table 5.5-12**, which provides roadway characteristics for additional roads that would be affected by the alternatives (i.e., installation of pipelines within road rights-of-way).

**TABLE 5.5-12
 CHARACTERISTICS OF ADDITIONAL ROADS THAT COULD BE DIRECTLY AFFECTED
 BY PROJECT CONSTRUCTION ACTIVITIES**

Roadway / Segment	No. of Travel Lanes	Average Daily Traffic Volumes ^b	Bike Route?	On-Street Parking?	Public Transit Lines ^c	Figure Reference
Source Water Pipeline (Alternatives 1 and 2)						
New Desalinated Water Pipeline (Alternatives 3, 4, and 5b)						
Potrero Road: • Highway 1 to Beach parking lot	2 lanes	--	No	No	N/A	Figure 5.4-3
Molera Road • Highway 1 (north) to Highway 1 (south)	2 lanes	--	No	No	N/A	Figure 5.4-3
Nashua Road • Highway 1 to Monte Road	2 lanes	--	No	No	N/A	Figure 5.4-3
New Desalinated Water Pipeline (Alternative 3)						
Dolan Road • Highway 1 to Moss Landing Power Plant East Parcel	2 lanes	--	No	No	N/A	Figure 5.4-5

5.5.9.2 Direct and Indirect Effects of the Proposed Project – Slant Wells at CEMEX

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson

Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, and conversion of the existing test slant well to a permanent well. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities, pump stations, storage tanks, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur.

The following paragraphs briefly summarize the impacts of the proposed project with respect to traffic and transportation. The detailed impact analysis of the proposed project is provided in Section 4.9.

Impact 4.9-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips.

Project-related construction activities would result in a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas. Although the estimated maximum increase in traffic along regional roadways would remain within the carrying capacities of the regional roadways and would not substantially affect traffic flow, construction-related traffic increases along local and neighborhood (residential) streets could result in adverse traffic conditions; this impact would be less than significant for all project components located north of Reservation Road and for the Carmel Valley Pump Station. This impact would be potentially significant for the new Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR-5 and ASR-6 Wells, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce this potentially significant impact to a less-than-significant level.

Impact 4.9-2: Temporary reduction in roadway capacities and increased traffic delays during construction.

Traffic delays resulting from temporary lane closures and detours would be a potentially significant impact for all of the proposed pipelines, but implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce the impact to a less-than-significant level. For all other proposed facilities, the impact would be less than significant because none of the non-linear facilities would require temporary lane closures or detours.

Impact 4.9-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways during construction.

For all proposed project facilities, construction activities could increase traffic safety hazards in the project area due to conflicts among construction vehicles, automobiles, bicyclists, and pedestrians using the roadways; traffic issues on public roadways near construction vehicle access points; and confused bicyclists and pedestrians during temporary changes in circulation patterns on recreational trails, bicycle routes, sidewalks, and other public walkways. Potential increases in traffic safety hazards during project construction would be a potentially significant impact. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce this impact to a less-than-significant level.

Impact 4.9-4: Impaired emergency access during construction.

Pipeline installation activities could require construction within vehicle travel lanes and road shoulders that could temporarily reduce travel lanes and roadway capacity. Delays for emergency vehicles and disruptions of emergency vehicle access to adjacent land uses would result in a potentially significant impact. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, which contains provisions to maintain access during construction, would reduce the impact to a less-than-significant level.

Construction activities and staging areas for the subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, and Carmel Valley Pump Station are not expected to require construction in roadways or road shoulders and impacts related to disrupted access to adjacent land uses for emergency vehicles would be less than significant.

Impact 4.9-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction.

Pipeline installation activities of the Source Water Pipeline, new Desalinated Water Pipeline, new Transmission Main, and Castroville Pipeline, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails in the project area. Construction-related impacts on alternative transportation modes and facilities during pipeline installation activities would be potentially significant. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, which includes measures to minimize impacts on public transportation and provide for continuity of pedestrian and bicyclist traffic during construction, would reduce the impact to a less-than-significant level. There would be no impacts on public transportation and bicycle and pedestrian facilities from the construction of all other proposed facilities and pipelines.

Impact 4.9-6: Increased wear-and-tear on the designated haul routes used by construction vehicles.

The use of trucks to transport equipment and material to and from the construction work areas could affect road conditions on the designated haul routes by increasing the rate of road wear. The degree to which this impact would occur depends on the roadway design and the existing road condition. Highways 1, 68, 101, 156, 183, and 218, Del Monte Boulevard, and Fremont Boulevard / Fremont Street are designed to handle a mix of vehicle types, including heavy trucks; therefore, the impacts of project-related construction traffic are expected to be negligible on those roads. However, some of the smaller roadways and residential streets may not have been constructed to support use by heavy construction trucks and vehicles, and project-related increases in construction truck trips could cause excessive wear-and-tear on these roadways, a potentially significant impact. Implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)**, which requires rehabilitation of any roadways damaged following construction, would reduce this impact to a less-than-significant level.

Impact 4.9-7: Parking interference during construction.

Use of public parking lots for construction staging areas would result in potentially significant parking impacts due to temporary increases in parking demand associated with construction worker vehicles and/or temporary displacement of parking spaces. Implementation of **Mitigation Measure 4.9-7 (Construction Parking Requirements)** would reduce this impact to a less-than-significant level. Construction activities for the subsurface slant wells and MPWSP Desalination Plant would have no effect on parking. Parking displacement impacts resulting from construction of the proposed ASR-5 and ASR-6 Wells, Carmel Valley Pump Station, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and all other proposed pipelines would be less than significant.

Impact 4.9-8: Long-term traffic increases on regional and local roadways during project operations and maintenance.

The impact related to long-term increases in vehicle trips during project operations and maintenance is less than significant for all project facilities due to the low volumes of daily trips that would be generated by the project.

Impact 4.9-C: Cumulative impacts related to traffic and transportation.

Proposed project construction would have a significant contribution to cumulative traffic and transportation impacts, even with implementation of mitigation measures identified in Impacts 4.9-1 through 4.9-7. Implementation of a mitigation measure designed to further reduce the MPWSP's incremental contribution to cumulative impacts, **Mitigation Measure 4.9-C (Construction Traffic Coordination Plan)**, proposes coordination among planning agencies in each affected jurisdiction to develop and implement a Construction Traffic Coordination Plan to address construction-related traffic associated with all concurrent project sites in the vicinity of MPWSP project components. Since there is no guarantee that local agencies would participate in such coordination efforts, the proposed project's incremental contribution would be a significant and unavoidable impact. Project operations would result in a less than significant contribution to cumulative traffic and transportation-related impact.

5.5.9.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed and the existing test slant well would be decommissioned. Consequently, there would be no construction or operational impacts on traffic and transportation. Because the No Project Alternative would have no direct or indirect impacts with respect to traffic and transportation, it could not contribute to cumulative effects related to these topics.

5.5.9.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would site the subsurface intake system at a different location (Potrero Road parking lot), which would require an additional 5.5 miles of source water pipeline. The desalination plant at Charles Benson Road, brine discharge pipeline, Castroville Pipeline, Pipeline

to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 Interconnection Improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the traffic and transportation impact analysis of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

All construction activities and disturbance for the slant wells would occur in the parking lot at the western terminus of Potrero Road in northern Monterey County, near the southern border of the unincorporated community of Moss Landing. The Potrero Road beach parking lot is owned and operated by the California Department of Parks and Recreation (California State Parks) and the 10 slant wells would be buried 5 feet below the hardened sand parking surface. The approximately 4-foot-wide, 12-foot-long, and 6-foot-high electrical control building, the only above-ground structure at this location, would be located at the edge of the parking lot.

Similar to the proposed project, construction-related traffic would access the work areas using the roads described in Section 4.9 for components similar to the proposed project, except for Alternative 1 facilities located north of Charles Benson Road which would be accessed from the roads listed in **Table 5.5-12**. Similar to the proposed project, construction of Alternative 1 would temporarily affect segments of the roadway network in the project area including roads used for recreation and coastal access by: increasing traffic volumes and congestion; introducing temporary lane closures and detours; increasing traffic safety hazards; reducing roadway capacity; affecting public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails; and increasing the rate of road wear.

Construction-related vehicle traffic could result in increased congestion and delays for vehicles on some roadway segments because the source water pipeline for Alternative 1 would be 5.5 miles longer compared to the proposed project and because the longer pipeline would take longer to install it would result in an increased number of vehicle trips. The additional roads affected by construction of the longer source water pipeline and the closure of the beach access parking lot at Potrero Road during the 24-month construction period, would result in traffic directed to other access roads in the area. Alternative 1 would result in an increased potential for regional and local roadway congestion compared to the proposed project, but with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would result in the *same impact conclusion* as the proposed project related to increased traffic congestion, less than significant with mitigation.

Construction associated with the longer source water pipeline would result in additional activities in vehicle travel lanes and road shoulders compared to the proposed project. These lane closures and detours would temporarily result in traffic delays during construction of Alternative 1 greater than the proposed project due to additional length of construction and additional roadways used. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety**

Assurance Plan) Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Construction activities could increase traffic safety hazards in the project area due to conflicts between haul trucks and other large construction vehicles, automobiles, bicyclists, and pedestrians using the roadways and impedance of bicycle and pedestrian circulation. Potential increases in traffic safety hazards during construction of Alternative 1 would be increased compared to the proposed project because of the longer source water pipeline. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Temporary reductions in travel lanes and roadway capacity to accommodate the construction work areas (for pipeline installation) for Alternative 1 could result in an increase in delays for emergency vehicles, and temporary disruption of emergency vehicle access to adjacent land uses compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 1 would result in the *same impact conclusion* as the proposed project, to less than significant with mitigation.

Pipeline installation activities for Alternative 1 could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails in the project area. Construction-related impacts on alternative transportation modes and facilities during pipeline installation activities would be potentially increased compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

The use of trucks to transport equipment and material to and from the construction work areas could affect road conditions on the designated haul routes by increasing the rate of road wear. Alternative 1 would result in an increase in construction truck trips that could cause excessive wear-and-tear on potentially more roadways compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)**, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Construction in the Potrero Road beach parking lot would result in potentially significant parking impacts due to temporary increases in parking demand associated with construction worker vehicles and/or temporary displacement of parking spaces. Alternative 1 would result in an increase in construction in parking interference compared to the proposed project. With the implementation of **Mitigation Measure 4.9-7 (Construction Parking Requirements)** Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Overall, construction of Alternative 1 could have a potential increase in effects on traffic and transportation compared to the proposed project because of the additional 5.5 miles of source water pipeline. However, Alternative 1 impacts would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The impacts of components that are common with the proposed project (i.e., the desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station) would be identical to the impacts identified for proposed project, as summarized above in Section 5.5.9.2 (additional details in Section 4.9). The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the only components unique to Alternative 1 (see **Figure 5.4-1**) and the operation and maintenance activities would be the same as the proposed project, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternative 1 would result in the *same impact conclusion* on long-term traffic as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternative 1 is the same as for the proposed project, described in Section 4.9.6. Due to increased traffic and transportation network disruptions, concurrent construction of Alternative 1 and the projects listed in **Table 4.1-2** in Section 4.1 would result in potentially significant cumulative impacts on traffic and transportation access and facilities, similar to those of the proposed project.

Based on the assumption that long-term vehicle trips generated by Alternative 1 would be similar to those generated by the proposed project, operations and maintenance activities for Alternative 1 would have similar impacts on regional and local roadways as the proposed project, and therefore would result in a less than significant cumulative impact.

Similar to the proposed project, for Alternative 1, CalAm would be required to implement **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan)**, **4.9-6 (Roadway Rehabilitation Program)**, and **4.9-7 (Construction Worker Parking Requirements)**, discussed in Sections 4.9.4 and 4.9.5, each of which would lessen Alternative 1's contribution to cumulative construction-related traffic and transportation impacts. **Mitigation Measure 4.9-C (Construction Traffic Coordination Plan)** is designed to further reduce the MPWSP's (and Alternative 1's) incremental contribution to address the potential significant cumulative impact. However, even though this mitigation measure could reduce Alternative 1's cumulative contribution to a less-than-significant level, the conclusion remains that the incremental contribution to potential significant and unavoidable cumulative effects would be cumulatively significant, for the same reasons described for the proposed project. Therefore, Alternative 1 would have the *same impact conclusion* as the proposed project for cumulative construction effects related to traffic and transportation, significant and unavoidable.

5.5.9.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**).

Construction Impacts

Similar to the proposed project, construction-related traffic would access the work areas using the roads described in Section 4.9 for components similar to the proposed project, except for Alternative 2 facilities located north of Charles Benson Road which would be accessed from the roads listed in **Table 5.5-12**. Similar to the proposed project, construction of Alternative 2 would temporarily affect segments of the roadway network in the project area including roads used for recreation and coastal access by: increasing traffic volumes and congestion; introducing temporary lane closures and detours; increasing traffic safety hazards; reducing roadway capacity; affecting public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails; and increasing the rate of road wear.

Construction-related vehicle traffic could result in increased congestion and delays for vehicles on some roadway segments compared to the proposed project because the source water pipeline for Alternative 2 would be 6.5 miles longer and because the longer pipeline would take longer to install and would result in an increased number of vehicle trips. The additional roads affected by construction of the longer source water pipeline would result in traffic directed to other access roads in the area. Alternative 2 would result in an increased potential for regional and local roadway congestion compared to the proposed project, but with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would result in the *same impact conclusion* as the proposed project related to increased traffic congestion, less than significant with mitigation.

Construction associated with the longer source water pipeline would also result in additional activities in vehicle travel lanes and road shoulders compared to the proposed project. These lane closures and detours would temporarily result in traffic delays during construction of Alternative 2 that are greater than the proposed project due to additional length of construction and additional roadways used. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Construction activities could increase traffic safety hazards in the project area due to conflicts between haul trucks and other large construction vehicles, automobiles, bicyclists, and pedestrians using the roadways and impedance of bicycle and pedestrian circulation. Potential increases in traffic safety hazards during construction of Alternative 2 would be increased compared to the proposed project because of the longer source water pipeline. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Temporary reductions in travel lanes and roadway capacity to accommodate the construction work areas (for pipeline installation) for Alternative 2 could result in an increase in delays for emergency vehicles, and temporary disruption of emergency vehicle access to adjacent land uses compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 2 would result in the *same impact conclusion* as the proposed project, to less-than-significant with mitigation.

Pipeline installation activities for Alternative 2 could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails in the project area. Construction-related impacts on alternative transportation modes and facilities during pipeline installation activities would potentially increase compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

The use of trucks to transport equipment and material to and from the construction work areas could affect road conditions on the designated haul routes by increasing the rate of road wear. Alternative 2 would result in an increase in construction truck trips that could cause excessive wear-and-tear on potentially more roadways compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)**, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Construction of Alternative 2 would not impact on-street parking as shown in **Table 5.5-12**, and it is unknown whether parking lots would be used for construction equipment staging. Therefore, Alternative 2 would have a similar level of impact regarding parking interference as the proposed project, which has the potential to be significant. Implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)** would reduce impacts to less than significant. Combining the components unique to Alternative 2 with those in common with the proposed project, Alternative 2 would result in the *same impact conclusion*, less than significant with mitigation.

Overall, construction of Alternative 2 could have a potential increase in effects on traffic and transportation compared to the proposed project because of the additional 5.5 miles of source water pipeline. However, Alternative 2 impacts would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The impacts of components that are common with the proposed project (i.e., the desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station) would be identical to the impacts identified for proposed project, as summarized above in Section 5.5.9.2 (additional details in Section 4.9). The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the only components unique to Alternative 2 (see **Figure 5.4-2**), the operation and maintenance activities would be the same as those for the proposed project, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternative 2 would result in the *same impact conclusion* on long-term traffic as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternative 2 is the same as for the proposed project. Like Alternative 1, based on the assumption that long-term vehicle trips generated by Alternative 2 would be similar to those generated by the proposed project, operations and maintenance activities for Alternative 2 would have similar impacts on regional and local roadways as the proposed project, and therefore would result in a less than significant cumulative impact.

Alternative 2 would have similar contributions to cumulative construction impacts as described for Alternative 1, and also would be subject to implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan)**, **4.9-6 (Roadway Rehabilitation Program)**, **4.9-7 (Construction Worker Parking Requirements)**, and **4.9-C (Construction Traffic Coordination Plan)**. Similar to the proposed project, even with implementation of mitigation, the incremental contribution of Alternative 2 to potential cumulative effects would be significant. Therefore, Alternative 2 would have the *same impact conclusion* as the proposed project for cumulative construction effects related to traffic and transportation, significant and unavoidable.

5.5.9.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, two subsurface pipelines connecting to each the intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be

installed using HDD from the location of the proposed pump station on Dolan Road. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and 6 wells and ASR pipelines, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSO would not be implemented. The desalination plant and co-located data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Similar to the proposed project, construction-related traffic would access work areas using the roads described in Section 4.9 for components common to the proposed project south of Charles Benson Road, including the Desalinated Water Pipeline, new Transmission Main, and ASR facilities and pipelines. Facilities unique to Alternative 3 that would be located north of Charles Benson Road include: 31.5 additional miles of Desalinated Water Pipeline; the desalination plant and co-located data center on the East Tank Farm parcel; the screened open water intake and brine discharge systems in Monterey Bay within MBNMS; the pump station along Dolan Road at the railspur; the two intake and two brine discharge pipelines in Dolan Road between the pump station and the desalination plant, and; treated water pipelines in Dolan Road to Salinas and Santa Cruz counties.

As a result, Alternative 3 could result in potential increases in construction-related vehicle traffic, congestion and delays for vehicles. For the same reasons described above for Alternative 2, Alternative 3 would result in potentially significant impacts from construction-related traffic, road hazards, emergency vehicle access, public transportation, and road wear. These temporary traffic impacts on regional and local roadways would be increased compared to the proposed project because multiple pipelines would be installed via open-trenching in Dolan Road, which would require full closure of that road during construction work hours. While there is an available detour (via Castroville Boulevard and State Route 156), the resulting impact on traffic would be greater than for the proposed project. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** and **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)**, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Construction of Alternative 3 would not impact on-street parking as shown in **Table 5.5-12**, and it is unknown whether parking lots would be used for construction equipment staging. Therefore, Alternative 3 would have a similar level of impact regarding parking interference as the proposed

project, which has the potential to be significant. Implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)** would reduce impacts to less than significant. Combining the components unique to Alternative 3 with those in common with the proposed project, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Overall, construction of Alternative 3 could have a potential increase in effects on traffic and transportation compared to the proposed project because of the additional 31.5 miles of pipeline. However, Alternative 3 impacts would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The impacts of components that are common with the proposed project would be identical to the impacts identified for proposed project, as summarized above in Section 5.5.9.2 (additional details in Section 4.9). The location of the intake and outfall pipelines, Desalination Plant, and the additional 31.5 miles of pipeline are the only components unique to Alternative 3 on land (see **Figure 5.4-3**) and the operation and maintenance activities on land would be similar to those for the proposed project, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternative 3 would result in the *same impact conclusion* on long-term traffic as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternative 3 is the same as for the proposed project. Like Alternative 1, based on the assumption that long-term vehicle trips generated by Alternative 3 would be similar to those generated by the proposed project, operations and maintenance activities for Alternative 3 would have similar impacts on regional and local roadways as the proposed project, and therefore its contribution to cumulative effects would be less than significant.

Alternative 3 would have similar contributions to cumulative construction impacts as described for Alternative 1, and also would be subject to implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan), 4.9-6 (Roadway Rehabilitation Program), 4.9-7 (Construction Worker Parking Requirements), and 4.9-C (Construction Traffic Coordination Plan)**. Similar to the proposed project, even with implementation of mitigation, the incremental contribution of Alternative 3 to potential cumulative effects would be significant. Therefore, Alternative 3 would have the *same impact conclusion* as the proposed project for cumulative construction effects related to traffic and transportation, significant and unavoidable.

5.5.9.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake system and intake pipeline and a brine discharge system and discharge pipeline including the placement of ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Similar to the proposed project, construction-related traffic would access the work areas using the roads described in Section 4.9 for components common to the proposed project south of Charles Benson Road, including the Desalinated Water Pipeline, new Transmission Main, and ASR facilities and pipelines. Facilities unique to Alternative 4 that would be located north of Charles Benson Road include: 6.5 additional miles of Desalinated Water Pipeline; the desalination plant located at the Moss Landing Green Commercial Park; the screened open water intake and brine discharge systems in Monterey Bay within MBNMS; the pump station at the existing caisson at the end of Sandholdt Road, and; the intake and brine discharge pipelines between the caisson and the desalination plant. For the same reasons described above for Alternative 1, Alternative 4 would result in potentially significant impacts from construction-related traffic, lane closures, road hazards, emergency vehicle access, public transportation, and road wear. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** and **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)**, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Construction of Alternative 4 would not impact on-street parking as shown in **Table 5.5-12**, and it is unknown whether parking lots would be used for construction equipment staging. Therefore, Alternative 4 would have a similar level of impact regarding parking interference as the proposed project, which has the potential to be significant. Implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)** would reduce impacts to less than significant. Combining the components unique to Alternative 4 with those in common with the proposed project, Alternative 4 would result in the *same impact conclusion*, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts from components that are common with the proposed project would be identical to the impacts identified for these components in Section 4.2. The location of the intake, discharge, desalination plant and the additional 6.5 miles of desalinated water pipeline are the on land components unique to Alternative 4 (see **Figure 5.4-4**); therefore, the components of Alternative 4 located on land would result in a similar level of impact as the proposed project associated with operation and maintenance activities, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternative 4 would have the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternative 4 is the same as for the proposed project. Like Alternative 1, based on the assumption that long-term vehicle trips generated by Alternative 4 would be similar to those generated by the proposed project, operations and maintenance activities for Alternative 4 would have similar impacts on regional and local roadways as the proposed project, and therefore would result in a less than significant cumulative impact.

Alternative 4 would have similar contributions to cumulative impacts as described for Alternative 1, and also would be subject to implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan)**, **4.9-6 (Roadway Rehabilitation Program)**, **4.9-7 (Construction Worker Parking Requirements)**, and **4.9-C (Construction Traffic Coordination Plan)**. Similar to the proposed project, even with implementation of mitigation, the incremental contribution of Alternative 4 would be significant. Therefore, Alternative 4 would have the *same impact conclusion* as the proposed project for cumulative construction effects related to traffic and transportation, significant and unavoidable.

5.5.9.8 Direct and Indirect Effects of Project Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Similar to the proposed project, construction-related vehicle traffic could result in increased congestion and delays for vehicles. Alternative 5a would have the *same impact conclusion* for construction-related vehicle traffic impacts as the proposed project for the same roads as described in Section 4.9, less than significant with mitigation. For Alternative 5b, except for facilities north of Charles Benson Road (5.5 additional miles of source water pipeline and the slant wells at the Potrero Road parking lot), construction-related traffic would access the work areas using the roads described in Section 4.9 for the proposed project. For the same reasons described above for Alternative 1, Alternative 5b would result in potentially significant impacts from construction-related traffic, lane closures, road hazards, emergency vehicle access, public transportation, road wear, and parking interference. However, with implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan)**, **4.9-6 (Roadway Rehabilitation Program)**, **4.9-7 (Construction Parking Requirements)** Alternative 5b would result an increased level of impact but the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The operation and maintenance activities for Alternatives 5a and 5b would be the same as those for the proposed project, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternatives 5a and 5b would have the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternatives 5a and 5b is the same as for the proposed project. Like Alternative 1, based on the assumption that long-term vehicle trips generated by Alternatives 5a and 5b would be similar to those generated by the proposed project, operations and maintenance activities for Alternatives 5a and 5b would have similar impacts on regional and local roadways as the proposed project, and therefore would result in a less than significant cumulative impact.

Alternatives 5a and 5b would have similar contributions to cumulative impacts as described for Alternative 1, and also would be subject to implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan)**, **4.9-6 (Roadway Rehabilitation Program)**, **4.9-7 (Construction Worker Parking Requirements)**, and **4.9-C (Construction Traffic Coordination Plan)**. Similar to the proposed project, even with implementation of mitigation, the incremental contribution of Alternatives 5a and 5b to potential significant and unavoidable cumulative effects would be significant. Therefore, Alternatives 5a and 5b would have the *same impact conclusion* as the proposed project for cumulative construction effects related to traffic and transportation, significant and unavoidable.

5.5.10 Air Quality

The evaluation criteria for Air Quality address: construction emissions of criteria air pollutants that could violate air quality standards; construction emissions that could conflict with implementation of the applicable air quality plan; exposure of people to health risks and/or objectionable odors during construction; long-term increase in criteria pollutant emissions during operations; and exposure of people to a substantial increase in pollutants and/or objectionable odors during operations. Construction of all facilities would result in significant emissions of criteria pollutants in the Monterey Bay Unified Air Pollution Control District (MBUAPCD).

5.5.10.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.10, Air Quality. The setting with respect to sensitive receptors for the alternatives components north of the Nashua Road/Highway 1 intersection is presented below.

Pipeline Alignments North of Nashua Road/Highway 1 Intersection and South of Moss Landing

The Alternative 1 source water pipeline along Potrero Road, between the slant wells in the parking lot and Highway 1, would be located within 50 feet of approximately 20 residences. The additional length of source water pipeline associated with Alternative 1, as well as the source water pipelines associated with Alternatives 2 and 5b, would pass within 100 feet of several residences along Nashua Road, Molera Road, and Highway 1.

Potrero Road Parking Lot

The closest sensitive receptors to the alternative slant wells site at the Potrero Road parking lot are residences along Laguna Place located approximately 1,000 feet east of the slant wells site.

Moss Landing Area

The closest sensitive receptors to the Open Water Intake Pump Station site along Dolan Road associated with Alternatives 2 and 3 are boat slips at Moss Landing Harbor, located approximately 1,600 feet to the west. The boat slips would also be within 200 feet of construction activity associated with the source water pipeline and desalinated water pipeline for Alternatives 2 and 3, respectively. In addition, the northwestern boundary of the People's Moss Landing Desalination Plant site (Alternative 4) at the Moss Landing Green Commercial Park and the desalinated water pipeline alignment associated with this alternative are approximately 300 feet and 200 feet east of boat slips in the southeastern part of the harbor, respectively.

The closest sensitive receptors to the desalination plant and data center site along Dolan Road under Alternative 3 are two residences, one approximately 300 feet from the southern boundary of the site, and the other approximately 1,500 feet from the eastern boundary of the site. The residence near the southern border of the site would be within 100 feet of construction activities associated with the brine, source water, and desalinated water pipelines under Alternatives 2 and 3.

5.5.10.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.10-1: Generate emissions of criteria air pollutants that could contribute to a violation of an ambient air quality standard during construction.

Impact 4.10-2: Construction activities could conflict with implementation of the applicable air quality plan.

Short-term emissions associated with construction of the proposed project could contribute to an exceedance of a state and/or federal standard for ozone, NO₂, and, PM₁₀ based on the estimated maximum daily mass emissions levels presented in **Table 4.10-5**, which would exceed the MBUAPCD significance threshold for PM₁₀. However, this impact with respect to the ozone and NO₂ standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. This significant impact could increase the susceptibility of sensitive individuals to respiratory infections. With respect to the PM₁₀ standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Short-term construction emissions associated with other criteria pollutants, including ROG, CO, and PM_{2.5}, would not be expected to contribute to an exceedance of an ambient air quality standard and the associated impact for all other criteria pollutants would be less than significant.

The most recently adopted air quality plan for the project area is the 2012 AQMP which documents the MBUAPCD's progress toward attaining the state 8-hour ozone standard. Any project that could conflict with the MBUAPCD's goal of attaining the state 8-hour ozone standard would be considered to conflict with the intent of the 2012 AQMP. The method used for determining whether construction of the project would conflict with the intent of the 2012 AQMP is to compare the project emissions with the CEQA thresholds of significance for the ozone precursors NO_x and ROG.

The project-related short-term construction emissions with mitigation measures incorporated would exceed the significance threshold for NO_x (see Impact 4.10-1); therefore, the project would not support the primary goal of the 2012 AQMP, and the impact associated with conflicting or obstructing implementation of the applicable air quality plan would be significant and unavoidable, even with implementation of mitigation.

Impact 4.10-3: Expose sensitive receptors to substantial pollutant concentrations and/or *coccidioides immitis* spores or create objectionable odors affecting a substantial number of people during construction.

Short-term generation of diesel particulate matter (DPM) emissions from off-road diesel equipment could result in the temporary exposure of local sensitive receptors to toxic air contaminants (TACs) (i.e., DPM). Cancer risk and health hazard index values associated with the project are less than the significance thresholds established by MBUPACD. Therefore, impacts would be less than significant.

Ground-disturbing construction activities could release *coccidioides immitis* (Valley Fever) spores. Construction activities are similar to those that occur continually within the County and the project would not result in a substantial increase in spore release. Therefore, construction of the project would not represent an increased risk to public health.

Construction activities could result in temporary odors from use of diesel-fueled equipment. These odors would dissipate quickly, and would be unlikely to create objectionable odors that would affect a substantial number of people.

Impact 4.10-4: Long-term increase of criteria pollutant emissions that could contribute to a violation of an ambient air quality standard during operations.

The combined operational emissions associated with the MPWSP Desalination Plant, Monterey Pump Station, Carmel Valley Pump Station, and the slant wells would not exceed any of the MBUAPCD's significance thresholds; therefore, operational emissions would not be expected to result in or contribute to an exceedance of an ambient air quality standard and the associated impact would be considered to be less than significant. No impact would result from operation and maintenance of all other project components.

Impact 4.10-5: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.

The only DPM emissions sources associated with MPWSP operations would be the emergency standby generators at the MPWSP Desalination Plant, Monterey Pump Station, and the Carmel Valley Pump Station. Routine testing and operation of the emergency generators would generate a negligible amount of DPM emissions. The generator emissions would not exceed the MBUAPCD TAC significance threshold for increased health risks. Therefore, the impact would be less than significant for the MPWSP Desalination Plant, Monterey Pump Station, and the Carmel Valley Pump Station.

None of the other project facilities would include on-site DPM emissions sources. Therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result from operation of any other MPWSP facility.

Long-term operations associated with the MPWSP would not create objectionable odors that could affect a substantial number of people because the MPWSP Desalination Plant would be designed with odor control features and operational controls to limit and contain odors. Further,

the MPWSP Desalination Plant site is located at least 2,000 feet away from the closest residences and in an industrial area with existing sources of objectionable odors. Therefore, operational impacts related to the creation of objectionable odors affecting a substantial number of people would be less than significant.

Impact 4.10-C: Cumulative impacts related to air quality,

The cumulative impact of construction emissions associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan and would be significant when combined with the emissions associated with the cumulative projects in **Table 4.1-2**. The cumulative impact with respect to the ozone and NO₂ standards would be significant and unavoidable, even with implementation of **Mitigation Measure 4.10-1a** and **4.10-1b**. Therefore, the MPWSP's incremental contribution to this cumulative impact would be significant. However, with respect to the PM₁₀ standards, the cumulative impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.10-1a** through **4.10-1d**.

5.5.10.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related air quality emissions associated with the No Project Alternative. However, decommissioning of the test slant well could result in potentially significant but mitigable short-term impacts on air quality, including the potential to violate ambient air quality standards associated with ozone, NO_x, and, PM₁₀. See Table 4.10-5, Estimated Maximum Daily Construction Emissions, which includes the estimated emissions for construction of the slant wells. Slant well decommissioning would produce a fraction of the emissions associated with the slant well construction period since decommissioning would not involve drilling and would take 4 weeks rather than 15 or more months; construction emissions would only occur as a result of grading, excavation, and earth moving activities. Impacts would be less than significant with mitigation. Mitigation Measures 4.10-1a through 4.10-1c would apply to slant well decommissioning. Because the No Project Alternative would have a less than significant impact with respect to air quality emissions after mitigation, cumulative effects related to these topics would also be less than significant.

5.5.10.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

The 5.5 miles of additional source water pipeline, and the one additional well required for Alternative 1 (10 new wells at Potrero Road versus 9 new wells plus the converted test well at CEMEX) would result in an overall increase in the generation of short-term criteria pollutant emissions. Although Alternative 1 would increase the duration of pipeline construction activities compared to the proposed project, the daily construction activities associated with Alternative 1 would be same as the proposed project. Therefore, short-term emissions associated with construction of Alternative 1 could contribute to an exceedance of a state and/or federal ambient air quality standard for ozone, NO₂, and PM₁₀. This impact with respect to the ozone and NO_x standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to the PM₁₀ standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. The overall increase in construction emissions under Alternative 1 compared to the proposed project would increase the potential for this alternative to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Construction of Alternative 1 would result in the short-term generation of diesel particulate matter (DPM) emissions from the use of off-road diesel equipment. These emissions could result in the short-term exposure of local sensitive receptors to toxic air contaminants (TACs) (i.e., DPM). Under Alternative 1, the slant well site would be about half the distance to residences compared to the proposed project and the alternative source water pipeline from the Potrero Road parking lot south to Charles Benson Road would be constructed in close proximity to dozens more residences compared to the proposed project Source Water Pipeline. More sensitive receptors would be exposed to DPM and dust emissions that could contain *coccidioides immitis* (Valley Fever) spores under this alternative compared to the proposed project. Construction could result in temporary odors from use of diesel-fueled equipment, which would dissipate quickly and be unlikely to create objectionable odors that would affect a substantial number of people. Although Alternative 1 would have an increase in the number of nearby sensitive receptors compared to the proposed project, given the distance of the alternative slant wells site to the nearest sensitive receptors (i.e., 1,000 feet) and the limited duration of exposure for any given sensitive receptor associated with pipeline construction, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 1 would have the *same impact conclusion* related to long-term operational emissions and objectionable odors on sensitive receptors as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 1 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state ambient air quality standards for ozone or PM₁₀; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM₁₀ concentrations.

As discussed above, with respect to the PM₁₀ standards, the impact of Alternative 1 would be significant, but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, for the reasons described for the proposed project in Section 4.10.6, Alternative 1 would result in a significant contribution to the existing significant cumulative impact related to PM₁₀, but with mitigation, the contribution would be reduced to less than significant.

As discussed above, construction emissions associated with Alternative 1 would exceed the MBUAPCD significance thresholds and therefore could have a significant contribution to an exceedance of a state and/or federal standard for ozone or NO₂ even with mitigation. Therefore, the incremental impact of Alternative 1 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2** in Section 4.1, and the incremental contribution to significant cumulative impacts related to ozone and NO₂ would be cumulatively significant and unavoidable, similar to but more severe than the proposed project.

Operations of Alternative 1 would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, Alternative 1 would result in a less than significant cumulative impact related to emissions of criteria pollutants.

Alternative 1 would not result in short-term or long-term significant impacts from the exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, or objectionable odors and there are no cumulative projects in the vicinity of the Potrero Road slant well site that would emit TACs, dust emissions that could contain *coccidioides immitis* spores, or objectionable odors with which the emissions of that component of Alternative 1 could combine. As a result, no significant cumulative impact would occur as a result of Alternative 1 and the identified projects relative to exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, or objectionable odors.

Overall, Alternative 1 would result in the **same impact conclusion** as the proposed project for cumulative impacts related to air quality (NO₂), significant and unavoidable.

5.5.10.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

The construction of a new screened open water intake system in Monterey Bay that would require the use of marine vessel(s) and/or barge(s), and land-based Horizontal Directional Drilling (HDD) equipment for installation of a 36-inch-diameter 3,600-foot-long pipeline from the Intake Pump Station on Dolan Road to the intake location on the seafloor within MBNMS. Total emissions from these activities would likely be similar to those that would occur for the construction of the nine new slant wells for the proposed project. The additional 6.5-mile length of the alternative source water pipeline would result in a net increase in pipeline construction even though Alternative 2 would not include construction of the proposed 4.5-mile-long Castroville Pipeline or the proposed 1.2-mile-long Pipeline to the CSIP Pond. The net increase in pipeline construction would occur even though the net pipeline length under the alternative would be reduced compared to the proposed project because the diameter of the Source Water Pipeline would be much larger (i.e., 42 inches) than the Castroville Pipeline or the Pipeline to the CSIP (12-inch diameters).

Alternative 2 would result in an overall increase in construction emissions compared to the proposed project from the increase in duration of pipeline construction activities compared to the proposed project. However, the daily construction activities associated with Alternative 2 would be the same as the proposed project. Short-term emissions associated with construction of Alternative 2 could contribute to an exceedance of a state and/or federal standard for ozone, NO₂, and/or PM₁₀. This impact with respect to the ozone and NO₂ standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to PM₁₀ standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Construction emissions under

Alternative 2 would be increased compared to the proposed project due to the longer construction period and thus more days of exceedances, increasing the potential for this alternative to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan. However, Alternative 2 would result in the *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Construction of Alternative 2 would result in the short-term generation of DPM emissions from the use of off-road diesel equipment. These emissions could result in the short-term exposure of local sensitive receptors to TACs. Under Alternative 2, the intake pump station site would be constructed approximately 1,600 feet from the nearest sensitive receptors, which would be closer to sensitive receptors compared to the proposed slant wells site. In addition, the Alternative 2 source water pipeline would be constructed in close proximity to several more residences compared to the proposed project Source Water Pipeline. More sensitive receptors would be exposed to DPM and dust emissions that could contain *coccidioides immitis* spores under this alternative compared to the proposed project. Construction could result in temporary odors from use of diesel-fueled equipment, which would dissipate quickly and be unlikely to create objectionable odors that would affect a substantial number of people. However, given the distance of the Intake Pump Station site to the nearest sensitive receptors and the limited duration of exposure for any given sensitive receptor associated with pipeline construction, Alternative 2 would result in the *same impact conclusion* as the proposed project however, less than significant.

Operational and Facility Siting Impacts

Because the source water from the open water intake system would not have the benefit of being filtered through the seafloor, and would require an increased level of pre-treatment at the desalination plant, there would be an increase in the amount of annual emissions and objectionable odors compared to the proposed project. However, in terms of maximum daily emissions, the criterion which significance is based on, long-term operational emissions under Alternative 2 would result in the *same impact conclusion* related to sensitive receptors as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 2 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state standards for ozone or PM₁₀; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM₁₀ concentrations.

As discussed above, with respect to the PM₁₀ standards, the impact of Alternative 2 would be significant, but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a through 4.10-1d**. Therefore, for the reasons described for the

proposed project in Section 4.10.6, Alternative 2 would result in a cumulatively significant contribution to the existing significant cumulative impacts related to PM₁₀, but with mitigation, the contribution would be reduced to less than significant.

As discussed above, construction emissions associated with Alternative 2 would exceed the MBUAPCD significance thresholds and therefore could contribute to an exceedance of a state and/or federal standard for ozone or NO₂ even with mitigation. Therefore, the incremental impact of Alternative 2 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2**, and the incremental contribution to existing significant cumulative impacts related to ozone and NO₂ would be cumulatively significant and the overall cumulative impact would be significant and unavoidable.

Operations of Alternative 2 would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, Alternative 2's contribution to cumulative impacts related to criteria pollutant emissions would be less than significant.

Alternative 2 would not result in short-term or long-term significant impacts from the exposure of sensitive receptors to TAC emissions, dust emissions that contain *coccidioides immitis* spores, or objectionable odors. There is one project in the cumulative scenario described in **Table 4.1-2** and Section 4.1 – the DeepWater Desal Project – that could result in significant impacts on sensitive receptors in the vicinity of the open water intake and pump station; however, given the distance of the Alternative 2 Open Ocean Intake Pump Station site to the nearest sensitive receptors and the limited duration of exposure for any given sensitive receptor associated with Alternative 2 pipeline construction, these components of Alternative 2 would have a less than significant contribution to cumulative impacts.

Overall, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative impacts related to air quality (NO₂), significant and unavoidable.

5.5.10.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley

Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

The construction of a new screened open water intake and discharge system in Monterey Bay that would require the use of marine vessel(s) and/or barge(s), and land-based HDD equipment for the installation of four 42-inch diameter pipelines from the pump station on Dolan Road to the intake and discharge structures on the seafloor in MBNMS, and four 1.1-mile pipelines from the pump station to the desalination/data center site, resulting in 2.5 additional miles of pipeline compared to the proposed project Source Water Pipeline. In addition, the construction of a large data center and cooling system, and 31.5 miles of additional Desalinated Water Pipeline (25 of which would for delivery of water to potential customers in Santa Cruz County, Salinas, or both) would result in a net increase in total construction emissions compared to the proposed project.

Because Alternative 3 would result in greater construction-related emissions of criteria pollutants than the proposed project, short-term emissions associated with construction of Alternative 3 could contribute to an exceedance of a state and/or federal standard for ozone, NO₂, and/or PM₁₀. With respect to the ozone and NO₂ standards, Alternative 3 would result in the same impact conclusion as the proposed project, and would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**.

The desalination facility, the data center, and the cooling system would result in an increased amount of ground disturbance during construction (i.e., 60 acres compared to 25 acres associated with the proposed MPWSP plant site). It is not currently known how construction of these facilities would proceed; however, if the data center and/or cooling system were constructed concurrently with the desalination facility, the combined daily emissions would exceed the MBUAPCD threshold for PM₁₀ emissions, resulting in an increased level of impact compared to the proposed project, significant and unavoidable impact even with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Overall, construction emissions would increase the potential for this alternative to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan; therefore Alternative 3 would result in the *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Alternative 3 would result in the short-term generation of DPM emissions from the use of off-road diesel equipment that could result in the short-term exposure of local sensitive receptors to

TACs (i.e., DPM). Under Alternative 3, construction of the 60-acre desalination plant and data center would occur within 300 feet of a residence on Dolan Road, and this residence would also be within 100 feet of construction of the brine, source water, and desalinated water pipelines. This residence would be exposed to substantially higher concentrations of DPM, dust emissions that could contain *coccidioides immitis* spores, and objectionable odors from the use of diesel-fueled equipment compared to the exposure of the closest residence to the proposed MPWSP desalination plant site. Given the close proximity to the residence and the substantial amount of construction activities that would occur at the 60-acre site over a 24-month period, this impact would likely be significant and unavoidable due to elevated emissions exposure even with implementation of **Mitigation Measures 4.10-1a** and **4.101b**, which would require the applicant and/or its construction contractor to make a good faith effort to use available construction equipment that meets the highest USEPA-certified tiered emission standards and limit equipment and vehicle idling, respectively. Therefore, Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable, even with mitigation.

