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STAFF REPORT: REGULAR CALENDAR

Application No.: **9-20-0691**

Applicant: South Coast Water District

Agent: Kevin Thomas, Kimley-Horn Consultants

Project Location: City of Dana Point and Doheny State Beach, Orange County.

Project Description: Construct and operate a desalination facility, including a slant well field, associated water transmission pipelines, and related infrastructure within the coastal zone.

Staff Recommendation: **Approval** with conditions.

SUMMARY OF STAFF RECOMMENDATION

The South Coast Water District ("SCWD") proposes to construct and operate a seawater desalination facility that would be located within the City of Dana Point and within Doheny State Beach, in Orange County. The facility would provide drinking water to SCWD, which serves Dana Point and the surrounding area, and would reduce the area's reliance on imported water, which now provides about 90% of the total water supply.

SCWD designed the facility to include several features that avoid or reduce potentially adverse impacts to coastal resources. The facility would use slant wells to pull in seawater from beneath the ocean floor. This type of subsurface intake completely avoids impacts to marine life during facility operations. The facility would also "co-locate" its discharge with that of an existing wastewater treatment facility, which substantially reduces the overall effects that would occur with two separate discharges.

Importantly, the California Ocean Plan requirements related to seawater desalination facilities identifies these two design features as preferred methods for desalination intakes and discharges, and this Doheny desalination project would be the first in the state to incorporate these Ocean Plan preferences into its design.

The proposed project's primary impacts to coastal resources would be to coastal public access, as construction of the slant wells is expected to require closure of the Doheny State Beach campground for approximately 18 months, and possibly up to 24 months. To mitigate for this loss of camping opportunities, SCWD is working with California State Parks to provide additional camping options at other nearby coastal campgrounds. The two entities are also working together to combine SCWD's facility construction with a project State Parks had planned for several years from now to provide a number of improvements to the Doheny State Beach campground, including hook-ups (electrical, water, sewer) at individual campsites, improved interpretive facilities, upgrades to restrooms, and others. By combining the two projects, there will be one closure rather than two and the visitor-serving amenities will be available sooner. To ensure public access impacts to the campground are mitigated, **Special Condition 3** would require SCWD to work with State Parks to develop a Plan describing how and where additional camping opportunities will be provided at other nearby coastal campgrounds, and how these options will be communicated to the public. **Special Condition 4** requires SCWD to provide a more detailed plan and schedule for the additional public access and recreation enhancements planned for Doheny State Beach campground.

The project would also result in other coastal resource impacts related to marine resources, coastal hazards, and environmental justice and tribal resource impacts that staff recommend the Commission address through several recommended Special Conditions. To address marine resource impacts, **Special Condition 5** would require SCWD to mitigate for its marine life and water quality impacts by creating or restoring about 7.45 acres of estuarine and/or marine habitats near its project site. In addition, **Special Condition 6** would require development of Spill Prevention and Response Plans for project construction and operation, and **Special Condition 7** would require similar plans outlining Construction Best Management Practices to protect water quality. To address impacts related to coastal hazards, staff is recommending several special conditions. **Special Condition 1** would require SCWD to provide final plans for the project showing that it will be designed and built to be able to operate in the face of potential hazards, including seismic events, tsunami, and flooding so that it can properly serve as a reliable, local, and emergency water supply, as proposed. **Special Condition 9** would require submittal of a Geotechnical and Seismic Hazards Plan, outlining measures needed to ensure project stability in the face of expected seismic events. **Special Condition 10** provides that SCWD will submit a Disaster Response Plan to ensure the facility can continue operating in the face of expected hazards. **Special Condition 11** requires SCWD to develop and implement monitoring measure to identify the rates of coastal erosion near its wellfield and to respond to erosion before it threatens the project's wellfield components. **Special Condition 12** provides that no future shoreline protection device is allowed for the project. Finally, **Special Condition 13** would have SCWD prepare a Flood Hazard Minimization Plan that outlines

measures to be implemented to protect the facility from flooding. To address environmental justice concerns, **Special Condition 15** would have SCWD prepare a study of the effects of the project's water rates on its low-income ratepayers and identify feasible measures it can implement to reduce those adverse effects. In response to concerns raised by tribal governments, **Special Condition 16** provides Tribal cultural resource monitoring measures to be implemented during construction and includes reporting requirements that apply should any Tribal cultural resources be found during project construction.

The Commission staff recommends the Commission find that with implementation of the mitigation measures described in the project's Final Environmental Impact Report ("FEIR") and with recommended **Special Conditions 1** through **16**, the project would be consistent with the public access and recreation, marine biological and water quality protection, relevant seismic and coastal hazards, and other policies of the Coastal Act. Commission staff recommends that the Commission **APPROVE** coastal development permit application 9-20-0691, as conditioned. The motion is on page 5. The standard of review is Chapter 3 of the Coastal Act.

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EXHIBITS

I. Motion and Resolution

Motion:

I move that the Commission approve Coastal Development Permit No. 9-20-0691 pursuant to the staff recommendation.

Staff Recommendation of Approval:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution to Approve the Permit:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. Standard Conditions

1. **Notice of Receipt and Acknowledgment**. The permit is not valid and development shall not commence until a copy of the permit, signed by the applicant or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration**. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation**. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment**. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land**. These terms and conditions shall be perpetual, and it is the intention of the Commission and the applicant to bind all future owners and possessors of the subject property to the terms and conditions.

III. Special Conditions

1. **Final Project Plans.** PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, the Applicant shall provide, for Executive Director review and approval, final plans approved by a licensed civil or structural engineer showing the locations and external dimensions of all project components and illustrating that all project components will be built, to the extent feasible, to meet Structural Risk Category standards adequate to withstand the expected degree of seismic, flooding, and other hazards the project may be subject to. No changes to the approved project shall occur without an amendment to this permit unless the Executive Director determines that no amendment is legally necessary.

2. **Other Permits and Approvals.** PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, the Applicant shall provide to the Executive Director written evidence that all necessary permits, permissions, approvals, and/or authorizations for the project have been granted by the State Lands Commission and the California Department of Parks and Recreation. Any changes to the approved project required by these agencies shall be reported to the Executive Director. No changes to the approved project shall occur without an amendment to this permit unless the Executive Director determines that no amendment is legally necessary.