Operational and Facility Siting Impacts

Alternative 3 would include the operation of three natural gas emergency generators that would have a total combined capacity of up to 30 MW of generation, substantially more than the 0.7 MW of emergency generation for the proposed MPWSP desalination plant site. Based on information available about Alternative 3, the proponent expects to operate each generator for up to 1,500 hours per year; however, the MBUAPCD limits operation of standby natural gas engines to no more than 60 hours per year for testing/exercising purposes (MBUAPCD, 2013). Assuming that each of the three generators would be tested for 5 hours once a month on different days and that each of the generators would be subject to MBUAPCD Best Available Control Technology (BACT) requirements for stand-by generators, maximum-day NO_x emissions would be approximately 219 pounds per day, which would exceed the MBUAPCD's significance threshold of 137 pounds per day (refer to Emergency Generator Emissions in **Appendix G1** for details on the emission calculation). This would be a significant impact that would occur three times a month and 36 times a year. However, it is assumed that implementation of a mitigation measures similar to **Mitigation Measure ALT 3-AQ**, below, which would restrict test/exercise operations of the emergency generators to no more than three hours per day, would be required for this alternative to reduce this significant impact to a less-than-significant level.

Although the health risk that would be associated with operating the emergency generators under Alternative 3 may be elevated compared to the proposed project, the associated impact would not be significant if the generators were sited on the north side of the property away from the residence. Further, combustion of natural gas does not result in high concentrations of TACs and no DPM would be generated, therefore objectionable odors would also be minimized. To ensure that the operational health risk impact would be reduced to a less-than-significant level, implementation of **Mitigation Measure ALT 3-AQ** would be required. Therefore, Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project during operations, less than significant with mitigation.

Mitigation Measure ALT 3-AQ applies to the emergency backup generators associated with the Alternative 3 data center and cooling system and would not apply to the proposed project or other alternatives.

Mitigation Measure ALT 3-AQ: Restrict Daily Testing and Locations of Emergency Generators.

Each of the three 10 MW natural gas emergency generators associated with Alternative 3 shall be restricted to no more than three hours of testing/exercising per day. Only one emergency generator shall be tested per day. The emergency generators shall be located at the site as far as practicable from the nearest residences.

Cumulative Analysis

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 3 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state standards for ozone or PM₁₀; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM₁₀ concentrations.

As discussed above, construction emissions associated with Alternative 3 would exceed the MBUAPCD significance thresholds and therefore could contribute to an exceedance of a state and/or federal ambient air quality standard for ozone, NO₂, and PM₁₀ even with mitigation. Therefore, the cumulative impact of Alternative 3 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant and unavoidable when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2** in Section 4.1, and the incremental contribution to the cumulative impact would be significant and the significant and unavoidable impact would be substantially greater than for the proposed project.

Operations of Alternative 3 could cause emissions that would exceed the MBUAPCD significance thresholds. However, implementation of **Mitigation Measure ALT 3-AQ** would reduce the operational emissions to a less-than-significant level. Therefore, Alternative 3's contribution to cumulative criteria pollutants emissions impacts would be significant; however, the incremental contribution would be reduced to a level that is less than significant with implementation of mitigation.

With regard to exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, or objectionable diesel fuel-related odors, Alternative 3 could result in a short-term impact that would be significant even with mitigation.

Overall, Alternative 3 would have the *same impact conclusion* as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

5.5.10.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

The construction of a new screened open water intake and discharge system in Monterey Bay would require the use of marine vessel(s) and/or barge(s), and land-based HDD equipment for installation of a portion of the pipelines from the existing caisson to the intake and discharge on the seafloor in MBNMS. Emissions from these sources may be less than those that would be required to construct the nine proposed slant wells that would each be up to 1,000 feet in length. However, this alternative would have a longer desalinated water pipeline (6.5 miles longer), resulting in a net increase in pipeline construction and associated emissions even though it would not include construction of the proposed 4.5-mile-long Castroville Pipeline or the proposed 1.2-mile-long Pipeline to CSIP Pond. Overall, the net emissions associated with Alternative 4 would be similar to those that would occur under the proposed project. Short-term emissions associated with construction of Alternative 4 could contribute to an exceedance of a state and/or federal standard for ozone, NO₂, and/or, PM₁₀. This impact with respect to the ozone and NO₂ standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to the PM₁₀ standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. The potential for Alternative 4 to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan would be significant and unavoidable, even with mitigation. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Construction would result in the short-term generation of DPM emissions from the use of off-road diesel equipment that could result in the short-term exposure of local sensitive receptors to

TACs (i.e., DPM). Under Alternative 4, construction of the desalination plant would occur within 200 feet of boat slips at Moss Landing Harbor where people could reside, and receptors would also be within 200 feet of construction activities that would be associated with the longer desalinated water pipeline. These sensitive receptors would be exposed to substantially higher concentrations of DPM, dust emissions that could contain *coccidioides immitis* spores, and objectionable odors from the use of diesel-fueled equipment compared to the closest sensitive receptors to the proposed MPWSP plant site. Given this alternative site's close proximity to sensitive receptors and the amount of construction activities that would occur at the project site over the construction period, this impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**, which would require the applicant and/or its construction contractor to make a good faith effort to use available construction equipment that meets the highest USEPA-certified tiered emission standards and limit equipment and vehicle idling, respectively. Therefore, Alternative 4 would have result in an **increased impact conclusion** on sensitive receptors compared to the proposed project, significant and unavoidable, even with mitigation.

Operational and Facility Siting Impacts

Because the source water from the open water intake system would not have the benefit of being filtered through the seafloor, and would require an increased level of pre-treatment at the desalination plant, there would be an increase in the amount of annual emissions compared to the proposed project. However, in terms of maximum daily emissions, the criterion which significance is based on, long-term operational emissions under Alternative 4 would result in the **same impact conclusion** related to sensitive receptors as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 4 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state standards for ozone or PM₁₀; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM₁₀ concentrations.

As discussed above, with respect to the PM₁₀ standards, the impact of Alternative 4 would be significant, but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, for the reasons described for the proposed project in Section 4.10.6, Alternative 4 would have a significant contribution to existing significant cumulative impacts related to PM₁₀, but that contribution would be reduced by mitigation to a less than significant impact.

As discussed above, construction emissions associated with Alternative 4 would exceed the MBUAPCD significance thresholds and therefore could contribute to an exceedance of a state and/or federal standard for ozone or NO₂ even with mitigation. Therefore, the cumulative impact of Alternative 4 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant

when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2** in Section 4.1, and the incremental contribution to the cumulative impact would be significant and unavoidable.

Operations of Alternative 4 would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, Alternative 4 would have a less than significant contribution to a cumulative impact related to emissions of criteria pollutants.

With regard to exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, and objectionable odors from diesel-fueled equipment, Alternative 4 could result in a short-term impact that would be significant even with mitigation. As a result, the cumulative health risk impact of Alternative 4 would also be significant and unavoidable, as would the incremental contribution of Alternative 4.

Overall, Alternative 4 would result in the *same impact conclusion* as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

5.5.10.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

Because the construction of Alternative 5a components would be located in the same location and would have a slightly reduced footprint because of the reduced number of wells compared to the proposed project, Alternative 5a would result in a similar level of impact compared to the proposed project. Likewise, construction of Alternative 5b would result in nearly the same footprint as Alternative 1, and would result in a similar level of impact compared to Alternative 1 and the proposed project. Similar to the proposed project, impacts related to ozone and NO₂ standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to the PM₁₀ standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. The potential for this alternative to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan would be the same as the propose project. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Similar to the proposed project, short-term generation of DPM emissions from the use of off-road diesel equipment could result in the short-term exposure of local sensitive receptors to TACs (i.e., DPM). Construction could result in temporary odors from use of diesel-fueled equipment, which would dissipate quickly and be unlikely to create objectionable odors that would affect a substantial number of people. Under Alternative 5a and 5b, construction would result in the same less-than-significant health risk-related impacts as identified for the proposed project and under Alternative 1. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 5a and 5b would result in long-term operational and maintenance emissions and objectionable odors that would be less than significant and would be less than those that would be generated under the proposed project because there would be three fewer slant wells to maintain and the horsepower rating of the emergency generator at the desalination plant would be reduced. Therefore, Alternatives 5a and 5b would have result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

Because Alternative 5 alone would not fully meet the project objectives and must be paired with the approved GWR Project in order to do so, for informational purposes, this analysis provides the “subtotal” of the Alternative 5 impacts in combination with the impacts of the GWR Project, even though MBUAPCD project-level thresholds are intended to be applied to projects separately, rather than applied to a combination of projects in a cumulative sense. Although both Alternative 5 and the GWR Project were found to have less-than-significant impacts related to daily PM₁₀ emissions after mitigation when viewed individually, if Alternative 5 and the GWR Project are under construction concurrently, the post-mitigation daily PM₁₀ emissions of Alternative 5 (i.e., 68 pounds) in combination with the mitigated daily PM₁₀ emissions of the GWR Project (i.e., 64 pounds; MRWPCA, 2016) would exceed the MBUAPCD significance threshold of 82 pounds per day, resulting in a significant combined impact that could not be further reduced by mitigation and thus would remain significant and unavoidable. The already significant and unavoidable impact with respect to the ozone and NO₂ standards would be worsened in combination with construction emissions of the GWR Project. The GWR Project could expose several of the same sensitive receptors to emissions of TACs or dust that may contain *coccidioides immitis* spores along the new Desalinated Water Pipeline and new Transmission Main alignments. However, due to the nature of pipeline construction, exposures at these locations would be limited in duration and would not result in a significant impact even if construction occurred concurrently. The operational emissions of Alternative 5 would be well below MBUAPCD thresholds, and the addition of GWR Project operational emissions would not result in an exceedance of these thresholds; therefore, in combination, these projects would not result in a significant air quality impact during operation. Overall, Alternative 5 considered in

combination with the GWR Project would result in the *same impact conclusion* as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

Impacts of Full Cumulative Scenario

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 5 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state standards for ozone or PM₁₀; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM₁₀ concentrations.

As discussed above, with respect to the PM₁₀ standards, the impact of Alternative 5 would be significant, but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, for the reasons described for the proposed project in Section 4.10.6, Alternative 5 would result in a significant contribution to the existing significant cumulative impacts related to PM₁₀, but with mitigation the contribution would be reduced to less than significant.

As discussed above, construction emissions associated with Alternative 5 would exceed the MBUAPCD significance thresholds and therefore could have a significant contribution to an exceedance of a state and/or federal standard for ozone or NO₂ even with mitigation. Therefore, the cumulative impact of Alternative 5 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2** in Section 4.1, and the incremental contribution to the significant cumulative impact related to ozone and NO₂ would be significant and unavoidable.

Operations of Alternative 5 would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, Alternative 5 would have a less than significant incremental contribution to a significant cumulative impact related to emissions of criteria pollutants.

With regard to exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, or objectionable odors, Alternative 5 would not result in short-term or long-term significant impacts associated with exposure of sensitive receptors to TAC emissions when combined with the cumulative projects. For the same reasons described for the proposed project in Section 5.10.6, Alternative 5a would have a less than significant contribution to cumulative impacts related to exposure to TAC emissions, *coccidioides immitis* spores, or objectionable odors. There are no cumulative projects in the vicinity of the Potrero Road slant well site that would emit TACs or dust emissions that could contain *coccidioides immitis* spores with which the emissions of that component of Alternative 5b could combine. As a result, the cumulative impact on sensitive receptors as a result of Alternative 5 would be less than significant.

Overall, Alternative 5 would result in the *same impact conclusion* as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

5.5.10.9 References

Monterey Bay Unified Air Pollution Control District (MBUAPCD), 2013. Basic Requirements for Natural Gas/Propane (LPG) Electric Generators & Water Pumps, Revised June 12, 2013.

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. Consolidated Final EIR for the Pure Water Monterey GWR Project, Section 4.3, Air Quality and Greenhouse Gas. <http://purewatermonterey.org/wp/wp-content/uploads/Volume-I-Consolidated-Final-EIR-Jan-2016.pdf>

5.5.11 Greenhouse Gas Emissions

The evaluation criteria for greenhouse gas (GHG) emissions address: contribution to climate change from GHG emissions; conflict with Executive Order B-30-15 Emissions Reduction Goal; and conflict with AB 32 Climate Change Scoping Plan.

5.5.11.1 Setting/Affected Environment

The setting/affected environment related to GHG emissions for the alternatives is the same as described for the MPWSP in Section 4.11, Greenhouse Gas Emissions.

5.5.11.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.11-1: Incremental contribution to climate change from GHG emissions associated with the proposed project.

Impact 4.11-2: Conflict with the Executive Order B-30-15 Emissions Reduction Goal.

Impact 4.11-3: Conflict with AB 32 Climate Change Scoping Plan.

Implementation of the MPWSP would result in short-term construction and long-term operational emissions of GHGs. The sum of GHG emissions generated by MPWSP construction amortized over the 40-year project lifetime and the net annual emissions generated by project operation would total approximately 8,365 metric tons CO₂e per year. These emissions would exceed the 2,000 metric tons per year significance threshold; therefore, a significant impact would occur. GHG emissions associated with the proposed project would exceed the emissions significance threshold, which indicates that implementation of the project would not be consistent with the GHG emission reduction goals for year 2030 identified in Executive Order B-30-15. Therefore, it can be concluded that the proposed project would conflict with Executive Order B-30-15 and would result in a potentially significant impact.

The MPWSP Desalination Plant designs include state of the art energy recovery and energy efficient features in place of standard energy saving systems; there may be additional feasible energy reducing features available to further reduce the electrical consumption. CARB has set a 20 percent electricity use reduction target for AB 32 Climate Change Scoping Plan Measure W-3; therefore, a 20 percent reduction in electricity use associated with the proposed project's energy recovery and energy saving features would indicate a less-than-significant impact associated with the proposed project's consistency with this measure.

Implementation of **Mitigation Measure 4.18-1 (Construction Equipment and Vehicle Efficiency Plan)** would ensure that construction activities are conducted in a fuel-efficient manner and would reduce the overall carbon footprint of the MPWSP. Implementation of **Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan)** is required to reduce the carbon footprint of electricity consumption for the proposed project to zero; the electricity would be generated from renewable energy sources, and/or would otherwise be offset through the procurement of Renewable Energy Certificates and/or retirement of Carbon Offsets. Overall project emissions would be less than 2,000 metric tons CO₂e per year. The mitigated amortized project emissions would be approximately 1,480 metric tons CO₂e per year. Therefore, these impacts would be mitigated to less-than-significant levels. (Note this significance determination was revised from significant, unavoidable in the Draft EIR/EIS due to the adoption of a GHG Emissions Reduction Plan).

Impact 4.11-C: Cumulative impacts related to greenhouse gas emissions.

Because GHG emissions have global climate change implications, the evaluation of GHG emissions impacts is inherently a cumulative impact analysis. Implementation of the MPWSP would result in short-term construction and long-term operational emissions of GHGs. With implementation of **Mitigation Measures 4.11-1** and **4.18-1**, the project's incremental contribution to the significant cumulative climate change impacts related to GHG emissions and conflicts with the AB 32 Climate Change Scoping Plan would be less than significant. Therefore, cumulative impacts would be less than significant with mitigation.

5.5.11.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. However, decommissioning of the test slant well could result in potentially significant but mitigable impacts on greenhouse gas (GHG) emissions, including the potential to incrementally contribute to climate change. See Table 4.11-3, Total GHG Emissions from Project Construction, which includes the estimated emissions for construction of the slant wells. Slant well decommissioning would produce a fraction of the emissions associated with the slant well construction period since decommissioning would not involve drilling and would take 4 weeks rather than 15 or more months; construction emissions would only occur as a result of grading, excavation, and earth moving activities. Impacts would be less than significant with implementation of Mitigation Measure 4.18-1, which would apply to slant well decommissioning.

Consequently, the construction- or operations-related direct or indirect adverse effects related to GHG emissions would be less than significant. Because the No Project Alternative would have a less than significant impact with respect to GHG emissions, the cumulative effects related to this topic would be less than significant.

5.5.11.4 Direct and Indirect Effects of Alternative 1 - Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed

project, but at a different location (Potrero Road). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction and Operation Impacts

The 5.5 miles of additional source water pipeline, and the one additional well required for Alternative 1 (10 new wells at Potrero Road versus 9 new wells plus the converted test well at CEMEX) would result in an increase in amortized GHG emissions compared to the proposed project. In addition, due to the increased length of the Source Water Pipeline, there would be more than three times the energy demand to pump source water to the MPWSP Desalination Plant compared to the proposed project. Thus, this alternative would result in increased indirect GHG emissions associated with electricity usage. Although Alternative 1 would result in the permanent removal of approximately one less acre of scrub vegetation due to the slant wells' location at an existing paved parking lot, the sum of the 40-year amortized construction GHG emissions and the total net operation emissions that would be associated with Alternative 1 would be higher than the emissions shown in **Table 4.11-5** for the proposed project. The emissions of Alternative 1 would exceed the 2,000 metric tons carbon dioxide-equivalent (CO₂e) per year significance threshold resulting in a significant impact. This impact would be reduced to less than significant with implementation of **Mitigation Measures 4.11-1** and **4.18-1**. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, and impacts would be less than significant with mitigation.

Since mitigated GHG emissions would not exceed the emissions significance threshold, Alternative 1 would not conflict with Executive Order B-30-15. As with the proposed project, the only plan that would be directly applicable to Alternative 1 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. CARB has set a 20 percent electricity use reduction target from 2006 levels for this measure. Pursuant to implementation of Mitigation Measure 4.11-1, the electricity that would supply Alternative 1 would be generated from renewable energy sources and/or would otherwise be offset through the procurement of Renewable Energy Certificates and/or retirement of Carbon Offsets. Therefore, this impact is also considered to be less than significant with implementation of mitigation. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, and impacts would be less than significant with mitigation.

Cumulative Analysis

Because GHG emissions have global climate change implications, the evaluation of GHG emissions impacts is inherently a cumulative impact analysis. Thus, all of the projects listed in **Table 4.1-2** in Section 4.1, as well as all other sources of GHG emissions, are relevant to the cumulative impacts discussion, and are not discussed in further detail. Through Executive Orders S-3-05 and B-30-15, as well as AB 32, the State has established goals and policies for

reducing its contribution of GHG emissions. Accordingly, these policy documents provide goals against which the significance of individual projects' emissions can be measured. Consistent with the emissions reduction goal for 2030 identified in Executive Order B-30-15, the numeric significance threshold used to evaluate operational emissions plus construction emissions amortized over the project's estimated 40-year lifetime is 2,000 metric tons CO₂e per year. The analysis also considers the alternative's consistency with applicable AB 32 Scoping Plan Measure W-3. Since construction and operations under Alternative 1 would not result in GHG emissions greater than the significance threshold and would not conflict with AB 32 Scoping Plan Measure W-3 with implementation of mitigation, Alternative 1 would not result in a cumulatively considerable contribution to significant cumulative impacts. Thus, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative effects related to greenhouse gas emissions, less than significant with mitigation.

5.5.11.5 Direct and Indirect Effects of Alternative 2 - Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction and Operation Impacts

Construction of a screened open water intake and system, compared to construction of nine proposed slant wells at CEMEX and a longer source water pipeline from Moss Landing south to Charles Benson Road, would result in a net increase of pipeline length and an associated increase in amortized construction emissions of approximately 50 metric tons per year compared to the proposed project. In addition, due to the increased length of the source water pipeline under Alternative 2 (i.e., 7.7 miles compared to 2.2 miles under the proposed project), there would be nearly four times the energy demand to pump source water to the MPWSP Desalination Plant compared to the proposed project, which would increase the indirect GHG emissions associated with electricity usage.

A recent analysis conducted for the project that compared water quality data from the existing test slant well at the CEMEX site to water quality representative of average open-ocean intake conditions in the vicinity of Monterey Bay found that CO₂ degassing from discharged brine would be about 87 percent less than discharged brine water obtained from subsurface slant wells (**Appendix G2**). Given that Alternative 2 would result in the same amount of discharged brine as the proposed project, but would include an open water intake, CO₂ degassing would be reduced by 640 metric tons CO₂ under Alternative 2 compared to the proposed project. In addition, this alternative would result in approximately 1 less acre of permanent scrub vegetation removal and associated 14 metric tons CO₂ of carbon sequestration compared to the proposed project due to the location of the intake pump station at an existing disturbed area.

The sum of the 40-year amortized construction GHG emissions and the total net operation emissions associated with Alternative 2 would be less than the emissions that would be generated under the proposed project (see **Table 4.11-5**). The emissions of Alternative 2 would exceed the 2,000 metric tons CO₂e per year significance threshold, but the impact would be less than significant with implementation of **Mitigation Measures 4.11-1** and **4.18-1**. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Since mitigated GHG emissions associated with Alternative 2 would not exceed the emissions significance threshold, Alternative 2 would not conflict with Executive Order B-30-15. As with the proposed project, the only plan that would be directly applicable to Alternative 2 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. Pursuant to implementation of Mitigation Measure 4.11-1, the electricity that would supply Alternative 2 would be generated from renewable energy sources and/or would otherwise be offset through the procurement of Renewable Energy Certificates and/or retirement of Carbon Offsets. Therefore, this impact is also considered to be less than significant with implementation of mitigation. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

Construction and operations under Alternative 2 would result in GHG emissions less than the applicable numeric significance threshold and would not conflict with AB 32 Scoping Plan Measure W-3 with implementation of mitigation. Therefore, Alternative 2 would not result in a cumulatively considerable contribution to significant cumulative impacts. Overall, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to greenhouse gas emissions, less than significant with mitigation.

5.5.11.6 Direct and Indirect Effects of Alternative 3 - Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water

and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction and Operation Impacts

Construction of a screened open water intake and brine discharge system would require the use of a marine barge(s), and land-based HDD equipment for the installation of four 42-inch diameter pipelines from the pump station on Dolan Road to the intake and discharge structures on the seafloor in MBNMS, and four 1.1-mile pipelines from the pump station to the desalination/data center site, resulting in 2.5 additional miles of pipeline compared to the proposed project Source Water Pipeline. This alternative would also include construction of a larger desalination plant, data center and cooling system, and up to 25 miles of additional desalinated water pipelines to deliver water (in addition to the 9.6 mgd served to CalAm’s Monterey District) to potential customers in Santa Cruz County, Salinas, or both. Therefore, there would be an overall increase in amortized annual construction emissions under Alternative 3 compared to the proposed project.

Operations of the data center and cooling system under Alternative 3 would result in a considerable energy demand increase compared to the proposed project. The data center would require 150 megawatts (MW) of electrical power to operate. Compared to the proposed project, which would result in a net power consumption increase of less than 6 MW, Alternative 3 would substantially increase indirect GHG emissions associated with electricity usage. This energy demand would be more than 25 times the net energy demand increase that would occur under the proposed project. This would result in an additional 171,000 metric tons CO₂e per year beyond the indirect emissions that would occur as a result of only the desalination facility. With regard to CO₂ degassing from discharged water, given that Alternative 3 would result in approximately twice the amount of discharged brine as the proposed project, but would include an open-ocean intake, CO₂ degassing would be reduced by 545 metric tons CO₂ under Alternative 3 compared to the proposed project. With regard to the loss of vegetation-related carbon sequestration, Alternative 3 would result in the loss of up to 91 acres of grassland at the desalination facility, data center, and electrical substation location compared to 15 acres of grassland under the proposed project. This would increase the loss of sequestration potential by more than 313 metric tons CO₂ per year. See **Appendix G1** for emissions estimates.

The sum of the 40-year amortized construction GHG emissions and the total net operation emissions associated with Alternative 3 would be substantially higher than the emissions presented in **Table 4.11-5** for the proposed project. Although Alternative 3 does not include GHG reduction measures, the DeepWater Desal Project proponent indicates that energy minimization and other GHG reduction measures to make the DeepWater Desal Project net-carbon neutral are being considered (DeepWater Desal, 2016). The separate EIR/EIS for the DeepWater Desal Project will evaluate any such project features if they are identified, but they are not included as part of Alternative 3 in this EIR/EIS. The emissions of Alternative 3 would exceed the 2,000 metric tons CO₂e per year significance threshold. Due to the large scale of Alternative 3, it is not certain that implementation of measures similar to **Mitigation Measures 4.11-1** and **4.18-1** would be feasible to the extent that they would be able to reduce the impact to a less-than-significant level. Therefore, Alternative 3 would result in an *increased impact conclusion* compared to the proposed project; it would be significant and unavoidable, even with mitigation.

Since GHG emissions associated with Alternative 3 would exceed the emissions significance threshold, Alternative 3 would conflict with Executive Order B-30-15 and would result in a significant impact even with implementation of mitigation. As with the proposed project, the only plan that would be directly applicable to Alternative 3 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. The lead agencies cannot substantiate that GHG emissions under Alternative 3 would be reduced to a less-than-significant level. Therefore, Alternative 3 would result in an *increased impact conclusion* compared to the proposed project; it would be significant and unavoidable, even with mitigation.

Cumulative Analysis

Construction and operations under Alternative 3 would result in GHG emissions greater than the applicable numeric significance threshold and would conflict with AB 32 Scoping Plan Measure W-3. Therefore, Alternative 3 would result in a cumulatively considerable contribution to significant cumulative impacts, of a higher magnitude than the proposed project. Overall, Alternative 3 would result in an *increased impact conclusion* compared to the proposed project for cumulative effects related to greenhouse gas emissions; it would be significant and unavoidable, even with mitigation.

5.5.11.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn

from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction and Operation Impacts

Construction of a screened open water intake and brine discharge system would require the use of marine vessel(s) and land-based HDD equipment for installation of a portion of the pipelines from the existing caisson to the intake and discharge on the seafloor in MBNMS. Therefore, there would be an overall increase in amortized construction emissions under Alternative 4 compared to the proposed project.

Long-term operations of the People's Project would produce approximately 25 percent more product water than the proposed project. This increase in product water would result in an approximately 25 percent increase in energy demand, that would increase the net indirect emissions from electricity usage under Alternative 4 by 1,715 metric tons CO₂e per year compared to the proposed project. With regard to CO₂ degassing from discharged water, given that Alternative 4 would result in approximately 32 percent more discharged brine compared to the proposed project, but would include an open water intake, CO₂ degassing would be reduced by 610 metric tons compared to the proposed project. In addition, this alternative would result in approximately one less acre of permanent scrub vegetation removal and 15 less acres of permanent grassland removal compared to the proposed project due to the location of its intake pump station and desalination plant at existing disturbed areas. This would result in approximately 79 metric tons CO₂e per year additionally sequestered compared to the proposed project. See **Appendix G1** for emissions estimates.

The sum of the 40-year amortized construction GHG emissions and the total net operation emissions associated with Alternative 4 would be higher compared to the proposed project. The emissions of Alternative 4 would exceed the 2,000 metric tons CO₂e per year significance threshold. Due to the similar scale of Alternative 4 to the MPWSP, it is anticipated that implementation of measures similar to **Mitigation Measures 4.11-1** and **4.18-1** would be feasible and would reduce the impact to less than significant. Therefore, Alternative 4 would result in the **same impact conclusion** as the proposed project, less than significant with mitigation.

Since GHG emissions associated with Alternative 4 would be mitigated to a less-than-significant level, Alternative 4 would not conflict with Executive Order B-30-15. As with the proposed project, the only plan that would be directly applicable to Alternative 4 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. Pursuant to implementation of Mitigation Measure 4.11-1, the electricity that would supply Alternative 4 would be generated from renewable energy sources and/or would otherwise be offset through the procurement of Renewable Energy Certificates and/or retirement of Carbon Offsets. Therefore, Alternative 4 would result in the **same impact conclusion** as the proposed project; less than significant with mitigation.

Cumulative Analysis

Construction and operations under Alternative 4 would result in GHG emissions less than the applicable numeric significance threshold and would not conflict with AB 32 Scoping Plan Measure W-3 with implementation of mitigation. Therefore, Alternative 4 would not result in a cumulatively considerable contribution to significant cumulative impacts. Overall, Alternative 4 would result in the *same impact conclusion* as the proposed project for cumulative effects related to greenhouse gas emissions, less than significant with mitigation.

5.5.11.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction and Operation Impacts

The facilities that would be constructed under Alternative 5a would be the same as those constructed under the proposed project, with the exception that there would be three fewer slant wells at CEMEX compared to the proposed project. Alternative 5b would locate the seven new slant wells at the Potrero Road parking lot, and include construction of a longer source water pipeline, as under Alternative 1. There would be an overall decrease in amortized construction emissions of 16 metric tons CO₂e per year under Alternative 5a compared to the proposed project. Given the longer distance of the source water pipeline under Alternative 5b, amortized construction emissions would be increased by approximately 59 metric tons CO₂e per year compared to Alternative 5a, and by approximately 44 metric tons CO₂e per year compared to the proposed project. In addition, due to the increased length of the source water pipeline, Alternative 5b would result in more than three times the energy demand to pump source water to the desalination plant compared to Alternative 5a; however, the overall energy demand associated with Alternative 5b would be less than the proposed project given the lower source water demand than the proposed project.

In addition, due to the desalination plant's decreased product capacity under Alternative 5a or 5b, total operational emissions would be less compared to emissions generated under the proposed project. With regard to CO₂ degassing from discharged water, given that Alternative 5a or 5b would result in approximately two thirds the discharged brine from the MPWSP plant compared to the proposed project, CO₂ degassing would be reduced to 490 metric tons CO₂ per year. It is assumed that approximately the same area would be permanently disturbed under Alternative 5a as the proposed project so the reduction in carbon sequestration would be the same, and under 5b would be less so the carbon sequestration would be greater. As shown in **Table 5.5-13**, the total GHG emissions that would be associated with Alternative 5a would be 5,530 metric tons CO₂e

per year, which would be approximately 2,835 metric tons less than would be generated under the proposed project. Alternative 5b would have the higher indirect operational emissions due to increased pumping associated with the longer source water pipeline length, and as described above, would have an additional 59 metric tons CO₂e per year associated with amortized construction emissions compared to Alternative 5a. The emissions of Alternatives 5a and 5b would exceed the 2,000 metric tons CO₂e per year significance threshold, but the impact would be less than significant with implementation of **Mitigation Measures 4.11-1** and **4.18-1**. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

**TABLE 5.5-13
 TOTAL GHG EMISSIONS ASSOCIATED WITH ALTERNATIVE 5A**

Construction Emission Source	CO ₂ e (metric tons per year)
Amortized Construction ¹	342
Operations ²	5,188
Total Emissions	5,530

NOTES:

- ¹ Construction emissions are based on the emissions for the proposed project presented in Table 4.11-3 (rounded) with adjustments to the slant well emissions to account for construction of three fewer slant wells.
- ² Operational emissions are based on emissions from Table 4.11-4 (rounded) with adjustments made to account for lower electricity consumption and emergency generation capacity due to the decreased product water capacity. In addition, due to the reduced capacity of the MPWSP plant under Alternative 5, degassing emissions would be two thirds the degassing emissions identified for proposed project, and because there would be maintenance of three fewer slant wells compared to the proposed project, emissions associated with off-road equipment use to maintain slant wells would be approximately 70 percent of the off-road equipment emissions identified for the proposed project.

SOURCES: ESA, 2016 (See Appendix G1).

Since mitigated GHG emissions associated with Alternative 5 would not exceed the emissions significance threshold, Alternative 5 would not conflict with Executive Order B-30-15. As with the proposed project, the only plan that would be directly applicable to Alternative 5 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. Pursuant to implementation of Mitigation Measure 4.11-1, the electricity that would supply Alternatives 5a or 5b would be generated from renewable energy sources and/or would otherwise be offset through the procurement of Renewable Energy Certificates and/or retirement of Carbon Offsets. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

Combined Impacts with GWR Project

Because Alternative 5 alone would not meet the project objectives and must be paired with the approved GWR Project in order to do so, for informational purposes, this analysis provides the “subtotal” of the Alternative 5 impacts in combination with the impacts of the GWR Project, even though project-specific significance thresholds are not intended to be applied to combined or cumulative emissions levels. The GWR Project would emit amortized GHG emissions of

201 metric tons CO₂e per year and annual emissions of 1,699 metric tons CO₂e per year during operation, of which 1,642 metric tons CO₂e per year would be associated with new electrical demand. Total amortized emissions would be 1,900 metric tons CO₂e per year. These emissions are amortized or would occur over the GWR Project's expected 30-year lifetime (MRWPCA, 2016). Thus, during the years these projects overlap, the total amortized annual GHG emissions would be 7,631 metric tons CO₂e per year for Alternative 5a and slightly higher for Alternative 5b, a significant and unavoidable combined impact. These combined emissions would be approximately 734 metric tons CO₂e per year less than the emissions that would be associated with the proposed project. It should be noted that the GWR EIR did not include mitigation for GHG because the estimated CO₂e emissions are below the significance threshold. Overall, Alternative 5 considered in combination with the unmitigated GWR Project would result in a ***different impact conclusion*** compared to the proposed project for cumulative impacts related to GHG emissions; it would be significant and unavoidable even with implementation of mitigation for the Alternative 5 portion. However, if **Mitigation Measures 4.11-1** and **4.18-1** are also applied to the GWR Project, the combination of these projects would result in the ***same impact conclusion*** the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

Similar to the proposed project, construction and operations under Alternative 5 would not result in GHG emissions greater than the significance threshold and would not conflict with AB 32 Scoping Plan Measure W-3. Therefore, with implementation of Mitigation Measure 4.11-1: GHG Emissions Reductions Plan, Alternative 5's contribution to GHG emissions would be less than significant and Alternative 5 would be considered consistent with the State's GHG reduction goals.

Overall, Alternative 5 would result in a reduced level of impact but the ***same impact conclusion*** as the proposed project for cumulative effects related to greenhouse gas emissions, less than significant with mitigation.

5.5.11.9 References

DeepWater Desal LLC., 2016. *Monterey Bay Regional Water Project, Project Narrative: Supplement to California State Lands Lease Application*. Available at www.deepwaterdesal.com/reports-and-publications.htm.

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. Consolidated Final EIR for the Pure Water Monterey GWR Project, Section 4.3, Air Quality and Greenhouse Gas. <http://purewatermonterey.org/wp/wp-content/uploads/Volume-I-Consolidated-Final-EIR-Jan-2016.pdf>

5.5.12 Noise and Vibration

The evaluation criteria for Noise and Vibration address: temporary increases in ambient noise in the vicinity of construction; exposure of people to noise levels in excess of established standards during construction; exposure of people to or generation of excessive groundborne vibration during construction; consistency with construction time limits established by local jurisdictions; substantial permanent increase in ambient noise levels above existing levels during project operations; and, exposure of people to noise levels in excess of established standards during operations. Construction of all project facilities will result in temporary increases in noise.

5.5.12.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.12, Noise and Vibration. Alternative components north of the Nashua Road/Highway 1 intersection would primarily affect receptors in unincorporated Monterey County north of Charles Benson Road. This would include the primary residential area of Moss Landing along Potrero Road and Pieri Court, as well as intermittent rural residences along Nashua Road, Molera Road, Dolan Road and Via Tanques Road and houseboats at Moss Landing Harbor. Noise monitoring conducted along Potrero Road indicated daytime noise levels of 54.1 dBA. The regulatory environment of unincorporated Monterey County with respect to noise is discussed in Section 4.12.3 of this EIR/EIS.

5.5.12.2 Direct and Indirect Effects of the Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.12-1: Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction.

Impact 4.12-2: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction.

Construction of the subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline would result in less-than-significant daytime and nighttime noise impacts. Construction of ASR Conveyance Pipeline, ASR Recirculation Pipeline, ASR Pump-to-Waste Pipeline, Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch-Bishop Interconnection Improvements would result in a less-than-significant impact related to temporary increases in daytime noise levels and no impact

related to nighttime noise. Significant impacts related to temporary increases in daytime noise levels would result during construction of the ASR-5 and ASR-6 Wells and the Carmel Valley Pump Station, but these impacts would be reduced to less-than-significant levels with implementation of the prescribed mitigation measures. Significant nighttime noise impacts would result during construction of the new Desalinated Water Pipeline, Castroville Pipeline, new Transmission Main, and the ASR-5 and ASR-6 Wells. With the exception of nighttime noise impacts associated with the Castroville Pipeline Optional Alignment 1 and ASR-5 and ASR-6 Wells, implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)** and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce all other construction-related nighttime noise impacts to a less-than-significant level. Nighttime noise impacts during installation of the Castroville Pipeline Optional Alignment 1 and during drilling and development of the ASR-5 and ASR-6 Wells would remain significant and unavoidable, even with implementation of mitigation.

There are no established construction noise level standards that would apply to the ASR-5 and ASR-6 Wells. Construction of the subsurface slant wells, Source Water Pipeline, Brine Discharge Pipeline, Pipeline to the CSIP Pond, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, Carmel Valley Pump Station, and MPWSP Desalination Plant would result in less-than-significant impacts with regard to the generation of construction noise levels in excess of local noise level standards.

Construction of the remaining project components (new Desalinated Water Pipeline, Castroville Pipeline, new Transmission Main, ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline) would generate noise levels in excess of local noise level standards. The new Desalinated Water Pipeline and new Transmission Main would exceed the City of Marina's 60-dBA noise level standard for construction noise, a significant impact. In the absence of project-specific information regarding noise-reduction measures that would be implemented during project construction, it is conservatively assumed that noise resulting from construction of ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline would violate Noise Policy B-9 of the Fort Ord Reuse Plan, a significant impact. Implementation of **Mitigation Measures 4.12-1b** and **4.12-1c** would reduce these impacts to a less-than-significant level.

Impact 4.12-3: Exposure of people to or generation of excessive groundborne vibration during construction.

Construction of the subsurface slant wells, MPWSP Desalination Plant, Pipeline to the CSIP Pond, Brine Discharge Pipeline ASR-5 and ASR-6 Wells, ASR Conveyance Pipeline, ASR Recirculation Pipeline, ASR Pump-to-Waste Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Carmel Valley Pump Station, and Main System-Hidden Hills Interconnection Improvements would result in less-than-significant vibration impacts with regard to both structural damage and human annoyance. There could be significant vibration impacts related to structural damage and human annoyance from construction of the Castroville Pipeline and Source Water Pipeline, as well as the new Desalinated Water Pipeline and new Transmission Main where trenchless construction methods are required for these pipelines. However, with implementation of the **Mitigation**

Measures 4.12-3 (Vibration Reduction Measures) and 4.15-1a (Avoidance and Vibration Monitoring for Pipeline Installation in the Lapis Sand Mining Plant Historic District), all significant construction vibration impacts would be reduced to a less-than-significant level.

Impact 4.12-4: Consistency with the construction time limits established by the local jurisdictions.

Several of the proposed facilities could require nighttime construction. Construction of the Slant Wells and Source Water Pipeline would not be subject to the city of Marina’s construction time limits, which only apply to outdoor construction activities adjacent to residential land uses. Construction of the Desalinated Water Pipeline and new Transmission Main within the City of Marina would be consistent with construction time limits because work within the City would only be conducted during daytime hours. The southern portion of the new Transmission Main would be constructed within the City of Seaside. Because the City of Seaside Municipal Code will allow construction activity outside listed hours under certain circumstances, the construction activities would not violate local regulations and the impact would be less than significant. All nighttime construction work would be conducted only with prior approval from the relevant jurisdictions. **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the nighttime construction noise impact but would not change the inconsistency with the restriction of the noise ordinance.

The Desalination Plant, Pipeline to the CSIP Pond, Castroville Pipeline, and Brine Discharge Pipeline could require nighttime construction but there are no local construction time limits that would apply; no impact would result. None of the remaining facilities would require nighttime construction and therefore, the remaining facilities would be consistent with applicable construction time limits.

Impact 4.12-5: Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project during operations.

Operation of the subsurface slant wells, MPWSP Desalination Plant, Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station would result in less-than-significant noise impacts with regard to permanent operational noise increases. Significant noise impacts would result from operation of the ASR-5 and ASR-6 Wells and the booster stations that would be upgraded by the Main System-Hidden Hills Interconnection Improvements; however, implementation of **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)** would reduce all significant operational noise impacts to a less-than-significant level. No impact would result from operation of the proposed pipelines.

Impact 4.12-6: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during operations.

Operation of the Subsurface Slant Wells, MPWSP Desalination Plant, Source Water Pipeline, Pipeline to the CSIP Pond, Brine Discharge Pipeline, Desalinated Water Pipeline, Transmission Main, Ryan Ranch-Bishop Interconnection Improvements, Carmel Valley Pump Station, the booster stations that would be upgraded by the Main System-Hidden Hills Interconnection

Improvements would result in less than significant noise impacts with regard to generation of noise levels in excess of local noise level standards. No impact would result from operation of the ASR-5 and ASR-6 Wells with regard to generation of noise in excess of local noise level standards because none would apply to these sources on federal lands. No impact would result from operation of the proposed pipelines because the pipelines would not involve the installation of stationary noise sources.

Impact 4.12-C: Cumulative impacts related to noise and vibration.

MPWSP pipeline construction noise could combine with one or more of five cumulative projects to cause nighttime noise levels to exceed the sleep interference threshold. Nighttime construction noise could have a significant contribution to a significant cumulative effect.

Ten cumulative projects would potentially occur within the 120-foot geographic scope of cumulative vibration impacts analysis but four of these cumulative projects (Nos. 31, 35, 55, and 63) would not be located within 120 feet of any sensitive receptors or structures and, therefore, would not contribute to cumulative impacts. However, the project-specific vibratory impact monitoring required under **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** would also capture vibration contributed by the other six cumulative projects, should the timing and location of construction overlap. Consequently, no significant cumulative construction-related vibration impact would result.

The MPWSP's project-specific operational noise impacts would be less than significant for the MPWSP Desalination Plant and the Carmel Valley Pump Station. Impacts of the ASR well facilities and the Main System-Hidden Hills Interconnection Improvements would be less than significant with mitigation. There are no cumulative projects within 500 feet of these proposed facilities. Therefore, no other projects could combine with the operational noise effects of the proposed project to result in a significant cumulative impact.

5.5.12.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated and the existing test slant well would be decommissioned. Consequently, there would be no construction- or operations-related noise or vibrations associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to noise or vibrations, it could not contribute to cumulative effects related to these topics.

5.5.12.4 Direct and Indirect Effects of Alternative 1 - Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.3.3.2, Intake Option 3 – Subsurface Slant Wells at Potrero Road). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the

Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the noise impact analysis of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

The construction of the additional pipeline north of the Nashua Road/Highway 1 intersection in unincorporated Monterey County would temporarily increase noise levels at intermittent rural residences along Nashua Road and Molera Road, and at the primary residential area of Moss Landing along Potrero Road. Some of these receptors would be as close as 50 feet from the Source Water Pipeline installation trench.

Construction of the additional Source Water Pipeline under Alternative 1 is estimated to progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Consequently, although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA, the duration of the impact at any given sensitive noise receptor would be less than two weeks. While the construction noise impact associated with increases in daytime noise levels along this additional segment of pipeline would be less than significant, construction of other components common to the proposed project would be reduced to a less than significant level with **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**. Therefore, Alternative 1 would result in the *same impact conclusion* on daytime noise levels as the proposed project, less than significant with mitigation.

If nighttime work were to be conducted along the extended portions of the Source Water Pipeline along Potrero Road, Molera Road and Nashua Road noise from construction equipment could exceed the sleep interference threshold of 60 dBA. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**, and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the severity of this impact but not to below the sleep interference threshold of 60 dBA, L_{eq} . Nighttime noise impacts during installation of the Castroville Pipeline Optional Alignment 1 and during drilling and development of the ASR-5 and ASR-6 Wells would remain significant and unavoidable, even with implementation of mitigation. Consequently, construction related noise increases under Alternative 1 would result in the *same impact conclusion* as the proposed project, significant unavoidable, even with mitigation.

Installation of Subsurface Slant Wells would occur closer to noise sensitive receptors (1,000 feet) than the proposed project (4,000 feet). However, the distance is still sufficient to attenuate noise to below both the speech interference and sleep interference thresholds and Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Monterey County Policy S-7.9 requires the project sponsor to complete a noise mitigation study if construction noise would exceed the “acceptable” levels listed in Policy S-7.1 within 500 feet of a noise-sensitive land use during evening hours. Because the Source Water Pipeline west of

Highway 1 would be within 100 feet from the nearest receptors on Potrero Road, Molera Road and Nashua Road, **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would be required to reduce this impact to less than significant. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for noise impacts during construction, less than significant with mitigation.

Vibration impacts would be less than significant for the additional 5.5 mile Source Water Pipeline construction under Alternative 1 because it would no longer occur adjacent to a historic structure (CEMEX building) as it would for the proposed project. Further, vibration impacts on residential uses along the Potrero Road alignment would result in human annoyance impacts from vibration. Implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** would reduce impacts to less than significant. Therefore, Alternative 1 would result in the *same impact conclusion* from vibration as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 1 would operate the slant wells closer to noise sensitive receptors (1,000 feet) than the proposed project (4,000 feet). Simultaneous operation of 8 well pumps would conservatively generate a noise level of approximately 66 dBA at 50 feet. At 1,000 feet, slant well pump noise would be reduced to 40 dBA, which is below ambient levels monitored along Potrero Road (54 dBA, L_{eq}) and would not contribute to a substantial permanent increase in ambient noise levels.

All remaining components would be the same as the proposed project and would result in less-than-significant operational noise impacts with implementation of **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)**. Consequently, operation of the slant wells within unincorporated Monterey County would result in less than significant noise impacts with regard to generation of noise levels in excess of local noise level standards as well as to permanent increases in noise levels. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Policy S-7.6 of the County General Plan Noise Element requires an acoustical analysis for proposed noise generators that produce a noise level exceeding 85 dBA at 50 feet from the source. Simultaneous operation of the 8 slant well pumps would conservatively generate a noise level of approximately 66 dBA at 50 feet and would be consistent with noise policies of the County General Plan. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for construction-related vibration impacts (within 120 feet of Alternative 1 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project, with the exception that no construction would occur adjacent to a historic structure (CEMEX building), so cumulative impacts from construction vibration would be reduced compared to the proposed project. Therefore, Alternative 1 would result in the *same impact conclusion* as the

proposed project for cumulative effects related to vibration during construction, less than significant with mitigation.

The components of Alternative 1 that would result in operational noise are the same as for the proposed project. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative noise impacts during operation, less than significant.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These components include the Source Water Pipeline and the slant wells.

One additional cumulative project described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 1 to result in cumulative noise impacts during construction: the DeepWater Desal Project (No. 34). In the absence of detailed information regarding cumulative project construction equipment and exact construction phase timing, a quantitative assessment of cumulative nighttime noise impact cannot be reasonably conducted. However, it is conservatively assumed that the potential exists for residual (post-mitigation) MPWSP pipeline and slant well construction noise to combine with that of the DeepWater Desal Project to cause nighttime noise levels to exceed the sleep interference threshold. As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact. No additional mitigation within the scope of this EIR/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Nighttime construction noise could have a significant contribution to a significant and unavoidable cumulative effect. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

5.5.12.5 Direct and Indirect Effects of Alternative 2 - Open Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the noise impact analysis of Alternative 2 focuses

primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

The construction of a centralized bore pit/pump station and HDD activities associated with the source water pipeline to the open water intake as well as the additional 6.5 miles of open trench pipeline construction, would temporarily increase noise levels at intermittent rural residences along Nashua Road and Molera Road and at the primary residential area of Moss Landing along Potrero Road and Pieri Court. Some of these receptors would be as close as 50 feet from the pipeline installation trench.

Construction of the 6.5 miles of Source Water Pipeline is estimated to progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Consequently, although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA, the duration of the impact at any given sensitive noise receptor would be less than two weeks. While the construction noise impact associated with increases in daytime noise levels along this additional segment of pipeline would be less than significant, construction of other components common to the proposed project would be less than significant with **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**. Overall, Alternative 2 would, result in the *same impact conclusion* on daytime noise levels as the proposed project, less than significant with mitigation.

If nighttime work were to be conducted along the additional 6.5 miles of Source Water Pipeline, noise from construction equipment could exceed the sleep interference threshold of 60 dBA, a potentially significant impact. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**, and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the severity of this impact but not to below the sleep interference threshold of 60 dBA, L_{eq} . However, nighttime noise impacts during installation of the Castroville Pipeline, and drilling and development of the ASR-5 and ASR-6 Wells, would remain significant and unavoidable, even with implementation of mitigation. Consequently, construction related noise increases under Alternative 2 would result in an increased level of impact compared to the proposed project. Therefore, Alternative 2 would have the *same impact conclusion* as the proposed project, significant unavoidable, even with mitigation.

Installation of the screened open water intake would occur closer to noise sensitive receptors (1,300 feet) than the subsurface slant wells of the proposed project (4,000 feet). The HDD boring pit would require sheet pile installation and is 1,500 feet from live-aboard residents in the Moss Landing Marina. Additionally, drilling activities would occur at the HDD pit and reaming and pipeline installation would occur from barges approximately 1,300 feet from live-aboard marina residents. Noise from drilling, reaming, and pipeline installation would be 57 dBA, L_{eq} , which would be below the speech interference threshold for daytime work and below the sleep interference threshold for nighttime work. Sheet pile installation, which would be conducted for railroad and water crossings and would occur during daytime hours, would temporarily generate

substantial noise levels that would dominate over other construction activity associated with trenchless construction. Sheet pile installation would generate noise level of 64.4 dBA, L_{eq} which would be below the speech interference threshold for daytime work. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant impact.

For Monterey County-permitted projects, Policy S-7.9 requires the project sponsor to complete a noise mitigation study if construction noise would exceed the “acceptable” levels listed in Policy S-7.1 within 500 feet of a noise-sensitive land use during evening hours. Because the Source Water Pipeline west of Highway 1 would be within 100 feet from the nearest receptors on Potrero Road, Molera Road and Nashua Road, construction activities would be inconsistent with this policy. However, implementation of **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce this impact to less than significant. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Vibration impacts would be reduced under Alternative 2 because construction of the Source Water Pipeline would no longer occur adjacent to a historic structure (CEMEX building) as it would under the proposed project. Vibration impacts on residential uses along the Nashua Road and Molera Road alignments would be similar to those identified for the proposed project for open trench construction. Implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** would reduce impacts to less than significant. All remaining components of Alternative 2 would be the same as the proposed project and Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The Pump Station for the screened open water intake would operate closer to noise sensitive receptors (1,500 feet) than the Slant Well pumps under the proposed project (4,000 feet). It would contain four centrifugal intake pumps (three operating and one stand-by), each with a rated capacity of approximately 12,000 GPM. The pumps would be located below grade and the simultaneous operation would conservatively generate a noise level of approximately 61 dBA at 50 feet, accounting for attenuation resulting from their below grade location and the presence of the surrounding building and, thereby consistent with noise policies of the County General Plan. Therefore Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant.

At 1,500 feet, the intake Pump Station noise would be reduced to 32 dBA, which is below ambient levels and would not contribute meaningfully to ambient levels. All remaining components would be the same as the proposed project with implementation of **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)**. Therefore, Alternative 2 would result in *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for vibration impacts (within 120 feet of Alternative 2 components whose construction-

related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project. The components of Alternative 2 that would result in operational noise are the same as for the proposed project; therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to vibration during construction, less than significant with mitigation.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These components include the Source Water Pipeline, screened seawater intake, and Intake Pump Station.

One additional cumulative project described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 2 to result in cumulative noise impacts during construction: the DeepWater Desal Project (No. 34). In the absence of detailed information regarding cumulative project construction equipment and exact construction phase timing, a quantitative assessment of cumulative nighttime noise impact cannot be reasonably estimated. However, it is conservatively assumed that the potential exists for residual (post-mitigation) pipeline, Intake and Pump Station construction noise to combine with that of the DeepWater Desal Project to cause nighttime noise levels to exceed the sleep interference threshold. As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact. No additional mitigation within the scope of this EIR/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, nighttime construction noise could have a significant contribution to a significant and unavoidable cumulative effect, similar to the proposed project.

Overall, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to noise, significant and unavoidable, even with mitigation.

5.5.12.6 Direct and Indirect Effects of Alternative 3 - the Monterey Bay Regional Water Project

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the

Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**).

Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Construction of open trench pipeline installation and a centralized pump station/boring pit north of Nashua Road/Highway 1 intersection would temporarily increase noise levels at intermittent rural residences along Nashua Road and Molera Road and at the primary residential area of Moss Landing along Potrero Road and Pieri Court. Some of the receptors would be as close as 50 feet from the installation trench. In addition, this alternative would include construction of a larger desalination plant, data center and cooling system, and up to 31.5 miles of additional desalinated water pipelines to deliver water (above the 9.6 mgd demand from CalAm's Monterey District service area) to potential customers in Santa Cruz County, Salinas, or both, resulting in more receptors exposed to construction noise.

Construction of the Desalinated Water Pipeline is estimated to progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Consequently, although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA, the duration of the impact at any given sensitive noise receptor would be less than two weeks. Therefore, the construction noise impact associated with increases in daytime noise levels would be less than significant.

If nighttime work were to be conducted along the Desalinated Water Pipeline, noise from construction equipment could exceed the sleep interference threshold of 60 dBA, a significant impact. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**, and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the severity of this impact, but not to below the sleep interference threshold of 60 dBA, L_{eq} .

The HDD pit would require sheet pile installation, which is 1,500 feet from live-aboard residents of the Moss Landing Marina. Additionally, drilling activities would occur at the HDD pit and reaming and pipeline installation would occur from barges approximately 1,300 feet from live-aboard marina residents. Noise from drilling reaming and pipeline installation would be 57 dBA, L_{eq} , which would be below the speech interference threshold for daytime work and below the sleep interference threshold for nighttime work and represent a less than significant impact.

Sheet pile installation, which would occur during daytime hours, is estimated to generate a noise level of 64.4 dBA, L_{eq} , which would be below the speech interference threshold for daytime work.

Construction of the desalination facility, data center and cooling system would occur as close as 600 feet from the nearest receptor on Dolan Road. However, this distance is sufficient to attenuate construction noise to 59.0 dBA, which would be below both the speech interference and

sleep interference thresholds. All remaining components would be the same as the proposed project. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project from construction-related noise, significant and unavoidable, even with mitigation.

Alternative 3 would construct pipelines, a desalination facility, and a data center and cooling system within unincorporated Monterey County where, for County-permitted projects, Policy S-7.9 requires the project sponsor to complete a noise mitigation study if construction noise would exceed the “acceptable” levels listed in Policy S-7.1 within 500 feet of a noise-sensitive land use during evening hours. Because the additional length of pipelines, desalination facility, data center and cooling system would be within 100 feet from the nearest receptors on Dolan Road, Via Tanques Road, Potrero Road, Molera Road and Nashua Road, construction activities would be inconsistent with this policy and **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would be required to reduce this impact to a less than significant level. All remaining components would be the same as the proposed project and Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Vibration impacts would not occur adjacent to a historic structure (CEMEX building). All remaining components would be the same as the proposed project, requiring implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** near residences. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 3 would include an additional source of noise not associated with the proposed project. Noise sources associated with the data center and cooling system would include an unspecified number of natural gas fired emergency backup generators of up to 10 MW in size that could operate up to 4 hours per day or 1,500 hours per year. Equipment associated with power plants of this size can result in operational noise levels of approximately 65 dB at 300 feet (Siemens AG, 2005). Thus, the operation of generators has the potential to increase noise levels over 5 dBA above existing noise levels at the nearest sensitive receptors. Mitigation of operational noise levels of natural gas fired emergency backup generators is feasible to establish a performance standard of 5 dBA increase over existing noise levels to address this potential impact. To ensure that the operational noise impact would be reduced to a less-than-significant level, implementation of **Mitigation Measure ALT 3-NO** would be required.

Mitigation Measure ALT 3-NO applies to the emergency backup generators associated with the Alternative 3 data center and cooling system and would not apply to the proposed project or other alternatives.

Mitigation Measure ALT 3-NO: Operational Performance Noise Standard for Data Center Generators

Proposed generators shall include acoustical shielding, critical grade exhaust silencers and/or low pressure loss silencers at the intake and exhaust vents sufficient to achieve a noise level no greater than 5 dBA above the existing nighttime noise level at the nearest sensitive receptor.

Thus, in combination with the components unique to Alternative 3 and those in common with the proposed project, Alternative 3 would result in an increased level of impact but the *same impact conclusion* as the proposed project, less than significant with mitigation.

As stated earlier, the data center and cooling system would be located 600 feet or further from the nearest receptor on Dolan Road. Policy S-7.4 of the Monterey County General Plan Noise Element requires an acoustical analysis for proposed noise generators that are likely to produce noise levels exceeding the levels shown in the adopted Community Noise Ordinance when received at existing or planned noise-sensitive receptors. The Monterey County Code, Chapter 10.60, Noise Control, Section 10.60.030 limits the operation of any machine, mechanism, device, or contrivance that produces a noise level exceeding 85 dBA at 50 feet from the source. Assuming the data center generators as a point source operating at 65 dB at 300 feet, acoustical equations yield a noise level of 81 dBA at 50 feet. Consequently, the emergency backup generators would be consistent with noise policies of the County General Plan. Therefore Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for construction-related vibration impacts (within 120 feet of Alternative 3 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project, with the exception that no construction would occur adjacent to a historic structure (CEMEX building), so cumulative impacts from construction vibration would be reduced compared to the proposed project. The components of Alternative 3 that are common with the proposed project would result in the same operational noise impacts; therefore, the analysis of cumulative noise impacts during operation of those components is the same as described in Section 4.12.6. The desalination plant would be in a different location and the data center and backup generators would be new sources of operational noise compared to the proposed project, but no projects relevant to the cumulative scenario for Alternative 3 would be located within 500 feet of these components and create new sources of noise; therefore, the cumulative analysis associated with these components is the same as described above for Alternative 3 alone.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These include the additional pipelines, desalination facility, data center and ancillary equipment.

One additional cumulative project described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 3 to result in cumulative noise impacts during construction: the GWR Project (No. 59). In the absence of detailed information regarding exact construction phase timing, a quantitative assessment of cumulative nighttime noise impact cannot be reasonably estimated. However, it is conservatively assumed that the potential exists for residual (post-mitigation) construction noise to combine with that of the GWR Project to cause nighttime

noise levels to exceed the sleep interference threshold. As described in the FEIR for the GWR Project, construction activities associated with the injection well facilities of the GWR Project, which would be located within 500 feet of the southern end of the new Transmission Main, would result in significant and nighttime noise impacts that would be reduced to a less than significant level with implementation of adopted mitigation measures (MRWPCA, 2016). The new Transmission Main also would result in less-than-significant noise impacts after implementation of mitigation, as described in Section 4.12.6.1. As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact that would be increased compared to either Alternative 3 or the GWR Project alone, and could remain significant and unavoidable even with mitigation specified for each project. No additional mitigation within the scope of this EIR/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, nighttime construction noise could have a significant contribution to a significant cumulative impact.

Overall, Alternative 3 would result in an increased severity but the *same impact conclusion* as the proposed project for cumulative effects related to construction noise, significant and unavoidable, even with mitigation.

5.5.12.7 Direct and Indirect Effects of Alternative 4 - the People's Moss Landing Water Desalination Project

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Alternative 4 would construct intake and brine discharge pipelines and a pump station on the beach and adjacent to the Monterey Bay Aquarium Research Institute that would require HDD equipment and marine barge(s), and require additional lengths of Source Water and Desalinated Water Pipelines. Sheet pile installation, which would occur during daytime hours, would generate a noise level of 75.8 dBA, L_{eq} which is above the speech interference threshold for daytime work. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)** and **4.12-1b (General**

Noise Controls for Construction Equipment) would reduce impacts to less-than-significant levels.

Construction of the desalination facility would occur as close as 420 feet from the live aboard receptors at Moss Landing Marina. This distance is sufficient to attenuate construction noise to 62.0 dBA, which would be below the speech interference threshold for daytime work but above the sleep interference threshold for nighttime work. Thus, Alternative 4 would result in exposure of additional receptors to nighttime construction noise compared to the proposed project. Implementation of **Mitigation Measures 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** and **4.12-1e (Offsite Accommodations for Substantially Affected Receptors)** would reduce impacts to less than significant.

Alternative 4 would construct pipelines and a desalination facility within unincorporated Monterey County where, Policy S-7.9 requires the project sponsor to complete a noise mitigation study if construction noise would exceed the “acceptable” levels listed in Policy S-7.1 within 500 feet of a noise-sensitive land use during evening hours. Because the additional length of pipelines and desalination facility would be within 500 feet from the nearest receptors at the Moss Landing Marina, Potrero Road, Molera Road and Nashua Road, construction activities would be inconsistent with this policy and **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would be required to reduce this impact to less than significant. All remaining components of Alternative 4 would be the same as the proposed project, and nighttime noise impacts during drilling and development of the ASR-5 and ASR-6 Wells would remain significant and unavoidable. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project related to noise impacts, significant and unavoidable, even with mitigation.

Because nighttime construction of the additional length of Desalinated Water Pipeline would occur, Alternative 4 would exceed the significance threshold for sleep interference due to the proximity of additional sensitive receptors on Potrero Road and Nashua Road. Implementation of **Mitigation Measures 4.12-1a, 4.12-1b, 4.12-1c, and 4.12-1e** would reduce impacts to a less-than-significant level for the Potrero Road residences, but would not reduce the impact to less than significant for Nashua Road residences. All remaining components would be the same as the proposed project and Alternative 4 would result in the *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

Vibration impacts would not occur adjacent to a historic structure (CEMEX building). All remaining components would be the same as the proposed project, requiring implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** near residences. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 4 would locate the desalination facility and intake pump station closer to additional sensitive receptors than the proposed project. Operational noise from the desalination plant and pump station could result in a noise impact in excess of 5 dBA above existing levels at live-aboard residences of the Moss Landing Marina, approximately 420 feet away from each

respective source. Existing ambient noise levels at the Marina are elevated due to the presence of Highway 1 and operations of the Moss Landing Power Plant. Mitigation measures would likely be required to ensure compliance with a performance standard of no more than a 5 dBA increase over existing noise levels and ensure that plant and inlet pump operations would not result in a significant permanent increase in noise levels. To ensure that the operational noise impact would be reduced to a less-than-significant level, implementation of **Mitigation Measure ALT 4-NO** would be required.

Mitigation Measure ALT 4-NO applies to the Alternative 4 desalination plant and intake pump station and would not apply to the proposed project or other alternatives.

Mitigation Measure ALT 4-NO: Operational Performance Noise Standard for Desalination Facilities and Pump Station

Proposed generators shall include acoustical shielding sufficient to achieve a noise level no greater than 5 dBA above the existing nighttime noise level at the nearest sensitive receptor.

All remaining components of Alternative 4 would result in an increased level of impact compared to the proposed project. Thus, Alternative 4 would have the *same impact conclusion* as the proposed project related to operational noise, less than significant impacts with mitigation.

Desalination equipment and pumps would be installed in unincorporated Monterey County. Policy S-7.6 of the County Plan Noise Element requires an acoustical analysis for proposed noise generators that produce a noise level exceeding 85 dBA at 50 feet from the source. The RO system at the Desalination Plant would include a series of pumps, but these would be located inside the treatment building and are not expected to generate substantial noise and would hence be unlikely to generate noise levels exceeding 85 dBA at 50 feet. Alternative 4 would result in an increased level of impact compared to the proposed action, but would have the *same impact conclusion*, less than significant.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for construction-related vibration impacts (within 120 feet of Alternative 4 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project, with the exception that no construction would occur adjacent to a historic structure (CEMEX building). Cumulative impacts from construction vibration would be reduced compared to the proposed project.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These include the additional pipelines and the desalination facility.

One additional cumulative project described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 4 to result in cumulative noise impacts: the DeepWater Desal Project (No. 34). In the absence of detailed information regarding cumulative project construction equipment and exact construction phase timing, a quantitative assessment of cumulative nighttime noise impact cannot be reasonably estimated. However, it is conservatively assumed that the potential exists for residual (post-mitigation) construction noise to combine with that of the DeepWater Desal Project to cause nighttime noise levels to exceed the sleep interference threshold. As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact. No additional mitigation within the scope of this EIR/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, nighttime construction noise of Alternative 4 could have a significant contribution to a significant and unavoidable cumulative effect, similar to the proposed project.

The components of Alternative 4 that are common with the proposed project would result in the same operational noise impacts; therefore, the analysis of cumulative noise impacts during operation of those components is the same as described in Section 4.12.6. The DeepWater Desal desalination plant and data center would be greater than 500 feet from the Alternative 4 facilities and would therefore be outside the geographic scope for cumulative operational noise impacts. No other cumulative projects would be within 500 feet of components unique to Alternative 4 that would generate operational noise.

Overall, Alternative 4 would result in the *same impact conclusion* as the proposed project for cumulative effects related to noise and vibration, significant and unavoidable, even with mitigation.

5.5.12.8 Direct and Indirect Effects of Project Alternatives 5a and 5b

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Alternative 5a would construct the same facilities, with fewer slant wells and a smaller desalination plant, in the same locations as the proposed project, and construction-related increases in ambient noise for the slant well installation would be less than significant. All other construction noise impacts would be the same as the proposed project. Even with implementation of mitigation measures, Alternative 5a would have a significant and unavoidable increase in noise levels during nighttime construction of pipeline segments close to sensitive receptors and at the ASR-5 and ASR-6 wells. Therefore, Alternative 5a would result in a *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

Alternative 5b would construct the same facilities, with fewer slant wells and a smaller desalination plant, in the same locations as for Alternative 1. Therefore, all construction-related noise impacts would be the same as for Alternative 1, as discussed previously. Alternative 5b would result in the *same impact conclusion* as the proposed project, significant and unavoidable, even with mitigation.

Operational and Facility Siting Impacts

Alternative 5a would operate the same facilities in the same locations as the proposed project. A reduced number of subsurface slant wells would be installed, and the operational noise impact of the slant wells would be less than 5 dBA at the nearest receptors for both the project and Alternative 5a. Operation of the ASR-5 and ASR-6 Wells, and the booster stations at the Main System-Hidden Hills Interconnection could result in a significant impact. However, implementation of the **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)** would reduce operational noise impacts to less-than-significant level. Therefore, Alternative 5a would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Subsurface Slant Wells under Alternative 5b would operate closer to noise sensitive receptors (1,000 feet) than the proposed project (4,000 feet). Simultaneous operation of 5 well pumps would conservatively generate a noise level of approximately 63 dBA at 50 feet. At 1,000 feet, slant well pump noise would be reduced to 37 dBA, which is below ambient levels monitored along Potrero Road (54 dBA, L_{eq}) and would not contribute meaningfully to ambient noise levels. Operation of the ASR-5 and ASR-6 Wells, and the booster stations at the Main System-Hidden Hills Interconnection could result in a significant impact. However, implementation of the **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)** would reduce operational noise impacts to less-than-significant level.

Under Alternative 5b, the source water pipeline and subsurface Slant Wells would be installed in unincorporated Monterey County instead of the City of Marina. Policy S-7.6 of the County Plan Noise Element requires an acoustical analysis for proposed noise generators that produce a noise level exceeding 85 dBA at 50 feet from the source. Simultaneous operation of 5 well pumps would be consistent with Noise policies of the County Plan.

Consequently, Alternative 5b would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for vibration impacts (within 120 feet of Alternative 2 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project, with the exception that for Alternative 5a, less construction would occur near an historic structure (CEMEX building), and that for Alternative 5b, no construction would occur adjacent to this structure, so cumulative impacts from construction vibration would be reduced compared to the proposed project. The components of Alternative 5 that would result in operational noise are the same as for the proposed project; therefore, the analysis of cumulative noise impacts during

operation is the same as described in Section 4.12.6; no additional projects – including the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) – would include operational noise-generating components that would be within the geographic scope for operational noise impacts.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These include the Source Water Pipeline and the Subsurface Slant Wells.

Two additional cumulative projects described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 5 to result in cumulative noise impacts: the DeepWater Desal Project (No. 34) and the GWR Project. In the absence of detailed information regarding cumulative project construction equipment and exact construction phase timing, a quantitative assessment of cumulative nighttime noise impact cannot be reasonably estimated. However, it is conservatively assumed that the potential exists for residual (post-mitigation) construction noise to combine with that of the DeepWater Desal and GWR projects to cause nighttime noise levels to exceed the sleep interference threshold. As described in the FEIR for the GWR Project, construction activities associated with the injection well facilities of the GWR Project, which would be located within 500 feet of the southern end of the new Transmission Main, would result in significant and unavoidable nighttime noise impacts even with implementation of adopted mitigation measures (MRWPCA, 2016). As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact that would be increased compared to Alternative 5, the DeepWater Desal Project, or the GWR Project alone, and would remain significant and unavoidable even with mitigation specified for each project. No additional mitigation within the scope of this EIR/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, nighttime construction noise of Alternative 5a and 5b could have a significant contribution to a significant and unavoidable cumulative impact.

Overall, Alternatives 5a and 5b would result in a reduced severity but the *same impact conclusion* as the proposed project for cumulative effects related to noise, significant and unavoidable, even with mitigation.

5.5.12.9 References

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project*. Prepared by Denise Duffy and Associates, January 2016.

Siemens AG, 2005. Siemens Gas Turbines (SGT), SGT-500 Industrial Gas Turbine.

5.5.13 Public Services and Utilities

The evaluation criteria for Public Services and Utilities address: disruption or relocation of utilities; exceedance of wastewater treatment requirements; wastewater treatment and outfall capacity; landfill capacity and compliance with solid waste regulations; and corrosion of the existing MRWPCA outfall and diffuser.

5.5.13.1 Setting/Affected Environment

The general environmental setting and regulatory framework for the alternatives would be similar to the proposed project, which includes the public services, utilities, and local and state regulations that apply to Monterey County. As such, descriptions of the environmental setting and regulatory framework for public services and utilities are provided in Section 4.13 and are not repeated in this section.

5.5.13.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

Impact 4.13-1: Disrupt or relocate regional or local utilities during construction.

Proposed project construction, including trenching, excavation, and pipeline installation, could damage or interfere with existing water, sewer, stormwater drainage, natural gas, electric, or communication utility service lines. Construction could require the permanent relocation of these utility lines, potentially interrupting service. Accidental damage to utility lines during construction could temporarily disrupt utility services and, in the case of high-risk utilities, could result in significant safety hazards for construction workers. This potentially significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a (Locate and Confirm Utility Lines), 4.13-1b (Coordinate Final Construction Plans with Affected Utilities), 4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities), 4.13-1d (Emergency Response Plan), 4.13-1e (Notify Local Fire Departments), and 4.13-1f (Ensure Prompt Reconnection of Utilities)**. These mitigation measures would require the construction contractor(s) to: confirm the location of existing utilities; work with utility service providers to minimize the risk of damage to existing utility lines and ensure prompt reconnection of service in the event of a service disruption; take special precautions when working near high-risk utility lines; clearly outline the procedures to follow in the event of a leak or explosion; and immediately notify local fire departments of any damage to high-risk utility lines. These mitigation measures would apply to all project components.

Impact 4.13-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction.

Project construction would generate approximately 25,110 cubic yards total (37,665 tons), or up to 59 tons per day, of excess spoils and construction materials. Instead of being recycled, conservative analysis assumes that all excess spoils and construction debris would be disposed of at the Monterey Peninsula Landfill, which is permitted to receive 3,500 tons of waste per day and has an estimated remaining capacity of 48,560,000 cubic yards. The total amount of excess spoils

and construction debris generated by the project represents approximately 0.05 percent of the landfill's remaining capacity. Therefore, project construction waste would not exceed or substantially deplete the landfill capacity.

Failure to reuse or recycle excavation materials and other construction waste generated during MPWSP construction would conflict with the County's Integrated Waste Management Plan policies and could also adversely affect state-mandated diversion rates. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)**. This measure would require CalAm's construction contractor(s) to prepare and implement a plan to divert recoverable materials from landfills. This mitigation measure would apply to all project components.

Impact 4.13-3: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations.

MPWSP Desalination Plant operations would generate approximately 5 cubic yards per day (7.5 tons) of solid waste that would be routinely disposed of at the Monterey Peninsula Landfill. There are no known opportunities for reusing or recycling these solids, but the landfill could accept the waste without exceeding its permitted daily tonnage or substantially depleting long-term capacity. Maintenance of the ASR Pump-to-Waste System would generate approximately 240 pounds (less than 1 ton) per year of sediment materials that would be taken to the Waste Management District's materials recovery facility for reuse or recycling. All other proposed facilities would have a very limited potential to generate waste. Impacts related to solid waste disposal and landfill capacity during operations and maintenance would be less than significant.

Impact 4.13-4: Exceed wastewater treatment requirements of the Central Coast RWQCB, or result in a determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project.

Brine generated by the MPWSP Desalination Plant would be discharged to Monterey Bay in MBNMS through the MRWPCA's existing ocean outfall and diffuser. Depending upon the season, brine could be discharged without dilution for extended periods, since treated wastewater is used for irrigation in the dry season. The *Waste Discharge Requirements for the Monterey Regional Water Pollution Control Agency Treatment Plant* [Order No. R3-2014-0013, NPDES Permit No. CA0048551], which regulate discharges from the outfall, would be amended before the MPWSP Desalination Plant starts operating to incorporate the "brine only" and combined discharges. Both the "brine only" and the combined discharges would comply with Ocean Plan water quality objectives for the majority of constituents. However, the concentrations of two constituents, cyanide and ammonia, could become elevated to a level that is close to or that exceeds the Ocean Plan standard (as discussed in Section 4.3.5.2, Operational and Facility Siting Impacts). Also, there is not enough information to assess concentrations for an additional thirteen individual constituents and, consequently, it is conservatively assumed that an exceedance of Ocean Plan water quality objectives could occur as a result of operational discharges. Exceedances of wastewater treatment requirements would be a significant impact. In addition to amending discharge requirements, **Mitigation Measures 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **Mitigation Measure 4.3-5**

(Implement Protocols to Avoid Exceeding Water Quality Objectives) are prescribed to monitor, report and reduce any water quality impacts associated with potential exceedances of the Ocean Plan water quality objective to a less-than-significant level.

Wastewater generated by 25 to 30 employees (approximately 750 gallons per day) at the MPWSP Desalination Plant would require treatment at the MRWPCA Regional Wastewater Treatment Plant. This volume would have a negligible impact on the MRWPCA treatment capacity of 29.6 mgd and discharge capacity of 81.2 mgd. None of the treatment processes at the MPWSP Desalination Plant site and none of the other proposed project facilities would generate wastewater during operations that would require treatment at the MRWPCA Regional Wastewater Treatment Plant. Therefore, project operations would not exceed wastewater treatment capacity and would have a less than significant impact on wastewater treatment capacity.

The MPWSP Desalination Plant would discharge approximately 14 mgd of brine through the MRWPCA outfall and diffuser, which have a physical discharge capacity of between 66.5 and 94.6 mgd and are permitted to discharge up to 81.2 mgd. Between 1998 and 2012, treated wastewater flows on average ranged from 19.78 mgd to 0.90 mgd, depending upon the irrigation season. Maximum instantaneous flows during the same time period ranged from 40.4 mgd to 59.9 mgd. Assuming full outfall capacity of 81.2 mgd, there would be sufficient capacity to accept the brine generated by the MPWSP Desalination Plant combined with maximum instantaneous flow. In case the volume of brine flows, plus maximum instantaneous wastewater flows during large storm events could exceed outfall and diffuser capacity, a 3-million-gallon brine storage basin has sufficient capacity to detain flows from approximately 6 hours of desalination plant operations. Therefore, the impact related to outfall capacity would be less than significant.

Impact 4.13-5: Increased corrosion of the MRWPCA outfall as a result of brine discharges associated with project operations.

Turbulence might be expected to occur in the land segment of the outfall, the junction drop structure at the shoreline, and approximately the first 100 feet of the offshore pipeline. This turbulence could introduce oxygen into the system and increase the potential for corrosion, which is considered a significant impact. As a project separate from the MPWSP, the beach junction box will be replaced and pre-lined with corrosion-resistant lining prior to accepting MPWSP brine discharge. The impacts on the land and ocean segments of the outfall would be reduced to a level that is less than significant with implementation of **Mitigation Measures 4.13-5a (Replacement of WEKO seal clamps, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall)**, which requires the replacement of the existing WEKO seal clamps in the nearshore portion of the outfall pipeline with new corrosion-resistant clamps and periodic inspections of the outfall thereafter, and **4.13-5b (Install Protective Lining in Land Segment of MRWPCA Ocean Outfall)**, which requires the phased application of a protective liner system along the entire 13,000-foot-long land segment.

Impact 4.13-C: Cumulative impacts related to public services and utilities.

Cumulative effects related to utility relocation or disruption and to landfill capacity during proposed project construction could be significant since all cumulative projects involving future

construction would be applicable, but the proposed project’s potentially significant contribution to this impact would be reduced to a less-than-significant level with implementation of mitigation measures identified in Impacts 4.13-1 and 4.13-2. Proposed project operations would have a less than significant contribution to cumulative landfill capacity impacts since operational wastes would have a relatively small effect on daily and absolute landfill receiving capacity. Cumulative effects on effluent flows that could exceed wastewater treatment requirements could be significant, but the proposed project’s contribution to this impact would be reduced to a less-than-significant level with implementation of mitigation measures in Impact 4.13-4. Similarly, although cumulative impacts related to corrosion of the MRWPCA outfall could be significant, implementation of the mitigation measures identified in Impact 4.13-5 would reduce the proposed project’s contribution to cumulative corrosion impacts to less than significant.

5.5.13.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed and the existing test slant well would be decommissioned. Consequently, there would be no ground disturbance or placement of new structures that could affect public services or utilities, and therefore, no construction- or operation-related direct or indirect impacts on public services or utilities associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to public services and utilities, it could not contribute to cumulative effects related to these topics.

5.5.13.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the utilities impact analysis of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

Construction of the additional 5.5 miles of source water pipeline in Alternative 1 could result in an increased potential for disruption or relocation of regional or local utilities compared to the proposed project. The potential significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a (Locate and Confirm Utility Lines)**, **4.13-1b (Coordinate Final Construction Plans with Affected Utilities)**, **4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities)**, **4.13-1d (Emergency Response Plan)**, **4.13-1e (Notify Local Fire Departments)**, and **4.13-1f (Ensure**

Prompt Reconnection of Utilities). Therefore, combining the impacts of the components common with the proposed project and the addition of 5.5 miles of source water pipeline, Alternative 1 construction effects on regional or local utilities would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

The additional length of the Alternative 1 source water pipeline would generate slightly more solid waste during construction compared to the proposed project. However, the increased amount would not exceed landfill capacity. As discussed in Section 4.13.2, Regulatory Framework, state and county waste diversion regulations require that specific portions of construction waste be recycled and diverted from landfill. Failure to comply with waste diversion regulations would be a significant impact that would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)**. Therefore, combining the impacts of the components common with the proposed project with the additional 5.5 miles of source water pipeline, Alternative 1 construction effects on landfill capacity or solid waste regulations would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

No components unique to Alternative 1 would create waste during operations. All components that generate operational wastes would be the same as the proposed project. Therefore, Alternative 1 operational effects on landfill capacity or solid waste regulations would result in the *same impact conclusion* as the proposed project, less than significant.

Alternative 1 would use the same outfall and desalination plant as the proposed project; therefore, “brine only” and combined discharges would be the same as the proposed project, resulting in the same potentially significant impacts related to wastewater treatment requirements of the RWQCB as those under the proposed project. Implementation of **Mitigation Measures 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** would reduce impacts to a less-than-significant level. In addition, Alternative 1 would generate the same volume of brine, approximately 14 mgd, and the same amount of wastewater during operations as the proposed project, which would not exceed wastewater treatment and outfall capacity, resulting in a less-than-significant impact. Therefore, Alternative 1 operational effects on wastewater treatment requirements would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Brine in Alternative 1 would have the same salinity levels as the proposed project, resulting in the same potentially significant impact from increase in corrosion of the MRWPCA outfall . Implementation of **Mitigation Measures 4.13-5a (Replacement of WEKO seal clamps, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall)** and **4.13-5b (Install Protective Lining in Land Segment of MRWPCA Ocean Outfall)** would reduce significant impacts to a less-than-significant level. Therefore, Alternative 1 operation would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to utilities for Alternative 1 is defined by the location of Alternative 1 components, and is the same as that described for the proposed project in Section 4.13.6, with exception of the different location of the subsurface intake system and alternative source water pipeline route. The cumulative scenario for Alternative 1 includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the DeepWater Desal project (No. 34). The RUWAP Recycled Water Project (No. 35) and the RUWAP Desalination Element (No. 31) are included since each has the potential to impact MRWPCA outfall capacity, outfall quality as it relates to corrosion of the outfall pipe, and wastewater treatment requirements. The impacts from construction and operation of Alternative 1 would be the same as those described for the proposed project, and have the potential to be significant. With implementation of mitigation measures described above, Alternative 1 would have a less than significant contribution to significant cumulative impacts. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the utilities impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Construction of the additional 6.5 miles of source water pipeline in Alternative 2 could result in an increased potential for disruption or relocation of regional or local utilities compared to the proposed project. The potential significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a (Locate and Confirm Utility Lines)**, **4.13-1b (Coordinate Final Construction Plans with Affected Utilities)**, **4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities)**, **4.13-1d (Emergency**

Response Plan), **4.13-1e (Notify Local Fire Departments)**, and **4.13-1f (Ensure Prompt Reconnection of Utilities)**). Therefore, combining the impacts of the components common with the proposed project and the additional 6.5 miles of source water pipeline, Alternative 2 construction effects on regional or local utilities would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

The additional length of the Alternative 2 source water pipeline would generate slightly more solid waste during construction compared to the proposed project. However, the increased amount would not exceed landfill capacity. Since compliance with solid waste diversion rates are required by state and county regulation, failure to comply with such regulations would be a significant impact that would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)**. Therefore, combining the impacts of the components common with the proposed project with the additional 6.5 miles of the source water pipeline, Alternative 2 construction effects on landfill capacity or solid waste requirements would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

No components north of the Salinas River would create waste during operations. All components that generate operational wastes south of the Salinas River would be the same as the proposed project. Therefore, Alternative 2 operational effects on landfill capacity and solid waste requirements would result in the *same impact conclusion* as the proposed project, less than significant.

Alternative 2 would use the same outfall and desalination plant as the proposed project; therefore, it would have the same impact on wastewater treatment requirements and MRWPCA treatment and outfall capacity as Alternative 1 and the proposed project. The potentially significant impacts on wastewater treatment requirements of the RWQCB would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**. Similar to the proposed project, impacts on treatment and outfall capacity would be less than significant. Therefore, Alternative 2 operational effects on wastewater treatment requirements would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Alternative 2 would result in the same potentially significant corrosive impact on the MRWPCA outfall and diffuser as Alternative 1 and the proposed project. Implementation of **Mitigation Measures 4.13-5a (Replacement of WEKO seal clamps, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall)** and **4.13-5b (Install Protective Lining in Land Segment of the MRWPCA Ocean Outfall)** would reduce the brine corrosion impact on the MRWPCA outfall lining and diffuser to less than significant. Therefore, Alternative 2 operations would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative utility impacts for Alternative 2 is defined by the location of the Alternative 2 components, and is the same as that described for the proposed project in Section 4.13.6, with exception that the Castroville Pipeline and Pipeline to CSIP are not included, as well as the different location of the open water intake system and alternative source water pipeline. The cumulative scenario for Alternative 2 includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the DeepWater Desal project (No. 34). The RUWAP Recycled Water Project (No. 35) and the RUWAP Desalination Element (No. 31) are included since each has the potential to impact MRWPCA outfall capacity, outfall quality as it relates to corrosion of the outfall pipe, and wastewater treatment requirements. The impacts from construction and operation of Alternative 2 would be the same as those described for the proposed project, and have the potential to be significant. With implementation of mitigation measures described above, Alternative 2 would have a less than significant contribution to significant cumulative impacts. Therefore, Alternative 2's contribution would result in the *same impact conclusion* as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the utility impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Construction of Alternative 3 would result in an increased potential for disruption or relocation of regional or local utilities compared to the proposed project. The potential significant impact would be reduced to a less than significant level with implementation of **Mitigation Measures 4.13-1a (Locate and Confirm Utility Lines)**, **4.13-1b (Coordinate Final Construction Plans with Affected Utilities)**, **4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities)**, **4.13-1d (Emergency Response Plan)**, **4.13-1e (Notify Local Fire Departments)**, and **4.13-1f (Ensure Prompt Reconnection of Utilities)**. Therefore, combining the impacts of the components common with the proposed project and the additional components, construction effects on regional or local utilities would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

While the exact volume is unknown at this time, Alternative 3 would generate more construction solid waste than the proposed project due to the additional length of required pipelines, construction of intake and discharge conveyance, and larger construction footprint of the desalination plant, data center, and substation. However, the additional amount would be unlikely to cause landfill capacity to be exceeded. In addition, state and county waste diversion regulations require that specific portions of construction waste be recycled and diverted from landfill. Failure to comply with waste diversion regulations would be a significant impact that would be reduced to a less-than-significant level with implementation of proposed project **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)**. Therefore, combining the impacts of the components common with the proposed project and those unique to Alternative 3, construction effects on landfill capacity or compliance with solid waste requirements would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Operation of the Alternative 3 desalination plant would generate approximately 8.5 tons per day of dried sludge or cake, compared to the 7.5 tons for the MPWSP Desalination Plant. Maintenance of ASR Pump-to-Waste System, common with the proposed project, would generate approximately 240 pounds per year of operational waste. The additional cake volume from this alternative would not exceed landfill capacity or be out of compliance with federal, state, and local regulations related to solid waste during operations. Therefore, combining the impacts of the components common to the proposed project and the DeepWater desalination plant, Alternative 3 operational effects on landfill capacity or solid waste regulations would result in the *same impact conclusion* as the proposed project, less than significant.