3. **Mitigation for Temporary Loss of Coastal Camping Opportunities.** PRIOR TO ISSUANCE OF THIS PERMIT, the Applicant shall submit, for Executive Director review and approval, a detailed Public Access Mitigation Plan ("Plan") developed in consultation with, and with approval by, the California Department of Parks and Recreation that describes the increased coastal camping opportunities to be made available consistent with the measures included in the State Parks Conceptual Agreement letter dated September 8, 2022. This Plan shall identify:

   a) Expected losses of camping opportunities: Based on the final desalination facility construction schedule, the Plan shall identify the expected closure period for the Doheny State Beach campground and the resulting loss of overnight camping opportunities. The expected loss of camping opportunities shall be calculated by multiplying the total number of campsites to be closed during construction times the seasonal occupancy rates times the total number of days of closure. This calculation shall be done separately for off-season and peak season periods based on the different occupancy rates for those seasons and

then calculating the total expected loss across the entire expected closure period.

b) Location and timing of expanded overnight camping opportunities at nearby coastal campgrounds: The Plan shall quantify the number of increased camping opportunities that will be made available by opening other nearby coastal campgrounds (e.g., San Mateo, San Onofre Bluffs, etc.) during periods in which they would otherwise be subject to seasonal closures. The expected increase shall be calculated in the same manner as described in subsection (a), above.

c) Comparison of expanded recreational opportunities to impacts: The Plan shall include a comparison of the expanded camping and other recreational opportunities to the lost opportunities for camping due to construction of the proposed project. The comparison shall confirm that the number of lost camping opportunities is mitigated by an equal or greater number of new camping and recreational opportunities in the vicinity of the project site and for the duration of the impact.

d) Other recreational opportunities: The Plan shall describe any additional recreational opportunities that may be implemented to mitigate for the loss of camping opportunities at Doheny State Beach campground – e.g., extended openings of day use areas, increased coastal access amenities such as additional parking areas being opened, etc.

e) Implementation measures: The Plan shall describe all measures that will be implemented to ensure successful extended openings at these other coastal campgrounds, including:
   i. Staffing and funding commitments to be made for the duration of the extended openings.
   ii. Outreach measures to inform the public of the Doheny State Beach Campground closure and of the increased camping opportunities that will be made available elsewhere.
   iii. Any new or modified infrastructure, such as buildings, kiosks, gates, etc., that would be needed to implement these extended camping opportunities and any planning, permits, or approvals needed to construct or install the needed infrastructure.

f) Timing: The Plan shall include a schedule for these implementation measures and Plan components, with all measures to be implemented as close in time as feasible to coincide with the expected temporary closure of Doheny State Beach.

For any components of the Plan determined by the Executive Director to require a coastal development permit, the Applicant, in coordination with State Parks, shall submit a complete application for a new or amended coastal development permit within 90 days of the Executive Director's approval of the Plan. The Plan shall identify any proposed changes to this project as currently proposed. No such changes shall occur without an amendment to this permit unless the Executive Director determines that no amendment is legally necessary.

4. **Doheny State Beach Campground Improvements and Modifications.** PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, the Applicant shall submit, for Executive Director review and approval, a Public Access and Recreation Enhancement Plan ("Enhancement Plan") developed in consultation with, and approval from, California State Parks that specifies access and recreation improvements to be constructed at Doheny State Beach Campground. Measures included in the Enhancement Plan shall include those described in the State Parks Conceptual Agreement letter dated September 8, 2022. The Enhancement Plan shall include:

   a) Site map: a map showing the location of the proposed campground improvements.
   b) Campsite improvements: a description of the type and number of all new, improved, or replaced campsite amenities, including the number and type of utility hookups (water, sewer, and electrical services), signage, kiosks, etc.
   c) Vehicular, pedestrian and bike access improvements: a description of all modifications to the campground's vehicular circulation and parking areas, and to pedestrian and bike paths.
   d) Interpretive areas modifications: a description of all modifications to the existing interpretive center and amphitheater and all new, replaced, or improved components to be replaced with a new interpretation and education area.
   e) Restroom facilities: the design, location, and layout of the improved restroom facilities, including a description of all energy and water conservation measures that will be incorporated.
   f) Landscape modifications: a description of the areas of landscaping to be restored and replanted, the number and types of species (e.g. native species to reduce watering needs) to be planted, and any other improvements needed to support or protect these areas (e.g., irrigation systems, fencing, etc.).

   In addition to the enhancement elements identified in the Conceptual Agreement, the Plan shall include:

   g) Accommodating the California Coastal Trail: The Plan shall identify any feasible measures to facilitate the potential future location of a segment of the California Coastal Trail ("CCT") within the Park property. This may include creating or maintaining an ingress and egress connection to the current CCT at the bridge sidewalk adjacent to the Pacific Coast Highway and San Juan Creek.
   h) Day use enhancements at Doheny State Beach: The Plan shall also identify any proposed improvements to other parts of Doheny State Beach that would benefit day-use visitors.
   i) Modifications to benefit underserved or lower-income communities: The Plan shall identify all measures that will be implemented to provide maximum feasible access to underserved or lower-income communities at the improved Doheny State Beach campground. These may include, but are not limited to:
      i. Construction of low-cost camping cabins or shelters;

ii. Implementation of a modified fee schedule for lower-cost camping opportunities and an identification of the percentage of sites at the campground subject to the modified fee;
iii. Provision of a shuttle service from an inland location to facilitate inland/underserved community access to Doheny State Beach; and
iv. Outreach measures to be conducted to inform these communities of these opportunities, including a description of the types of media to be used, the languages to be included, and the frequency of communications.

Schedule: The Enhancement Plan shall include a proposed schedule that identifies expected timelines for environmental review, planning, funding, permitting, and construction needed to implement the proposed enhancement measures. All reasonable measures shall be taken to ensure swift implementation to minimize impacts to Park users.
Implementation: The Enhancement Plan shall also identify the entity or entities responsible for implementing each enhancement measure and shall provide documentation demonstrating agreement to implement those measures.

For any components of the Enhancement Plan determined by the Executive Director to require a coastal development permit, the Applicant, in coordination with State Parks, shall submit a complete application for a new or amended coastal development permit within 90 days of the Executive Director's approval of the Enhancement Plan. The Executive Director may extend this deadline for good cause.