Alternative 3 would not discharge brine to a wastewater treatment utility; therefore, brine discharges would have no impact on the MRWPCA's wastewater treatment requirements or outfall capacity. Employees would generate approximately 1,150 gpd of wastewater. Peak flows associated with the discharge of water from the closed-loop cooling system would be expected to occur less than a day per year and would be approximately 588,000 gallons per day. Such wastewater flows would be conveyed to the Castroville Sanitary District sanitary sewer system, which feeds into the MRWPCA wastewater treatment facility and would have a negligible impact on the MRWPCA discharge capacity of 81.2 mgd. Therefore, combining the impacts of the

components common with the proposed project and those unique to Alternative 3, operational effects would result in a decreased level of impact on wastewater treatment requirements (no impact); an increased level of impact on wastewater treatment capacity (less than significant); and a decreased level of impact on outfall capacity (less than significant). Overall, Alternative 3 would result in a **reduced impact conclusion** as the proposed project, less than significant.

Alternative 3 would not discharge brine to the MRWPCA outfall; therefore, operational effects related to corrosion of the outfall would result in a **reduced impact conclusion** compared to the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for cumulative utilities impacts for Alternative 3 is defined by the location of the Alternative 3 components. The cumulative scenario for Alternative 3 includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the GWR Project (No. 59). Unlike for the proposed project and Alternatives 1 and 2, the RUWAP projects would not be relevant to the operational cumulative scenario since they would not share a wastewater/brine discharge outfall with Alternative 3.

Impacts from construction of Alternative 3 would be similar to those described for the proposed project, and have the potential to be significant in light of the potentially significant cumulative impacts of multiple simultaneous projects on regional or local utilities and landfill capacity and solid waste regulations. However, with implementation of mitigation measures described above, the contributions of Alternative 3 to significant cumulative impacts would be reduced to a level that is less than significant because the potential for disruption of utilities would be reduced to the extent feasible and the likelihood of overlapping impacts would be minimized, and because Alternative 3 would comply with applicable solid waste regulations, reducing its construction and demolition waste to the extent feasible and required by such regulations. Impacts of Alternative 3 associated with operational wastes would be the same as the proposed project and would not have a significant contribution to a significant cumulative impact on landfill capacity or solid waste regulations. Operation of Alternative 3 would result in negligible impacts on a wastewater treatment utility due to wastewater volume, and would not contribute to cumulative impacts on wastewater treatment requirements or corrosion of the MRWPCA outfall and diffuser. Therefore, Alternative 3 would have the **same impact conclusion** as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and

ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the utilities impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Construction of Alternative 4 could result in an increased potential for disruption or relocation of regional or local utilities compared to the proposed project associated with the additional desalinated water pipeline alignment. In particular, to rehabilitate the outfall/diffuser system at the caisson, service to the MLML, Phil's Fish Market, sea lion facilities, and MBARI could be disrupted since these entities draw seawater from two 8-inch intakes that are installed within the outfall/diffuser system. To ensure there would be no disruption in service to these customers during rehabilitation and to avoid a potentially significant impact, Alternative 4 would be required to implement **Mitigation Measures 4.13-1a (Locate and Confirm Utility Lines)**, **4.13-1b (Coordinate Final Construction Plans with Affected Utilities)**, **4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities)**, **4.13-1d (Emergency Response Plan)**, **4.13-1e (Notify Local Fire Departments)**, and **4.13-1f (Ensure Prompt Reconnection of Utilities)**. Therefore, combining the impacts of the components common with the proposed project and those unique to Alternative 4, construction effects on regional or local utilities would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Solid waste from construction of Alternative 4 would be approximately 93,250 cy, which is more than three times the volume for the proposed project. The proposed project conservatively assumes that all excess solid waste and construction debris would be disposed at the Monterey Peninsula Landfill, which has an estimated remaining capacity of 48,560,000 cubic yards. The total amount of excess solid waste and construction debris generated by the MPWSP represents approximately 0.06 percent of the landfill's remaining capacity, while disposal of the Alternative 4 solid waste would represent approximately 0.1 percent. In addition, state and county waste diversion regulations require that construction waste be recycled and diverted from landfill at specific levels. Failure to comply with waste diversion regulations would be a significant impact. Alternative 4 would result in an increased potential for a significant impact on landfill capacity during construction compared to the proposed project, if wastes are not diverted. Implementation of **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)** would reduce impact on landfill capacity to less than significant. Therefore, combining the impacts of the components common with the proposed project and those unique to Alternative 4, construction effects on landfill capacity or compliance with solid waste requirements would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Operation of the Alternative 4 desalination plant would generate approximately 2 tons per day of cake, compared to 7.5 tons per day by the MPWSP Desalination Plant. Therefore, Alternative 4 would have a decreased level of impact on landfill capacity during operations compared to the proposed project. Combining the impacts of the components common to the proposed project and the Alternative 4 desalination plant, operational effects on landfill capacity and compliance with solid waste regulations would result in the *same impact conclusion* as the proposed project, less than significant.

Alternative 4 would not discharge brine to a wastewater treatment utility; therefore, brine discharges would have no impact on the MRWPCA's wastewater treatment requirements or outfall capacity. Operation of Alternative 4 would generate approximately 74,500 gpd of wastewater discharge to the Castroville Sanitary District sanitary sewer system, which feeds into the MRWPCA wastewater treatment facility. Such wastewater volumes would have a negligible impact on the MRWPCA discharge capacity of 81.2 mgd. Therefore, combining the impacts of the components common with the proposed project and those unique to Alternative 4, operational effects would result in a decreased level of impact on wastewater treatment requirements (no impact); an increased level of impact on wastewater treatment capacity (less than significant); and a decreased level of impact on outfall capacity (less than significant). Overall, Alternative 4 would result in a *reduced impact conclusion* compared to the proposed project, less than significant.

Alternative 4 would not discharge brine to the MRWPCA outfall; therefore, operational effects related to corrosion of the outfall would result in a *reduced impact conclusion* compared to the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for cumulative utility impacts for Alternative 4 is defined by the location of the Alternative 4 components. The cumulative scenario for Alternative 4 includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the DeepWater Desal Project (No. 34). Unlike the proposed project and Alternatives 1 and 2, the RUWAP projects would not be relevant to the operational cumulative scenario since they would not share a wastewater/brine discharge outfall with Alternative 4. Unlike Alternative 3, the GWR Project (No. 59) is not relevant to the operational cumulative scenario for Alternative 4 because Alternative 4 would serve all of CalAm's Monterey District demand.

Impacts from construction of Alternative 4 would be similar to those described for the proposed project, and have the potential to be significant in light of the potentially significant cumulative impacts of multiple simultaneous projects on regional or local utilities and landfill capacity and solid waste regulations. However, with implementation of mitigation measures described above, the contributions of Alternative 4 to significant cumulative impacts would be reduced to a level that is less than significant because the potential for disruption of utilities would be reduced to the extent feasible and the likelihood of overlapping impacts would be minimized, and because

Alternative 4 would comply with applicable solid waste regulations, reducing its construction and demolition waste to the extent feasible and required by such regulations. Impacts of Alternative 4 associated with operational wastes would be similar to the proposed project and would have a less than significant contribution to a significant cumulative impact on landfill capacity or compliance with solid waste regulations. Operation of Alternative 4 would result in negligible impacts on a wastewater treatment utility due to wastewater volume, and would not contribute to cumulative impacts on wastewater treatment requirements or corrosion of the MRWPCA outfall and diffuser. Therefore, Alternative 4 would have the *same impact conclusion* as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction of Alternatives 5a and 5b would have the same potential for disruption or relocation of regional or local utilities as the proposed project. The potentially significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a (Locate and Confirm Utility Lines)**, **4.13-1b (Coordinate Final Construction Plans with Affected Utilities)**, **4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities)**, **4.13-1d (Emergency Response Plan)**, **4.13-1e (Notify Local Fire Departments)**, and **4.13-1f (Ensure Prompt Reconnection of Utilities)**. Therefore, construction of Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project regarding regional or local utilities, less than significant with mitigation.

Besides constructing fewer slant wells and a smaller capacity desalination plant, Alternative 5a would not result in changes to other proposed project components and would produce a similar volume of construction waste. Alternative 5b would result in a higher volume of construction waste due to the increased length of source water pipeline, but like Alternative 1, would not exceed landfill capacity. Therefore, Alternative 5a would have a similar level of impact on landfill capacity and Alternative 5b would have a slightly increased level of impact on landfill capacity compared to the proposed project. Failing to divert a substantial portion of construction waste could conflict with solid waste regulations, which would be a significant impact. Implementation of **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)** would reduce impacts related to landfill capacity and compliance with solid waste regulations to less than significant by ensuring that construction waste is reduced and recycled to the extent feasible in compliance with such regulations. Therefore, construction of Alternatives 5a

and 5b would result in the *same impact conclusion* as the proposed project regarding landfill capacity and compliance with solid waste regulations, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternatives 5a and 5b would operate the proposed MPWSP desalination plant and ASR Pump-to-Waste System, which are the only features expected to generate waste during operation. The volume of cake would be reduced under Alternatives 5a and 5b compared to the proposed project due to the reduced-capacity desalination plant. Therefore, operation of Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project regarding landfill capacity, less than significant.

Wastewater flows generated by the employees in Alternatives 5a and 5b would be the same as the proposed project. Alternatives 5a and 5b would operate a reduced-capacity desalination plant compared to the proposed project, which would produce reduced volumes of brine relative to the proposed project. Therefore, Alternatives 5a and 5b would have a decreased level of impact on the MRWPCA outfall capacity compared the proposed project. However, the same MRWPCA outfall would be used, and the “brine only” and combined discharges would be of the same quality as the proposed project. Therefore, Alternatives 5a and 5b would have the same level of impact related to wastewater treatment requirements as the proposed project. Potentially significant impacts related to exceedances of wastewater treatment requirements would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project regarding wastewater treatment requirements, less than significant with mitigation.

Because Alternatives 5a would draw water from the same location as the proposed project and since Alternative 5b would draw water from an aquifer that contains salt water (same location as Alternative 1), brine generated by Alternatives 5a and 5b would result in the same or similar salinity levels as the proposed project. Like the proposed project and Alternative 1, Alternatives 5a and 5b would utilize the MRWPCA outfall and diffuser. Therefore, Alternatives 5a and 5b would have the same level of impact as the proposed project, resulting in potentially significant impacts on the outfall lining and diffuser, which would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-5a (Replacement of WEKO seal clamps, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall)** and **4.13-5b (Install Protective Lining in Land Segment of MRWPCA Ocean Outfall)**. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project regarding corrosion of the MRWPCA outfall, less than significant with mitigation.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project would produce approximately 35,000 cubic yards (11,700 tons) of excess construction and demolition waste, or about 30 tons per day (MRWPCA, 2016). If construction

were to overlap, combined with the 59 tons per day from Alternative 5a or 5b, the approximately 90 tons per day of waste would not exceed or substantially deplete the landfill capacity, and the combined projects would have the *same impact conclusion* as the proposed project, less than significant with mitigation.

During operations, the GWR Project could produce up to 800 lbs/day (less than 1 ton per day) of solid wet waste requiring disposal in a landfill. However, as stated above, the volume of solid waste generated by Alternative 5a or 5b would be reduced compared to the proposed project, balancing out this increase in the combined scenario with the GWR Project. Therefore, the combined operational wastes would result in the *same impact conclusion* as the proposed project regarding landfill capacity, less than significant.

Impacts on wastewater treatment requirements from the operational brine stream in Alternatives 5a and 5b would be the same as the proposed project. The addition of GWR Project effluent (analyzed in Section 5.5.3.8) would reduce the volume of treated effluent that would be available to combine with brine flows, but the combined discharges would be of the same quality as analyzed under the proposed project and may result in a significant impact with respect to both wastewater treatment requirements and corrosion of the MRWPCA outfall. With implementation of **Mitigation Measures 4.3-4, 4.3-5, 4.13-5a, and 4.13-5b**, impacts would be reduced to less than significant. Combined impacts on outfall capacity would be less than significant. Therefore, Alternatives 5a and 5b in combination with the GWR Project would result in the *same impact conclusion* as the proposed project regarding wastewater treatment requirements and corrosion of the MRWPCA outfall, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The geographic scope of analysis for cumulative utility impacts for Alternatives 5a and 5b is the same as that for the proposed project and Alternative 1. The cumulative scenario for Alternatives 5a and 5b includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the DeepWater Desal project (No. 34) and the GWR Project. The RUWAP Recycled Water Project (No. 35) and the RUWAP Desalination Element (No. 31) are included since each has the potential to impact MRWPCA outfall capacity, outfall quality as it relates to corrosion of the outfall pipe, and wastewater treatment requirements.

Cumulative impacts from construction of Alternatives 5a and 5b would be similar to those described for the proposed project, which has the potential to result in significant impacts regarding regional and local utilities and landfill capacity. With implementation of mitigation measures described above, Alternatives 5a and 5b would have a less than significant contribution to significant cumulative impacts for the same reasons described for the proposed project in Section 4.13.6.

Impacts from operation of Alternatives 5a and 5b related to landfill capacity and compliance with solid waste regulations would be the same as those described for the proposed project and, with mitigation, would have a less than significant contribution to significant cumulative impacts on landfill capacity.

Because Alternatives 5a and 5b would have a reduced desalination plant capacity, they would have a reduced impact on MRWPCA outfall capacity compared to the proposed project. Combined with the effects of the RUWAP Recycled Water Element and the GWR Project, the impact on MRWPCA outfall capacity would be reduced compared to the cumulative scenario for the proposed project due to the increased volume of wastewater effluent that would be recycled instead of discharged through the outfall. Therefore, no significant cumulative impact on outfall capacity would occur. Cumulative impacts from the brine's potential to corrode the MRWPCA outfall in Alternatives 5a and 5b would be the same as described for the proposed project, and with implementation of mitigation measures described above, Alternatives 5a and 5b would have a less than significant contribution to significant cumulative impacts. Overall, Alternatives 5a and 5b would result in the **same impact conclusion** as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.9 References

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project*. Prepared by Denise Duffy and Associates, January 2016.

5.5.14 Aesthetic Resources

The evaluation criteria for Aesthetics address: construction-related impacts on scenic resources or the visual character of the project area and surroundings, temporary sources of light or glare during construction, permanent impacts on scenic resources or the visual character of the project area and surroundings, and permanent sources of light or glare.

5.5.14.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.14.2, Setting/Affected Environment. The setting for the components north of the Nashua Road/Highway 1 intersection is presented below.

Pipeline Alignments North of Nashua Road/Highway 1 Intersection

North and west of the Nashua Road/Highway 1 intersection, pipeline alignments for all Alternatives could extend within or alongside segments of Molera Road, Highway 1, Potrero Road, and Dolan Road, in unincorporated Monterey County. These alignments occur within the Agricultural and Urban and Built-up landscape units (see Section 4.14.2 for definitions of these units). There are no designated scenic corridors in the vicinity of these pipeline alignments.

The aesthetic character of the areas south of Moro Cojo Slough is predominantly agricultural, defined by two-lane roads bisecting mostly flat agricultural lands where row crops extend towards the horizon. In the vicinity of Moro Cojo slough, the aesthetic character is more scenic, defined by open views of the broad meandering slough channel, undeveloped grass- and marshlands extending out from the channel edge, and mature vegetation and mixed development visible in the distance. Within Moss Landing, the aesthetic character is defined by Moss Landing Harbor and the industrial Moss Landing Green Commercial Park and Moss Landing Power Plant, views of which are partially obscured by vegetated berms, mature vegetation, and opaque fencing. East of Moss Landing, along Dolan Road, the aesthetic character returns to one that is predominantly agricultural, defined by expanses of undeveloped grasslands and row crops, interspersed with residential and light industrial developments.

Sources of nighttime lighting and glare include residential developments near the Potrero Road/Highway 1 intersection, commercial and industrial development near the Dolan Road/Highway 1 intersection, commercial and institutional developments within Moss Landing Harbor, and headlights from vehicles traveling along area roads. Owing to intensive and largely inharmonious mix of land uses in the vicinity of the alignments, while also considering the broader natural context (e.g., Elkhorn Slough and the Pacific Coast), the visual quality is considered moderate. Given the existing land use patterns and highly modified landforms, the public's expectation for aesthetically pleasing views in the alignment area is limited; the visual sensitivity is, therefore, also considered moderate. Views of the alignments are generally limited to viewers in motion, such as motorists and cyclists traveling along area roads or the California Coastal Trail, and would be fleetingly visible. The landscape exposure is, therefore, considered low. For these reasons, the aesthetic resource value of the alignment area is considered moderate.

Potrero Road Parking Lot

The Potrero Road parking lot, which is the site of slant well construction in Alternative 1, is located approximately 0.4 mile west of Highway 1, within the Beaches and Coastal Dunes landscape unit. The aesthetic character of the Potrero Road parking lot is defined by the Old Salinas River channel and fringing marshes to the east and croplands beyond, and the gently rolling scrub-covered coastal dunes to the west. The nearest potential sources of nighttime lighting and glare are the homes along Laguna Place, approximately 0.25 mile to the east. Given its proximity to a vast expanse of mostly undeveloped coastal dunes and wetlands, and with consideration for its location within a state park, the site is considered to have high visual quality and high visual sensitivity. At the same time, views of the parking area are generally limited to park visitors approaching or within the parking lot. It is not visible from Highway 1 or the beach. Therefore, the site's landscape exposure is considered low. For these reasons, the aesthetic resource value is considered moderate.

Moss Landing Beach

The stretch of Moss Landing Beach in the vicinity of the Alternative 4 intake system, is located on the west side of Moss Landing's southern peninsula, approximately 250 feet west of Sandholdt Road, within the Beaches and Coastal Dunes landscape unit. The aesthetic character is defined by the narrow band of white sand beach, vegetated dunes, and Pacific Ocean to the west and south. The inland extent of the beach is flanked by revetment rock and a seawall; as well as various institutional, commercial, and marine-related industrial developments beyond. Given the types and extents of development along the beach, the aesthetic quality is considered moderate. The visual sensitivity is moderate because visitors to the area are likely drawn by and have expectations for scenic coastal views. However, views of the beach are limited to those on or immediately adjacent to the beach; it is not plainly visible from Highway 1 or other area roads. As such, the landscape exposure is low. For these reasons, the aesthetic resource value is considered moderate. Sources of nighttime lighting and glare include development fronting Sandholdt Road, along the back of the beach.

Moss Landing Green Commercial Park

The Moss Landing Green Commercial Park is located east of and adjacent to Highway 1, and south of Dolan Road and the Moss Landing Power Plant, within the Urban and Built-up landscape unit. Former home to the National Refractories & Minerals Corporation's magnesium production plant, the 200-acre site is highly degraded, characterized by a landscape denuded of all vegetation, and including a tank farm and various industrial warehouse buildings. Views of the site are generally limited to those from Highway 1 and Dolan Road, and are obscured by a vegetated earthen berm, mature vegetation, and opaque fencing. Given the site's industrial legacy and the public's lack of expectation for scenic resources, the site is considered to have a low visual quality and sensitivity. Similarly, given that views into the site are obscured by topography and vegetation, the landscape exposure is also low. For these reasons, the aesthetic resource value is considered low. Sources of nighttime lighting and glare include developments within Moss Landing and the Moss Landing Power Plant.

East Tank Farm Parcel

The East Tank Farm Parcel is located north of and adjacent to Dolan Road, approximately 2 miles east of Highway 1, within the Agricultural landscape unit. The aesthetic character of the site is defined by the large tracts of mostly-flat grasslands, coastal scrub, and marsh and slough, interspersed with various residential, agricultural, and industrial developments. Given its openness and relatively undeveloped character, while accounting for the varied types of developments existent, the site is considered to have a moderate visual quality. The public would have little expectation for scenic views in this area and so the visual sensitivity is considered low. Similarly, public views of the site are limited to those from motorists or cyclists traveling along Dolan Road, and so would be fleeting. While over 8,000 feet away, elements of the project may be visible from various vantage points within the Elkhorn Slough channel. Thus, the visual exposure is considered low. For these reasons, the aesthetic resource value of the East Tank Farm Parcel is considered low. Sources of nighttime light and glare in the site's vicinity are few and generally include distant developments and headlights from vehicles traveling along Dolan Road.

5.5.14.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.14-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.

Construction equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth associated with the implementation of many project components would be temporarily visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents and park visitors. Some of these construction activities would be visible from Highways 1, 68, and 156, which are eligible for designation or officially designated as State Scenic Highways. These construction activities could disrupt the visual character of the surrounding areas. However, due to the temporary nature of these construction effects, and because work areas would be restored to their approximate pre-construction condition upon completion of construction, such impacts would be less than significant. Although mitigation is not required to reduce a significant impact under CEQA, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

Impact 4.14-2: Temporary sources of substantial light or glare during construction,

Project construction activities have the potential to introduce temporary sources of substantial light into the project area. This impact would be significant but mitigable for the subsurface slant wells and the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge

Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, which requires site-specific construction lighting controls, would reduce the potential impacts of nighttime construction lighting to a less-than-significant level. No impacts related to nighttime lighting would result from construction of the ASR pipelines, Carmel Valley Pump Station, Ryan Ranch- Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements.

Impact 4.14-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.

Permanent aboveground facilities proposed for the MPWSP could have an adverse impact on scenic resources or the existing visual character of facility sites within the project area. This impact would be significant but mitigable for the subsurface slant wells, ASR-5 and ASR-6 wells. This impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)**, which require that CalAm design the facilities to avoid or minimize contrast with the surrounding setting and ensure the facilities are screened from public views to the extent feasible. Although mitigation is not required for the MPWSP Desalination Plant, or the Carmel Valley Pump Station, this EIR/EIS recommends implementation of **Mitigation Measures 4.14-3a** and **4.14-3b** for all above-ground project components to further reduce potential aesthetic resources effects and facilitate compatibility of project design with the natural and built environment. No operational impacts related to scenic resources and visual character would result from below-ground facilities, including proposed pipelines and optional alignments.

Impact 4.14-4: Permanent new sources of light or glare.

Project operations would introduce permanent sources of substantial light into the project area. This impact would be significant but mitigable for the ASR injection/extraction wells, and the Carmel Valley Pump Station. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, which requires site-specific lighting controls, would reduce the potential impacts of nighttime operations lighting to a less-than-significant level. Although such mitigation is not required for the MPWSP Desalination Plant this EIR/EIS recommends implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** for all above-ground project components with permanent sources of nighttime lighting to further reduce potential light spillover and dark night skies impacts. No operational impacts related to nighttime lighting would result from below-ground facilities, including proposed pipelines and optional alignments.

Impact 4.14-C: Cumulative impacts related to aesthetic resources.

Effects of the proposed project in scenic areas could overlap with those of Fort Ord Dunes State Park Campground Project (No. 46) and the Castroville Bicycle and Pedestrian Overcrossing Project (No. 36). The overall duration of the visual disturbance would be temporary, limited to the construction phases of these projects. Effects of the proposed project nighttime construction lighting could overlap with those of the RUWAP Recycled Water Project (No. 35) and possibly

the city of Monterey Sanitary Sewer System Rehabilitation Program (No. 51). However, the combined effects would not exceed the established thresholds of significance. There are no projects in the cumulative scenario whose effects would combine with those of the proposed project to cause a significant cumulative impact. However, following implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, the proposed project would have a less-than-significant impact related to nighttime construction lighting, and its contribution to any cumulative impacts would be reduced to a level that is less than significant because this measure would ensure that nighttime lighting has minimal spillover from active construction sites. Therefore, the overall cumulative impact would be less than significant, with mitigation.

5.5.14.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. However, decommissioning of the test slant well could result in potentially significant but mitigable impacts on aesthetic resources, including nighttime lighting. See Impact 4.14-2 in Section 4.14.6.1. Slant well decommissioning could adversely affect nighttime views of this mostly undeveloped stretch of coastline from the viewpoint of Highway 1 motorists and coastal Marina residents. If slant well decommissioning involves nighttime lighting, implementation of Mitigation Measure 4.14-2 would reduce impacts to a less-than-significant level. There would be no other construction- or operations-related effects on aesthetics associated with the No Project Alternative. Because the No Project Alternative would have a less than significant impact with respect to aesthetics, cumulative effects related to this topic would be less than significant.

5.5.14.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (Potrero Road). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

Scenic Resources and Visual Character

Construction equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth associated with the implementation of components common to the proposed project would temporarily disrupt the visual character of the surrounding areas and would be visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents and park visitors. However, because work areas would be restored to their approximate pre-construction condition upon completion of construction, such impacts would be less than significant. Although mitigation is not

required to reduce a significant impact under CEQA, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

The Alternative 1 Source Water Pipeline would be longer compared to the proposed project, and would be constructed mainly in an area considered to have a low aesthetic resource value. The subsurface slant wells at Potrero Road would be constructed in an area of moderate aesthetic resource value. The construction-period disturbance would be temporary and generally be limited in visibility to residents using Potrero Road to access their homes. Such impacts would be for very short durations, as most viewers would be in motion, either traveling along area roads or walking in the vicinity of the Potrero Road parking lot. The visual impact severity would be low.

Impacts associated with the additional length of pipeline installation would be visible over a larger area, but would not have an increased effect on scenic resources. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Nighttime Lighting and Glare

The additional 5.5 miles of Alternative 1 Source Water Pipeline and the subsurface slant wells at Potrero Road could require nighttime construction, which would temporarily introduce new substantial sources of nighttime light into otherwise dark and near-roadway areas. Such lighting could substantially change the lighting environment and present a nuisance or hazard to area motorists. In addition, construction activities associated with the components common to the proposed project would have the potential to introduce temporary sources of substantial light into the project area. This impact would be significant for the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** would reduce the potential impacts of nighttime construction lighting to a less-than-significant level.

Alternative 1 construction would not involve reflective materials that could cause substantial glare impacts. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The subsurface slant wells for Alternative 1 would be located in an area identified as having moderate aesthetic resource value. While the wells would be buried below ground surface, an electrical control building for the wells would be constructed at the edge of the parking lot. The structure would measure approximately 12 feet long, 4 feet wide and 6 feet tall. As there are few other structures in the vicinity of the parking lot, the well control structure could contrast with other landscape elements. However, the structure would be subordinate in size relative to the adjacent dunes, which rise some 20 feet above the parking lot, and would not be visible from the beach or otherwise block coastal views. As such, the visual impact severity would be low. Permanent aboveground facilities common with the proposed project could have an adverse

impact on scenic resources or the existing visual character of facility sites within the project area. This impact would be significant for the subsurface slant wells, ASR-5 and ASR-6 wells, and this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)**.

Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

Project operations would introduce permanent sources of substantial light into the project area. This impact would be significant for the ASR injection/extraction wells, and the Carmel Valley Pump Station. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** would reduce the potential impacts of nighttime operations lighting to a less-than-significant level. The Alternative 1 subsurface slant wells control structure would not require nighttime lighting and no additional operational impacts related to nighttime lighting and glare would result.

Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to aesthetics for Alternative 1 is defined by the locations from which a viewer could see the Alternative 1 construction or operations effects, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the subsurface intake system (Potrero Road, instead of CEMEX) and alternative source water pipeline route. Cumulative impacts resulting from the components of Alternative 1 that are common with the proposed project would be the same as those described for the proposed project in Section 4.14.7. Beyond those identified and addressed under Section 4.14.7, there are no additional cumulative projects whose effects could combine with those of Alternative 1 to result in impacts different from those described for the proposed project. For the reasons described in Section 4.14.7, the cumulative effects of the projects in the cumulative scenario could be significant, but the potentially considerable contribution of Alternative 1 would be reduced to a level that is less than significant with implementation of **Mitigation Measure 4.14-2**. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.14.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission

Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Scenic Resources and Visual Character

Construction equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth associated with the implementation of components common to the proposed project would temporarily disrupt the visual character of the surrounding areas and would be visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents and park visitors. However, because work areas would be restored to their approximate pre-construction condition upon completion of construction, such impacts would be less than significant. Although mitigation is not required to reduce a significant impact under CEQA, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

The Alternative 2 Source Water Pipeline would be constructed within an area generally considered to have low aesthetic resource value. The intake pump station would be constructed within an existing industrial area generally considered to have a low aesthetic resource value. Barges used for installation of the intake structure would be visible offshore (approximately 1,300 feet). The construction-period disturbance would be temporary for all facilities. Pipeline construction would be fleetingly visible, as most viewers would be in motion, traveling along area roads. Views of the intake pump station construction would be mostly obscured by topography and mature vegetation. The barges would be visible in the distance, but would not impair coastal views. The visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

Impacts associated with the additional length of pipeline installation would be visible over a larger area, but would not have an increased effect on scenic resources compared to the proposed project. Effects of the intake pump station would be similar – involving similar types of activities and occurring within areas of similar aesthetic character. Therefore, Alternative 2 would result in a **same impact conclusion** as the proposed project, less than significant.

Nighttime Lighting and Glare

The longer Source Water Pipeline and intake pump station could require nighttime construction. Barges used for intake structure installation and moored offshore could also require nighttime safety lighting. These components of Alternative 2 would temporarily introduce new substantial

sources of nighttime light into otherwise dark and near-roadway areas. Such lighting could substantially change the lighting environment and present a nuisance or hazard to area motorists. Alternative 2 construction activities would not involve reflective materials that could cause substantial glare impacts. In addition, construction activities associated with the components common to the proposed project would have the potential to introduce temporary sources of substantial light into the project area. This impact would be significant for the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** would reduce the potential impacts of nighttime construction lighting to a less-than-significant level. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The intake pump station would be the only above-ground facility unique to Alternative 2. The facility would be constructed within an existing industrial area generally considered to have a low aesthetic resource value. The facility would be in keeping with the industrial character of the site, and public views of the intake pump station site would be limited to those from Dolan Road, where the majority of potential viewers would be in vehicles traveling past the site and focused on the road. For these reasons, the visual impact severity would be low and the effect would be less than significant.

The overall effects of Alternative 2 would be reduced compared to the proposed project. There would be fewer above-ground facilities visible within scenic areas (i.e., no wellhead vaults visible at the CEMEX property). The intake pump station may be visible from Dolan Road, but would not further degrade the industrial aesthetic character of the setting. Alternative 2 permanent above-ground facilities common to the proposed project would result in potentially significant impacts on scenic resources and visual quality. However, implementation of **Mitigation Measures 4.14-3 (Facility Design)** and **4.14-b (Facility Screening)** would reduce the impact to less than significant. Therefore, Alternative 2 would have the *same impact conclusion* as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

The intake pump station would be the only above-ground facility unique to Alternative 2 and may require nighttime operations or security lighting. The facility would be sited in an industrial area with existing nighttime lighting and partially screened from Dolan Road. However, new sources of unconfined nighttime lighting in proximity to the road could present a nuisance or hazard to motorists which would be significant. The nighttime lighting effects of Alternative 2 permanent above-ground facilities common to the proposed project would be significant. However, impacts would be reduced to a less than significant level with implementation of **Mitigation Measure 4.12-2 (Site-Specific Nighttime Lighting Measures)**.

The effects of Alternative 2 would be similar to those of the proposed project. Nighttime lighting at the intake pump station site would result in a localized increase in nighttime lighting. Alternative 2 facilities would not utilize large amounts of highly reflective materials that could cause substantial glare impacts. Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to aesthetics for Alternative 2 is defined by the locations from which a viewer could see the Alternative 2 construction or operations effects, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the seawater intake system (Moss Landing) and alternative source water pipeline route. Cumulative impacts resulting from the components of Alternative 2 that are common with the proposed project would be the same as those described for the proposed project in Section 4.14.7. Beyond those identified and addressed under Section 4.14.7, there are two additional reasonably foreseeable future cumulative projects that could overlap in time and space with Alternative 2: the Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1) and the DeepWater Desal Project (No. 34). Adoption of the Moss Landing Community Plan could include the enactment of new policies regarding protection of aesthetic resources in the Community Plan area. However, the Community Plan would not authorize development that could have physical aesthetic resources impacts that could combine with those of Alternative 2.

As analyzed above, the Alternative 2 intake pump station and alternative source water pipeline would have a less-than-significant construction impacts with mitigation. The DeepWater Desal Project would include development of similar facilities to those in Alternative 2 in similar or the same locations. The effects would be similar to those described for Alternative 2 components; i.e., increased visual disturbances and nighttime lighting during construction. The effects would generally be confined to the north side of Dolan Road, in the vicinity of the Moss Landing Power Plant, but would also occur offshore in association with the intake/outfall structure barges. It is assumed that nighttime lighting associated with DeepWater Desal Project construction would be controlled to limit spill-over and light pollution. If the projects were constructed sequentially, the duration of effects could be extended. However, given that the landside site is highly industrial, and that the landside and offshore effects would be localized and temporary, the combined effects of these projects would not exceed the established thresholds of significance. If lighting associated with construction of the DeepWater Desal Project were not controlled to limit spill-over, it could result in a significant impact that could combine with the potentially significant impact of Alternative 2 to cause a significant cumulative impact; however, with implementation of **Mitigation Measure 4.14-2**, Alternative 2 would have a less than significant contribution to a significant cumulative effect.

Operation of the DeepWater Desal Project would include an intake pump station in a location similar to or the same as that described for Alternative 2. The effects would be similar to those described for Alternative 2 components: additional industrial-looking development adjacent to an existing industrial site, with increased nighttime security lighting. Colocation of the Alternative 2 and DeepWater Desal Project facilities adjacent to the Moss Landing Power Plant site could

increase the area of the effect, but would not increase its severity. This is because the site is already highly industrial and contains existing sources of nighttime lighting. For these reasons, the combined effects would not exceed the established thresholds of significance, and the cumulative impact would not be significant. While it is assumed that nighttime lighting associated with the DeepWater Desal Project operations would be controlled to limit spill-over and light pollution, if not controlled, it could result in a significant impact that could combine with the potentially significant impact of Alternative 2 to cause a significant cumulative impact; however, with implementation of **Mitigation Measure 4.14-2**, Alternative 2 would have a less than significant contribution to a significant cumulative effect related to nighttime lighting during operations. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.14.6 Direct and Indirect Effects of Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open-water intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Scenic Resources and Visual Character

The segment of the Alternative 3 Desalinated Water Pipeline north of the Nashua Road/Highway 1 intersection and the Source Water Pipeline would be constructed mainly in alignment areas generally considered to have low aesthetic resource value. The intake pump station would also be constructed within an existing industrial area generally considered to have a low aesthetic resource value. Barges used for the intake structure installation would be visible offshore (approximately 1,300 feet). The construction-period disturbance would be temporary for each

facility. Pipeline construction would be fleetingly visible, as most viewers would be in motion, traveling along area roads. Views of the intake pump station construction would be mostly obscured by topography and mature vegetation. The barges would be visible in the distance, but would not impair coastal views. The visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant. Although mitigation is not required to reduce a significant impact, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

The East Tank Farm Parcel – on which the Alternative 3 desalination plant, data center and ancillary equipment would be constructed – is generally considered to have low aesthetic resource value. Construction activities would not be substantially out of character with the setting or appear dominant on the landscape; various industrial and intensive agricultural operations exist nearby. Nor would these activities impair public views of valued aesthetic resources; the site is not visible from any designated scenic areas or roadways. Views of the site from public vantage points are largely obscured by intervening topography and vegetation. While over 8,000 feet away, elements of the project may be visible from various vantage points within the Elkhorn Slough channel. The views would not be out of character with the existing industrial land uses and the zoning in the area. For these reasons, the visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

Impacts associated with the additional length of desalinated water pipeline installation would be visible over a larger area, but would not have a substantial increased effect on scenic resources compared to the proposed project. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

Nighttime Lighting and Glare

The Desalinated Water Pipeline north of the Nashua Road/Highway 1 intersection, the Source Water Pipeline, and the intake pump station could require nighttime construction. Barges used for the intake and outfall installations moored offshore could also require nighttime lighting. These elements of Alternative 3 would temporarily introduce new substantial sources of nighttime light into otherwise dark and near-roadway areas. Such lighting could substantially change the lighting environment and present a nuisance or hazard to area motorists.

Alternative 3 facilities at the East Tank Farm Parcel could also require nighttime construction. Such activities would introduce a new substantial source of temporary lighting into an area that is generally dark, with existing sources of lighting distant and limited to residential and industrial security and safety lighting, and the headlights of vehicles traveling along Dolan Road and Via Tanques Road. The site is partially screened from view by intervening topography and vegetation, but other areas are plainly visible from Dolan Road. The nearest residence is approximately 400 feet to the southwest. Such temporary nighttime lighting increases could present a nuisance and hazard to area residents and motorists, respectively.

Nighttime lighting impacts of the proposed project subsurface slant well installation in the vicinity of the CEMEX site would be eliminated, while nighttime lighting effects from barges used for Alternative 3 intake and discharge structure installation would be increased. Lighting

effects from pipeline installation north of Nashua Road/Highway 1 intersection, intake pump station installation, and East Tank Farm Parcel work would be similarly increased. In addition, construction activities associated with the components common to the proposed project would have the potential to introduce temporary sources of substantial light into the project area. This impact would be significant for the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** would reduce the potential impacts of nighttime construction lighting to a less-than-significant level. Alternative 3 construction activities would not involve reflective materials that could cause substantial glare impacts. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The Alternative 3 intake pump station would be located within an existing industrial area generally considered to have a low aesthetic resource value. The facility would be in keeping with the industrial character of the site, and public views of the intake pump station site would be limited to those from Dolan Road, where the majority of viewers would be in vehicles traveling past the site and focused on the road. For these reasons, the visual impact severity would be low and the effect would be less than significant.

The East Tank Farm Parcel is generally considered to have low aesthetic resource value. Siting and operation of the Alternative 3 desalination plant, data center and ancillary equipment facilities would not be completely out of character with the setting, as various industrial and intensive agricultural land uses exist nearby. Nor would these facilities impair public views of valued aesthetic resources; the site is not visible from any designated scenic areas or roadways. Given the low density of development in the site's vicinity and the scale and height of existing development, the Alternative 3 facilities proposed for the East Tank Farm Parcel could appear dominant on the landscape. However, views of the site from public vantage points are largely obscured by intervening topography and vegetation. While over 8,000 feet away, elements of the project may be visible from various vantage points within the Elkhorn Slough channel. The views would not be out of character with the existing industrial land uses and the zoning in the area. For these reasons, the visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

Alternative 3 would have fewer above-ground facilities visible within scenic areas (i.e., no wellhead vaults visible at the CEMEX property). Effects of facilities at the East Tank Farm Parcel would be similar to those of the proposed project location of the desalination plant – occurring in proximity to other industrial land uses and ultimately partially screened from public view by trees and fencing. The effects of Alternative 3 permanent above-ground facilities common to the proposed project would be the same as described in Impact 4.14-3, and Alternative 3 would result in a significant impact. Implementation of **Mitigation Measures 4.14-3 (Facility Design)** and **4.14-b (Facility Screening)** would reduce impacts to less than significant.

Overall, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

The Alternative 3 intake pump station may require nighttime operations or security lighting. The facility would be sited in an industrial area with existing nighttime lighting and partially screened from Dolan Road. However, new sources of unconfined nighttime lighting in proximity to the road could present a nuisance or hazard to motorists, which would be significant.

Alternative 3 facilities at the East Tank Farm Parcel would include outdoor nighttime lighting for access and security. Such activities would introduce a new substantial source of temporary lighting into an area that is generally dark, with existing sources of lighting distant and limited to residential and industrial security and safety lighting, and the headlights of vehicles traveling along Dolan Road and Via Tanques Road. The site is partially screened from view by intervening topography and vegetation, but other areas are plainly visible from Dolan Road. The nearest residence is approximately 400 feet to the southwest. Such nighttime lighting increases could present a nuisance and hazard to area residents and motorists, respectively. Alternative 3 facilities would not utilize large amounts of highly reflective materials that could cause substantial glare impacts.

The nighttime lighting effects of Alternative 3 permanent above-ground facilities, including those common to the proposed project, would result in significant impacts. Implementation of **Mitigation Measure 4.12-2 (Site-Specific Nighttime Lighting Measures)** would reduce nighttime lighting and glare impacts to less than significant.

Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to aesthetics for Alternative 3 is defined by the locations from which a viewer could see the Alternative 3 construction or operations effects. Cumulative impacts resulting from the components of Alternative 3 that are common with the proposed project would be the same as those described for the proposed project in Section 4.14.7. Beyond those identified and addressed under Section 4.14.7, one additional reasonably foreseeable future cumulative project that could overlap in time and space with the components of Alternative 3 that differ from the proposed project: the Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1). Adoption of the Moss Landing Community Plan could include the enactment of new policies regarding protection of aesthetic resources in the Community Plan area. However, the Community Plan would not authorize development that could have physical aesthetic resources impacts that could combine with those of Alternative 3. Therefore, because no other projects would contribute to cumulative aesthetic resources impacts in combination with Alternative 3, the cumulative impacts associated with the components of Alternative 3 that differ from the proposed project would be as described for Alternative 3 alone. Therefore, overall, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.14.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Scenic Resources and Visual Character

The segment of Alternative 4 Desalinated Water Pipeline north of the Nashua Road/Highway 1 intersection would be constructed mainly within areas generally considered to have low aesthetic resource value. The construction-period disturbance would be temporary and only fleetingly visible, as most viewers would be in motion, traveling along area roads. The visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

The Sandholdt Road pump house structure would be constructed in an area of moderate aesthetic resource value. Construction activity would be visible from Sandholdt Road and the Moss Landing Beach. Given its proximity to the coast and public use areas (e.g., Salinas River State Beach), the construction area could substantially degrade the visual character of the beach if not properly contained and maintained. However, with implementation of feasible mitigation, such as that identified in **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)** the effect would be reduced to a less-than-significant level.

The Moss Landing Green Commercial Park – on which the Alternative 4 desalination plant would be constructed – is generally considered to have low aesthetic resource value. Construction activities would not be out of character with the setting or appear dominant on the landscape; intensive industrial operations exist at the site and nearby. Nor would these activities impair public views of valued aesthetic resources; the site is not visible from any designated scenic areas or roadways. Views of the site from public vantage points are generally obscured by intervening topography and vegetation. For these reasons, the visual impact severity would be low. The effect

on scenic resources and visual character of the Alternative 4 desalination plant construction would, therefore, be less than significant.

Impacts associated with the additional length of pipeline installation would be visible over a larger area, but would not have an increased effect on scenic resources. The effects of Alternative 4 construction, including components common to the proposed project, would be t significant, but would be reduced to less than significant with **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

The segment of the new Desalinated Water Pipeline north of the Nashua Road/Highway 1 intersection and the Sandholdt Road pump house structure could require nighttime construction, which would temporarily introduce new substantial sources of nighttime light into otherwise dark and near-roadway areas. Alternative 4 construction activities would not involve reflective materials that could cause substantial glare impacts. Barges used for intake and discharge structure installation and be moored offshore and could also require nighttime safety lighting. These elements of Alternative 4 could substantially change the lighting environment and present a nuisance or hazard to area motorists.

If the Alternative 4 desalination facility at the Moss Landing Green Commercial Park required nighttime construction, a new substantial source of temporary lighting would be introduced into the area. Existing sources of lighting in the area are numerous and include outdoor safety and security lighting in the Moss Landing Power Plant, commercial developments along Highway 1, and developments within Moss Landing Harbor. Public views of the site are limited to those from Highway 1 and are mostly screened from view by intervening topography and vegetation. The nearest residence is approximately 1,800 feet (0.34 mile) to the southwest. As a result, any nighttime lighting impacts on area motorists and area residents would be negligible. The temporary lighting impacts associated with nighttime construction at the Moss Landing Green Commercial site would be less than significant.

The effects of Alternative 4 construction lighting, including components common to the proposed project, would result in significant impacts, but would be reduced to less than significant with implementation of **Mitigation Measure 4.12-2 (Site-Specific Nighttime Lighting Measures)**.

Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The Moss Landing Green Commercial Park is generally considered to have low aesthetic resource value. Siting and operation of the Alternative 4 desalination plant and ancillary equipment facilities would not be out of character with the setting, as the site is an intensive industrial area. The site is not visible from any designated scenic areas or roadways. Highway 1 is eligible for designation as a

scenic highway. However, views to the site from Highway 1 are mostly screened from view by intervening topography and mature vegetation. Due to this screening, the desalination plant and appurtenant facilities would not appear dominant on the landscape, nor would they obstruct public views of valued aesthetic features. For these reasons, the visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

The Sandholdt Road pump house structure would be located near an existing developed area generally considered to be of moderate aesthetic resource value. However, given its location along the beach and seaward of the existing line of development, the facility would contrast and change and contrast with the visual character of existing features along Sandholdt Road and the Salinas River Beach. Rising to a height of approximately 27 feet, the facility would be a dominant feature among surrounding existing heights of other features. Due to its height, the structure could also impede, but would not be expected to impair, important public views of the coast. For these reasons, the pump house would have a significant visual impact. These effects of Alternative 4 permanent above-ground facilities, and those common to the proposed project, would be significant. Implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)** would reduce impacts to less than significant.

Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

Alternative 4 facilities would not utilize large amounts of highly reflective materials that could cause substantial glare impacts. The desalination plant and associated facilities at the Moss Landing Green Commercial Park would likely include outdoor security and access lighting. These fixtures would introduce additional sources of nighttime lighting into a highly industrialized area with multiple sources of existing nighttime lighting. As noted previously, views of the site are obscured by existing topography and vegetation and the nearest residence is more than 1/3 mile away. As a result, nighttime lighting impacts on area motorists and area residents would be negligible. The temporary lighting impacts associated with nighttime security and access lighting at the Moss Landing Green Commercial site would be less than significant.

Nighttime outdoor security lighting may be required for the Sandholdt Road pump house structure. The installation of such fixtures could introduce substantial sources of nighttime light into an otherwise mostly dark area along the beach, and at an elevation at or above that of nearby structures. These nighttime lighting effects of Alternative 4 permanent above-ground facilities, and of those common to the proposed project, would result in significant impacts. Implementation of **Mitigation Measure 4.12-2 (Site-Specific Nighttime Lighting Measures)** would reduce impacts to less than significant. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to aesthetics for Alternative 4 is defined by the locations from which a viewer could see the Alternative 4 construction or

operations effects. Cumulative impacts resulting from the components of Alternative 4 that are common with the proposed project would be the same as those described for the proposed project in Section 4.14.7. Beyond those identified and addressed under Section 4.14.7, there are two additional reasonably foreseeable future cumulative projects that could overlap in time and space with Alternative 4: the Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1) and the DeepWater Desal Project (No. 34). Adoption of the Moss Landing Community Plan could include the enactment of new policies regarding protection of aesthetic resources in the Community Plan area. However, the Community Plan would not authorize development that could have physical aesthetic resources impacts that could combine with those of Alternative 4.

As analyzed above, the Alternative 4 new Desalinated Water Pipeline and Alternative Source Water Pipeline would have significant construction impacts. Visual impacts of the Alternative 4 desalination plant construction would be less than significant, as they would be mostly shielded from public view by intervening topography and vegetation. Construction of the DeepWater Desal Project would include development of an intake pump station, pipelines, and a desalination plant and associated facilities along the north side of Dolan Road. Concurrent or sequential construction of these project elements would increase or prolong visual disturbance and nighttime lighting impacts in Moss Landing. However, the combined effects of the two projects would not be substantial, because these facilities would not occur in a scenic area, nor would they be plainly visible from the same public vantage point. Intake/outfall construction would increase the number of barges and associated nighttime lighting offshore, but would be distant from the shore and in the same general vicinity. Given that the landside setting is highly industrial, and the landside and offshore effects would be localized and temporary, the combined effects of these projects would not exceed the established thresholds of significance. If lighting associated with construction of the DeepWater Desal Project were not controlled to limit spill-over, it could result in a significant impact that could combine with the potentially significant impact of Alternative 4 to cause a significant cumulative impact; however, with implementation of **Mitigation Measure 4.14-2**, Alternative 4 would have a less than significant contribution to a significant cumulative effect.

As analyzed above, the desalination plant and appurtenant facilities at the Moss Landing Green Commercial Park would have a less-than-significant effect because the site is mostly screened from outside public view. Operation of the DeepWater Desal Project's intake pump station would be partially visible from Dolan Road and would introduce a new source of nighttime lighting into the area. However, for the same reasons described for cumulative construction-period effects, the combined effects of project operations would not be substantial. While it is assumed that nighttime lighting associated with the DeepWater Desal Project operations would be controlled to limit spill-over and light pollution, if not controlled, it could result in a significant impact. However, given that the setting is highly industrial and the effects would be localized and largely screened from public view, the combined effects of these projects would not exceed the established thresholds of significance. With implementation of **Mitigation Measure 4.14-2**, Alternative 4 would have a less than significant contribution to a significant cumulative effect related to nighttime lighting during operations. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.14.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Scenic Resources and Visual Character

The visual effects of Alternative 5a and 5b construction would be the same as described for the proposed project and Alternative 1, respectively. For the reasons discussed for the proposed project and Alternative 1, Alternatives 5a and 5b would result in the *same impact conclusions* as the proposed project, less than significant.

Nighttime Lighting and Glare

The visual effects of Alternative 5a and 5b construction lighting would be the same as described for the proposed project and Alternative 1, respectively. Implementation of **Mitigation Measure 4.12-2 (Site-Specific Nighttime Lighting Measures)** would reduce impacts to less than significant. Alternatives 5a and 5b would result in a *similar level of impact* compared to the proposed project and impacts would be less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The effects of Alternative 5a and 5b permanent above-ground facilities would be the same as described for the proposed project and Alternative 1, respectively, and would be significant but mitigable to a less-than-significant level with implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)**. Alternatives 5a and 5b would result in the *same impact conclusions* as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

The nighttime lighting effects of Alternative 5a and 5b permanent above-ground facilities would be the same as described for the proposed project and Alternative 1, respectively, and would be significant but mitigable to a less-than-significant level with implementation of **Mitigation Measure 4.12-2 (Site-Specific Nighttime Lighting Measures)**. Alternatives 5a and 5b would result in a *same impact conclusion* as the proposed project, less than significant with mitigation.

Cumulative Analysis

Combined Impacts with GWR Project

Construction Impacts

The construction-period effects of Alternative 5 on scenic resources and visual character would be less than significant. Segments of the Alternative 5 New Desalinated Water Pipeline and New Transmission Main would follow an alignment similar to the GWR Project's Product Water Conveyance Coastal Alignment Pipeline. Concurrent pipeline construction could affect the same viewsheds, including scenic areas along the west side of Highway 1, a State-eligible Scenic Highway. As pipeline installation impacts would be limited to the construction period, and with construction expected to progress at a rate of 150 to 250 feet per day, the aesthetic resources effects from any particular vantage point would generally be limited to a few days to a few weeks. The combined effects would not substantially affect scenic resources or the visual character of the area. Therefore, concurrent construction would not substantially affect scenic resources or the visual character of the area, and would not combine to result in a significant cumulative effect.

The nighttime construction lighting effects of Alternative 5 would be less than significant with implementation of mitigation. GWR Project components that could require nighttime construction lighting near Alternative 5 components also potentially requiring nighttime construction lighting include the treatment plant facilities and the injection well clusters. The Alternative 5 Pipeline to CSIP Pond construction could occur at the same time and in proximity to the GWR treatment plant facilities. The effects would occur in a remote location, adjacent to existing industrial development (MRWPCA Regional Treatment Plant), with no nearby residential development. Nighttime construction lighting associated with the Alternative 5 ASR Pipelines and GWR injection wells would be visible from residences on the west side of General Jim Moore Boulevard. Considering their distance and the intervening topography, the residual effects of nighttime lighting from both projects following mitigation would not be visible from any single residence. For these reasons, concurrent nighttime construction of Alternative 5 and the GWR Project would not substantially affect the nighttime lighting environment, and therefore would not combine to result in a significant cumulative impact. Therefore, combined with the GWR Project, Alternative 5 would result in the **same impact conclusion** as the proposed project, less than significant with mitigation.

Operations and Facility Siting Impacts

The operations and facility siting effects of Alternative 5 on scenic resources and visual character and nighttime lighting would be less than significant with mitigation. GWR Project above-ground components that would be located near Alternative 5 above-ground components include the treatment plant facilities and the injection well cluster. The Alternative 5 Desalination Plant would be sited approximately 3,000 feet north of the GWR Project's treatment plant facilities. Both facilities would include nighttime security lighting resulting in individual potentially significant impacts that would be reduced to a less-than-significant level with mitigation. Considering their distance and the intervening topography and vegetation, none of these facilities would be plainly visible from the site of another, nor would multiple facilities be plainly visible from the same public vantage point. Therefore, the residual effects of these facilities following mitigation would not substantially affect the area's scenic resources, visual character, or lighting

environment, and cumulative impacts would not be significant. Therefore, combined with the GWR Project, Alternative 5 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The geographic scope of analysis for potential cumulative aesthetic resources impacts encompasses the locations from which a viewer could see the Alternative 5a and 5b construction or operations effects, and would be the same as described for the proposed project and Alternative 1, respectively. Beyond those identified and addressed under Section 4.14.7, there is only one additional reasonably foreseeable future cumulative project that could overlap in time and space with Alternative 5, the GWR Project. As described above, the addition of the GWR Project to the cumulative scenario would not change the magnitude of or significance conclusions for aesthetic resources. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.15 Cultural and Paleontological Resources

The evaluation criteria for Cultural and Paleontological Resources address: historical resources or historic properties during construction; archeological resources during construction; paleontological resources or sites, or geologic features during construction; and, human remains during construction. The facilities located at the CEMEX site overlap with recorded historical resources.

5.5.15.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in in Section 4.15, Cultural and Paleontological Resources. The setting for the components north of the Nashua Road/Highway 1 intersection is presented below. Site specific information for Alternative 4 components (People's Project) was not available.

Pipeline Alignments North of Nashua Road/Highway 1 Intersection

North and west of the Nashua Road/Highway 1 intersection, alternative pipeline alignments could extend within or alongside segments of Molera Road, Highway 1, Potrero Road, and Dolan Road, in unincorporated Monterey County. ESA conducted a records search at the Northwest Information Center (NWIC) for components north of the Nashua Road/Highway 1 intersection on February 28, 2013 (File No. 12-0934) and May 31, 2016 (File No. 15-1766) in order to: (1) determine whether known cultural resources have been recorded within the alternative locations; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby resources; and (3) develop a context for the identification and preliminary evaluation of cultural resources. As discussed below, several previously recorded prehistoric archaeological sites and historic-era artifact scatters are in the vicinity of the alternative alignments, especially near Moss Landing.

Potrero Road Parking Lot

Based on the results of the ESA records search at the NWIC, there are no recorded cultural resources in the Potrero Road Parking Lot. Previously recorded prehistoric resources are recorded within a 0.25-mile radius of the parking lot. ESA surveyed the parking lot in December 2014 and did not identify any cultural materials or evidence of past human use.

Moss Landing Beach and Monterey Bay

Based on the results of the ESA records search at the NWIC, there are no recorded cultural resources on Moss Landing Beach. Previously recorded prehistoric resources are recorded within a 0.25-mile radius of the parking lot.

Deep Water Desal, LLC contracted with William Self Associates, Inc. (WSA) to review existing literature on the maritime history and archaeology of the offshore locations of Moss Landing in MBNMS (WSA, 2016). WSA reviewed the California State Lands Commission (CSLC) Shipwreck database, and contacted the Monterey Maritime Museum and Monterey Bay National Marine Sanctuary for information housed in those repositories to determine the likelihood that submerged

marine resources are present. WSA also contacted the Bureau of Ocean Energy Management (BOEM) to consult the Bureau's Pacific Coastal Cultural Resources Database to determine if there are recorded submerged cultural resources in the Moss Landing area. The BOEM database identified 15 potential shipwrecks within the region surrounding the locations of the proposed intake and discharge points, but the exact locations of the vessels have not been determined.

Moss Landing Green Commercial Park

Based on the results of the ESA records search at the NWIC, there are no cultural resources recorded in the Moss Landing Green Commercial Park, in part because it has not been surveyed. Several previously recorded cultural resources are within a 0.25-mile radius. Site specific information for the Moss Landing Green Commercial Park was not made available.

East Tank Farm Parcel

WSA conducted a records search and surface survey of the East Tank Farm Parcel. The results of the surface survey indicate sites extend into the DeepWater Desal Project area (WSA, 2016). Two additional prehistoric archaeological sites and three historic-era artifact scatters are also within a 0.25-mile radius of Moss Landing.

5.5.15.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area and conversion of the test well to a permanent well, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction.

No historical resources listed in or eligible for listing in the California Register, or historic properties listed in or eligible for listing in the National Register, are within the direct or indirect APE of all project components. Therefore, no impact on historical resources or historic properties would result from construction of any project facilities.

Impact 4.15-2: Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5 of the CEQA Guidelines during construction.

A significant impact on archaeological resources could occur during construction of the proposed Castroville Pipeline at Tembladero Slough and the Source Water Pipeline in the Lapis Sand Mining Plant Historic District; as well as those areas designated as archaeologically sensitive in the geoarchaeological analysis (Tembladero Slough near Castroville and the Salinas River). The

impact or adverse effects would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**.

While no additional impacts or adverse effects on archaeological resources are expected, the possibility of uncovering unknown archaeological resources in the remaining direct APE cannot be entirely discounted. The potential inadvertent discovery of archaeological resources could be a significant impact or adverse effect. Implementation of **Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** would ensure that potential impacts are less than significant.

Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature during construction.

Construction of the proposed project components would require excavation through three geologic units that have the potential to contain paleontological resources, particularly vertebrate fossils. Of these three geologic units, only the Monterey Formation is known to contain vertebrate fossils that would qualify as a unique paleontological resource. However, because construction would occur in a limited area of the Monterey Formation and within previously-disturbed rights-of-way of existing roads, potential impacts on unique paleontological resources would be less than significant.

Impact 4.15-4: Disturbance of any human remains, including those interred outside of formal cemeteries, during construction.

While no known human remains have been documented within the proposed project direct APE, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains is considered a significant impact. The impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**.

Impact 4.15-C: Cumulative impacts related to cultural and paleontological resources.

The geographic scope of analysis for cumulative impacts on cultural resources includes the direct and indirect Area of Potential Effects for the proposed project. The geographic scope of analysis for paleontological resources includes the portion of the aforementioned underlain by the Monterey Formation geologic unit. Applicable projects from **Table 4.1-1** are those that involve ground disturbance or could cause vibratory impacts on historic buildings or structures. Overall, the MPWSP would not contribute to cumulative impacts associated with Impacts 4.15-1 through 4.15-4.

5.5.15.3 Direct and Indirect Effects of No Project Alternative A

Under the No Project Alternative, no new facilities would be constructed or operated and the existing test slant well would be decommissioned. Consequently, there would be no construction- or operations-related impacts on cultural or paleontological resources with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to cultural or paleontological resources, it could not contribute to cumulative effects related to these topics.

5.5.15.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvement, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

No historical resources listed in or eligible for listing in the California Register, or historic properties listed in or eligible for listing in the National Register, are within the direct or indirect APE of any project components. Therefore, Alternative 1 would result in the same impact and the **same impact conclusion** on historical resources or historic properties compared to the proposed project; no impact would result from construction of any project facilities.

Construction of the Alternative 1 Source Water Pipeline along Potrero Road would be adjacent to two previously recorded large prehistoric archaeological sites. The results of a pedestrian survey in December 2014 were inconclusive as to whether these sites extend into the alignment. One additional prehistoric archaeological site and two historic-era artifact scatters are also within a 0.25-mile radius of Alternative 1 components north of the Nashua Road/ Highway 1 intersection. But the potential impacts at CEMEX would be avoided, therefore, the potential for impacts on undiscovered archaeological resources would be the same compared to the proposed project, and the applicant would need to implement **Mitigation Measure ALT 1-CULT (Conduct Subsurface Investigation)** and **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)** to reduce the impact to less than significant.

Mitigation Measure ALT 1-CULT applies to the Alternatives 1, 2, 3, 4, and 5b components that differ from the proposed project and would not apply to the proposed project or Alternative 5a.

Mitigation Measure ALT 1-CULT (Conduct Subsurface Investigation)

The applicant shall contract a professional archeologist to conduct a subsurface investigation to disclose whether nearby archaeological sites overlap with the project alignment.

If archaeological resources are found to extend into the Alternative 1 Source Water Pipeline alignment, the applicant would conduct a data recovery investigation or other appropriate measures in accordance with **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**, which includes provisions for an Archaeological Research Design and Treatment Plan in the event a significant archaeological resources cannot be avoided. Implementation of these mitigation measures would reduce the potentially significant impact on archaeological resources and Alternative 1 would result in the **same impact conclusion** compared to the proposed project, less than significant with mitigation.

Of the geologic units through which Alternative 1 would require excavation, Older Dune Sands and Terrace Deposits may have the potential for paleontological resources. The University of California Museum of Paleontology (UCMP) database search indicated a few microfossils have been identified from these younger geologic units but none near the location of Alternative 1. Therefore, the potential impact on paleontological resources would be the same as the proposed project and would result in the *same impact conclusion*, less than significant.

While no known human remains have been documented within the Alternative 1 APE, the possibility of inadvertently uncovering human remains cannot be entirely dismissed. Implementation of **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)** would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per the recommendations of the Coroner, reducing impacts to less than significant. Alternative 1 would result in the same impact and the *same impact conclusion* compared to the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There would be no operational and facility siting impacts on cultural and paleontological resources and Alternative 1 would have the *same impact conclusion* as the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for potential cumulative cultural resources impacts encompasses locations where ground disturbing activity would occur under Alternative 1. In addition to the projects relevant to the cumulative scenario for the proposed project, the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) would be located in close proximity to Alternative 1 ground disturbance. This analysis assumes that all of the cumulative projects have a similar potential impact on cultural and paleontological resources. However, because each project's potential impacts would be site-specific to individual components, they would not combine with those of Alternative 1. Therefore, there would be no significant cumulative impact and Alternative 1 would have a less than significant contribution to cumulative impacts on cultural and paleontological resources. Alternative 1 would have the *same impact conclusion* as the proposed project, less than significant.

5.5.15.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the

Proposed Project. Because the open water intake would eliminate the need for returning source water originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

No historical resources listed in or eligible for listing in the California Register, or historic properties listed in or eligible for listing in the National Register, are within the direct or indirect APE of any project components. Therefore, Alternative 2 would result in the same impact and the *same impact conclusion* on historical resources or historic properties compared to the proposed project; no impact would result from construction of any project facilities.

Similar to Alternative 1, the construction of the Source Water Pipeline along Highway 1 and Dolan Road to Moss Landing would be adjacent to two previously recorded prehistoric archaeological sites. The results of a pedestrian survey in December 2014 were inconclusive as to whether these sites extend into the alignment. Two additional prehistoric archaeological sites and three historic-era artifact scatters are also within a 0.25-mile radius of Alternative 2 components north of Nashua Road and Highway 1 intersection. Alternative 2 would avoid the sites at CEMEX but the potential impacts on undiscovered archaeological resources would be increased compared to the proposed project because of the additional sites. The applicant would implement **Mitigation Measure Alt 1-CULT (Conduct Subsurface Survey)** and in the event that archaeological resources do extend into the Source Water Pipeline alignment, the applicant would avoid or otherwise mitigate significant impacts by conducting a data recovery investigation or other appropriate measures in accordance with **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)** which includes provisions for an Archaeological Research Design and Treatment Plan in the event a significant archaeological resources cannot be avoided.

As stated previously in the setting, there is the potential for shipwrecks to be in the vicinity of Moss Landing. To determine whether shipwrecks or other submerged cultural resources are in the project vicinity, the project sponsor would have to implement a study that included a geophysical survey (magnetometer and side scan sonar) of the project area. Because the locations of all shipwrecks are not mapped, Alternative 2 could result in an increased potential impact compared to the proposed project. Implementation of **Mitigation Measures ALT 1-CULT (Conduct Subsurface Survey)** and **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)** would reduce impacts on archaeological resources and Alternative 2 would result in the *same impact conclusion* compared to the proposed project, less than significant with mitigation.

Of the geologic units through which Alternative 2 would require excavation, Older Dune Sands and Terrace Deposits may have the potential for paleontological resources. The UCMP database search indicated a few microfossils have been identified from these younger geologic units but none near the location of Alternative 2. Therefore, potential impacts on paleontological resources would be

increased compared to the proposed project but would result in the *same impact conclusion*, less than significant.

While no known human remains have been documented within Alternative 2, the possibility of inadvertently uncovering human remains cannot be entirely dismissed. The potential inadvertent discovery of human remains would be increased compared to the proposed project because of the additional 6.5 miles of source water pipeline and could be mitigated to less than significant with implementation of **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**, which would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per the recommendations of the Coroner. Alternative 2 would have the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There are no operational and facility siting impacts on cultural and paleontological resources and Alternative 2 would result in the *same impact conclusions* as the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for potential cumulative cultural resources impacts encompasses locations where ground disturbing activity would occur under Alternative 2. In addition to the projects relevant to the cumulative scenario for the proposed project, the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) would be located in close proximity to or overlapping Alternative 2 ground disturbance. This analysis assumes that all of the cumulative projects have a similar potential impact on cultural and paleontological resources. However, because each project's potential impacts would be site-specific to individual components, they would not combine with those of Alternative 2 to create a significant cumulative effect. Alternative 2 has the potential to disturb shipwrecks, which could be significant. The DeepWater Desal Project also would have the potential to disturb shipwrecks, potentially resulting in a significant cumulative impact to which the contribution of Alternative 2 would be significant. However, as described above, implementation of **Mitigation Measures Alt 1-CULT and 4.15-2a** would result in avoidance of any shipwrecks. Alternative 2 would have a greater potential for a significant contribution to a significant cumulative impact on cultural resources, and would result in an *increased impact conclusion* compared to the proposed project, less than significant with mitigation.

5.5.15.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The two pipelines for the intake and two pipelines for

the discharge systems would be installed under the seafloor in MBNMS using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Construction of Alternative 3 near Moss Landing would impact two previously recorded prehistoric archaeological sites that have been evaluated as eligible for listing in the National Register of Historic Places. The results of the surface survey indicate these sites extend into the DeepWater Desal Project area (WSA, 2016). Two additional prehistoric archaeological sites and three historic-era artifact scatters are also within a 0.25-mile radius of Moss Landing, resulting in an increased potential impact on undiscovered resources and the need to implement **Mitigation Measure ALT 1-CULT (Conduct Subsurface Survey)**. Further, if site locations cannot be avoided, implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)** would be necessary to mitigate significant impacts on archaeological resources to less than significant.

As stated previously in the setting, there is also the potential for shipwrecks in the vicinity of Moss Landing. To determine whether shipwrecks or other submerged cultural resources are in the project vicinity, a study would be required that included a geophysical survey (magnetometer and side scan sonar) of the project area. Because the locations of shipwrecks are currently unknown, Alternative 3 could result in an increased potential impacts compared to the proposed project and implementation of **Mitigation Measures ALT 1-CULT and Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)** would result in an *increased impact conclusion* on historic properties or sites, and the *same impact conclusion* on archaeological resources compared to the proposed project, less than significant with mitigation.

Of the geologic units through which Alternative 3 would require excavation, Older Dune Sands and Terrace Deposits may have the potential for paleontological resources. The UCMP database search indicated a few microfossils had been identified from these younger geologic units but none near the location of Alternative 3. Therefore, the potential impact on paleontological resources would be the same compared to the proposed project and would result in the *same impact conclusion*, less than significant.

While no known human remains have been documented within the Alternative 3 site, the possibility of inadvertently uncovering human remains cannot be entirely dismissed. The potential for inadvertent discovery of human remains would be the same compared to the proposed project and could be mitigated to less than significant with implementation of proposed project **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**, which would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per the recommendations of the Coroner. Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There are no operational and facility siting impacts on cultural and paleontological resources and Alternative 3 would have the *same impact conclusion* as the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for cumulative cultural resources impacts is defined by the location of the components of Alternative 3 and those of other projects that are located within the same area. The GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would be located south and east of the Alternative 3 components and would not geographically overlap with the Alternative 3 components. The Moss Landing Community Plan (No. 37) is located geographically near or overlapping some Alternative 3 components, but proposed development under this plan would not have physical impacts on cultural resources that could combine with those of Alternative 3. Other projects that include ground disturbance would be required to comply with similar mitigation to that described for Alternative 3, including inadvertent discovery measures, monitoring, and data recovery, which would reduce impacts to less-than-significant levels. Additionally, Alternative 3 has the potential to disturb shipwrecks, a potentially significant impact that could be reduced to less than significant with implementation of **Mitigation Measures ALT 1-CULT** and **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**. However, no other project in the cumulative scenario for Alternative 3 would have the potential to disturb shipwrecks. Alternative 3 would result in an *increased impact conclusion* compared to the proposed project, less than significant with mitigation.

5.5.15.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station

would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

There are several structures at the proposed location of the Alternative 4 desalination plant on the National Refractories site that have not been evaluated for listing in the California and National Registers and this would be an increased impact on historic structures compared to the proposed project. If determined to be legally significant historical resources/historic properties, impacts from construction of Alternative 4 could result in an **increased impact conclusion** compared to the proposed project, significant and unavoidable.

The location of Alternative 4 near Moss Landing would be adjacent to two previously recorded prehistoric archaeological sites. Two additional prehistoric archaeological site and three historic-era artifact scatters are also within a 0.25-mile radius of the Alternative 4 and this would be an increased impact compared to the proposed project. Additionally, there is the potential for shipwrecks to be in Monterey Bay within MBNMS in the vicinity of Moss Landing. To determine whether shipwrecks or other submerged cultural resources are in the project vicinity, a study that includes a geophysical survey (magnetometer and side scan sonar) of the project area would be required. Because the locations of these resources are not entirely known relative to the Alternative 4 components north of the Nashua Road/Highway 1 intersection, there would be potentially significant impact. Implementation of **Mitigation Measure ALT 1-CULT** would reduce impacts to less than significant. Further, if site locations cannot be avoided, implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)** would impacts on archaeological resources and Alternative 4 would result in the **same impact conclusion** compared to the proposed project, less than significant with mitigation.

Of the geologic units through which Alternative 4 would require excavation, Older Dune Sands and Terrace Deposits may have the potential for paleontological resources resource. The UCMP database search indicated a few microfossils from these younger geologic units had been identified but none near the location of Alternative 4. Therefore, the potential impact on paleontological resources would be the same, and Alternative 4 would result in the **same impact conclusion** compared to the proposed project, less than significant.

While no known human remains have been documented within the Alternative 4 site, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains could be mitigated to less than significant with implementation of **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**, which would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per

the recommendations of the Coroner. Alternative 4 would result in the *same impact conclusion*, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There are no operational and facility siting impacts on cultural and paleontological resources and Alternative 4 would have the *same impact conclusion* as the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for cumulative cultural resources impacts is defined by the location of Alternative 4 and those of other projects that are located within the same area. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) and the Moss Landing Community Plan (No. 37) are located geographically near or overlapping some of the Alternative 4 components. Other projects that include ground disturbance would be required to comply with similar mitigation to that described for Alternative 4, including inadvertent discovery measures, monitoring, and data recovery, which would reduce impacts to less-than-significant levels. Alternative 4 has the potential for significant and unavoidable impacts on historical resources/historic properties at the National Refractories site. However, no other project in the cumulative scenario for Alternative 4 would be located at or result in impacts at the National Refractories site; therefore, a cumulative analysis is not relevant to this impact. Alternative 4 has the potential to disturb shipwrecks, which could be significant. The DeepWater Desal Project also would have the potential to disturb shipwrecks, potentially resulting in a significant cumulative impact to which the contribution of Alternative 4 would be significant. However, as described above, implementation of **Mitigation Measures Alt 1-CULT and 4.15-2a** would result in avoidance of any shipwrecks. Alternative 4 would have a greater potential for a significant contribution to a significant cumulative impact on cultural resources; it would result in an *increased impact conclusion* compared to the proposed project, less than significant with mitigation.

5.5.15.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction of Alternative 5a would occur in the same locations as the proposed project. Construction of Alternative 5b would be located in the same locations as Alternative 1 north of the Nashua Road/Highway 1 intersection. Therefore, even though Alternative 5a and 5b would

have fewer wells and a reduced size desalination facility compared to the proposed project, and Alternative 5b would have a longer source water pipeline, Alternatives 5a and 5b would result in the *same impact conclusions* as the proposed project for historic properties (No Impact), archaeological resources (less than significant with mitigation), paleontological resources (less than significant) and disturbance of human remains (less than significant with mitigation). CalAm would need to implement **Mitigation Measure ALT 1-CULT (Conduct Subsurface Investigation)** for Alternative 5b and **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)** and **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**, for both Alternatives 5a and 5b to reduce the impact on archaeological resources and disturbance of human remains to less than significant.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There are no operational and facility siting impacts on cultural and paleontological resources and Alternatives 5a and 5b would have the *same impact conclusions* as the proposed project, no impact.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would have similar potential impacts on cultural and paleontological resources as ground disturbance under Alternatives 5a and 5b. However, because each project's potential impacts would be site-specific to individual components, they would not combine to result in a significant cumulative impact.

Impacts of Full Cumulative Scenario

The cumulative impact analysis for Alternatives 5a and 5b would be the same as that described for the proposed project and Alternative 1, respectively. As described above, the GWR Project would not contribute to a cumulative impact with Alternatives 5a and 5b. Therefore, Alternatives 5a and 5b would have the *same impact conclusion* as the proposed project, less than significant.

5.5.15.9 References

William Self Associates (WSA), 2016. *Cultural Resources Assessment Report, Monterey Bay Regional Water Project, Main Facility Site, Moss Landing, Monterey County, California*. Prepared for DeepWater Desal LLC, April 2016.

5.5.16 Agricultural Resources

The evaluation criteria for Agricultural Resources address: disruption of agricultural activities or permanent conversion of farmland to non-agricultural use; conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; and potential conflicts with zoning for agricultural uses or with Williamson Act contracts.

5.5.16.1 Setting/Affected Environment

The environmental setting and regulatory framework for the alternatives would be similar to the proposed project, which includes local and state regulations that apply to agricultural resources in Monterey County. As such, descriptions of the environmental setting and regulatory framework for agricultural resources are provided in Section 4.16. The environmental setting for the components that are common to the proposed project are also discussed in Section 4.16. This section focuses on the facilities that are unique to the alternatives

The area north of the Salinas River and south of the Moro Cojo Slough is primarily Prime Farmland, with small pockets of Farmland of Statewide Importance, Unique Farmland, and Grazing Lands as designated by the California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP) (CDC, 2015). Williamson Act contracted lands make up approximately half of the agricultural parcels in this area (CDC, 2016) and the area is primarily zoned for Agricultural Preservation (Monterey County, 2007).

In the Moss Landing area north of the Moro Cojo Slough, lands are designated primarily as Urban and Built-Up, and Other Land (CDC, 2015). No agricultural zoning exists there except for a parcel located one mile from Highway 1 on the north side of Dolan Road that is designated for Agricultural Preservation (Monterey County, 2007).

5.5.16.2 Direct and Indirect Effects of the Proposed Project – Slant Wells at CEMEX

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

The following paragraphs briefly summarize the impacts of the proposed project with respect to agricultural resources. The detailed impact analysis of the proposed project is provided in Section 4.16.

Impact 4.16-1: Result in changes in the existing environment that, due to their location or nature, could temporarily disrupt agricultural activities or result in the permanent conversion of farmland to non-agricultural use.

Construction of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline that would be installed within a 2,500 foot segment of designated farmland that is currently under cultivation for flower production north of Charles Benson Road would cause physical changes to the environment that could result in the conversion of farmland to non-agricultural uses, a significant impact. Implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)** would reduce this impact to a less-than-significant level. This measure requires coordination with property owners, separation of soil layers when stockpiling during excavation, avoidance of soil compaction measures, and inspection and restoration of all drainage systems.

None of the other proposed facilities or pipeline alignments in areas mapped as designated farmland by the California Department of Conservation would result in conversion of farmland since installation would be confined to rights-of-way or road shoulders where no crops are grown, or land that has been fallow for more than four years prior to the farmland mapping date.

Impact 4.16-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

Implementation of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline installed in the farmland north of Charles Benson Road would result in a less-than-significant impact related to the permanent conversion of important farmland to non-agricultural uses since farming practices would resume after construction and important farmland would not be displaced. For all other facilities, no impact would result.

Impact 4.16-3: Conflict with zoning for agricultural uses or with Williamson Act contracts.

None of the proposed facilities would conflict with agricultural zoning. The Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline installed in farmland north of Charles Benson Road (a portion of which is designated as Williamson Act land) would result in a less-than-significant impact related to conflicts with Williamson Act contracts because existing agricultural uses could resume during operations. All other proposed facilities, including all optional pipeline alignments, would have no impact on Williamson Act land.

Impact 4.16-C: Cumulative impacts related to agricultural resources.

Proposed project construction could have a significant contribution to significant cumulative effects on the conversion of farmland to non-agricultural use because cumulative projects in the project area would temporarily disrupt agricultural uses during construction, but since cumulative projects enlist mitigation measures to reduce construction impacts and because the proposed project would implement mitigation measures identified in Impact 4.16-1, this impact would be reduced to a less-than-significant level. Project operations would not have a significant contribution to a cumulative impact associated with the conversion of Prime Farmland, Unique Farmland, Farmland of

Statewide Importance to non-agricultural use, nor with land zoned for agricultural uses or with Williamson Act contracts regardless of the impacts of other projects in the cumulative scenario because it would not result in the conversion of such resources during operation.

5.5.16.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed and the existing test slant well would be decommissioned. Consequently, there would be no ground disturbance or placement of new structures that could affect agricultural resources, and thus no construction-related direct or indirect impacts on agricultural resources. Additionally, changes in future water supplies described in Section 5.4.2 as a result of the No Project Alternative would not directly or indirectly adversely affect the availability of water currently used for agricultural purposes, and thus would not result in the permanent conversion of farmland to non-agricultural use. Because the No Project Alternative would have no direct or indirect impacts with respect to agricultural resources, it could not contribute to cumulative effects related to these topics.

5.5.16.4 Direct and Indirect Effects of Alternative 1 - Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the agricultural impact analysis of Alternative 1 focuses primarily on locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

The intakes at the Potrero Road parking lot would not be located within or adjacent to farmland. Therefore, construction of these components would have no impact on agricultural resources. North of the Salinas River, construction of the alternative source water pipeline would not result in the disturbance of agricultural activities or farmland because the disturbance would be contained to rights-of-way, and would not extend into cultivated land. Construction would not affect soil conditions in farmland areas and would not result in the conversion of farmland to non-agricultural uses. No impact on agricultural activities or farmland would result from construction of the source water pipeline north of the Salinas River.

Thus, combining the impacts of the components common to the proposed project and Alternative 1 with the addition of 5.5 miles of source water pipeline and slant wells at Potrero Road, construction of Alternative 1 would have the same potential for disruption to agricultural activities or the conversion of farmland to non-agricultural use, but with implementation of

Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland), would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The intake system at Potrero Road would not be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or land under Williamson Act contract. Therefore, operation and siting of the intake system would have no impact on agricultural resources. Since the alternative source water pipeline would be located within rights-of-way and not within cultivated land, the additional 5.5 miles of pipeline would have no impact on Prime Farmland, Farmland of Statewide Importance, or Williamson Act contracts. The source water pipeline would be buried, and therefore, consistent with Section 21.64.160 of the Monterey County Zoning Ordinance, which allows underground public utilities in all zoning districts without obtaining a use permit.

Thus, combining the impacts of components common to the proposed project and Alternative 1 with the addition of 5.5 miles of source water pipeline and slant wells at Potrero Road, operation of Alternative 1 would result in the *same impact conclusion* as the proposed project with respect to both operational evaluation criteria, conversion of farmland to non-agricultural use and conflicts with zoning for agricultural uses or with Williamson Act contracts, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to agricultural resources for Alternative 1 is defined by the location of the Alternative 1 components, and is the same as that described for the proposed project in Section 4.16.6, with the exception of the different location of the subsurface intake system (Potrero Road, instead of CEMEX), and the alternative source water pipeline route. The cumulative scenario for Alternative 1 includes the Regional Urban Water Augmentation Project (RUWAP) Recycled Water Project (No. 35), the Monterey Peninsula Light Rail Project (No. 38), and the DeepWater Desal Project (No. 34) described in **Table 4.1-2** in Section 4.1. Cumulative impacts from construction and operation of Alternative 1 would be the same as those described for the proposed project. Construction impacts have the potential to be significant, but with implementation of mitigation measures described above, Alternative 1 would not have a significant contribution to significant cumulative impacts. Operational and facility siting impacts would have a less than significant contribution to significant cumulative impacts related to farmland conversion, conflicts with zoning, or Williamson Act lands. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative effects related to agricultural resources, less than significant with mitigation.

5.5.16.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a

subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the agricultural impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

The intake system at Moss Landing and the pump station on Dolan Road would not be located within or adjacent to farmland. Therefore, construction of these components would have no impact on agricultural resources. No part of the source water pipeline from Dolan Road to Potrero Road would be constructed within or adjacent to farmland. From Potrero Road south, the alternative source water pipeline would be the same as Alternative 1. There would be no impacts on farmland from construction of Alternative 2 components north of the Salinas River.

Thus, combining the impacts of the components common to the proposed project and Alternative 2 with the addition of 6.5 miles of source water pipeline and the open water intake system, construction of Alternative 2 would have the same potential for disruption to agricultural activities or the conversion of farmland to non-agricultural use, but with implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**, would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The intake system at Moss Landing and the pump station on Dolan Road would not be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or land under Williamson Act contract; therefore, operation and siting of the intake system would have no impact on agricultural resources.

No part of the alternative source water pipeline from Dolan Road to Potrero Road would be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or land under Williamson Act contracts. A small portion of this alignment would be located in the right-of-way adjacent to land zoned for Agricultural Conservation (Monterey County, 2007), but the pipeline would be buried and therefore consistent with Section 21.64.160 of the Monterey County Zoning Ordinance, which allows underground public utilities in all zoning districts, without the necessity of obtaining a use permit.

From Potrero Road south, the alternative source water pipeline would be the same as the source water pipeline in Alternative 1. In sum, there would be no impact on Prime Farmland, Unique

Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or Williamson Act contracts from the operation and siting of the source water pipeline north of the Salinas River.