If construction of the proposed enhancement measures included in the Enhancement Plan is delayed more than three months after the conclusion of construction activities for the proposed desalination wells and related development, the Applicant shall submit a revised Enhancement Plan explaining the delay and describing what measures will be implemented to assure construction on the campground improvements commences as soon as possible.

5. Mitigation for Marine Life and Water Quality Impacts. PRIOR TO PERMIT ISSUANCE, the Applicant shall provide, for Executive Director review and approval, a Marine Life Mitigation Plan developed in consultation with and approval by the Regional Water Quality Control Board, that includes the following:

a) Mitigation site(s): the Plan shall identify a site or sites that are available to the Applicant and that will provide creation or restoration of at least 7.45 acres of estuarine and/or marine habitat and provide suitable buffers or other site controls to ensure the site(s) can fully support the expected estuarine and/or marine habitat functions and values. The site(s) shall be located as close as is feasible to the Applicant's desalination outfall and no more than 50 miles upcoast or downcoast from that outfall.
b) Site characteristics and baseline assessment: the Plan shall describe the size, existing uses and habitat types, surrounding uses, locations and elevations

relative to other estuarine and/or marine resources, and the presence of any listed or sensitive species on the site(s). The Plan shall also include a baseline assessment of the current physical and ecological condition of the proposed mitigation site.

c) Restoration goals: the Plan shall include a description of the restoration goals that may include, as appropriate, changes to habitat types, hydrology, vegetation types, presence or abundance of sensitive species and wildlife, and any anticipated measures for adaptive management in response to sea level rise or other climatic changes. If the mitigation site is part of a larger restoration site, these goals shall align with the goals of the overall project.

d) Creation/restoration design: the Plan shall describe the proposed mitigation design, including proposed habitat types to be created or restored, site grading needed to ensure the mitigation functions as proposed, planting palette and design (if appropriate) and buffers to be provided to protect those mitigation functions. The design shall accommodate any existing estuarine, marine, or sensitive habitat at the site(s) to ensure there is no net loss of habitat due to the mitigation project. The Plan shall also include an analysis of coastal hazards at the site(s), including those resulting from projected sea level rise, and the Plan shall describe those hazards and the measures incorporated into the creation/restoration design to avoid, minimize, or respond to these hazards in a manner that will allow the type and amount of required habitat functions and values to be maintained.

e) Site management and long-term maintenance: the Plan shall describe all management and maintenance measures necessary to implement and maintain the mitigation area.

f) Performance Criteria: the plan shall identify performance criteria for evaluation of success of the restoration project. The criteria shall be quantitative and shall address, as appropriate, hydrology, habitat areas, vegetation and wildlife.

g) Monitoring and Reporting: the Plan shall identify proposed monitoring measures to assess whether the restoration project is meeting the performance criteria. Monitoring shall be conducted for a minimum of five years. Individual year and cumulative monitoring results and assessment of performance criteria shall be included in an annual report submitted to the Executive Director.

h) Schedule: the Plan shall identify reasonably expected timelines for conducting planning, environmental review, permitting, and construction of the creation/restoration site(s). The schedule is to provide that mitigation be constructed before marine life impacts commence, to the maximum extent feasible. If it is not feasible to achieve this timeline, the Plan shall provide an explanation demonstrating good cause for the delay and a proposed strategy to provide appropriate remedial action for any delay in providing mitigation before facility impacts occur.

i) Legal terms: the Plan shall identify legal instruments – e.g., purchase, deed restrictions, conservation easements, etc. – that will be developed to ensure protection of the mitigation site(s) in perpetuity.

j) If the Regional Board makes minor changes to the mitigation requirement based on required confirmatory studies of marine life impacts, those changes shall be reflected in the final Marine Life Mitigation Plan.

6. Spill Prevention and Response Plan. PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, the Applicant shall submit, for Executive Director review and approval, Project-specific Spill Prevention and Response Plans that address potential spills or releases of hazardous materials during both project construction and project operations. The Plans shall identify worst-case spill scenarios and demonstrate that adequate spill response equipment will be available. The Plans also shall include preventative measures that will be implemented to avoid spills and measures that will implemented should spills occur. The Plans shall specify responsibilities of contractors and project personnel. The Plans shall identify the location of all on- and off-site spill response equipment (including sorbent materials, booms, etc.) that will be available in the event of a spill, and the protocols and expected response times for deployment. The Plans are to clearly identify responsibilities of project personnel and contractors in the event of a spill and shall include necessary contact information for responsible personnel and involved emergency response agencies (e.g., Fire Department, U.S. Coast Guard, etc.).

7. Construction Plans. PRIOR TO STARTING CONSTRUCTION ACTIVITIES, the Applicant shall provide, for Executive Director review and approval, Construction Plans that address construction methods and Best Management Practices ("BMPs") of all project components and that include the following:

a) Construction areas: site plans showing the location of all construction areas, staging areas, fueling areas, and construction access corridors. The areas within which construction activities and/or staging are to take place are to be minimized to the extent feasible to reduce potential impacts to coastal resources.

b) Construction BMPs: the Plans shall identify the type and location of all erosion control and water quality BMPs that will be implemented during construction to protect coastal water quality. Silt fences, straw wattles, filtration equipment, and other similar materials are to be installed and maintained around the perimeter of all construction areas to prevent construction-related runoff and sediment from discharging directly into storm drains or coastal waters. The Plans shall identify all measures that will be used to keep the construction areas physically separate from public recreational use areas, such as using signage, temporary fencing, or other measures to delineate construction areas. The Plans are to also describe all measures that will be implemented to reduce the effects of construction noise and lighting of areas outside the delineated construction areas.

c) Equipment BMPs. Equipment fueling, washing, and maintenance shall take place at a designated hard-surfaced area where any leaks or spills can be contained and collected. All equipment shall be inspected at least daily to identify any leaks or potential leaks promptly. Any fueling and maintenance of mobile equipment conducted on site shall take place at designated areas located at least 50 feet from coastal waters, drainage courses, and storm drain inlets, if feasible (unless those inlets are blocked to protect against fuel spills). Fueling and maintenance

areas shall be designed to fully contain any spills of fuel, oil, or other contaminants. Equipment that cannot be feasibly relocated to a designated fueling and maintenance area may be fueled and maintained in other areas of the site, provided that procedures are implemented to fully contain any potential spills.