Thus, combining the impacts of the components common to the proposed project and Alternative 2 with the addition of 6.5 miles of source water pipeline and the open water intake system, operation of Alternative 2 would result in the *same impact conclusion* as the proposed project with respect to both operational evaluation criteria, conversion of farmland to non-agricultural use and conflicts with zoning for agricultural uses or with Williamson Act contracts, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to agricultural resources for Alternative 2 is defined by the location of the Alternative 2 components, and is the same as that described for the proposed project in Section 4.16.6, with exception of the different location of the seawater intake system (Moss Landing instead of CEMEX) and the alternative source water pipeline route, and the elimination of the Castroville Pipeline and Pipeline to CSIP. The cumulative scenario for Alternative 2 includes the Regional Urban Water Augmentation Project (RUWAP) Recycled Water Project (No. 35), the Monterey Peninsula Light Rail Project (No. 38) and the DeepWater Desal Project (No. 34) described in **Table 4.1-2** in Section 4.1. Cumulative impacts from construction and operation of Alternative 2 would be the same as those described for the proposed project. Construction impacts have the potential to be significant, but with implementation of **Mitigation Measure 4.16-1**, Alternative 2 would have a less than significant contribution to significant cumulative impacts. Operational and facility siting impacts would not have a less than significant contribution to significant cumulative impacts related to farmland conversion, conflicts with zoning, or Williamson Act lands. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to agricultural resources, less than significant with mitigation.

5.5.16.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville

Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. In addition, proposed project components along Charles Benson Road would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the agricultural impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

The seawater intake system at Moss Landing, source water pipeline, and brine discharge pipeline and outfall would not be located within or adjacent to farmland. Therefore, construction of these components would have no impact on agricultural resources. The desalination plant, data center, and substation would border farmland, but construction activities would be contained to the project area boundary and not disturb agricultural activities or convert farmland to non-agricultural uses. From Dolan Road and Highway 1, the desalinated water pipeline would be the same as the source water pipeline in Alternative 2, and similarly would have no impact on agricultural resources. Up to 25 miles of additional desalinated water pipelines would need to be constructed to deliver excess water (above the 9.6 mgd demand from CalAm’s Monterey District service area) to potential customers in Santa Cruz County, Salinas, or both. Due to the presence of farmland between Moss Landing and Santa Cruz County to the north and Salinas to the southeast, it is likely that construction of these pipelines could be located in rights-of-way, but would still have the potential to disturb agricultural activities or result in the conversion of farmland; however, the exact alignments for these pipelines are currently not known.

South of the Salinas River, the desalinated water pipeline would join the proposed project at the “Connection to CalAm” Point. No pipelines would be constructed within farmland north of Charles Benson Road. All pipelines would be constructed within rights-of-way and no disturbance to farmland would result.

Because construction of pipelines between Moss Landing and Santa Cruz County to the north and Salinas to the southeast could disturb agricultural activities or convert farmland, Alternative 3 has an increased potential to impact agricultural resources compared to the proposed project; however, implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)** would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The intake system at Moss Landing, source water pipeline, desalination plant, data center, substation, and brine discharge pipeline and outfall would not be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or land under Williamson Act contract. Therefore, operation of these components would have no impact on agricultural resources. The desalination plant, data center and substation would border land zoned for Agricultural Preservation, but the footprint would not extend into agricultural land and no impact would result.

Operational and facility siting impacts of the desalinated water pipeline would be the same as described for the source water pipeline in Alternative 2; no impact on Prime Farmland, Unique Farmland, Farmland of Statewide Importance, land zoned for agricultural uses, or Williamson Act contracts would result.

Because pipelines between Moss Landing and Santa Cruz County to the north and Salinas to the southeast could be installed within designated farmland or Williamson Act contracts, Alternative 3 has an increased potential to impact agricultural resources compared to the proposed project. However, since underground utilities are allowed in all zoning districts in Monterey County and Santa Cruz County (Santa Cruz County, 2015), and since agricultural uses could resume during operations, Alternative 3 would have the *same impact conclusion* as the proposed project with respect to both operational evaluation criteria, conversion of farmland to non-agricultural use and conflicts with zoning for agricultural uses or with Williamson Act contracts, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative agricultural impacts for Alternative 3 is defined by the location of the Alternative 3 components. The cumulative scenario for Alternative 3 includes the Regional Urban Water Augmentation Project (RUWAP) Recycled Water Project (No. 35) and the Monterey Peninsula Light Rail Project (No. 38), described in **Table 4.1-2** in Section 4.1. Construction impacts have the potential to be significant, but with implementation of **Mitigation Measure 4.16-1**, Alternative 3 would have a less than significant contribution to significant cumulative impacts. Operational and facility siting impacts would have a less than significant contribution to significant cumulative impacts related to farmland conversion or Williamson Act lands. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project for cumulative effects related to agricultural resources, less than significant with mitigation.

5.5.16.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. In addition, proposed project components along Charles Benson Road would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the agricultural impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

The intake system at Moss Landing, source water pipeline, desalination plant, and brine discharge pipeline and outfall would not be located within or adjacent to farmland. Therefore, construction of these components would have no impact on agricultural resources.

From Dolan Road and Highway 1 south, the desalinated water pipeline would be the same as the source water pipeline in Alternative 2, and similarly would have no impact on agricultural resources. Similar to Alternative 3, pipelines south of the Salinas River would be constructed within rights-of-way and no disturbance to farmland would result. Thus, combining the impacts of proposed project components with the addition of the components unique to Alternative 4, construction of Alternative 4 would result in a **reduced impact conclusion** compared to the proposed project, no impact.

Operational and Facility Siting Impacts

The intake system at Moss Landing, the source water pipeline, desalination plant, and brine discharge pipeline and outfall would not be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or land under Williamson Act contract. Therefore, operation of these components would have no impact on agricultural resources.

From Dolan Road and Highway 1 south, the desalinated water pipeline would be the same as the source water pipeline in Alternative 2; therefore, there would be no impacts on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or Williamson Act contracts from the operation and siting of the source water pipeline north of the Salinas River. No pipelines south of the Salinas River would be installed in areas mapped as designated farmland, land zoned for agricultural uses, or Williamson Act contracts.

Thus, combining the impacts of proposed project components with the addition of components unique to Alternative 4, operation and siting of Alternative 4 would result in a **reduced impact conclusion** compared to the proposed project, no impact.

Cumulative Analysis

Because construction and operation of Alternative 4 would have no impact on agricultural resources, Alternative 4 would not contribute to a cumulative impact on agricultural resources. Therefore, Alternative 4 would result in a **reduced impact conclusion** compared to the proposed project for cumulative effects related to agricultural resources, no impact.

5.5.16.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and

the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction, Operational, and Facility Siting Impacts

Alternatives 5a and 5b would have the same pipeline configurations and facility locations as the proposed project and Alternative 1, respectively. Therefore, Alternatives 5a and 5b would have the same construction impacts on agricultural resources as the proposed project and Alternative 1, respectively. Thus, construction of Alternatives 5a and 5b would have the same potential for disruption to agricultural activities or the conversion of farmland to non-agricultural use, but with implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**, would result in the *same impact conclusion* as the proposed project, less than significant with mitigation. Similarly, operation of Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

As described in the GWR Project FEIR (MRWPCA, 2016), the GWR Project would have no permanent impact on agricultural resources. It would result in temporary disruption to agricultural production during construction of the Salinas Treatment Facility and a portion of the Blanco Drain Diversion that would be of the same nature as temporary impacts described for the proposed project. The GWR Project would not convert farmland to non-agricultural use, and after implementation of adopted GWR FEIR **Mitigation Measure LU-1**, which would minimize disturbance to farmland during construction of these components, GWR Project impacts would be less than significant. The GWR Project would have no impact on the conversion of important farmland during operation, and no impact related to conflicting with zoning for agricultural uses or Williamson Act contracts during construction or operation (MRWPCA, 2016). Therefore, it would not contribute to the less-than-significant impacts of Alternatives 5a and 5b. Because both projects would minimize construction-related disturbance to farmland through mitigation, the combined temporary impact of construction-related disturbance from Alternatives 5a or 5b and the GWR Project would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The geographic scope for the cumulative analysis of impacts from Alternative 5a and 5b is the same as that described for the proposed project and Alternative 1, respectively. The cumulative scenario for Alternatives 5a and 5b includes the same projects discussed for the cumulative analysis of the proposed project, with the addition of the GWR Project, which as described above would not increase the overall cumulative impact. Therefore, Alternatives 5a and 5b would have the same contribution to cumulative impacts on agricultural resources as the proposed project during construction and operation. Construction impacts have the potential to be cumulatively significant, but with implementation of mitigation measures described above, Alternatives 5a and 5b would have a less than significant contribution to significant cumulative impacts. Operational

and facility siting impacts would have a less than significant contribution to cumulative impacts related to farmland conversion, conflicts with zoning, or Williamson Act lands. Therefore, Alternatives 5a and 5b would result in the **same impact conclusion** as the proposed project for cumulative effects related to agricultural resources, less than significant with mitigation.

5.5.16.9 References

- California Department of Conservation (CDC), Division of Land Resource Protection, 2015. *Monterey County Important Farmland 2012, Sheet 1 of 2*. Available online at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/.../2012/mnt12_no.pdf. Accessed May 6, 2016.
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- Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project*. January 2016.
- Santa Cruz County, 2015. *Zoning and Development Code*. Available online at <http://www.santacruzcountyaz.gov/DocumentCenter/Home/View/5116>. Accessed December 8, 2016.
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5.5.17 Mineral Resources

The evaluation criteria for Mineral Resources address the loss of availability of known mineral resources that are of value to the region or residents of the state and the loss of a locally recognized important mineral resource recovery site.

5.5.17.1 Setting/Affected Environment

The environmental setting and regulatory framework for the alternatives would be similar to the proposed project, which includes local and state regulations that apply to mineral resources in Monterey County. As such, descriptions of the environmental setting and regulatory framework for mineral resources are provided in Chapter 4.17. The environmental setting for the components that are common to the proposed project are also discussed in Chapter 4.17. This section focuses on the facilities that are unique to the alternatives.

The setting for facilities unique to the alternatives includes the area north of the Salinas River and south of Elkhorn Slough. This area has no MRZ-2 designation (areas with limited mining potential) but a small portion is classified as MRZ-1 (areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence) and MRZ-4 (areas where available information is inadequate for assignment to any other zone), as mapped by the California Department of Conservation, California Geological Survey (CDMG, 1987).

5.5.17.2 Direct and Indirect Effects of the Proposed Project (Slant Wells at CEMEX)

Impact 4.17-1: Loss of availability of known mineral resources that are of value to the region or residents of the state, or result in the loss of a locally recognized important mineral resource recovery site.

The proposed slant wells site at the CEMEX sand mining facility, portions of the Source Water Pipeline, the MPWSP Desalination Plant, the Brine Discharge Pipeline, the Pipeline to CSIP Pond, the new Desalinated Water Pipeline, the southern portion of the Castroville Pipeline, the new Transmission Main, the ASR conveyance pipelines, the ASR 5 and ASR-6 Wells, and the Ryan Ranch-Bishop Interconnection Improvements would be located in areas designated as MRZ-2 – that is, areas where information indicates that significant mineral deposits (in this case, sand for use as aggregate) are either present or are likely to be present. The subsurface slant wells for the intake system are proposed within the southern portion of the CEMEX property, in an area that is no longer mined and has been restored by CEMEX consistent with the Reclamation Plan. The proposed Source Water Pipeline would be aligned beneath the existing CEMEX access road. Although mining operations could experience minor disruptions during project construction, mining activities would continue throughout project construction and potentially during the first several months of operations. Therefore, project implementation would not result in the temporary loss of known mineral resources and temporary construction-related impacts would be less than significant. Operation of the slant wells could preclude mineral resource extraction but since this particular area is no longer being mined, is under a reclamation plan, and it is unlikely

that future sand mining would be permitted in the southern portion of the CEMEX property, this impact would be less than significant.

The seafloor and subsurface mineral materials (e.g., sand, sediments) within MBNMS would provide filtration for the water taken in by the subsurface slant wells. The proposed project's filtration process would not result in the loss of a known mineral resource and no mineral resource consumption or extraction would occur related to the operation of the subsurface slant wells, and therefore, no impact would occur.

Construction and operation of the MPWSP Desalination Plant, which is located in an area designated as MRZ-2, could limit future recovery of mineral resources beneath the plant footprint. However, California Department of Conservation designated important farmland surrounds the site, and mineral extraction would be an incompatible use. Implementation of the desalination plant would have a less than significant impact on mineral resources. All proposed pipelines within MRZ-2 would have a less than significant impact on mineral resources since they would be constructed in or adjacent to rights-of-way and would have limited footprints.

Portions of the Castroville Pipeline north of the Salinas River would be located within MRZ-1 and MRZ-4, which are areas where information indicates that no significant mineral deposits are likely to be present, and areas where information is inadequate to assign a mineral resource zone, respectively. The Main System–Hidden Hills Interconnection Improvements, and the Carmel Valley Pump Station would not be located within an MRZ. These components would have no impact on mineral resources.

Impact 4.17-C: Cumulative impacts related to mineral resources.

The proposed project construction and operation would not contribute to cumulative impacts on mineral resources because all cumulative projects in MRZ-2 are on developed lands or on land where mining is prohibited.

5.5.17.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed and the existing test slant well would be decommissioned. Consequently, there would be no ground disturbance or placement of new structures that could affect mineral resources, and thus no construction- or operation-related direct or indirect impacts relative to mineral resources associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to mineral resources, it could not contribute to cumulative effects related to these topics.

5.5.17.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline,

new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the mineral resources impact analysis of Alternative 1 focuses primarily on locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction and Operational Impacts

No Alternative 1 components north of the Salinas River would be located in an active mining area or MRZ-2. Portions of the source water pipeline would be located in land designated as MRZ-1 and MRZ-4. Therefore, construction and operation of Alternative 1 components north of the Salinas River would have no impact on mineral resources. Because the slant wells would not be located on MRZ-2 lands, Alternative 1 would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Since Alternative 1 components south of the Salinas River would be located in MRZ-2, but with limited mining potential, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to mineral resources for Alternative 1 is defined by the location of Alternative 1 components, and is the same as that described for the proposed project in Section 4.17.6, with exception of the different location of the subsurface intake system (Potrero Road, instead of CEMEX), and the alternative source water pipeline route. Alternative 1 would reduce impacts on mineral resources compared to the proposed project, reducing construction within land designated as MRZ-2. No new impacts on mineral resources would occur under Alternative 1. Therefore, as described for the proposed project, the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, implementation of Alternative 1 would have a less than significant contribution to a cumulative mineral resources effect. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed

Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the mineral resource impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction and Operational Impacts

No Alternative 2 components north of the Salinas River would be located in an active mining area or MRZ-2. Portions of the source water pipeline would be located in land designated as MRZ-1 and MRZ-4. Therefore, construction and operation of Alternative 2 components north of the Salinas River would have no impact on mineral resources. Because the seawater intake would not be located on MRZ-2 lands, Alternative 2 would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Since Alternative 2 components south of the Salinas River would be located in MRZ-2, but with limited mining potential, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to mineral resources for Alternative 2 is defined by the location of Alternative 2 components, and is the same as that described for the proposed project in Section 4.17.6, with exception of the different location of the seawater intake system (Moss Landing, instead of CEMEX), and the alternative source water pipeline route. Alternative 2 would reduce impacts on mineral resources compared to the proposed project, reducing construction within land designated as MRZ-2. No new impacts on mineral resources would occur under Alternative 2. Therefore, as described for the proposed project, the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, implementation of Alternative 2 would have a less than significant contribution to a cumulative mineral resources effect. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to

connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the mineral resources impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction and Operational Impacts

No Alternative 3 components north of the Salinas River would be located in an active mining area or MRZ-2. Portions of the source water pipeline would be located in land designated as MRZ-1 and MRZ-4. Therefore, construction and operation of Alternative 3 components north of the Salinas River would have no impact on mineral resources. Because the seawater intake system would not be located on MRZ-2 lands, Alternative 3 would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Since Alternative 3 components south of the Salinas River would be located in MRZ-2, but with limited mining potential, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to mineral resources for Alternative 3 is defined by the location of Alternative 3 components. Alternative 3 would reduce impacts on mineral resources compared to the proposed project, reducing construction within land designated as MRZ-2. No new impacts on mineral resources would occur under Alternative 3. Therefore, as described for the proposed project, the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, implementation of Alternative 3 would have a less than significant contribution to a cumulative mineral resources effect. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.7 Direct and Indirect Effects of Project Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components

would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the mineral resources impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction and Operational Impacts

No Alternative 4 components north of the Salinas River would be located in an active mining area or MRZ-2. Portions of the source water pipeline would be located in land designated as MRZ-1 and MRZ-4. Therefore, construction and operation of Alternative 4 components north of the Salinas River would have no impact on mineral resources. Because the seawater intake system would not be located on MRZ-2 lands, Alternative 4 would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Since Alternative 4 components south of the Salinas River would be located in MRZ-2, but with limited mining potential, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to mineral resources for Alternative 4 is defined by the location of Alternative 4 components. Alternative 4 would reduce impacts on mineral resources compared to the proposed project, reducing construction within land designated as MRZ-2. No new impacts on mineral resources would occur under Alternative 4. Therefore, as described for the proposed project, the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, implementation of Alternative 4 would have a less than significant contribution to a cumulative mineral resources effect. Therefore, Alternative 4 would result in the *same impact conclusion* as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b

would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction and Operational Impacts

All components of Alternative 5a would be in the same location as the proposed project, but with fewer slant wells at CEMEX. Therefore, construction and operation of Alternative 5a would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Alternative 5a would result in the *same impact conclusion* as the proposed project, less than significant.

All components of Alternative 5b would be in the same location as Alternative 1. Therefore, construction and operation of Alternative 5b would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Alternative 5b would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would have no impact on the availability of mineral resources during construction, and would have a less-than-significant impact on availability of mineral resources during operations (MRWPCA, 2016). No mineral extraction currently is occurring within the GWR Project component sites, and the GWR Project would not preclude or obstruct future mineral extraction in areas potentially subject to mineral development. In combination with Alternatives 5a and 5b, the GWR Project would result in a less-than-significant impact on mineral resources.

Impacts of Full Cumulative Scenario

The geographic scope for the cumulative analysis of impacts from Alternatives 5a and 5b is the same as that described for the proposed project and Alternative 1, respectively. Impacts from construction and operation of Alternatives 5a and 5b would be the same as those described for the proposed project and Alternative 1, respectively. One additional project, the GWR Project, would be relevant to the cumulative scenario for Alternatives 5a and 5b. As indicated above, the addition of the GWR Project would not result in significant cumulative impact. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.9 References

California Division of Mines and Geology (CDMG), 1987. *Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area*, Special Report 146, Part IV, Monterey Bay Production-Consumption Region, 1987.

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project*. January 2016.

5.5.18 Energy Conservation

The evaluation criteria for Energy Conservation address: use of large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction and decommissioning; use of large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations and maintenance; and, constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations.

5.5.18.1 Setting/Affected Environment

The setting/affected environment for alternatives is the same as described for the proposed project in Section 4.18, Energy Conservation, and the reader is referred to that section for a detailed description.

5.5.18.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

Impact 4.18-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction and decommissioning.

Construction of the proposed project (and decommissioning) would require the use of fuels for operation of heavy construction equipment (e.g., dozers, excavators, and trenchers), construction vehicles (e.g., dump and delivery trucks), and construction worker vehicles. Operation of some construction equipment (e.g., welding machines and electric power tools) would require the use of electricity. Construction (and decommissioning) would also result in indirect energy use associated with the extraction, manufacturing, and transportation of raw materials to make construction materials.

Construction (and decommissioning) activities could result in wasteful or inefficient use of energy if equipment is not well maintained, if equipment is left to idle when not in use, or if haul trips are not planned efficiently. The potential to use large amounts of fuel or energy in a wasteful manner is considered a significant impact. However, implementation of **Mitigation Measures 4.18-1 (Construction Equipment and Vehicle Efficiency Plan)** and **4.10-1c (Idling Restrictions)** would reduce the impact to a less-than-significant level.

Impact 4.18-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations and maintenance.

Operation and maintenance of the proposed project would result in the consumption of fuel for CalAm staff commute trips to and from the MPWSP Desalination Plant, and vehicle trips associated with routine maintenance and operations. Project operations would also result in the consumption of electricity to operate the MPWSP Desalination Plant (i.e., reverse osmosis [RO] modules, pumps, lighting, process controls, heating, ventilation, and air conditioning [HVAC] systems) and other proposed facilities (i.e., ASR Pump Station, Carmel Valley Pump Station, etc.). Although implementation of the proposed project would result in a substantial increase in electrical power demand (63,364 MWh/year minus a baseline energy use of 11,466 MWh/year equals a net increase of 51,898 MWh/year), the use of energy for operation of the MPWSP

Desalination Plant is necessary because it would provide a reliable supply of water to meet existing demand for the Monterey District. Therefore, electricity consumed as a result of project operations would not be wasteful or inefficient and the impact related to the use of fuel and energy during project operations would be less than significant.

Impact 4.18-3: Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations.

Implementation of the proposed project would increase CalAm’s total electrical demand by an amount that would represent approximately two percent of the County’s electricity usage in 2014. The preliminary review of the proposed project’s annual and maximum electrical demand by the electricity provider, Pacific Gas and Electric (PG&E), has indicated that PG&E has adequate capacity and infrastructure to support the proposed project. Therefore, this impact would be less than significant.

Impact 4.18-C: Cumulative impacts related to energy conservation.

Implementation of mitigation would ensure that the proposed project construction activities would be conducted in a fuel-efficient manner. Idling times would be limited for construction equipment and vehicles to ensure that energy waste and inefficiency would be minimized. The cumulative use of energy resources during construction would be consistent with normal construction practices and would comply with efficiency- and conservation-related policies intended to address cumulative energy consumption statewide. Implementation of **Mitigation Measures 4.18-1 (Construction Equipment and Vehicle Efficiency Plan)** and **4.10-1c (Idling Restrictions)** would reduce the cumulative impact to a less-than-significant level.

During project operation, the anticipated increase in electricity consumption for the proposed project would represent approximately 2 percent of Monterey County’s annual usage, and an even smaller fraction of PG&E’s overall service area usage. In the event that other cumulative projects listed in **Table 4.1-2** that would be high demand electricity users, such as the Monterey Bay Regional Water Project (DeepWater Desal, No. 34), which would require 25 times the amount of energy, request electrical service from PG&E, additional wholesale electric energy may need to be purchased by PG&E. This would be considered a significant impact. In addition, some reinforcement of the existing distribution system may also be required, but this would not substantially constrain local or regional energy supplies. However, the proposed project would have a less than significant contribution to this significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation.

5.5.18.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated and the existing test slant well would be decommissioned. Consequently, there would be no construction-related energy use associated with the No Project Alternative. Under the No Project Alternative, there would be less pumping from the Carmel River, resulting in a decrease in the use of energy.

Because the No Project Alternative would have no direct or indirect impacts with respect to energy conservation, it could not contribute to cumulative effects related to these topics.

5.5.18.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the impact analysis for Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Effects

Construction of one additional slant well and 5.5 additional miles of source water pipeline would result in an increase in gasoline and diesel fuel use during construction (and decommissioning) compared to the proposed project. While the transportation and equipment energy use requirements would not be significant relative to the overall sales of transportation fuels in the County, activities could result in wasteful or inefficient use of energy if equipment is not well maintained, if equipment is left to idle when not in use, or if haul trips are not planned efficiently. The potential use of large amounts of fuel or energy in a wasteful or inefficient manner is considered a significant impact. However, with implementation of **Mitigation Measures 4.18-1** and **4.10-1b**, the impact would be reduced to a less-than-significant level. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational Effects

Long-term operation of Alternative 1 would result in approximately three times the electricity consumption to pump source water to the MPWSP Desalination Plant compared to the proposed project, resulting in an overall increase in electrical power demand and less efficient electricity consumption. However, the additional electricity required would not be a large amount compared to the existing energy supplies in the County and would be accommodated by existing local and regional energy supplies. The long-term consumption of fuel required for CalAm staff commute trips to and from the MPWSP Desalination Plant and vehicle trips associated with routine maintenance would be the same as the proposed project. Overall, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts associated with energy and energy conservation during construction and decommissioning would be the same as those described for the proposed project. Impacts would be significant and would have a cumulatively considerable contribution to significant cumulative impacts on the supply and/or availability of fuel sources. However, **Mitigation Measures 4.18-1 (Construction Equipment and Vehicle Efficiency Plan)** and **4.10-1b (Idling Restrictions)** would be implemented to ensure construction activities would be conducted in a fuel-efficient manner. Even if construction were to occur simultaneously with other cumulative projects, the cumulative use of energy resources during construction would be consistent with normal construction practices and would comply with efficiency- and conservation-related policies intended to address cumulative energy consumption statewide after implementation of mitigation. Therefore, construction and decommissioning activities would have a significant contribution to a significant cumulative impact on the supply and/or availability of fuel sources; however, the incremental contribution would be reduced to less than significant with implementation of mitigation.

Although operation and maintenance would result in long-term consumption of substantial amounts of electricity, the anticipated increase in electricity consumption relative to baseline conditions for Alternative 1 would represent small percentages of Monterey County’s annual usage and PG&E’s overall service area usage. In the event that other cumulative projects request electrical service from PG&E, additional wholesale electric energy may need to be purchased by PG&E. For example, the increase in energy required to operate the DeepWater Desal Project’s co-located data center (No. 34 in **Table 4.1-2** in Section 4.1) would be substantial; the efficiency of the data center and the associated cooling system is currently unknown and the impact would likely be significant and unavoidable. In addition, some reinforcement of the existing distribution system may be required for the DeepWater Desal Project. However, given the low electricity consumption that would be associated with Alternative 1, and because this energy use would be necessary for the production of desalinated water and therefore would not be unnecessary, wasteful, or inefficient, it would not have a significant contribution to the significant cumulative impact associated with potential unnecessary, wasteful, and/or inefficient use of energy, or with energy supply, either at a local or regional level, during operation and maintenance. Overall, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.18.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for

returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Effects

Construction would result in a net increase of pipeline length of 6.5 miles resulting in an increase in gasoline and diesel fuel use during construction and decommissioning compared to the proposed project. While transportation and equipment energy use requirements would not be significant relative to total sales of transportation fuels in the County, construction and decommissioning activities could result in wasteful or inefficient use of energy. However, with implementation of **Mitigation Measures 4.18-1** and **4.10-1b**, the significant impact would be reduced to a less-than-significant level. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational Effects

Long-term operation of Alternative 2 would result in approximately three times the electricity consumption to pump source water to the MPWSP Desalination Plant compared to the proposed project, resulting in an overall increase in electrical power demand and less efficient electricity consumption. However, the additional electricity required would not be a large amount compared to the existing energy supplies in the County and would be accommodated by existing local and regional energy supplies. The long-term consumption of fuel required for CalAm staff commute trips to and from the MPWSP Desalination Plant and vehicle trips associated with routine maintenance would be the same as the proposed project. Overall, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts associated with energy and energy conservation during construction, operation, maintenance, and decommissioning would be the same as those described for the proposed project. For the same reasons described for Alternative 1, Alternative 2 would have a cumulatively considerable contribution to a significant cumulative impact during construction and decommissioning; however, the incremental contribution would be reduced to a level that is less than significant with implementation of mitigation. Operation and maintenance would result in a less than significant contribution to the significant cumulative impact. Overall, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.18.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Effects

Construction of a new open water intake and a new outfall in Monterey Bay would require the use of marine construction equipment (e.g., barges) and HDD equipment; large equipment would also be required for the data center and associated cooling system. There would be an overall increase in the use of gasoline and diesel fuel compared to the proposed project. While the overall transportation and equipment energy use requirements would not likely be significant relative to total sales of transportation fuels in the County, construction and decommissioning activities could result in wasteful or inefficient use of energy if equipment is not well maintained, left to idle when not in use, or if haul trips are not planned efficiently resulting in a potentially significant impact. However, Implementation of **Mitigation Measures 4.18-1** and **4.10-1b**, would reduce impacts to a less-than-significant level. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational Effects

Operations and maintenance of the data center and cooling system would require 150 megawatts (MW) of electrical power) resulting in a substantial increase compared to the proposed project, which requires less than 6 MW. This energy demand would be 25 times the net energy demand of the proposed project, and represents approximately half of the County’s electricity usage in 2014 (PG&E, 2015). This additional energy load could substantially constrain local and/or regional energy supplies if not adequately addressed by PG&E. Alternative 3 would require its own

230 kilovolt (kV) electrical substation and electrical transmission facilities, including transmission lines, transmission towers, and underground circuits. Given this amount of electricity demand and new electrical infrastructure that would be required, it is assumed that implementation of this alternative would trigger PG&E’s “large load process,” which is designed to determine how PG&E customers with large energy requirements will be provided electricity.

With regard to electricity consumption, although the desalination plant portion of the alternative would include energy recovery and efficiency systems similar to the proposed project, the project applicant has not provided details on what, if any, energy efficiency measures would be achieved relative to the data center and cooling system. In addition, the electricity used would be less efficient given the longer distance to pump product water to CalAm’s Monterey District service area compared the proposed project. Due to this uncertainty and the large amount of electrical demand that would be required relative to the existing demand in the County, it is assumed that the electricity-related impact would be significant and unavoidable. Therefore, Alternative 3 would have an *increased impact conclusion* compared to the proposed project, and impacts would be significant and unavoidable.

The long-term consumption of fuel that would be required for employee commute trips to and from the project site and vehicle trips associated with routine maintenance under Alternative 3 would also be substantially greater compared to the proposed project due the additional employees and facilities to maintain (see description of operational staffing and facilities maintenance in Section 5.4.5.3). Although substantially greater, Alternative 3 would not result in the inefficient or wasteful use of fuel and it would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts associated with energy and energy conservation during construction and decommissioning would be the same as those described for the proposed project. Alternative 3 would have a cumulatively considerable contribution to a significant cumulative impact on the supply and/or availability of fuel sources during construction and decommissioning; however, the incremental contribution would be reduced to less than significant with implementation of **Mitigation Measures 4.18-1 (Construction Equipment and Vehicle Efficiency Plan)** and **4.10-1b (Idling Restrictions)** to ensure construction activities would be conducted in a fuel-efficient manner.

Operation and maintenance under Alternative 3 would result in long-term consumption of substantial amounts of electricity, which would represent a large amount of Monterey County’s annual usage (e.g., electrical assumption under Alternative 3 would be equal to approximately half of all electricity consumed in Monterey County in 2014), and when combined with the energy demands of other cumulative projects, such as the Pure Water Monterey GWR Project (No. 59 in **Table 4.1-2** in Section 4.1), could substantially constrain local and/or regional energy supplies if not adequately addressed by PG&E. The project applicant has not provided details on what, if any, feasible mitigation could be implemented to reduce the contribution of Alternative 3 to below a significant level. Therefore, Alternative 3 would have a significant contribution to a significant and unavoidable cumulative impact associated with the unnecessary, wasteful, or

inefficient use of energy, or with energy supply, either at a local or regional level, during operation. Overall, Alternative 3 would result in an *increased impact conclusion* compared to the proposed project, significant and unavoidable.

5.5.18.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Effects

Construction of Alternative 4 would require the use of marine construction equipment (e.g., barges) and HDD equipment for the new open-water intake and new outfall, and there would be an increase in gasoline and diesel fuel use compared to the proposed project resulting in a potentially significant impact. Implementation of **Mitigation Measures 4.18-1** and **4.10-1b** would reduce the significant impact to a less-than-significant level. Alternative 4 would have the *same impact conclusion* as the proposed project, less than significant with mitigation.

Operational Effects

Long-term operations of the People’s Project would produce approximately 25 percent more product water that would require an approximately 25 percent increase in energy demand compared to the proposed project. In addition, the electricity used would be less efficient given the longer distance to pump product water to CalAm’s Monterey District service area compared the proposed project. However, the additional electricity required would not be a large amount of energy compared to the energy supplies in the County and would be accommodated by the local and regional energy supplies. The long-term consumption of fuel required for worker commute trips and vehicle trips associated with routine maintenance would be the same as the proposed project. Overall, Alternative 4 would have the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts associated with energy and energy conservation during construction and decommissioning would be the same as those described for the proposed project. Alternative 4 would have a significant contribution to a significant cumulative impact on the supply and/or availability of fuel sources during construction and decommissioning; however, the incremental contribution would be reduced to less than significant with implementation of **Mitigation Measures 4.18-1 (Construction Equipment and Vehicle Efficiency Plan)** and **4.10-1b (Idling Restrictions)** to ensure construction activities would be conducted in a fuel-efficient manner.

Although operation would result in long-term consumption of substantial amounts of electricity, the anticipated increase in electricity consumption for Alternative 4 would represent small percentages of Monterey County’s annual usage and PG&E’s overall service area usage. In the event that other cumulative projects, such as the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) and GWR Project (No. 59), request electrical service from PG&E, additional wholesale electric energy may need to be purchased by PG&E. For example, the increase in energy required to operate the DeepWater Desal co-located data center would be significant; the efficiency of the data center and the associated cooling system is currently unknown and the impact would likely be significant and unavoidable. In addition, some reinforcement of the existing distribution system may also be required for the DeepWater Desal Project, but this would not substantially constrain local or regional energy supplies. For the same reasons described for Alternative 1, Alternative 4 would not have a considerable contribution to a significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation and maintenance. Overall, Alternative 4 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.18.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Effects

The facilities that would be constructed under Alternative 5a would be the same as those constructed under the proposed project, but there would be three fewer slant wells than under the proposed project. There would be an overall decrease in gasoline and fuel use during construction under Alternative 5a compared to the proposed action. With implementation of **Mitigation Measures 4.18-1** and **4.10-1b**, the significant impact would be reduced to a less-than-significant level. Therefore, Alternative 5a would have the *same impact conclusion* as the proposed project,

less than significant with mitigation. Alternative 5b would locate the slant wells at the Potrero Road parking lot, which would include construction of a 5.5 mile longer Source Water Pipeline. There would be an overall increase in gasoline and fuel use during construction of Alternative 5b compared to the proposed project and Alternative 5a. With implementation of **Mitigation Measures 4.18-1** and **4.10-1b** impacts would be reduced to less-than-significant levels. Therefore, Alternative 5b would have the *same impact conclusion* as the proposed project and Alternative 5a, less than significant with mitigation.

Operational Effects

As described above, Alternatives 5a and 5b would have a decreased desalinated plant capacity; therefore, the total operational electricity demand would be reduced compared to the proposed desalination plant; approximately 3.7 MW, which is equivalent to approximately 63 percent of that for the proposed project. Due to the increased length of the source water pipeline for Alternative 5b from Potrero Road to the Nashua Road/Highway 1 intersection, Alternative 5b would result in more than three times the energy demand to pump source water to the MPWSP Desalination Plant compared to proposed project. However, the overall energy demand associated with Alternatives 5a and 5b would be less than the proposed project given the lower source water volume required. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

Because Alternative 5 alone would not meet the project objectives and must be paired with the approved GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) in order to do so, for informational purposes, this analysis provides the “subtotal” of the Alternative 5 impacts in combination with the impacts of the GWR Project. Similar to the proposed project, operation of Alternative 5 and the GWR Project would result in long-term consumption of electricity. The anticipated increase in electricity consumption would represent small percentages of Monterey County’s annual usage and PG&E’s overall service area usage. For example, the increase in energy required to operate the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would be approximately 1.6 MW. When Alternative 5 is combined with the GWR Project, the total net increase in energy consumption would be approximately 5.3 MW. The energy efficiency of the structures and wells that would be associated with the GWR Project would be relatively high (PPWS, 2016). Given the low electricity consumption that would be associated with Alternative 5 combined with the GWR Project, and because this energy use would be necessary for the production of desalinated and recycled water and therefore would not be unnecessary, wasteful, or inefficient, these projects would not have a significant contribution to a significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation and maintenance. This combined impact would have the *same impact conclusion* as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

Cumulative impacts associated with energy and energy conservation during construction and decommissioning would be similar to those described for the proposed project. Alternatives 5a and 5b would have a significant contribution to a significant cumulative impact on the supply and/or availability of fuel sources during construction and decommissioning; however, the incremental contribution would be reduced to less than significant with implementation of **Mitigation Measures 4.18-1 (Construction Equipment and Vehicle Efficiency Plan)** and **4.10-1b (Idling Restrictions)** to ensure construction and decommissioning activities would be conducted in a fuel-efficient manner.

The overall anticipated increase in electricity consumption for projects in the cumulative scenario would represent small percentages of Monterey County’s annual usage and PG&E’s overall service area usage. For example, the net increase in energy required to operate the DeepWater Desal Project (No. 34) co-located data center would be approximately 150 MW. When Alternative 5, the GWR Project, and the DeepWater Desal Project are combined, the total net increase in energy consumption would be approximately 155 MW. The energy efficiency of the DeepWater Desal Project’s data center and the associated cooling system is currently unknown and the cumulative impact would likely be significant and unavoidable. However, given the low electricity consumption that would be associated with Alternative 5 and the GWR Project, and because this energy use would be necessary for the production of desalinated water and therefore would not be unnecessary, wasteful, or inefficient, these projects would have a less than significant contribution to a significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation and maintenance. Overall, Alternative 5 would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

5.5.18.9 References

Pacific Gas and Electric Company (PG&E), 2015. PG&E 2015 Corporate Responsibility and Sustainability Report. Available online at: http://www.pgecorp.com/corp_responsibility/reports/2015/. Accessed June 28, 2016.

Partners for Pure Water Solutions (PPWS), 2016. Monterey Regional Water Pollution Control Agency in partnership with Monterey Peninsula Water Management District. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, January, 2016. Pages 4.7-14 and 4.7-15.

5.5.19 Population and Housing

5.5.19.1 Setting/Affected Environment

The environmental setting/affected environment for the analysis of population and housing effects of the alternatives would be similar to that described for the MPWSP in Section 4.19, Population and Housing. The setting for the analysis of the direct growth inducing impacts of the alternatives is the same as the proposed project—the three county region consisting of Monterey, San Benito, and Santa Cruz counties. Indirect growth inducement is discussed below in Section 5.5.21. As described for the proposed MPWSP, there are no federal, state, or local regulations governing population and housing that would apply to the alternatives. Components of alternatives different from the proposed project and north of the Nashua Road/Highway 1 intersection would be located in unincorporated Monterey County, including the unincorporated community of Moss Landing.

5.5.19.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina that would include nine new subsurface slant wells at the CEMEX active mining area, and conversion of the existing test slant well to a permanent well. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, pump stations, storage tanks, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur.

The following paragraphs briefly summarize the impacts of the proposed project with respect to population and housing. The detailed impact analysis of the proposed project is provided in Section 4.19.

Impact 4.19-1: Induce substantial population growth directly during project construction.

The number of construction workers needed would vary, from 90 to 345, over the 24-month construction period. Concurrent construction of project components is expected to require from 300 to 345 workers during the peak four months of construction. Construction employment during the peak period (345 workers) represents 7 percent of the construction jobs in Monterey County in 2015 and 4 percent of the construction jobs in the three-county region comprising Monterey, Santa Cruz, and San Benito Counties in 2015. Given that MPWSP construction jobs would represent a minor percentage of the current local and regional construction employment levels, MPWSP construction is not expected to create employment opportunities substantially greater than would normally be available to construction workers in the area. Consequently, construction of the MPWSP would not induce population growth by attracting a substantial number of workers from outside the region to relocate to the area, and therefore would not create demand for additional housing or other facilities and services associated with growth.

The proposed project does not involve any housing construction and would not induce growth directly by constructing housing that would attract people to the area. Therefore, the proposed project would not directly induce a substantial increase in the local population and the direct growth-inducing impact of the proposed project would be less than significant.

Impact 4.19-2: Induce substantial population growth directly during project operations.

During MPWSP operations, approximately 25 to 30 facility operators and support personnel would operate the MPWSP Desalination Plant. All other proposed facilities would be operated remotely using Supervisory Control and Data Acquisition systems, with periodic visits by existing CalAm personnel. Conservatively assuming that the regional labor force could not meet the operational workforce requirements, up to 30 new employees relocating to the area would represent a 0.01 percent increase in workers residing in Monterey County (i.e., 0.01 percent of the labor force) in 2015. This incremental increase would not constitute substantial population growth in the region. Similarly, compared to the projected rate of growth of the county's labor force, an increase of 30 new employees would be minor. The county's labor force is projected to increase by 5,600 workers between 2010 and 2015; 30 new employees would represent 0.5 percent of this projected increase. Therefore, operation of the proposed project would not directly induce a substantial increase in the local population and the direct growth-inducing impact of the proposed project would be less than significant.

Impact 4.14-C: Cumulative impacts related to population and housing.

Because of the limited duration of construction jobs and the size of the regional construction workforce, there would be no significant cumulative impact on population and housing from construction of cumulative projects. Even if cumulative construction projects were to lead to population and housing effects by attracting some workers to move to the area, such moves would likely be temporary. In any event, the contribution of the MPWSP would be less than significant because of the relatively small number of construction workers required and the short duration of the construction period.

Because the population and housing that could be induced by operation of cumulative projects is expected to be consistent with growth anticipated in the counties' general plan documents, the cumulative impact during project operations would be less than significant. The MPWSP's operational workforce demands would be nominal: 25 to 30 people. Even in the unlikely event that the population and housing induced by operation of cumulative projects was significant, in no event would the proposed project make a significant contribution to any such effect.

5.5.19.3 Direct and Indirect Effects of No Project Alternative

The No Project Alternative would have no direct or indirect effects related to population or housing. It would not displace housing or people, because no facilities would be constructed, and would not induce workers or others to relocate from outside the area, because it would not provide jobs or housing. Because the No Project Alternative would have no direct or indirect impacts on population or housing, it could not contribute to cumulative effects related to these topics.

5.5.19.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

The direct growth-inducing impact of construction of Alternative 1 would be the same as the proposed project. Construction of the source water pipeline would take somewhat longer to build than the proposed MPWSP source water pipeline, due to the greater distance between the intake location and the desalination plant. However, as under the MPWSP, it is expected that construction workers would be drawn from the local and regional labor pool and the direct growth inducing impact would be less than significant. Therefore, Alternative 1 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

The direct growth-inducing impact would be same as the proposed project because Alternative 1 would have the same workforce requirements. As described for the proposed project, existing plant workers would be retrained to operate the desalination plant or operators would be drawn from the local and regional labor pool. Components unique to this alternative would mostly be located underground and would not displace people or housing. Therefore, Alternative 1 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 1 would have no impact related to the displacement of housing units or people, it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

The geographic scope for the analysis of direct cumulative growth-inducing impacts during construction and operation of Alternative 1 is the three-county region consisting of Monterey, San Benito and Santa Cruz Counties. As described in the cumulative impact analysis for the MPWSP, the cumulative analysis takes a projections-based approach based on the projected buildout of the general plans of the three counties.