d) Good Housekeeping BMPs. The Plans shall describe good construction housekeeping controls and procedures that will be implemented, including cleaning up all leaks, drips, and other spills immediately, keeping materials covered and out of the rain, covering exposed piles of soil and wastes, disposing of all wastes properly, placing trash receptacles on site and covering open trash receptacles during wet weather, and removing all construction debris from the site at least daily.
e) Construction timing: The Plans are to provide a construction schedule identifying the expected duration of construction and the hours and days construction is expected to occur.
f) Construction Coordinators. The Plans shall identify one or more designated construction coordinators at each construction site as the point of contact during construction should questions arise regarding the construction (in case of both regular inquiries and emergencies). The Plan shall provide coordinators contact information, including, at minimum, an email address and a telephone number that will be made available 24 hours a day for the duration of construction and that shall be conspicuously posted at the job site where such contact information is readily visible from areas accessible to the public. The Plan shall require that the coordinators record all complaints received regarding construction activities, including the nature of the complaints, contact information where available (e.g., name, phone number, and email address) and shall require the coordinator to investigate complaints and take remedial action, if necessary, within 24 hours of receipt of the complaint or inquiry. All complaints and all actions taken in response shall be summarized and provided to the Executive Director upon request.

Copies of the approved Plans and of the signed CDP shall be maintained at the appropriate construction site(s) and be available to project personnel and the interested public upon request. All project personnel shall be briefed on the content and meaning of the CDP and the approved Plans prior to their start on project activities.

The Applicant shall implement development in accordance with this condition and the approved Construction Plans. Minor adjustments to the above requirements, as well as to the Executive Director approved Plan, which do not require a CDP amendment or a new CDP (as determined by the Executive Director), may be allowed by the Executive Director if such adjustments: (1) are deemed reasonable and necessary; and (2) do not adversely impact coastal resources.

8. **Assumption of Risk, Waiver of Liability, and Indemnity.** By acceptance of this permit, the Applicant acknowledges and agrees (i) that the site may be subject to hazards from tsunami, storm waves, surges, and erosion; (ii) to assume the risks to the Applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

9. **Geotechnical Study and Seismic Hazards Assessment.** PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the Applicant shall submit, for Executive Director review and approval, a site-specific, design-level Geotechnical Study and Seismic Hazards Assessment. The Plan shall include the following:
   a) Detailed design plans for all project components, including the desalination plant, new water and discharge brine conveyance pipelines, slant wells and wellhead structures.
   b) A site-specific geotechnical and seismic hazards analysis, considering each project location, at a minimum evaluating i) Fault rupture, ground shaking, and liquefaction-related hazards based on current building codes (e.g., CBC 2016), ASCE guidelines (e.g., ASCE 7-16) and other relevant laws and regulation (e.g., Alquist-Priolo Act, Seismic Hazard Mapping Act) and the most current, best available science; and ii) Other potential geologic and geotechnical hazards and concerns.
   c) An engineering analysis, specific to project site/major component, demonstrating that project structures would be designed and constructed to withstand expected levels of ground shaking, liquefaction and ground settlement, lateral spreading, and/or other geologic hazards as determined in the geotechnical analysis, and describing the specific design elements and mitigation measures that would be used to assure the integrity of each structure.
   d) Specific design recommendations and mitigation measures to address the hazards described in (b) and (c) above.
   e) An Inspection and Maintenance Plan describing in detail the types and frequency of inspections and the procedures that will be followed to maintain the flood control elements and structures in good working condition.

   For purposes of the geotechnical, hazards, and engineering analyses described in (a) – (d), above, the proposed project shall be considered a "critical facility" with its components subject to standards of "Structural Risk Category IV where applicable, and evaluated accordingly.

The Permittee shall undertake development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director provides a written determination that no amendment is legally required.

10. **Disaster Response Plan**. PRIOR TO ISSUANCE OF THIS PERMIT, the Applicant shall provide, for Executive Director review and approval, a Disaster Response Plan that describes all structural and operational measures to be implemented as part of the proposed development that will ensure the facility can maintain operations and be accessible during and immediately after any projected hazardous events that may occur at the project locations (e.g., an extreme tsunami, coastal storm, or earthquake). This Plan shall include:
    a) A description of how the Final Project Plans required pursuant to **Special Condition 1** minimize the risks of extreme hazards to the project.
    b) A description of all structural and operational disaster response measures/activities that will be implemented to ensure the project can operate and will not result in negative impacts to coastal resources during or quickly following extreme hazard events including how access to the site will be maintained or quickly restored following a disaster.

11. **Coastal Hazards Monitoring and Response Plan.** PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, the Applicant shall provide, for Executive Director review and approval, a Coastal Hazards Monitoring and Response Plan, the purpose of which is to gather information on erosion and other coastal hazards conditions near the wellhead site to better understand future adaptation needs.

    The coastal hazards response and monitoring plan shall include development of a monitoring program that will be implemented to measure beach width and coastal erosion rates (and/or other relevant hazard conditions) at and near the wellhead sites to provide sufficient notice of when necessary adaptation threshold triggers are nearing or met. Monitoring reports shall be submitted to the Executive Director no less than every five years during the operating life of the project's wells. Reports shall describe monitoring results over the previous five-year period and any measures to be implemented if the risk of exposure or damage is expected within any upcoming five-year period.

    Additionally, the first monitoring report (to be submitted within five years of Coastal Commission action on this permit) shall include:
    - A description of conditions under which the wellheads, subsurface well components, and any related infrastructure could be exposed or damaged due to current and future erosion, wave runup, and flooding, accounting for storm scenarios and sea level rise (including high and extreme SLR projections)
    - A description of adaptation strategies that would be implemented if necessary to address future anticipated coastal hazards risks. Identified strategies shall include removal, relocation, or other modifications that will not require the use of shoreline protective devices, and which will ensure protection of coastal resources consistent with the Coastal Act. The discussion shall also describe the

amount of time various adaptation strategies would need to be implemented, including associated funding, permitting, and construction. Any future modification to project components would require submittal of an application to amend to this permit.

- Identification of beach width or other threshold triggers that will be used by SCWD to determine when any future modifications will need to be implemented to prevent damage or other impacts to project components. Identified triggers shall provide enough time to implement any necessary project modifications, including a minimum five years' notice of erosion rates (or other hazards conditions) that would require such changes.

In addition to monitoring results, subsequent monitoring reports shall describe any necessary updates to identified threshold triggers based on evolving site conditions or best available science, including in particular to address accelerating SLR rates (such as may result from extreme/H++ scenarios).

12. No Future Shoreline Protective Device.

a) By acceptance of this permit, the Applicant agrees, on behalf of itself and all other successors and assigns, that no shoreline protective device(s) shall be constructed to protect the wellheads and related development approved pursuant to Coastal Development Permit No. 9-20-0691 along Doheny State Beach in the event that the development is threatened with damage or destruction from flooding, waves, erosion, storm conditions, sea level rise, or other natural hazards in the future. By acceptance of this permit, the Applicant acknowledges that the project is new construction for which there is no right to construct shoreline protective devices, and hereby waives, on behalf of itself and all successors and assigns, any rights to construct such devices that may exist under applicable law. This subsection, and subsections (b) and (c), shall not be read as presumptively prohibiting changes to the flood walls along San Juan Creek in the vicinity of the plant site.

b) By acceptance of this permit, the Applicant further agrees, on behalf of itself and all successors and assigns, that the landowner(s) shall remove the development authorized by this permit if: (a) any government agency has ordered that the structures are not to be occupied due to coastal hazards, or if any public agency requires the structures to be removed; (b) essential services to the site can no longer feasibly be maintained (e.g., utilities, roads); (c) the development is no longer located on private property due to the migration of the public trust boundary; (d) removal is required pursuant to LCP policies for sea level rise adaptation planning; or (e) the development would require a shoreline protective device to prevent a-d above.

c) In the event that portions of the development fall to the beach before they are removed, the landowner(s) shall remove all recoverable debris associated with the development from the beach and/or ocean and lawfully dispose of the material in an approved disposal site. Such removal shall require a coastal development permit. Prior to removal, the Applicant shall submit two copies of a Removal Plan to the Executive Director for review and written approval. The Removal Plan shall clearly describe the manner in which such development is

to be removed and the affected area restored so as to best protect coastal resources, including the beach and Pacific Ocean.

13. **Flood Hazard Minimization Plan.** PRIOR TO PERMIT ISSUANCE, the Applicant shall provide, for Executive Director review and approval, a Flood Hazard Minimization Plan for the plant site located along San Juan Creek that includes the following:
    - A description of how the Final Project Plans required pursuant to **Special Condition 1** minimize the flood risks to the project and avoid any increase in flood hazards elsewhere in the floodplain.
    - A description of all structural and operational floodproofing measures that will be implemented to ensure the project can operate and will not result in negative impacts to coastal resources in up to a 500-year flood, focusing in particular on any electrical components and hazardous materials that could be affected by such a flood.
    - Documentation showing that the Applicant has coordinated with, and received concurrence from, relevant regional flood agencies that the project does not constrain anticipated future flood risk projects in the San Juan Creek watershed.

14. **Energy Minimization and Greenhouse Gas Reduction.** PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, the Applicant shall submit, for Executive Director review and approval, an Energy Minimization and Greenhouse Gas Reduction Plan that provides the following:
    a) Identifies the expected annual amount of indirect greenhouse gas ("GHG") emissions resulting from the desalination facility's electricity use during its initial year of operations, with provisions to update these expected emissions during each subsequent year of operations. These amounts shall be based each year on the electricity supplier's most recent emission factor for delivered electricity as reported to the California Air Resources Board ("CARB") and/or Climate Action Registry ("CAR") that identifies the tonnes of GHG emissions per megawatt of electricity generated.
    b) For all remaining indirect GHG emissions resulting from facility operations, the Plan shall provide for the Applicant to submit an annual report for each year of facility operations that will identify all measures the Applicant will implement to ensure that the facility operates as "net carbon neutral" on an annual basis. These measures may include carbon offsets or Renewable Energy Credits purchased through CARB or CAR or approved by a California Air Pollution Control District, with reductions achieved using these measures documented by these entities as being "real, permanent, quantifiable, verifiable, and enforceable," pursuant to CARB regulations. Each year's annual report shall be submitted for Executive Director review and approval within 90 days of the electricity supplier's annual documentation to CARB or CAR of its most recent emission factor for delivered electricity. The Applicant may purchase more than one year's worth of offsets or credits, if deemed prudent, to use in subsequent years, but at no time shall the facility be operating with its annual amount of

indirect GHG emissions greater than its purchased offsets or credits for a given year.

c) The Plan may also identify any on-site and project-related measures the Applicant implements to avoid or reduce the facility's indirect GHG emissions – for example, installation of a roof-mounted solar photovoltaic system, use of a fuel cell system, etc. - and describe the amount of emissions avoided through these measures.

15. **Low-Income Ratepayer Impacts Assessment**. Prior to construction, SCWD shall in one year submit, for review and approval of the Executive Director, a report that includes 1) a low-income customer study that identifies low-income customers in the district (using income guidelines of 200% federal poverty level as well as California Assembly Bill 1550 (2016)) and limited English proficiency customers in its service area; 2) recommendations on feasible programming to alleviate cost burdens to low-income customers; , and finally 3) how SCWD will implement feasible programs into its operations. The report will also include a description of the methodology used in its development. The methods must include outreach with culturally appropriate outreach methods that may include digital, paper, and in-person options, and a language access protocol that outlines how materials will be developed such as translation into non-English languages, particularly Spanish, and written in language likely to be understood by a ordinary individual.

16. **Cultural Resource Monitoring During Construction.** Prior to construction, SCWD (or its designee) shall retain a Cultural Resource Specialist ("CRS") that meets the minimum qualifications of the U.S. Secretary of Interior Guidelines (NPS 1983). Prior to construction, SCWD (or its designee) shall additionally retain a Native Monitor representing the Juaneño Band of Mission Indians, Acjachemen Nation- Belardes. The CRS and Native Monitor shall be present during initial deep excavations for pipeline trenches, vaults and desalination facility structures that penetrate below native ground surface. The CRS, Native Monitor, and the Project Construction Manager shall have the authority to halt construction if previously unknown cultural resource sites or materials are encountered. In the event of unexpected cultural resource discovery, the Native Monitor and CRS shall have the authority to redirect ground disturbance under consultation with the Construction Manager.