Similar to the MPWSP, because of the temporary nature of construction jobs and the size of the regional construction workforce, it is expected that the construction workforce in Monterey, San Benito, and Santa Cruz Counties would meet labor demands associated with construction of

Alternative 1 and the cumulative projects. Therefore, there would be no significant cumulative impact on population and housing from construction of cumulative projects. Even if cumulative construction projects were to lead to population and housing effects by attracting some workers to move to the area from outside the region, such moves, and associated effects, would likely be temporary. Similar to the MPWSP, the contribution of Alternative 1 would not in any event be significant because of the small number of construction workers required and the short duration of the construction period. Therefore, the contribution of Alternative 1 construction would be less than significant.

As described for the MPWSP, workers in the region are expected to meet labor demands associated with operation of Alternative 1 and the cumulative projects due to the size of the regional work force, current unemployment rates in Monterey, San Benito, and Santa Cruz counties, and the size of the currently unemployed workforce. Similar to the proposed MPWSP, even if the population and housing effects induced by operation of cumulative projects were significant, Alternative 1 would not have a cumulatively significant contribution to any such effect due to the small operational workforce it would require.

5.5.19.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**).

Construction Impacts

For the same reasons stated above for Alternative 1, the direct growth-inducing impact of Alternative 2 construction would be of the same as the proposed project. Although this alternative may involve some workers with different construction skills, it is expected that, like the proposed project, workers having the requisite skills would be drawn from the local and regional labor pool, and impacts would be less than significant. Therefore, Alternative 2 would result in the same ***impact conclusion*** compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

For the same reasons stated above for Alternative 1, the direct growth-inducing impact of Alternative 2 operations and facility siting would be the same as the proposed project. Components unique to this alternative, including the source water pipeline, intake system, and intake pump station, would be located underground, underwater, or in a previously disturbed industrial area and would not displace people or housing. Therefore, Alternative 2 would result in the same ***impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 2 would have a less than significant impact related to the displacement of housing units or people it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

For the same reasons stated above for Alternative 1, Alternative 2 would not have a significant contribution to a cumulative impact related to population and housing.

5.5.19.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**).

Construction Impacts

The direct growth-inducing impact of Alternative 3 construction would be greater than the proposed project because it would involve considerably more construction. Further, this alternative would be designed to provide desalinated product water to other areas besides the

Monterey Peninsula, potentially including the city of Salinas and other areas in northern Monterey County and Santa Cruz County, and would, therefore, also include construction of product water pipelines to those areas. This alternative would require specialized construction skills different from those of the proposed project.

Although construction of this alternative would take longer than the proposed project and would involve a larger construction workforce, the substantial pool of construction workers in Monterey County and the three-county region would meet the demand for construction labor and the direct growth inducing impact of Alternative 3 would result in the *same impact conclusion* compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

The direct growth-inducing impact of Alternative 3 operations would be greater than the proposed project because operations would require a substantially larger workforce due to the proposed data center. Alternative 3 components would be located underground, underwater, or within existing industrial areas and would have no impact related to the displacement of people or housing. According to information provided by the project proponent, the data center would require 20 regular employees for each shift, with three shifts per day, seven days per week, and that contracted staff and client visitors could add up to 20 additional people during any 8-hour shift, 10 of which are assumed to be contracted staff, bringing the total number of regular and contract employees to 30 each shift, or 90 employees per day. Assuming a five-day, 40-hour work week, staffing requirements would equal 90 full time employees during the work week and 36 full-time-equivalent employees for weekend shifts.¹¹ Thus, operation of the data center would require about 126 full-time-equivalent employees per week, and staffing needs for data center and desalination plant operations combined would total about 144 permanent workers, substantially greater than the 25 to 30 needed for the proposed project. As discussed under Impact 4.19-C in Section 4.19, Population and Housing, the three counties in the region have a substantial labor force and recent unemployment rates that exceeded the state and national average, suggesting the availability of workers to fill new jobs. The existing labor force would, therefore, be expected to meet a substantial portion of the labor demand associated with Alternative 3 operations. In addition, the Association of Monterey Bay Area Governments (AMBAG) projects that up to 64,000 jobs will be added in the three county region between 2010 and 2035. Therefore, the jobs provided by Alternative 3 would not exceed job growth anticipated for the region and while Alternative 3 would have an increased potential for direct growth inducing impacts it would result in the *same impact conclusion* compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 3 would have no impact related to the displacement of housing units or people it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

¹¹ This estimate of full-time-equivalent staff is based on 90 employees working 16 hours per week compared to a full time 40-hour work week.

For the same reasons stated above for Alternative 1, Alternative 3 would not have a significant contribution to a cumulative impact related to the construction workforce in Monterey, San Benito, and Santa Cruz Counties.

Similar to the MPWSP, it is expected that workers in the region would largely meet labor demand associated with operation of Alternative 3 and the cumulative projects, due to the size of the regional work force, current unemployment rates in Monterey, San Benito, and Santa Cruz counties, and the size of the currently unemployed workforce. Although this alternative would have a substantially larger operational workforce than the MPWSP, the number of jobs it would provide is less than 1 percent of the jobs AMBAG projects will be added in Monterey County between 2010 and 2020. Therefore, even if the population and housing induced by operation of cumulative projects were significant, Alternative 3 would not have a significant contribution to such an effect because of the small number of jobs it would provide relative to the unemployed labor force and anticipated job growth in the county. Therefore, the impact would be less than significant.

5.5.19.7 Direct and Indirect Effects of Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**).

Construction Impacts

For the same reasons as Alternative 3, the direct growth-inducing impact of Alternative 4 construction would be similar to that of the proposed project, with a much larger construction footprint. Construction of this alternative may take somewhat longer, involve a somewhat larger workforce, and include some workers with different construction skills. However, similar to the proposed project, it is expected that demand for construction labor would substantially be met by workers drawn from the local and regional labor pool, and the direct growth inducing impact would be less than significant. Therefore, Alternative 4 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

The direct growth-inducing impact of Alternative 4 operations and facility siting would be similar to that of the proposed project because Alternative 4 would have similar workforce requirements that would be drawn from the local and regional labor pool, and impacts would be less than significant. Alternative 4 components, including the intake system, intake pump station, desalination plant, and product water pipeline, would be located underground, under water, or within existing industrial areas, and would not displace people or housing and there would be no impact. Therefore, Alternative 4 would result in the *same impact conclusion* compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 4 would have no impact related to the displacement of housing units or people it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

For the same reasons stated above for Alternative 1, Alternative 4 would not have a significant contribution to a significant cumulative impact related to population and housing.

5.5.19.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

The direct growth-inducing impact of Alternative 5a and 5b construction would be similar to that of the proposed project and Alternative 1, respectively. The construction period for the intake slant wells would be shorter than under the MPWSP because fewer wells would be constructed. The construction period for the smaller desalination plant may also be somewhat shorter, although this difference is expected to be minor because both the 9.6-mgd and 6.4-mgd plants would require the same basic components. As under the proposed project, it is expected that construction workers would be drawn from the local and regional labor pool, and therefore, Alternatives 5a and 5b would result in the *same impact conclusion* compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

Workforce requirements for operation of Alternative 5a and 5b would be similar to those of the proposed project and Alternative 1, respectively; a small number of additional workers would be

needed for operating the desalination plant. Similar to the proposed project, it is likely that existing plant operators would be retrained to operate the 6.4-mgd desalination facility, or operators would be drawn from the local and regional labor pool and the direct growth inducing impact would be less than significant. Like the proposed project, this alternative would have no impacts related to the displacement of housing or people because the desalination plant and other facilities would be sited at the same locations as the proposed project facilities, and would not displace housing or people. Therefore, Alternatives 5a and 5b would result in the *same impact conclusion* compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 5a and 5b would have no impact related to the displacement of housing units or people it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

For the same reasons stated above for Alternative 1, Alternative 5 would not have a significant contribution to a significant cumulative impact related to population and housing. Considered in combination with the impacts of the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1), the construction and operational workforces would not be substantial in relation to the regional work force and current unemployment rates, and would not result in a significant contribution to a significant cumulative effect.

5.5.20 Socioeconomics and Environmental Justice

As described in Section 4.20, Socioeconomics and Environmental Justice, under NEPA, a federal lead agency must consider social and economic effects if they are related to a proposed project's natural or physical effects. Consequently, federal agencies must analyze a proposed project's economic and social impacts resulting from any natural or physical effects on the environment. Furthermore, Executive Order (EO) 12898 requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

As also described in Section 4.20, a CEQA Lead Agency may use information about the economic or social impacts of a project to determine the significance of physical changes caused by the project, but the economic or social effects of a project are not treated as significant effects on the environment. Additionally, CEQA does not use the term “environmental justice” or require the evaluation of impacts on minority or low-income communities in the way required by EO 12898. The ways in which disproportionate environmental burdens (e.g., on sensitive receptors) are addressed in this EIR/EIS are described in Section 4.20. Consistent with that discussion, significance determinations in this section do not apply to the CEQA analysis. Rather, the conclusions in this section are relevant only to the NEPA analysis of the proposed project and alternatives.

5.5.20.1 Setting/Affected Environment

Introduction

The socioeconomics and environmental justice setting/affected environment for alternatives would be similar to that described for the proposed project in Section 4.20, Socioeconomics and Environmental Justice. As is the case for the proposed project, each of the alternatives requires the evaluation of impacts on socioeconomic factors including regional employment and economics and specific effects on regionally important sectors like tourism, education, and research; and on environmental justice, which considers disproportionate environmental or human health impacts on minority and low-income communities. For all alternatives, potentially affected communities include the same as identified for the proposed project: Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, Seaside, Castroville, and Marina. This alternatives analysis describes one additional community: Moss Landing. Socioeconomic effects are by nature regionally influential. While the socioeconomic setting herein is presented on a community-level basis within Monterey County, it should be noted that residual impacts have the potential to occur in other nearby counties as well, such as San Benito and Santa Cruz. With the exception of Moss Landing, descriptions of the environmental setting and regulatory framework for all of the aforementioned communities are provided in Section 4.20 of this EIR/EIS.¹² The environmental setting relevant to Moss Landing is described below.

¹² Some information, including values pertaining to populations by category for regional places such as Monterey County and the State of California, is repeated from Section 4.20. This information is cited in Section 4.20.

Socioeconomics

Employment

Key employment data include the number of employable residents (i.e., the available labor force) and the number of job opportunities (i.e., employment) within a community. **Table 5.5-14** shows labor force and unemployment data for Moss Landing Census Designated Place (CDP), Monterey County, and the State of California (as cited in Section 4.20).

**TABLE 5.5-14
LABOR FORCE AND UNEMPLOYMENT RATE FOR MOSS LANDING
(2015 ANNUAL AVERAGE)**

Jurisdiction	Labor Force ^a	Unemployment Rate ^b
Moss Landing CDP ^c	200	23.4%
Monterey County	221,400	8.1%
State of California	19,100,900	5.4%

NOTES:

^a EDD provides rounded labor force numbers, but calculates the unemployment rate before rounding.

^b Not seasonally adjusted.

^c Since Moss Landing is unincorporated, data shown are for Moss Landing CDP.

SOURCE: EDD, 2016

The Association of Monterey Bay Area Governments (AMBAG) does not provide data or estimates for unincorporated Moss Landing, and no other recent source of the estimated number of jobs in Moss Landing was identified. There are numerous marine research, industrial, recreational, retail, hospitality, and service industry employers in Moss Landing.

Regionally Important Economic Sectors

The Monterey County Board of Supervisors has adopted four economic “pillars” as potential opportunities for the County Economic Opportunity Committee to facilitate economic and employment growth: agriculture, tourism, education, and research (Monterey County, 2016). These sectors are relevant to the analysis on a regional basis (Monterey County), and are discussed in that capacity in Section 4.20.1.1. For more information about these sectors, please refer to that discussion.

Environmental Justice

Minority Populations

The methodology for identifying minority populations is explained in Section 4.20.1.2. The affected environment for this environmental justice analysis consists of the areas in Monterey County that would be affected by the alternatives. For this analysis, a city-level assessment was performed to identify potential minority and/or low-income populations qualifying as communities of concern. **Table 5.5-15** presents the minority population and percentage for the Moss Landing CDP, which is bordered by Jetty Road, Potrero Road, and Highway 1. Elkhorn Slough is located within the northern area of the community.

**TABLE 5.5-15
 MINORITY POPULATION OF MOSS LANDING (2010-2014)**

Jurisdiction	Total Population	Minority Population ^a	Minority Population Percentage
Moss Landing CDP	200	163	81.5%

NOTES:

^a Includes all individuals other than non-Hispanic white.

SOURCE: U.S. Census Bureau, 2014a

For the reasons described in Section 4.20.1.2, because Moss Landing CDP has a minority population greater than 50 percent, it is considered to be a community of concern for environmental justice. Note that because this information is derived from the 2010-2014 American Community Survey, and due to the small population size in Moss Landing, the small sample sizes on which survey results are based result in a large margin of error. The 2010 Decennial Census indicates that the minority population in Moss Landing in 2010 was just 32.4 percent (U.S. Census Bureau, 2010a). However, for consistency with the most recent available information used in Section 4.20, and as a conservative approach to identifying potential minority populations, Moss Landing is assumed to have a minority population greater than 50 percent for purposes of this analysis.

Low-Income Populations

This analysis uses two methods for identifying communities of concern related to income levels, based on two sets of guidelines: CEQ guidance and California Regional Water Management Guidelines. Both of these methods are described in detail in Section 4.20.1.2. **Table 5.5-16** presents the median household incomes and the percentages of residents with household incomes below the poverty level for Moss Landing. Based on the threshold described in Section 4.20.1.2, a community with 17.3 percent or greater of individuals with family incomes below the federal poverty threshold would be identified as a low-income population for the purposes of this analysis. Moss Landing has an estimated 12.5 percent of individuals with family incomes below the federal poverty threshold, and is therefore not considered a low-income population based on this measurement.

**TABLE 5.5-16
 INCOME CHARACTERISTICS FOR MOSS LANDING (2010-2014)**

Location	Median Household Income	Individuals with Family Income Below Poverty Level
Moss Landing CDP	\$30,500	12.5%

SOURCE: U.S. Census Bureau, 2014b.

As shown in **Table 4.20-4** in Section 4.20, the State of California’s median household income as reported by the 2010-2014 American Community Survey was \$61,489. Therefore, based on the threshold described in Section 4.20.1.2, communities within potentially affected areas of Monterey County with a median income of less than \$49,191 would be considered disadvantaged

communities. **Table 5.5-16** shows that as reported by the 2010-2014 American Community Survey, Moss Landing had a median income of less than \$49,191. Therefore, Moss Landing is considered a “disadvantaged community” for purposes of this analysis. As noted above in the minority population discussion, the small sample sizes on which the American Community Survey results for Moss Landing are based result in a large margin of error. The Decennial Census does not report household income; however, past American Community Surveys have reported median household income for Moss Landing as high as \$87,000 (U.S. Census Bureau, 2010b). For consistency with the most recent available information used in Section 4.20, and as a conservative approach to identifying potential minority populations, Moss Landing is assumed to be a disadvantaged community for purposes of this analysis.

Regulatory Framework

For Federal, State, and Local Regulations relevant to the community of Moss Landing, see Sections 4.20.2.1 through 4.20.2.3.

5.5.20.2 Direct and Indirect Effects of the Proposed Project -- Slant Wells at CEMEX

Impact 4.20-1: Reductions in the rate of employment, total income, or business activity in Monterey County.

MPWSP construction activities and spending would result in temporary new local employment opportunities and increased spending on construction materials, equipment, and services. The proposed project would result in a direct, minor, beneficial economic impact on the Monterey County economy. Secondary economic effects could also result from subsequent “re-spending” by construction companies and materials suppliers that occurs when these companies spend their earnings from the projects at other businesses (i.e., a multiplier effect), and re-spending by employees of those companies.

Construction of the proposed project would not have adverse effects on the tourism, research, and education industries in Monterey County. Access for tourists to businesses or recreation may be temporarily impacted by pipeline construction, but implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, would reduce potentially significant impacts to a less-than-significant level.

The rate increase associated with the proposed project could represent an adverse economic impact on the spending power of some ratepayers in Monterey District, but would not be large enough to constitute a significant adverse effect on overall employment or business activity in Monterey County.

Operation of the proposed project would not affect access to tourism, education and research industries. Tourism relies on the recreation, retail and travel sectors, and would not be impacted by the proposed project. Overall, the impacts of operation would be less than significant.

Impact 4.20-2: Disproportionately high and adverse effects on low-income or minority populations.

Low-income and minority populations include all or portions of Sand City, Seaside, Castroville, Monterey (downtown), and Marina. Although several minority and low-income communities would experience higher emissions than would other communities (due to the amount of construction contributing to the estimate of maximum daily emissions near each community), emissions from construction would not result in substantial adverse health effects because they would be temporary and would not exceed applicable thresholds. Therefore, the project would not result in a disproportionately high and adverse impact on minority and/or low-income communities, and the impact would be less than significant. Additionally, implementation of **Mitigation Measures 4.10-1a** through **4.10-1d** would reduce project construction emissions further.

Combined operational emissions near minority and low-income populations would not exceed any of the thresholds derived from applicable air quality plans; therefore, operational emissions would not be expected to adversely affect the communities' health. In addition, the proposed project would result in higher water rates for most ratepayers in the district served by the project, including low-income populations in Sand City, Seaside, and downtown Monterey. Such increases could have an adverse impact on low-income communities which could be disproportionately high, and thus significant. However, CalAm's low-income assistance and water conservation assistance programs would reduce the burden of increased prices on low-income households in the Monterey District to the extent practicable. In addition, California Public Utility Commission oversight includes provisions for implementing the lowest possible rate for service consistent with reliable and safe service levels for residential and small commercial customers, in particular. Therefore, this impact would be less than significant.

CCSD serves Castroville, a minority and low-income community outside of CalAm's Monterey District. The proposed project would provide a minor beneficial effect for this community since the CCSD would receive higher quality water via the Castroville Pipeline than the current supply from groundwater pumping in the Salinas Valley Groundwater Basin.

Impact 4.20-C: Cumulative impacts related to socioeconomics and environmental justice.

The proposed project would have a net positive contribution to cumulative impacts related to economic and employment effects on communities benefitting from proposed project construction and operation. The proposed project's contribution to cumulative impacts related to localized emissions during construction and operation would be less than significant. The proposed project would not contribute to a cumulative impact related to long-term increases in water rates for ratepayers.

5.5.20.3 Direct and Indirect Effects of the No Project Alternative

Under the No Project Alternative, it would not be possible to meet the proposed project objectives, and reliance on existing and planned water conservation and recycling programs would continue. Because no new facilities would be constructed but the test slant well would be decommissioned, short-term construction impacts (including construction air quality effects) on

the health of environmental justice communities identified in Section 4.20 would be minimal. This alternative would not provide the local and regional economic benefits of project construction. No temporary new local employment opportunities or increased spending on construction materials, equipment, and services would occur. The State Revolving Fund debt and public financing would not be implemented under the No Project Alternative and, therefore, any short-term economic benefit potentially offered by low-cost financing would not occur. Employment, important economic sectors, and minority and low-income communities would not experience adverse short-term construction-related impacts.

Regarding long-term impacts, the lack of water supply would adversely affect the region's economic vitality. The reduction of available water supply by almost 40 percent could lead to water shortages throughout the CalAm Monterey District service area, impacting all economic sectors, including the County's "four pillars" – agriculture, tourism, education, and research, by substantially reducing the reliability of water resources and water infrastructure.

As described in Section 5.4.2, it is assumed that the limited amount of available supplies under the No Project Alternative would trigger Stage 3 Conservation Rates, and possibly Stage 4 Rationing Measures, under MPWMD's 2016 Monterey Peninsula Water Conservation and Rationing Plan (Conservation and Rationing Plan) (MPWMD, 2016). The subsections below describe the economic impacts of each stage of conservation and rationing.

Stage 3, Conservation Rates

Within CalAm's Monterey District, two conservation water rate increases would occur, as described in the Conservation and Rationing Plan. Under Level 1 Conservation Rates, a 25 percent surcharge would be implemented on existing rates for a minimum of 3 months. If Stage 3 has not been lifted after 3 months, Level 2 Conservation Rates would increase the surcharge to 40 percent. These surcharges would not apply to Tier 1 Residential water use, the first tier in the water rate structure. However, for residences using more than their Tier 1 amount, and for all businesses, these surcharges would increase monthly water costs while Stage 3 Conservation Rates are in place, potentially resulting in adverse economic impacts as customers would have less available for spending on other types of purchases. Additionally, these surcharges could disproportionately affect low-income populations within the Monterey District (i.e., Sand City, Seaside, and downtown Monterey) because the increase in water costs as a result of the surcharges may be disproportionately high relative to their incomes compared to non-low-income populations.

Stage 4, Rationing Measures

Stage 4 would take effect if Stage 3 is deemed unsuccessful after 8 months, or if directed by a governmental or regulatory agency. Under Stage 4, mandatory reductions resulting in water rationing and additional prohibitions would be implemented. Residential rations would consist of incremental allowances based on persons per household, and additional allowances could only be granted through completion and approval of an application. Non-residential water rations would also be implemented if residential water rationing does not achieve measurable results as expected after a period of 6 months. Additional rationing measures could include prohibition of non-essential water uses, a moratorium on accepting water permit applications, no new temporary

or permanent potable water service, suspension of annexations to CalAm’s service area, ending the use of portable water meters or hydrant water meters, restrictions on draining and refilling of swimming pools, and restrictions on watering and irrigating.

Under Stage 4, the regional economy would experience adverse economic impacts in important sectors such as agriculture, tourism and hospitality, education, and research. While businesses that require water in the course of their business practice, such as laundromats or nurseries, would be exempt from non-residential rationing, non-exempt businesses in several economic sectors would experience the adverse effects of rationing. Restaurants, hotels, and other establishments in the tourism and hospitality industry would be required to cut back on landscaping and change their amenities to accommodate restrictions. Manufacturing activities, commercial farms, and research facilities depend on water for operations and maintenance. The restrictions on new connections would slow or halt economic development as new residences, commercial projects, or industrial facilities could not procure water sources and therefore would not be permitted or built. This would result in a loss in employment opportunities and in commercial property values.

Also at Stage 4, all non-exempt residential customers would experience enforced water rationing. This could adversely affect residential property values in the Monterey District, resulting in economic loss to current residents. While no formal economic modeling has been conducted to quantify these economic effects, stakeholders have recognized the economic and public health implications of the water supply shortage under the No Project Alternative. As quoted in the CDO, the Monterey County Hospitality Association contends that “A marked substantial reduction in the quantity of water ... would, in all likelihood, affect the number of visitors that can be served by the hospitality industry and the economy of the area” (SWRCB, 2009). The MPWMD echoes the same sentiment in a 2009 letter that states that imposing a moratorium (as included under Stage 4, Rationing Measures) “would force further economic stagnation upon the region, and can result in harm to the health and safety of the community” (MPWMD, 2009). Impacts of Stage 3 conservation and Stage 4 rationing measures on the rate of employment, total income, or business activity in Monterey County, as well as on low-income populations, would be significant, and no feasible mitigation is available to reduce these impacts to less than significant. Therefore, socioeconomic and environmental justice impacts of the No Project Alternative would be significant and unavoidable.

In summary, with respect to reductions in the rate of employment, total income, or business activity in Monterey County, the No Project Alternative would result in an ***increased impact conclusion*** compared to the project as a result of implementation of Stage 3 conservation and Stage 4 rationing measures; significant and unavoidable. With respect to disproportionately high and adverse effects on low-income or minority populations, the No Project Alternative would avoid construction impacts on these populations, but would nonetheless result in an ***increased impact conclusion*** compared to the project as a result of implementation of Stage 3 conservation and Stage 4 rationing measures and their potential to cause disproportionately high and adverse economic effects on low-income populations; significant and unavoidable.

As described in Section 5.4. 2, the GWR Project (No. 59 in **Table 4.1-2**) would supply some water to CalAm to serve the Monterey District, but would not supply enough to avoid the need

for above-described conservation and rationing measures. In addition to the significant and unavoidable impact the No Project Alternative would cause with respect to reductions in the rate of employment, total income, or business activity in Monterey County, the GWR Project would cause rates to increase in the Monterey District, resulting in a potentially significant cumulative economic impact.

5.5.20.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply water to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the longer source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the analysis of socioeconomic and environmental justice impacts of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Socioeconomics

Compared to the proposed project, the type and intensity of Alternative 1 socioeconomic impacts would be the same. In the community of Moss Landing, where the intake facilities would be constructed at Potrero Road, some localized re-spending effects could occur if temporary construction workers spend some of their earnings near the Potrero Road site (e.g., on lunches, gasoline, etc.). Like the proposed project, construction of Alternative 1 would have a direct, minor, beneficial economic impact on the Monterey County economy and potentially in nearby counties such as San Benito and Santa Cruz counties.

For the same reasons described in Section 4.20.5.1, construction of Alternative 1 components that are the same as the proposed project would not have adverse effects on the tourism, research, and education industries in Monterey County. Potentially significant impacts related to disrupted access to local businesses would be similar to those described for the proposed project and would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**.

No offshore construction is proposed and construction of the Alternative 1 components would not interfere with any research or tourism activities being conducted along the coast. No monitoring activities were identified as occurring close enough to proposed construction for these activities to be affected (SIMoN, 2016). No impacts on educational facilities would occur.

Operation and maintenance of Alternative 1 would result in the same minimal impacts on socioeconomics as the proposed project, as described in Section 4.20. The same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur.

Overall, Alternative 1 would result in the *same impact conclusion* as the proposed project with respect to impacts on the rate of employment and total income and business activity in Monterey County, less than significant with mitigation.

Environmental Justice

Impacts from the components that are common with the proposed project would be identical to those described in Section 4.20.5.2. Health effects resulting from decreased air quality from construction would be location-specific. As a result of the different location of the slant wells and source water pipeline, construction emissions associated with these components would occur in Moss Landing, which is identified as a minority population and disadvantaged community. However, construction emissions would be reduced in Marina, which is also an identified minority and low-income population, because only the new Desalinated Water Pipeline and a smaller portion of the alternative source water pipeline would be constructed near Marina. As described in Section 4.20.5.2, the emissions from these components would not result in substantial adverse health effects because they would be temporary and would not exceed applicable thresholds. Therefore, because construction of Alternative 1 components would not result in substantial adverse effects, this alternative would not result in a disproportionately high and adverse impact on minority and/or low-income communities, and the impact of Alternative 1 construction would be less than significant. Additionally, implementation of **Mitigation Measures 4.10-1a** through **4.10-1d** would reduce project construction emissions further; however, the impact would be less than significant regardless.

During operation the same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur. Castroville, a disadvantaged community, would experience minor beneficial effects from Alternative 1 in the same way it would under the proposed project, as described in Section 4.20.5.1.

Overall, Alternative 1 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

The geographic scope for the cumulative impact analysis of socioeconomics is the same as that described for the proposed project, plus the additional community of Moss Landing. The contributions of Alternative 1 to cumulative socioeconomic impacts also would be similar to those of the proposed project described in Impact 4.20-C. No communities in the vicinity of Alternative 1 would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected, which may result in a significant impact on business activity, but implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, would minimize the influence of such effects on the tourism industry, reducing them to a less-than-significant level, and no other projects in the cumulative scenario are likely to overlap in time and location with these potential disruptions. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative effects related to socioeconomics, less than significant with mitigation.

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income populations identified in **Tables 4.20-4** and **4.20-5** (i.e., Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey), plus the additional community of Moss Landing, identified as a minority population and disadvantaged community. The contributions of Alternative 1 to cumulative environmental justice impacts would be similar to those identified in Impact 4.20-C for the proposed project, except that Alternative 1 would result in less construction in and near Marina, reducing project-specific localized air pollution near that community, but would instead move construction of the subsurface slant wells and source water pipeline near the Moss Landing community. When combined with other construction projects listed in **Table 4.1-2** in Section 4.1, including one additional project that may have the potential to result in overlapping air quality impacts – the DeepWater Desal Project (No. 34) – the cumulative localized emissions could be increased compared to Alternative 1 alone. Although cumulative impacts could be significant if other projects resulted in emissions that exceeded significance thresholds, the localized emissions of Alternative 1 components would not be significant. Therefore, for the same reasons described in the air quality analysis in Section 4.10.6, the contribution of Alternative 1 to cumulative impacts at these locations would be less than significant. With regard to operational effects, such emissions would be negligible. Alternative 1 would have the same potential contribution to rate increases in CalAm’s Monterey District, and the cumulative scenario affecting rates would be identical to that described for the proposed project. Therefore, Alternative 1 would result in the *same impact conclusion* as the proposed project for cumulative effects related to environmental justice, less than significant.

5.5.20.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system in Moss Landing and the longer source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the analysis of socioeconomic and environmental justice impacts of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Socioeconomics

The type and intensity of Alternative 2 socioeconomic impacts would be similar to the proposed project, except for in the community of Moss Landing where the intake facilities would be constructed, where some localized re-spending effects could occur if temporary construction workers spend some of their earnings near the Potrero Road site (e.g., on lunches, gasoline, etc.). Like the proposed project, construction of Alternative 2 would have a direct, minor, beneficial economic impact on the Monterey County economy and potentially in nearby counties such as San Benito and Santa Cruz counties.

For the same reasons described in Section 4.20.5.1, construction of Alternative 2 would not have adverse effects on the tourism, research, and education industries in Monterey County. Potentially significant impacts related to disrupted access to local businesses would be similar to those described for the proposed project and would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**.

Offshore construction of the open-water intake facility would not interfere with any research activities being conducted along the coast. No impacts on educational facilities would occur.

Operation and maintenance of Alternative 2 would result in the same minimal impacts on socioeconomics as the proposed project, as described in Section 4.20. The same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur.

Overall, Alternative 2 would result in the *same impact conclusion* as the proposed project with respect to impacts on the rate of employment and total income and business activity in Monterey County, less than significant with mitigation.

Environmental Justice

Health effects resulting from decreased air quality from construction would be location-specific. Impacts from the components that are common with the proposed project would be identical to those described in Section 4.20.5.2. As a result of the different location of the intake and source water pipeline, construction emissions associated with these components would occur in Moss Landing, which is identified as a minority population and disadvantaged community. However, construction emissions would be reduced in Marina, which is also an identified minority and low-income population, because only the new Desalinated Water Pipeline and a smaller portion of the alternative source water pipeline would be constructed near Marina. Additionally, emissions would be reduced near Castroville, a disadvantaged community. Emissions from Alternative 2 components would not result in substantial adverse health effects because they would be temporary and would not exceed applicable thresholds. Therefore, because construction of Alternative 2 components would not result in substantial adverse effects, this alternative would not result in a disproportionately high and adverse impact on minority and/or low-income communities, and the impact of Alternative 2 construction would be less than significant. Additionally, implementation of **Mitigation Measures 4.10-1a** through **4.10-1d** would reduce project construction emissions further; however, the impact would be less than significant regardless.

During operation, a long-term increase in future water prices for water consumers would occur; however, the extent of the increase is not yet known. Castroville, a disadvantaged community, would not experience the minor benefit related to improved water quality from Alternative 2 in the same way it would under the proposed project, as described in Section 4.20.5.1, because Alternative 2 would not return water to the CCSD.

Overall, Alternative 2 would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

The geographic scope for the cumulative impact analysis of socioeconomics is the same as that described for the proposed project, plus the additional community of Moss Landing. The contributions of Alternative 2 to cumulative socioeconomic impacts also would be similar to those of the proposed project described in Impact 4.20-C. No communities in the vicinity of Alternative 2 would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected, which may result in a significant impact on business activity, but implementation of **Mitigation Measure 4.9-1**, Traffic Control and Safety Assurance Plan, would minimize the influence of such effects on the tourism industry, reducing them to a less-than-significant level, and no other projects in the cumulative scenario are likely to overlap in time and location with these potential disruptions. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to socioeconomics, less than significant with mitigation.

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income populations identified in **Tables 4.20-4** and **4.20-5** (i.e., Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey), plus the additional community of Moss Landing, identified as a minority population and disadvantaged community. The contributions of Alternative 2 to cumulative environmental justice impacts would be similar to those identified in Impact 4.20-C for the proposed project, except that Alternative 2 would result in less construction in and near Marina and Castroville, reducing project-specific localized air pollution near those communities, but would result in more construction near the Moss Landing community as a result of the open water intake and alternative source water pipeline construction. When combined with other construction projects listed in **Table 4.1-2** in Section 4.1, including two additional projects that may have the potential to result in overlapping air quality impacts – the DeepWater Desal Project (No. 34) and the specific construction projects in the Moss Landing Community Plan (No. 37) – the cumulative localized emissions could be increased compared to Alternative 2 alone. Although cumulative impacts could be significant if other projects resulted in emissions that exceeded significance thresholds, the localized emissions of Alternative 2 components would not be significant. Therefore, for the same reasons described in the air quality analysis in Section 4.10.6, the contribution of Alternative 2 to cumulative impacts at these locations would be less than significant. With regard to operational effects, such emissions would be negligible. Alternative 2 would have the same potential contribution to rate increases in CalAm’s Monterey District, and the cumulative scenario affecting rates would be identical to that described for the proposed

project. Therefore, Alternative 2 would result in the *same impact conclusion* as the proposed project for cumulative effects related to environmental justice, less than significant.

5.5.20.6 Direct and Indirect Effects of Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSO would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the analysis of socioeconomic and environmental justice impacts of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Socioeconomics

The type of socioeconomic impacts under Alternative 3 would be similar to the proposed project, except that most construction would occur in the community of Moss Landing. Construction would result in the same types of re-spending effects in Moss Landing as described for the proposed project, though increased because a larger workforce would be present in Moss Landing during construction of Alternative 3. Like the proposed project, construction of Alternative 3 would have a direct, minor, beneficial economic impact on the Monterey County economy and potentially in nearby counties such as San Benito and Santa Cruz counties.

For the same reasons described in Section 4.20.5.1, construction of Alternative 3 would not have adverse effects on the tourism, research, and education industries in Monterey County. Potentially significant impacts related to disrupted access to local businesses would be similar to those described for the proposed project and would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**.

Offshore construction of the open ocean intake facility would not interfere with any research activities being conducted along the coast. No impacts on educational facilities would occur.

Operation and maintenance of Alternative 3 would result in the same types of minimal impacts on socioeconomics as the proposed project, as described in Section 4.20, though impacts related to operation and maintenance of the desalination plant would occur closer to Moss Landing.

Approximately the same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur, with the potential for some variance based on the cost to CalAm to procure water from the Alternative 3 desalination plant. Future water prices for water consumers have not yet been determined for this alternative and will be evaluated in the EIR/EIS being compiled for the DeepWater Desal Project.

Overall, Alternative 3 would result in the *same impact conclusion* as the proposed project with respect to impacts on the rate of employment and total income and business activity in Monterey County, less than significant with mitigation.

Environmental Justice

Health effects resulting from decreased air quality from construction would be location-specific. Impacts from the components that are common with the proposed project would be identical to those described in Section 4.20.5.2. Emissions would be reduced near Marina and Castroville. However, construction emissions associated with the desalination plant, data center, intake and discharge systems, and related facilities would be greater than the emissions related to the proposed project desalination plant due to the increased number of concurrent construction efforts in the same general location, and these facilities would be located near Moss Landing, an identified minority population and disadvantaged community. As described in Section 5.5.10.6, it is not currently known how construction of these facilities would proceed; however, if the data center and/or cooling system were constructed concurrently with the desalination facility, the combined daily emissions of these facilities near Moss Landing would exceed the MBUAPCD threshold for PM₁₀ emissions. Unlike the proposed project, this impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, the Alternative 3 construction-related impact would be significant and unavoidable, even with mitigation.

Operation and maintenance of Alternative 3 could result in a significant health risk associated with testing and exercising the emergency generators. This impact would occur near Moss Landing, and thus could have a disproportionately high and adverse impact on this community if the health risk were significant. However, as described in Section 5.5.10.6, the associated impact would not be significant if the generators were sited on the north side of the property away from the nearest residences. To ensure that the operational health risk impact would be reduced to a less-than-significant level, implementation of **Mitigation Measure ALT 3-AQ** in Section 5.5.10.6 would be required. Therefore, operation of Alternative 3 would result in an increased level of impact on sensitive receptors compared to the proposed project and would be less than significant with mitigation.

Castroville, a disadvantaged community, would not experience the minor benefit related to improved water quality from Alternative 3 in the same way it would under the proposed project, as described in Section 4.20.5.1, because Alternative 3 would not return water to the Castroville Community Services District.

Overall, Alternative 3 would result in an *increased impact conclusion* compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The geographic scope for the cumulative impact analysis of socioeconomics is the same as that described for the proposed project, plus the additional community of Moss Landing. The contributions of Alternative 3 to cumulative socioeconomic impacts also would be similar to those of the proposed project described in Impact 4.20-C. No communities in the vicinity of Alternative 3 would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected, which may result in a significant impact on business activity, but implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, would minimize the influence of such effects on the tourism industry, reducing them to a less-than-significant level, and no other projects in the cumulative scenario are likely to overlap in time and location with these potential disruptions. Therefore, Alternative 3 would result in the *same impact conclusion* as the proposed project for cumulative effects related to socioeconomics, less than significant with mitigation.

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income populations identified in **Tables 4.20-4 and 4.20-5** (i.e., Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey), plus the additional community of Moss Landing, identified as a minority population and disadvantaged community. The contributions of the components common to the proposed project and Alternative 3 (i.e., the pipelines south of the “Connection to CalAm” point, the ASR system, and the Carmel Valley Pump Station) to cumulative environmental justice impacts would be similarly minimal compared to those identified in Impact 4.20-C for the proposed project. Alternative 3 would result in less construction in and near Marina and Castroville, reducing but not eliminating localized air pollution near those communities. However, Alternative 3 would result substantial construction activity near the Moss Landing community as a result of construction of the desalination plant, data center, substation, intake and discharge systems, and related facilities in that location. As described above, this impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a through 4.10-1d**. When combined with other construction projects listed in **Table 4.1-2** in Section 4.1, including one additional project that may have the potential to result in overlapping air quality impacts – the Moss Landing Community Plan (No. 37) – the cumulative localized emissions could be increased compared to Alternative 3 alone. If overlapping construction were to occur, Alternative 3 would result in a significant contribution to a significant cumulative impact. This would be an *increased level of impact* compared to the proposed project, significant and unavoidable, even with mitigation.

5.5.20.7 Direct and Indirect Effects of Project Alternative 4 – People’s Moss Landing Water Desalination Project (People’s Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components

would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the analysis of socioeconomic and environmental justice impacts of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Socioeconomics

The type of socioeconomic impacts under Alternative 4 would be similar to the proposed project, except that most construction would occur in the community of Moss Landing. Construction would result in the same types of re-spending effects in Moss Landing as described for the proposed project, though increased because a larger workforce would be present in Moss Landing during construction of Alternative 4. Like the proposed project, construction of Alternative 4 would have a direct, minor, beneficial economic impact on the Monterey County economy and potentially in nearby counties such as San Benito and Santa Cruz counties.

For the same reasons described in Section 4.20.5.1, construction of Alternative 4 components that are the same as the proposed project would not have adverse effects on the tourism, research, and education industries in Monterey County. Potentially significant impacts related to disrupted access to local businesses would be similar to those described for the proposed project and would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**.

Offshore construction of the open-water intake facility would not interfere with any research activities being conducted along the coast. No impacts on educational facilities would occur.

Operation and maintenance of Alternative 4 would result in the same types of minimal impacts on socioeconomics as the proposed project, as described in Section 4.20, though impacts related to operation and maintenance of the desalination plant would occur closer to Moss Landing. Approximately the same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur, with the potential for some variance based on the cost to CalAm to procure water from the Alternative 4 desalination plant. Future water prices for water consumers have not yet been determined for this alternative.

Overall, Alternative 4 would result in the *same impact conclusion* as the proposed project with respect to impacts on the rate of employment and total income and business activity in Monterey County, less than significant with mitigation.

Environmental Justice

Health effects resulting from decreased air quality from construction would be location-specific. Impacts from the components that are common with the proposed project would be identical to those described in Section 4.20.5.2. Emissions would be reduced near Marina and Castroville. However, construction emissions associated with the desalination plant and intake and discharge facilities would be located near Moss Landing, an identified minority population and disadvantaged community. Due to the concentration of these facilities near Moss Landing, maximum daily emissions from construction near Moss Landing may exceed the state and/or federal standard for ozone, NO₂, and/or PM₁₀. This impact with respect to the ozone and NO₂ standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to the PM₁₀ standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, construction of Alternative 4 could result in an increased level of impact compared to the proposed project, because the construction-related impact near a minority population and disadvantaged community may be significant and unavoidable, even with mitigation.

During operation, a long-term increase in future water prices for water consumers would occur; however, the extent of the increase is not yet known. Castroville, a disadvantaged community, would not experience the minor benefit related to improved water quality from Alternative 4 in the same way it would under the proposed project, as described in Section 4.20.5.1, because Alternative 4 would not return water to the CCSD.

Overall, Alternative 4 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The geographic scope for the cumulative impact analysis of socioeconomics is the same as that described for the proposed project, plus the additional community of Moss Landing. The contributions of Alternative 4 to cumulative socioeconomic impacts also would be similar to those of the proposed project described in Impact 4.20-C. No communities in the vicinity of Alternative 4 would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected, which may result in a significant impact on business activity and/or recreational access for tourists, but implementation of **Mitigation Measures 4.9-1**, would minimize the influence of such effects on the tourism industry, reducing them to a less-than-significant level, and no other projects in the cumulative scenario are likely to overlap in time and location with these potential disruptions. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to socioeconomics, less than significant with mitigation.