IV. Findings and Declarations

A. Project Description and Background

The South Coast Water District ("SCWD") proposes to construct and operate a desalination facility in the City of Dana Point ("City") and within Doheny State Beach ("DSB") (see **Exhibit 1** – Project Location and Site Map). The project's primary components include:

- Several slant wells within DSB that would collect seawater from beneath the seafloor to provide source water to the facility;
- A seawater conveyance pipeline between the well field and the facility;
- The desalination facility itself, which would be located just inland of the Pacific Coast Highway in Dana Point at a site owned by SCWD;
- A brine discharge system that would route the facility's effluent to the South Orange County Wastewater Authority's ("SOCWA's") nearby wastewater treatment plant; and,
- Various storage tanks, pumps, electrical components, and other related infrastructure needed to support the proposed project.

These components are described in greater detail below. The facility is designed to produce about five million gallons per day ("mgd") of potable water for use within SCWD's service area. SCWD is also anticipating that it may at some point reach agreements to provide some of this water to other nearby water districts and to later consider a potential future expansion that could allow the facility to produce up to 15 mgd, though this potential expansion is not currently being evaluated and would require additional environmental review and approval of a new or amended CDP. Nonetheless, some of SCWD's currently proposed facility components – primarily the conveyance pipeline that would route seawater from the wellfield to the facility – are sized to accommodate the currently proposed production volume as well as the higher volumes of a potential future project so as to reduce overall project impacts. For example, installing a larger pipeline now that is able to handle five to 15 mgd volumes would result in avoiding future potential impacts that would result from excavating a smaller pipeline and replacing it with a larger one.

Project background and objectives

For about 20 years, SCWD has studied the potential to include seawater desalination in its water supply portfolio. Much of SCWD's long-standing interest in desalination is due to its heavy reliance on imported water – which currently represents about 90% of its supply – and its location relative to the regional water supply systems that supply much of coastal Southern California. Dana Point and the surrounding communities are at the end of the regional water distribution system that delivers water imported from Northern California and the Colorado River, then to northern Orange County, and finally to SCWD through several hundred miles of pipeline systems and reservoirs that cross numerous earthquake faults and are subject to seismic hazards and other disruptions. SCWD's concerns about potential disruption of that water supply, along with its limited options for other nearby or available water supplies resulted in SCWD conducting several studies

and hosting public hearings and workshops to determine how best to develop seawater desalination as a local and reliable baseload water supply and as an emergency supply should those disruptions occur.

SCWD has already implemented several programs or projects to augment its water supply and to make it more reliable. SCWD's Integrated Resources Management Plan emphasizes water conservation and long-term Water Use Efficiency programs, and it has invested in recycled water, groundwater recovery, and water system loss control projects for several years. SCWD also operates a Groundwater Recovery Facility to treat brackish groundwater to drinking water standards using a membrane system similar to that being proposed for its seawater desalination facility.

Even with these programs and projects in place, SCWD remains highly reliant on imported water, and SCWD seeks to increase its local supply reliability through seawater desalination Notably, SCWD has long focused on just those seawater desalination options that would result in the fewest effects on marine life and water quality and has long supported the use of wells and shared outfalls in its studies, which are two of the types of desalination project components strongly recommended under the State's Ocean Plan.

Starting in 2003, SCWD worked with the Municipal Water District of Orange County ("MWDOC") and other nearby water districts to conduct preliminary studies evaluating alternative locations and methods to implement seawater desalination into the area's water supply portfolios. These studies determined that open water intakes commonly used at other seawater desalination facilities would have relatively high costs and substantial environmental impacts, and the focus turned to considering a facility that could use any of several subsurface intake methods that would have lower operating costs and fewer environmental impacts. In 2004, four exploratory boreholes were drilled at Doheny State Beach to determine whether the substrate there might be suitable for slant wells. In 2005, after test results showed strong potential for such suitability, a test slant well was installed and tested. These tests and associated modeling showed that slant wells at this location could withdraw up to about 30 million gallons per day ("mgd") without substantially affecting nearby groundwater resources. After this initial test, in 2008 the parties started conducting longer-term pumping over a 21-month period to further characterize the site's potential and constraints as a source of seawater for a desalination facility. They conducted other tests to identify the water quality characteristics and constructed a pilot plant to determine how best to treat the water and to identify expected discharge characteristics.

In 2016, SCWD published its Foundational Actions Funding Program document, which provided a further evaluation of slant well technology, including a risk assessment for this type of well and results of modeling to predict the expected effects on groundwater and water quality from using slant wells. In 2017, SCWD published its Water Reliability Study that identified reliability concerns in the area and the area's expected future water supply and reliability needs. The Study also evaluated several different types of potential water supply projects to address these reliability concerns. Of the six projects

considered, the study identified this proposed Doheny desalination project as having the greatest benefits for supply and system reliability, the highest resilience to seismic events, climate change, and the uncertainties associated with imported water, and a high level of SCWD control over operations and cost.

SCWD then worked with the San Diego Regional Water Quality Control Board ("Regional Board") to more fully develop, design, and permit a project that would conform to relevant requirements of the State's Ocean Plan applicable to seawater desalination facilities. In early 2022, the Regional Board approved SCWD's proposal and determined that the project would use the best available site, design, technology, and mitigation measures feasible to avoid and minimize the intake and mortality of marine life, as required by the Ocean Plan.

Project Description
The project's main components are its intake wells, conveyance pipelines, and the desalination facility itself, each of which are described separately below.

Well field: The well field would include two wellheads accommodating up to five slant wells that would extract up to about 10 mgd of seawater from alluvial deposits located beneath the seafloor. The project's two wellheads would be located within Doheny State Beach, just south of the mouth of San Juan Creek (see **Exhibit 2** – Project Well Field). Each wellhead would be located within a below-grade cast-in-place concrete vault that would include two or three slant wells, with the eventual configuration dependent in part on geotechnical investigations that would be conducted before construction. Each well would extend from about 600 to 900 feet seaward beneath the beach and seafloor, with the offshore endpoint of each at about 75 to 130 feet beneath the seafloor (see **Exhibit 3** – Slant Well Schematic Diagram). The wellhead vaults would be set back from the shoreline and above the beach to avoid or reduce expected effects of sea level rise and coastal hazards during their expected operating lives. The well field would also include an electrical control building to be constructed nearby that would house various controls. The electric control building would be about 12 feet wide, 15 feet long, and 10 feet high.

SCWD would construct the wells using a dual rotary drilling method, which involves drilling a borehole with the main drilling equipment contained within a large outer casing. The well equipment, gravel packing, and drilling fluids are all contained inside this outer casing, which is removed when construction is complete. This dual rotary method allows for relatively fast drilling within a relatively small footprint, both of which act to further minimize effects on the beach environment.

The wellheads would be located within below-grade concrete vaults containing various pipes, pumping, electrical, and other equipment. The upper surface of each vault would be at grade and would consist of a steel plate with a maintenance accessway, but the entire vault roof would be removable to allow for any large-scale maintenance within.

Once installed, each well would be "developed," which involves pumping water at relatively high rates to clear the wells of sand and other materials that may be within the well casings. Well development would continue for an additional period to clear out the initial "pulse" of subsea marine groundwater, which SCWD anticipates will have relatively high levels of iron and manganese, to allow it to be replaced with "new" seawater that will slowly infiltrate into the wells' sub-seafloor capture zones and will have lower levels of these constituents. During well development, SCWD would discharge the pumped seawater through an existing vault in the campground that discharges to the nearby treatment facility ocean outfall.

Well field construction would occur within, and require the closure of, the Doheny State Beach campground for an expected 18 months or more. Although the wells and vaults have a relatively small footprint and will have a minimal presence once built, the drill rig and other equipment temporarily needed to construct the wells are large enough to require closure of the campground roads. As part of this campground closure, however, SCWD is working with State Parks to combine the construction of the desalination project with a long-planned campground restoration and upgrade project that State Parks anticipated it would conduct several years from now. By combining the two projects, the campground will have one closure period instead of two and the benefits of the campground upgrades will be available sooner to the public. This aspect of the project is described below in Section IV.D – Public Access and Recreation.

Seawater conveyance pipeline: SCWD will also install a new conveyance pipeline to deliver seawater from the wellfield to the desalination facility. This pipeline would follow existing roads and rights-of-ways from the campground, along surface streets and beneath the adjacent SCRRA rail line, then to the facility site (as shown in **Exhibit 2**).

Desalination facility: The facility would be built on a SCWD property currently used for storage that is just inland of the Pacific Coast Highway ("PCH") (see **Exhibit 4** – Facility Layout). The facility would include buildings and structures used for the various typical desalination processes, including pretreatment, chemical storage, reverse osmosis, energy recovery systems, post-treatment water conditioning necessary to meet drinking water standards, and connections to allow off-site disposal of brine. It would also include an administration building that would house offices, a control room, laboratory, conference room, kitchen, and other associated spaces.

Because the facility is expected to serve SCWD as both a local, reliable water supply source and an emergency source of water in the event that any of several hazards cut off or reduce water supplies normally imported to the service area, it is considered a "critical facility" and therefore subject to design and building standards meant to allow the project to operate in the face of any of the projected hazards it might experience. These local hazards, which are described in detail in Section IV.F – Seismic and Coastal Hazards, could result in severe damage to the project if proper design and

building methods are not used.[1] **Special Condition 1** requires SCWD to provide final structural design and building details demonstrating that the project will include all design standards and construction needed to withstand these hazards to the extent feasible.

The facility is expected to have a relatively constant energy demand of about three megawatts, which is roughly equal to 27,000 megawatt hours per year.[2] The facility would use various energy recovery devices to reduce its demands to these levels, and SCWD plans to install a solar photovoltaic system to the extent practicable on part of the facility's rooftop, which it expects will provide about four percent of the facility's electricity. SCWD is also considering alternative power supplies, such as installing natural gas turbines or fuel cells, or participating in a Power Purchase Agreement to use other renewable energy sources. It has committed to partially offsetting the expected greenhouse gas ("GHG") emissions generated by its use of carbon-based electricity sources and relative to its reduction of imported water supplies.

Outfall: SCWD would route effluent from the facility through a new connection to the nearby SOCWA wastewater treatment plant in Dana Point. The Regional Board determined that the outfall has sufficient capacity to discharge the desalination effluent, and that, as a combined outfall, it would be an example of the Ocean Plan's preference for seawater desalination facilities to use existing outfalls, where feasible.

Project construction timing: Project construction would occur over an approximately two-year period. Work within the Doheny State Beach campground would occur over an approximately 18- to 24-month period and would be scheduled to minimize the periods of closure during the campground's peak use summer season to the extent feasible. Each well would be installed and developed using drill rigs specifically designed for slant wells, with each well expected to take about two to three months to complete.

B. Standard of Review

The project would be located partially within the Commission's retained jurisdiction where the standard of review includes applicable policies of Chapter 3 of the Coastal Act. The project would also be partially within the certified Local Coastal Program ("LCP") jurisdiction of the City of Dana Point, where the standard of review would be the applicable policies of that LCP and the public access provisions of the Coastal Act.

For this project, however, the applicant, City, and Executive Director have agreed to review the proposal under the Coastal Act's consolidated coastal development permit

[1] These standards include those known as "Structural Risk Categories" ("SRCs"), which assign design and construction requirements to buildings based on their occupancy, their importance to the community in the event of hazards, and other factors. There are four tiers of SRCs, with Category IV applying to projects such as this that provide critical public services and are meant to operate during and after emergencies and hazardous events.

[2] By comparison, a typical Southern California home uses about six megawatt hours per year.

process pursuant to Coastal Act Section 30601.3. This provides the Commission with the authority to act upon a consolidated permit for proposed projects that require a coastal development permit from both a local government with a certified local coastal program and the Commission. This authority is authorized if the applicant, local government and Executive Director (or Commission) consent to consolidate the permit. As part of its CDP application, SCWD provided documentation from the City concurring with the consolidated permit approach, and the Executive Director agreed to consolidate permit action for aspects of the proposed project that would be carried out in the City's LCP jurisdiction with aspects of the proposed project that would be carried out within the Commission's retained jurisdiction, consistent with Coastal Act Section 30601.3. As a result, the standard of review for this consolidated coastal development permit application is the Coastal Act, with LCP policies used for guidance.