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income populations identified in **Tables 4.20-4** and **4.20-5** (i.e., Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey), plus the additional community of Moss Landing, identified as a minority population and disadvantaged community. The contributions of the components common to the proposed project and

Alternative 4 (i.e., the pipelines south of the “Connection to CalAm” point, the ASR system, and the Carmel Valley Pump Station) to cumulative environmental justice impacts would be similarly minimal as compared to those identified in Impact 4.20-C for the proposed project. Alternative 4 would result in less construction in and near Marina and Castroville, reducing but not eliminating localized air pollution near those communities. However, Alternative 4 would result in substantial construction activity near the Moss Landing community as a result of construction of the desalination plant, intake and discharge systems, and related facilities in that location. As described above, the impact associated with emissions of NO_x would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. When combined with other construction projects listed in **Table 4.1-2** in Section 4.1, including two additional projects that may have the potential to result in overlapping air quality impacts – the DeepWater Desal Project (No. 34) and the Moss Landing Community Plan (No. 37) – the cumulative localized emissions could be increased compared to Alternative 4 alone. If overlapping construction were to occur, Alternative 4 would result in a significant contribution to a significant cumulative impact. This would be an *increased level of impact* compared to the proposed project, significant and unavoidable, even with mitigation.

5.5.20.8 Direct and Indirect Effects of Project Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Socioeconomics

The impacts of Alternatives 5a and 5b would be similar to those described for the proposed project and Alternative 1, respectively, though the economic and employment benefits would be reduced in proportion to the reduced size of the desalination plant and reduced number of subsurface slant wells. This would result in a decreased potential for beneficial socioeconomic effects because construction-related benefits would last an incrementally shorter period of time. With implementation of applicable mitigation for components common with the proposed project or Alternative 1 that may temporarily disrupt local businesses, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant with mitigation.

Environmental Justice

The impacts of Alternatives 5a and 5b would be similar to those described for the proposed project and Alternative 1, respectively, though the air pollution-related adverse impacts on minority and low-income populations would be reduced in proportion to the reduced size of the desalination plant and reduced number of subsurface slant wells. This would result in a decreased potential for disproportionately high and adverse effects because some construction activities

would be reduced in duration; however, because they would not increase emissions compared to the less-than-significant local emissions under the proposed project or Alternative 1, Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

For the same reasons described for the proposed project and Alternative 1, Alternatives 5a and 5b would result in minimal beneficial contributions to cumulative economic and employment effects. However, as described above, the magnitude of impacts of Alternatives 5a and 5b would be reduced compared to the proposed project and Alternative 1, respectively. The addition of the GWR Project (No. 59) described in **Table 4.1-2** in Section 4.1 to the cumulative scenario for Alternative 5 would have a minimal effect on overall cumulative impacts. Combined, the GWR Project and Alternative 5 would have an increased beneficial contribution to cumulative economic and employment effects as a result of the construction of two separate projects. Similarly, the combination of these projects would increase adverse contributions to air pollution-related cumulative impacts on minority and low-income populations during construction compared to Alternative 5 alone. These contributions to overall cumulative impacts would be temporary. The combination of Alternative 5 and the GWR Project may result in greater long-term future rate increases for CalAm ratepayers due to the increased overall cost of these projects in combination.

Impacts of Full Cumulative Scenario

As stated above, the addition of the GWR project – the only other project reasonably foreseeable in the Alternative 5 cumulative scenario compared to that of the proposed project or Alternative 1 – would have a minimal effect on socioeconomic and environmental justice impacts. Therefore, the cumulative impacts under Alternatives 5a and 5b, and the contributions of Alternatives 5a and 5b, would be similar to those described for the proposed project and Alternative 1, respectively. Alternatives 5a and 5b would result in the *same impact conclusion* as the proposed project for cumulative effects related to socioeconomics (less than significant with mitigation) and environmental justice (less than significant).

5.5.20.9 References

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U.S. Census Bureau, 2010b. DP03 Selected Economic Characteristics; 2006-2010 American Community Survey 5-Year Estimates; Moss Landing.

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U.S. Census Bureau, 2014b. DP03 Selected Economic Characteristics; 2010-2014 American Community Survey 5-Year Estimates; selected geographies.

5.5.21 Growth Inducement

This section describes the potential for the provision of water supply to indirectly induce growth: would implementation of the proposed project or alternatives directly or indirectly cause economic or population growth or residential construction? The potential for direct and/or indirect impacts on population and housing, including the potential to result in the need for additional workforce to support construction and operations is addressed in Section 4.19 for the proposed project and Section 5.5.19 for alternatives. The topic of indirect growth inducement related to the proposed project is fully addressed in Section 6.3 and summarized below.

5.5.21.1 Setting/Affected Environment

This section evaluates the indirect growth inducing impacts of the water supply that would be provided by the alternatives. As discussed in Section 6.3, a water supply project – such as the MPWSP and the “project” alternatives considered here – would be considered growth inducing if it removed water supply limitations as an obstacle to growth. Refer to Section 5.5.18, Population and Housing, for analysis of the alternatives’ direct growth inducing impacts. Since an alternative would only supply water to customers once the alternative was operational, there would be no indirect growth inducing impacts during the construction phase. Therefore, construction phase impacts are not considered further in this section.

The environmental setting/affected environment for Alternatives 1, 2, 4, and 5 consists of the areas that would be served by the alternatives– CalAm’s Monterey District service area (Monterey District); Alternative 3 would also serve other areas of Monterey County as well as Santa Cruz County.

5.5.21.2 Indirect Growth Inducing Effects of The Proposed Project

To determine the MPWSP’s potential to indirectly induce growth, the proposed project was evaluated for its potential to stimulate additional housing development and the need for services as a result of increasing available water supply and providing associated infrastructure improvements. As described in Chapter 2, Water Demand, Supplies, and Water Rights, CalAm proposes that the MPWSP provide, along with other supply sources, sufficient water supply to:

- meet existing annual service area demand;
- serve development that uses existing water entitlements held in the Pebble Beach-Del Monte Forest area;
- develop vacant legal lots of record; and
- support increased water consumption at local restaurants and lodging when tourism increases under improved economic conditions.

Table 5.5-17 summarizes the water demand CalAm proposes to meet with the MPWSP, along with existing and other planned water supply sources. The estimate of existing annual system demand, 12,270 afy, is based on demand in 2010.¹³

**TABLE 5.5-17
 MPWSP DEMAND ASSUMPTIONS**

Demand Component	Annual Demand (acre-feet)
Existing Annual System Demand	12,270
Pebble Beach Water Entitlements	325
Hospitality Industry Rebound Economic Recovery	500
Legal Lots of Record	1,180
Total	14,275

SOURCE: RBF Consulting, 2013; Svindland, 2016.

Along with existing and other planned water supply sources, the MPWSP would provide up to 16,294 afy during the 25-year Seaside Groundwater Basin replenishment period; an additional 700 afy of Seaside Groundwater Basin supply would be available to the CalAm service area at the end of the replenishment period.¹⁴ Of this 16,294 afy, 12,595¹⁵ afy would serve existing annual service area demand and existing Pebble Beach water entitlements, and another 1,680 afy is proposed to meet anticipated future demand. This includes an estimated 250 afy associated with the local hospitality industry, absent new development, assuming increased economic activity. Thus, 12,845 afy would be used to meet demand associated with existing land uses and water entitlements and 1,430 afy would support new development.

Table 5.5-18 provides a breakdown of demand associated with existing and anticipated land uses assumed for the MPWSP. **Table 5.5-19** shows water supplies that would be available with the MPWSP, compared with the service area demands shown in **Table 5.5-18**, as well as two estimates of the SVGB return water obligation associated with operating the proposed 9.6-mgd desalination plant. **Table 5.5-19** illustrates available and surplus supply (or deficit) during the Seaside Groundwater Basin replenishment period, assuming a 6 percent or 12 percent return water obligation. As shown, under either of these return water scenarios, the available supply would meet demand associated with existing land uses and water entitlements (12,845 afy), with a surplus of 209 or 1,829 afy depending on the return water obligation.

¹³ Although demand in 2010 is slightly less than the current 10-year average demand (12,351 afy) CalAm assumes this is the appropriate level of demand for planning purposes to ensure the proposed action is sized appropriately to meet peak demands as required by state regulations; see Section 2.3 in Chapter 2 for more information.

¹⁴ For the first 25 years of MPWSP operation, CalAm would provide in-lieu replenishment of the Seaside Groundwater Basin in repayment of groundwater CalAm has pumped from the basin in excess of CalAm’s adjudicated right, as discussed in Chapter 2, Section 2.2.4. Replenishment would occur at a rate of 700 afy. During the replenishment period, available supply from the Seaside Groundwater Basin would be limited to 774 afy; at the end of the replenishment period, available supply would equal CalAm’s adjudicated right of 1,474 afy.

¹⁵ Existing annual service area demand now includes the 325 afy Pebble Beach entitlement, and 325 afy was therefore, removed from the anticipated future demand.

**TABLE 5.5-18
 EXISTING AND ANTICIPATED DEMAND
 (ACRE-FEET PER YEAR)**

Demand Component	MPWSP Demand Assumptions	Demand Associated with Existing Land Uses and Water Entitlements	Demand Associated with Anticipated Development
Existing Annual System Demand	12,270	12,270	-
Pebble Beach Water Entitlements	325	325	
Hospitality Industry Rebound Economic Recovery	500	250 ^a	250
Legal Lots of Record	1,180		1,180
Total	14,275	12,845	1,430

NOTES:

^a A comparison of commercial sector demand prepared for this analysis suggests that demand by the hospitality industry under improved economic conditions may be lower than identified by CalAm; refer to text discussion for more information.

SOURCE: Table 6.3-3.

**TABLE 5.5-19
 WATER SUPPLIES AND DEMANDS DURING SEASIDE GROUNDWATER BASIN REPLENISHMENT
 PERIOD, 9.6-MGD DESALINATION PLANT WITH SVGB RETURN
 (ACRE-FEET PER YEAR)**

Supplies and Demands	Existing Demand ^a		Existing and Anticipated Demand	
	6% SVGB Return	12% SVGB Return	6% SVGB Return	12% SVGB Return
Total Supplies^a	16,294	16,294	16,294	16,294
Service Area Demand (Existing and Anticipated)	12,845	12,845	14,275	14,275
Supply Available for Other Use (Total Supplies Minus Service Area Demand)	3,449	3,449	2,019	2,019
SVGB Return (6% and 12%)	1,620	3,240	1,620	3,240
Surplus or (Deficit)	1,829	209	399	(1,220)

NOTES: mgd = million gallons per day; Seaside GW Basin = Seaside Groundwater Basin; SVGB = Salinas Valley Groundwater Basin

^a Includes 325 afy for Pebble Beach water entitlements.

^b Water supply sources include: Carmel River (3,376 afy), Seaside Groundwater Basin (774 afy), Aquifer Storage and Recovery Project (1,300 afy), Sand City Coastal Desalination Plant (94 afy), and the proposed MPWSP Desalination Plant (10,750 afy), as shown in Table 2-4 of Chapter 2.

SOURCE: Table 2-4, Table 6.3-4.

The 1,430 afy of MPWSP supply that would serve anticipated development, shown in **Table 5.5-18**, is about 40 percent of 3,526 afy, the 2006 estimate of future demand as revised based on updated information and about half of 2,820 afy, the 2006 estimate of future demand as updated and reduced by an additional 20 percent.

The MPWSP would not directly contribute to the creation of additional housing or jobs within the area it serves as it is limited to the construction and operation of water supply facilities and infrastructure. But the proposed project would indirectly support growth by removing some water

supply limitations as an obstacle to growth, thereby enabling a degree of growth under the approved general plans within the area served by the MPWSP.

The cities and county in the area served by the proposed project have the authority to approve or deny development projects and to impose mitigation to address significant environmental impacts associated with development projects within their respective jurisdictions. In addition, numerous federal, state, regional, and local agencies are specifically charged with protecting environmental resources, and ensuring that planned development occurs in a sustainable manner. Together, these agencies exercise the authority to reduce the effects of development on the environment. Some unavoidable impacts would still, however, be expected to occur.

Cumulative Analysis

The geographic scope for the cumulative analysis of indirect growth inducement consists of the CalAm Monterey District service area jurisdictions and other areas of Monterey County that could experience similar indirect growth inducement. The baseline environmental setting against which the MPWSP is being analyzed includes the effects of existing, operational water supply projects identified in Table 4.1-2 such as the Seaside Groundwater Basin Aquifer Storage and Recovery projects (Nos. 29 and 30), and Sand City Coastal Desalination Plant (No. 6), which are assumed in water supply planning undertaken for the proposed project (as discussed in Chapter 2, Section 2.4 and shown in Table 2-4). The CalAm Slant Test Well at CEMEX (No. 47) is assumed to be used for production of the proposed MPWSP supply.

Several of the planned future cumulative projects identified in Table 4.1-2 would provide new sources of potable water supply in Monterey County. Growth induced by one or more of these cumulative water supply projects in combination with the proposed project would result in secondary effects of growth in Monterey County that are similar to, but would likely be more severe and widespread than, those summarized above in Table 6.3-9; these impacts include increased traffic, noise, and air pollution and loss of open space and biological resources.

Other water projects listed in Table 4.1-2, would either provide non-potable recycled water supply or enhance groundwater recharge. Projects providing recycled water could offset demand for potable supply that is currently used for non-potable uses, thereby making that potable supply available for other uses including growth. Projects capturing and diverting stormwater runoff to enhance groundwater recharge would primarily improve surface water quality and help stop seawater intrusion, but may overtime increase the availability of groundwater supply. These projects could contribute to the growth-inducing impacts of the cumulative potable supply projects described above by increasing the availability of existing potable supplies and groundwater.

5.5.21.3 Indirect Growth Inducing Effects of No Project Alternative

The No Project Alternative would deliver less water than the proposed project, would not be able to reliably serve existing customers, and therefore, would have no indirect growth inducing effects associated with the provision of water supply and it would not achieve the benefits of the proposed project in terms of providing minor amounts of additional water to accommodate some growth. The No Project Alternative water supplies of 11,314 afy, through September 2018, would

be reduced by 1,000 af annually to 6,380 afy by January 2022. This supply could not serve the baseline demand of 12,595 afy – or 11,335 afy, assuming ongoing implementation of conservation programs reduced demand to this amount by 2021 – and the implementation of Stage 3 Conservation Measures and Stage 4 Rationing would be required.

5.5.21.4 Indirect Growth Inducing Effects of Alternative 1 – Slant Wells at Potrero Road)

Operational Impacts

The indirect growth-inducing impact of Alternative 1 would be similar to that of the proposed project, although slightly decreased because source water pumped under this alternative is expected to include more groundwater that originated from inland aquifers than the proposed project, requiring a higher percentage of water to be returned to the SVGB. Therefore, less desalinated product water likely would be available to support growth. With CalAm’s other supply sources, water supplies would total 16,294 afy, shown in **Table 5.5-20**, the same as for the proposed project (shown in **Table 6.3-4** in Section 6.3, Growth Inducement, of Chapter 6, Other Considerations). After meeting existing service area demand and entitlements of 12,845 afy and an assumed 6 percent SVGB return water obligation,¹⁶ 1,829 afy would be available for other uses during the 25-year Seaside Groundwater Basin (SGB) replenishment period.

Although the precise amount of the return water obligation is not currently known, this analysis assumes that Alternative 1, like the MPWSP, would provide enough supply to meet the level of service area demand that CalAm proposes to meet, 14,275 afy. The surplus shown in **Table 5.5-20** indicates that Alternative 1 would have some operational flexibility needed to meet the *peak demands* that would be associated with the anticipated average annual demand, including about 1,430 afy of water for anticipated future development – that is, water for growth. As discussed in Section 6.3.5.3, this level of growth is consistent with the growth planned for in the adopted land use plans of service area jurisdictions. The environmental consequences of planned growth have been addressed in adopted local land use plans and their associated CEQA documents, as well as in other, project-specific documentation, as discussed in Section 6.3.6. Some of the identified indirect effects of this growth would be significant and unavoidable while other effects would be significant but can be mitigated.

Assuming a 6 percent SVGB return water obligation, this alternative would not provide enough supply to meet the estimated 3,526 afy of additional service area demand associated with general plan buildout (discussed in Section 2.5.3 of Chapter 2 and shown in **Table 2-5**). Following the conclusion of the Seaside Groundwater Basin replenishment period, an additional 700 afy of supply would be available to meet additional demands; however, it would still not meet projected future demands in the CalAm service area. This additional supply could provide CalAm added operational flexibility or could be used to serve a degree of additional growth still within the levels of approved general plans.

¹⁶ The 6 percent return water obligation assumed here is an example of what the return obligation could be. The SVGB return water obligation will be based on observed values of the source water. Groundwater modeling performed for this EIR/EIS simulated scenarios with 0, 3, 6, and 12 percent of the source water extracted via subsurface slant wells being returned to the SVGB (see Section 4.4, Groundwater Resources).

**TABLE 5.5-20
 ALTERNATIVE 1 – SLANT WELLS AT POTRERO ROAD WATER SUPPLIES AND
 DEMANDS DURING SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS
 (ACRE-FEET PER YEAR)**

	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies ^a	5,544	5,544
Supply provided by Alternative 1	10,750	10,750
Total Supplies	16,294	16,294
Minus Existing Service Area Demand (Table 6.3-3)	12,845	12,845
Minus SVGB Return Obligation (Assuming 6% Return Obligation) ^b	1,620	1,620
Supply Available for Other Use (Supplies Minus Existing Demand and Return Obligation)	1,829	1,829
Minus Future Demands: Two Scenarios	1,430 ^c	3,526 ^d
Surplus or (Deficit)	399	(1,697)

NOTES: SGB = Seaside Groundwater Basin; SVGB = Salinas Valley Groundwater Basin; afy = acre feet per year

- ^a Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm's supply from that the groundwater basin will increase by 700 afy to 1,474 afy.
- ^b The SVGB return water obligation will be based on the observed amount of fresh water component in the source water. The percentage of return water required for pumping at the Potrero Road site (this alternative) is expected to be higher than the percentage of return water that would be required for pumping at the CEMEX site (the MPWSP).
- ^c Demand associated from anticipated development CalAm proposes to meet with the MPWSP (see Section 6.3.5.1 and Table 6.3-3).
- ^d MPWMD's 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

SOURCE: Table 2-4, Table 6.3-3, Table 6.3-8.

While the above analysis discloses the indirect growth inducing impact of Alternative 1 associated with a 6 percent SVGB return water obligation, the analysis in Section 5.5.4.3, which describes the impacts of Alternative 1 on groundwater resources, suggests that a higher return water percentage would be necessary under Alternative 1. In the event that the return water obligation is determined to be 12 percent (the highest return value simulated), after meeting existing demand and entitlements only 209 afy would be available for other uses, which would not meet either future demand scenario and, therefore, Alternative 1 would not fully meet the project objective/need for water, some of which was to support limited growth (e.g., legal lots of record). The indirect growth inducing impact of this alternative assuming a 12 percent SVGB return would result in a *reduced impact conclusion* compared to the proposed project, less than significant.

Cumulative Analysis

The geographic scope for the cumulative analysis of indirect growth inducement impacts of Alternative 1 is Monterey and Santa Cruz Counties. The cumulative impact would be similar to that described for the MPWSP in Section 6.3.7. Of the planned sources of new potable water supply for Monterey County and other areas identified in **Table 4.1-2**, the DeepWater Desal Project (No. 34) could combine with Alternative 1 to have cumulative growth inducing impacts in

the areas that would be served by these projects. If both projects were approved, Alternative 1 would supply water to the CalAm service area, as described under operational impacts above, and the entire 25,000 afy produced by the DeepWater Desal Project would be provided to the city of Salinas in Monterey County and to areas of Santa Cruz County.

In addition, the RUWAP Desalination Element (No. 31 in **Table 4.1-2** in Section 4.1) would serve the Marina Coast Water District's Ord Community with approximately 1,000 afy of potable supply. Through an agreement with FORA and the MRWPCA, an additional 1,400 afy of potable supply from the Pure Water Delivery and Supply Project (No. 35) would meet the build-out needs of the Ord Community, which is contiguous with CalAm's service area. The Granite Ridge Water Supply Project (No. 33) would increase water supply availability for the area of northern Monterey County that it would serve. The Interlake Tunnel Project (No. 24) would reduce the amount of water spilled at Nacimiento Dam by allowing water from Nacimiento Reservoir to be stored at San Antonio Reservoir for later use. This project would enhance flood control, provide environmental benefits, and offset groundwater pumping. However, because this project would provide groundwater recharge, this analysis assumes it could indirectly augment supply available for groundwater users, including municipal supply that could serve additional growth. Although the primary purpose of the Salinas Valley Water Project Phase II (No. 1) is to combat seawater intrusion by providing a new source of surface water to offset groundwater consumption, the availability of a reliable surface water supply provided by this project could induce growth by removing supply reliability limitations as an obstacle to urban development.

Growth induced by these cumulative water supply projects in combination with Alternative 1 would result in secondary effects of growth that are similar to, but would likely be more widespread in Monterey and Santa Cruz Counties than those summarized in **Table 6.3-9** in Section 6.3 for the CalAm service area only. These impacts include increased traffic, noise, and air pollution and loss of open space and biological resources.

Other water projects listed in **Table 4.1-2**, including the RUWAP Recycled Water Project (No. 35), West Broadway Stormwater Retention Project (No. 41), Del Monte Boulevard Dry Weather Diversion Project (No. 44), Pacific Grove Local Water Project (No. 22), Pacific Grove Recycled Water Project (No. 23), and Monterey Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project (No. 45), would either provide non-potable recycled water supply or enhance groundwater recharge. As described for the MPWSP, projects providing recycled water could offset demand for potable supply that is currently used for non-potable uses, thereby making that potable supply available for other uses, including growth. Projects capturing and diverting stormwater runoff to enhance groundwater recharge would primarily improve surface water quality and help stop seawater intrusion, but may overtime increase the availability of groundwater supply. These projects would eliminate an impediment to growth; some of the impacts of that growth were determined by the general plan EIRs to be significant and unavoidable and could contribute to the growth inducing impacts of Alternative 1 and the DeepWater Desal project by increasing the availability of existing potable supplies and groundwater. Because Alternative 1 would have a significant and unavoidable impact, it would have a significant contribution to significant and unavoidable cumulative impacts of indirect growth inducement.

5.5.21.5 Indirect Growth Inducing Effects of Alternative 2 – Open Water Intake at Moss Landing

Operational Impacts

The indirect growth-inducing impact of Alternative 2 would be similar to, but greater than, that of the proposed project because this alternative would produce the same amount of desalinated product water and no desalinated water would need to be returned to the SVGB. As under the MPWSP, with CalAm’s other supply sources, water supplies would total 16,294 afy, shown in **Table 5.5-21**.

**TABLE 5.5-21
 ALTERNATIVE 2 – OPEN OCEAN INTAKE AT MOSS LANDING WATER SUPPLIES AND DEMANDS DURING SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS (ACRE-FEET PER YEAR)**

	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies ^a	5,544	5,544
Supply provided by Alternative 2	10,750	10,750
Total Supplies	16,294	16,294
Minus Existing Service Area Demand (Table 6.3-3)	12,845	12,845
Supply Available for Other Use (Supplies Minus Existing Demand)	3,449	3,449
Minus Future Demands: Two Scenarios	1,430 ^b	3,526 ^c
Surplus or (Deficit)	2,019	(77)

NOTES: SGB = Seaside Groundwater Basin; afy = acre feet per year

^a Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm’s supply from that the groundwater basin will increase by 700 afy to 1,474 afy.

^b Demand associated from anticipated development CalAm proposes to meet with the MPWSP (see Section 6.3.5.1 and Table 6.3-3).

^c MPWMD’s 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

SOURCE: Table 2-4, Table 6.3-3, Table 6.3-8.

After meeting existing service area demand and entitlements of 12,845 afy, 3,449 afy would be available to support growth in the CalAm service area during the 25-year Seaside Groundwater Basin replenishment period. This is substantially more than the 1,430 afy of anticipated future development demand CalAm proposes to meet with the MPWSP and similar to the estimated 3,526 afy of additional service area demand associated with general plan buildout (discussed in Section 2.5.3 of Chapter 2 and shown in **Table 2-5**). While this alternative appears to almost meet projected future general plan demands, water use does not occur at an average rate throughout the year (as discussed in Section 2.3.2), and it is unlikely this alternative could provide the operational flexibility to meet the peak demands associated with general plan buildout.

In any event, the growth inducing impact of Alternative 2 would be greater than the proposed project because Alternative 2 would remove water supply limitations as an obstacle to growth to a greater extent than would the MPWSP. The environmental consequences of planned growth that would be supported by this alternative have been addressed in the adopted land use plans and

associated CEQA documents of service area jurisdictions, as discussed in Section 6.3.6. Some of the identified indirect effects of this growth would be significant and unavoidable while other effects would be significant but can be mitigated.

Following the conclusion of the Seaside Groundwater Basin replenishment period, an additional 700 afy of supply will be available to meet demands in the CalAm service area. This additional supply could provide CalAm added operational flexibility to meet peak demands or it could be used to serve a degree of additional growth.

The greater indirect growth inducing impact of this alternative would result in an *increased impact conclusion* compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The cumulative scenario for Alternative 2 would be the same as described above for Alternative 1. The contribution of Alternative 2 to significant and unavoidable cumulative impacts of indirect growth inducement would be significant and would be increased compared to the proposed project and Alternative 1 as a result of the greater amount of water available for growth under Alternative 2, as shown in **Table 5.5-21**.

5.5.21.6 Indirect Growth Inducing Effects of Alternative 3 – Monterey Bay Regional Water Project (DeepWater Desal)

Operational Impacts

The indirect growth-inducing impact of Alternative 3 would be greater than that of the proposed project because this alternative would produce about 14,000 afy more desalinated water. Assuming CalAm purchased 10,750 afy (9.6 mgd) from DeepWater Desal for use in the CalAm service area, CalAm supplies would total 16,294 afy, as shown in **Table 5.5-22**. Because no desalinated water would need to be returned to the SVGB, more water would be available to the service area; after meeting existing demand and entitlements of 12,845 afy, 3,449 afy would be available under Alternative 3 to support growth in the CalAm service area during the 25-year Seaside Groundwater Basin Replenishment period. This is substantially more than the 1,430 afy of anticipated future demand CalAm proposes to meet with the MPWSP and similar to the estimated 3,526 afy of service area demand associated with general plan buildout (discussed in Section 2.5.3 of Chapter 2 and shown in **Table 2-5**).

Assuming CalAm purchased 10,750 afy for use in the CalAm service area, the remaining 14,250 afy produced by Alternative 3 would be available for other areas of Monterey and Santa Cruz Counties. Other areas that may be served by this alternative include the city of Salinas, the unincorporated community of Castroville, other areas of northern Monterey County, and areas of Santa Cruz County.

Therefore, the indirect growth-inducing impact of Alternative 3 would be greater than the MPWSP because this alternative would remove water supply limitations as an obstacle to growth in a much larger area of the region as well as within CalAm's service area. The environmental consequences

**TABLE 5.5-22
 ALTERNATIVE 3 – DEEPWATER DESAL WATER SUPPLIES AND DEMANDS DURING
 SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS
 (ACRE-FEET PER YEAR)**

Supplies/Demands	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies ^a	5,544	5,544
Alternative 3 Water Provided to CalAm Service Area/Purchased From DeepWater Desal Project ^b	10,750	10,750
Total Supplies to CalAm Service Area	16,294	16,294
Minus Existing Service Area Demand (Table 6.3-3)	12,845	12,845
CalAm Service Area Supply Available for Other Use (Supplies Minus Existing Demand)	3,449	3,449
Minus Future Service Area Demands: Two Scenarios	1,430 ^c	3,526 ^d
Surplus or (Deficit) within CalAm Service Area	2,019	(77)
Supply Available for Other Areas^e	14,250	14,250

NOTES: SGB = Seaside Groundwater Basin; mgd = million gallons per day; afy = acre feet per year

- ^a Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm's supply from that the groundwater basin will increase by 700 afy to 1,474 afy.
- ^b Supply to the CalAm Service area assumes DeepWater Desal LLC would provide, and CalAm would purchase, 9.6 mgd, or 10,750 afy of desalinated water from the DeepWater Desal Project.
- ^c Demand associated from anticipated development CalAm proposes to meet with the MPWSP (see Section 6.3.5.1 and Table 6.3-3).
- ^d MPWMD's 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).
- ^e The DeepWater Desal Project would produce 25,000 afy of desalinated product water. After delivering 9.6 mgd (10,750 afy) 14,250 afy would be available to other areas of Monterey and Santa Cruz Counties.

SOURCE: Table 2-4, Table 6.3-3, Table 6.3-8.

of planned growth in the CalAm service area that would be supported by this alternative have been addressed in the adopted land use plans and associated CEQA documents of service area jurisdictions, as discussed in Section 6.3.6 (discussed in Section 6.3.6). Some of the identified indirect effects of this growth would be significant and unavoidable while other effects would be significant but can be mitigated.

Because information is not currently available about how much and where the remaining 14,250 afy of water produced by this alternative may be used, whether for replacement supplies or for growth, the consistency of this supply with planned growth in areas that would receive it cannot be definitively assessed. But because of the amount of water that would be available, impacts would likely be significant and unavoidable. The separate EIR/EIS that is being prepared for the DeepWater Desal project will provide more detailed analysis on this topic.

Following the conclusion of the Seaside Groundwater Basin replenishment period, another 700 afy of supply would be available to the CalAm service area. This additional supply could provide CalAm greater operational flexibility, could be used to serve a degree of additional growth, or could prompt CalAm to reduce the amount of water it purchases from DeepWater Desal, in which case more desalinated product water from DeepWater Desal would be available to other areas.

Therefore, the indirect growth inducing impact of this alternative would result in an *increased impact conclusion* compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The geographic scope for the cumulative analysis of indirect growth inducement impacts of Alternative 3 is Monterey and Santa Cruz Counties. Of the planned sources of new potable water supply for Monterey County identified in **Table 4.1-2**, the GWR Project (No. 59) could combine with Alternative 3 to have cumulative growth inducing impacts in the areas that would be served by these projects. If both projects were approved, it is assumed that Alternative 3 would supply water to the CalAm service area equivalent to the production of a 6.4 mgd plant, or about 7,170 afy, supplementing the water that would be supplied by the GWR project, and the remaining 17,830 afy produced by Alternative 3 would be provided to the city of Salinas, the unincorporated community of Castroville, other areas of Monterey County and areas of Santa Cruz County.

In addition, the other projects in the cumulative scenario, described above for Alternative 1, could induce growth by removing supply reliability limitations as an obstacle to urban development. Growth induced by these cumulative water supply projects in combination with Alternative 3 would result in secondary effects of growth in Monterey and Santa Cruz Counties that are similar to, but would likely be more severe and widespread than, those summarized in **Table 6.3-9**. These impacts include increased traffic, noise, and air pollution and loss of open space and biological resources.

The overall cumulative impact would be significant and unavoidable. While the total amount of water available for growth would be reduced under the Alternative 3 cumulative scenario compared to the proposed project scenario (because only the Alternative 3 desalination plant would be built, compared to building it and the proposed project), the contribution of Alternative 3 to significant and unavoidable cumulative impacts of indirect growth inducement would be significant and increased compared to the proposed project and Alternatives 1 and 2 as a result of the greater amount of water available for growth under Alternative 3, as shown in **Table 5.5-22**.

5.5.21.7 Indirect Growth Inducing Effects of Alternative 4 – People’s Moss Landing Desalination Project

Operational Impacts

The indirect growth-inducing impact of Alternative 4 would be greater than that of the proposed project because this alternative would provide substantially more water. Based on the 13,400 afy the People’s Moss Landing Project proposes to deliver from its proposed 12 mgd desalination plant, supplies under this alternative would total 18,944 afy, as shown in **Table 5.5-23**. This is substantially more than the proposed project’s 16,294 afy, and because no desalinated water would need to be returned to the SVGB, the entire supply would be available for use. After meeting existing demand and entitlements of 12,845 afy in the CalAm Monterey District service area, 6,099 afy would be available to support growth in the region during the Seaside Groundwater Basin Replenishment period. This is more than three times the amount that would be available under the proposed project (1,829 afy), assuming a 6 percent return water obligation, and would be almost

twice the 3,526 afy estimate of future Monterey District service area demand under general plan buildout (discussed in Section 2.5.3 of Chapter 2 and shown in **Table 2-5**). This alternative would provide substantially more water than needed to meet demand associated with General Plan buildout in the CalAm service area, based on currently available information.¹⁷ Although surplus supply could be delivered to other users in the region, the growth that could be supported in the Monterey District service area by this alternative would be beyond the level evaluated in adopted land use plans and would likely have impacts related to increased density (such as increased traffic and noise) or the development of new land areas (such as loss of open space, wildlife habitat, and agricultural land), potentially resulting in impacts that are more severe than those identified in the EIRs of adopted land use plans and plan elements. The separate EIR/EIS that is being prepared for the People’s Project will provide more detailed information on this topic.

**TABLE 5.5-23
 ALTERNATIVE 4 – PEOPLE’S PROJECT WATER SUPPLIES AND DEMANDS DURING
 SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS
 (ACRE-FEET PER YEAR)**

Supplies/Demands	Supply Compared to MPWSP- Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies ^a	5,544	5,544
Alternative 4 Water Provided to CalAm Service Area/Purchased From People’s Project ^b	13,400	13,400
Total Supplies	18,944	18,944
Minus Existing Service Area Demand (Table 6.3-3)	12,845	12,845
Supply Available for Other Use (Supplies Minus Existing Demand)	6,099	6,099
Minus Future Demands: Two Scenarios	1,430 ^c	3,526 ^d
Surplus or (Deficit)	4,669	2,573

NOTES: SGB = Seaside Groundwater Basin; mgd = million gallons per day; afy = acre feet per year

- ^a Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm’s supply from that the groundwater basin will increase by 700 afy to 1,474 afy.
- ^b Supply assumes the People’s Project would provide, and CalAm would purchase, 12 mgd, or 13,400 afy of desalinated water from the People’s Project.
- ^c Demand associated from anticipated development proposed to be met by the MPWSP (see Section 6.3.5.1 and Table 6.3-3).
- ^d MPWMD’s 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

SOURCE: Table 2-4, Table 6.3-3, Table 6.3-8.

Following the conclusion of the Seaside Groundwater Basin replenishment period, an additional 700 afy of supply would be available, which would support an even greater degree of growth beyond that anticipated in jurisdictions’ general plans.

Therefore, the indirect growth inducing impact of this alternative would result in an *increased impact conclusion* compared to the proposed project, significant and unavoidable.

¹⁷ As discussed in more detail in Section 2.5.3.4, General Plan Buildout, of Chapter 2, the future demand estimate assumed in this analysis, 3,526 afy, is based on MPWMD’s 2006 estimate of future water supply needs as updated by more recent information.

Cumulative Analysis

The cumulative scenario for Alternative 4 would be the same as described above for Alternative 1. Of the planned sources of new potable water supply identified in **Table 4.1-2**, the DeepWater Desal Project (No. 34) could combine with Alternative 4 to have cumulative growth inducing impacts in the areas that would be served by these projects. If both projects were approved, Alternative 4 would supply water to the CalAm service area, as described under operational impacts above, and the entire 25,000 afy produced by the DeepWater Desal Project would be provided to the city of Salinas and other areas in Monterey and Santa Cruz Counties. The contribution of Alternative 4 to significant and unavoidable cumulative impacts of indirect growth inducement in the CalAm Service District would be significant and would be increased compared to the proposed project or Alternatives 1 through 3 as a result of the greater amount of water available for growth as shown in **Table 5.5-23** and would be cumulatively considerable and the same as the proposed project for the other areas of Monterey and Santa Cruz counties.

5.5.21.8 Indirect Growth Inducing Effects of Alternatives 5a and 5b

Operational Impacts

The indirect growth-inducing impact of both Alternative 5a and 5b would be less than that of the proposed project because neither alternative would provide enough water to support growth. Neither Alternative 5a nor 5b would provide enough supply to meet both existing demand and the SVGB return water obligation associated with operation of the subsurface slant wells. Supplies provided by Alternatives 5a and 5b with CalAm's other supplies would total 12,711 afy during the 25-year Seaside Groundwater Basin replenishment period, as shown in **Table 5.5-24**. This amount is less than existing service area demands and entitlements of 12,845 afy, and is unlikely to provide the operational flexibility needed to meet peak demands that would be associated with an annual average demand of 12,711 afy. After meeting existing demands and entitlements to the extent feasible, no supply would be available for other uses or for the 6 percent return water obligation assumed in considering the project alternatives.¹⁸ Furthermore, as described for Alternative 1, modeling analysis of pumping at the Potrero Road site suggests that a higher return water percentage would be necessary under Alternative 5b; perhaps closer to 12 percent. Under Alternative 5b, using a 12 percent assumption for the return water obligation, the deficit in available return water would be that much greater than the 6 percent obligation assumed for Alternative 5a (2,084 afy rather than 1,042 afy). Considering that neither alternative is expected to provide enough supply to meet existing demands or the SVGB return water obligation associated with operation of the subsurface slant wells, neither alternative would provide water to support future growth. They would therefore not remove water supply limitations as an obstacle growth and would not be growth inducing. Following the conclusion of the Seaside Groundwater Basin replenishment period, another 700 afy of supply would be available to the CalAm service area. This additional supply could provide CalAm greater operational flexibility to meet peak demands and to meet some of its return water obligation.

¹⁸ As stated in Chapter 2, the SVGB return water obligation will be based on the amount of fresh water in the source water. In order to consider the effect of the return water for this EIR/EIS, groundwater modeling simulated scenarios with return water obligations representing 0, 3, 6, and 12 percent of the source water (see Section 4.4, Groundwater Resources).

TABLE 5.5-24
ALTERNATIVE 5 – REDUCED DESALINATION PLANT WATER SUPPLIES AND DEMAND DURING
SVGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS
(ACRE-FEET PER YEAR)

Supplies/Demands	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies ^a	5,544	5,544
6.4-MGD Desalination Plant Production ^b	7,167	7,167
Total Supplies	12,711	12,711
Minus Existing Service Area Demand (Table 6.3-3)	12,845	12,845
Minus SVGB Return Obligation (Assuming 6% Return Obligation) ^c	1,042	1,042
Supply Available for Other Use or (Deficit) (Supplies Minus Existing Demand and Return Obligation)	(1,176)	(1,176)
Minus Future Demands: Two Scenarios (Tables 6.3-3 and 6.3-8)	1,430 ^d	3,526 ^e
Surplus or (Deficit)	(2,606)	(4,702)

NOTES: SGB = Seaside Groundwater Basin; SVGB = Salinas Valley Groundwater Basin mgd = million gallons per day

- ^a Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm's supply from that the groundwater basin would increase by 700 afy to 1,474 afy.
- ^b Assumed annual supply is based on a 6.4-mgd desalination plant operating at full capacity.
- ^c Alternative 5 includes two alternatives – Alternative 5a and Alternative 5b. Both consist of a 6.4-mgd desalination plant. Source water for Alternative 5a would be from slant wells at the CEMEX site. Source water for Alternative 5b would be from slant wells at the Potrero Road site. The SVGB return water obligation will be based on the amount of the fresh water component of the source water. The return water estimate shown here is based on a 6 percent return water obligation as an example. The 6 percent return water obligation is assumed for Alternative 5a. The percentage of return water required for pumping at the Potrero Road site (Alternative 5b) is expected to be higher than for pumping at the CEMEX site (Alternative 5a).
- ^d Demand associated from anticipated development CalAm proposes to meet with the MPWSP (see Section 6.3.5.1 and Table 6.3-3).
- ^e MPWMD's 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

SOURCE: Table 2-4, Table 6.3-3; Table 6.3-8.

Neither Alternative 5a nor 5b would fully meet current demands and entitlements and therefore would not provide water to support growth. The indirect growth inducing impact of Alternative 5 would result in a **reduced impact conclusion** compared to the proposed project, less than significant.

Cumulative Analysis

The geographic scope for the cumulative analysis of indirect growth inducement impacts of Alternatives 5a and 5b is Monterey and Santa Cruz Counties. The cumulative impact would be similar to that described for the MPWSP. Of the planned sources of new potable water supply for Monterey County and other areas identified in **Table 4.1-2**, the GWR Project (No. 59) and DeepWater Desal (No. 34) could combine with Alternative 5 to have cumulative growth inducing impacts in the areas that would be served by these projects. If the three projects were approved, CalAm would purchase 3,500 afy of GWR Project water to supplement the water produced by Alternative 5. Together, water supplies from Alternative 5 and the GWR Project, with CalAm's other sources, would total 16,211 afy. This is slightly less than the MPWSP alone would provide,

but the total volume of SVGB return water obligation under Alternatives 5a and 5b would be smaller compared to the proposed project and Alternative 1, respectively, due to the reduced pumping volume of the smaller desalination plant. Under the cumulative scenario, the GWR Project would provide water to the CalAm service area, and the entire 25,000 afy produced by the DeepWater Desal project would be provided to the city of Salinas in Monterey County and to areas of Santa Cruz County.

In addition, the other projects in the cumulative scenario, described above for Alternative 1, could induce growth by removing supply reliability limitations as an obstacle to urban development. Growth induced by these cumulative water supply projects in combination with Alternative 5 would result in secondary effects of growth that are similar to, but would likely be more widespread in Monterey and Santa Cruz Counties than those summarized in **Table 6.3-9**. These impacts include increased traffic, noise, and air pollution and loss of open space and biological resources.

After meeting existing service area demand and entitlements of 12,845 afy, Alternative 5a, in combination with the water purchase agreement with the GWR Project, would result in 2,324 afy available for other use. This is more than the 1,430 afy of anticipated future demand CalAm proposes to meet with the MPWSP, and therefore is assumed to provide substantial flexibility to meet associated peak demands; available supply would not be enough to meet the estimated 3,526 afy of service area demand associated with general plan buildout. Alternative 5b in combination with the GWR Project, assuming a 12 percent SVGB return water obligation, would result in 1,282 afy available for other use. Given that this is slightly less than the future demand CalAm proposes to meet with the MPWSP, Alternative 5b with the GWR project is also assumed to provide less flexibility to meet peak demands, and also would not provide enough supply to meet the estimated service area demand associated with general plan buildout. Both Alternatives 5a and 5b combined with GWR Project water could support a degree of growth that would result in potentially significant impacts. The overall cumulative impact would be significant and unavoidable. The contribution of Alternative 5a and 5b to significant and unavoidable cumulative impacts of indirect growth inducement would be significant and would be similar to the proposed project as a result of the total amount of water available for growth under Alternative 5a and 5b in combination with the GWR Project.

5.5.21.9 References

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