C. Consultations and Other Agency Approvals

Tribal Consultation

In accordance with the Commission's Tribal Consultation policy, staff contacted representatives of several Tribes with interest in the project area. SectionIV.I – Tribal Consultation and Cultural Resources – summarizes this Consultation process and describes the main perspectives and concerns expressed. Consultation also resulted in a special condition (**Special Condition 16**) to address Tribal concerns regarding potential cultural resources at the project site.

State Permits and Approvals

- **California Environmental Quality Act ("CEQA"):** SCWD served as the CEQA lead agency for reviewing the project and certified a Final Environmental Impact Report in June 2019 (SCH #2016031038).

- **San Diego Regional Water Quality Control Board ("Regional Board"):** The project will be subject to relevant requirements of two Orders approved by the Regional Board on March 9, 2022. The Board issued the Orders – No. R9-2022-0005 (NPDES Permit No. CA0107417) and No. R9-2022-0006 (NPDES Permit No. CA0107611) to the South Orange County Wastewater Authority ("SOCWA") to allow discharge of effluent from the proposed desalination facility through the SOCWA's San Juan Creek and Aliso Creek Ocean Outfalls. The Board's approvals include a Conditional Determination of Compliance with Water Code Section 13142.5(b), which provides that any new or expanded industrial facility processing seawater must use the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of all forms of marine life. The project will also be subject to requirements of the NPDES General Permit for Stormwater Discharges Associated with Construction Activity, Order 99-08-DWQ.

- **California State Parks ("State Parks"):** The proposed project will be subject to a Right-of-Entry approval from State Parks and may require other approvals for

various aspects of the project occurring within the Doheny State Beach area or nearby coastal campgrounds.

- **California State Lands Commission ("CSLC"):** The proposed project will be subject to conditions of a State Lands lease for placement of slant wells within State tidelands.

Federal permits and approvals

- **U.S. Army Corps of Engineers ("Corps"):** The project may be subject to the Corps' approval of permits under Section 404 of the federal Clean Water Act and Section 10 of the federal Rivers and Harbors Appropriation Act to allow for the discharge of dredged or fill material or structures into navigable waters of the U.S.

- **U.S. Fish and Wildlife Service ("USFWS"):** As part of the Corps' project review, USFWS would conduct consultation under Section 7 of the federal Endangered Species Act, the Migratory Bird Treaty Act, and the Fish and Wildlife Coordination Act to evaluate the project's potential effects on federally protected species.

- **National Marine Fisheries Service ("NMFS"):** As part of the Corps' project review, NMFS would conduct consultation under Section 7 of the federal Endangered Species Act, Section 104 of the Marine Mammal Protection Act, and Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act to ensure protection of marine life and of Essential Fish Habitat.

- **Federal Emergency Management Agency ("FEMA"):** The project may rely on FEMA's issuance of a Conditional Letter of Map Revision to address any modifications at the desalination facility site that would remove part of the site from the current FEMA-designated identified 100-year floodplain.

Special Condition 2 requires SCWD to provide, prior to permit issuance, documentation that it has received all necessary approvals and permits from the agencies listed above, and that any project changes resulting from these approvals are properly reviewed to ensure ongoing compliance with Coastal Act requirements.

D. Coastal Access and Recreation

Section 30210 of the Coastal Act states:

> In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211 of the Coastal Act states:

> Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30220 of the Coastal Act states:

> Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Introduction

The proposed project has the potential to result in adverse effects on coastal public access and recreation – primarily, through the temporary loss of coastal camping opportunities during the project's wellfield construction. As described in the above project description, key project components would be located within Doheny State Beach, a popular Southern California state park that hosts about a million visitors each year. Constructing and installing the wellfield components – including the project's slant wells, an electrical building, and some of its water pipelines and associated infrastructure – would require an expected18-month closure (though possibly up to 24 months) of the Doheny State Beach campground, which would represent a substantial loss of coastal access and recreational opportunities. Additionally, while the project has been designed to avoid direct impacts to the adjacent and heavily-used Doheny State Beach North Day Use Area, construction activities may create "spillover" noise, visual, or other similar disturbances to members of the public using parts of that Day Use Area or accessing the beach in front of the closed campground from the Day Use Area. Outside the park, construction would also cause temporary delays or detours on several local roads that provide access to the shoreline. During project operations, routine maintenance and repair is expected to cause only occasional and relatively minor adverse effects to public access and recreation. Finally, with all of these project components except the electrical building being at or below grade, the project would be relatively innocuous and cause no more than minimal disruption to the public's ongoing use of Doheny State Beach campground.

Site characteristics
Doheny State Beach provides opportunities for visitors to enjoy a variety of recreational activities. It is a popular surf spot, known particularly as a place for beginners to learn to surf. It provides a campground, picnic facilities, volleyball courts, a visitor center, swimming, and surf fishing opportunities. It is also known for being California's first official state beach when, in 1931, it was donated by Edward Doheny to the state for use by the public.

The Doheny State Beach campground is open year-round and provides a group camping site and 122 individual camp sites, with about a third of the sites adjacent to the beach. Most camp sites are available for use by either recreational vehicle or tent campers, with six sites designated as accessible to persons with disabilities. The sites currently do not include electrical, water, or sewer hookups, but the campground provides restrooms, showers, and a waste transfer station. The current costs for camping are $60 per night for the premium beachside sites and $40 per night for the others.

Project Impacts
The closure of the campground would result in a significant loss of access and recreational opportunities. DSB and other campgrounds in State Parks' Orange Coast District typically are busiest during the peak season, which differs by campground but generally runs from around Memorial Day to Labor Day each year. Based on State Parks' occupancy data, its Orange Coast District's campground occupancy rates are about 89% during peak season and about 72% during off-peak season. Even with the construction timing proposed to minimize disruption during peak seasons, the anticipated 18-month closure of the campground's 122 individual spaces would represent a loss of about 50,000 nights of camping at DSB, based on the campground's most recent occupancy rates, with closure of the group camp site representing an additional unquantified loss of camping nights.[3]

This loss of camping opportunities is somewhat less than the public access impacts that would have occurred under SCWD's original project configuration, which would have resulted in overall longer closures at DSB of both the campground and the North Day Use Area for a period of about two years. In recent months, SCWD worked with State Parks on a project redesign that includes several measures that are expected to further avoid or minimize various impacts to public access and recreation. Several of these measures are provided through a Conceptual Agreement between State Parks and SCWD expected to substantially reduce many of the project's potential impacts. Two key elements of the Agreement are as follows:

[3] An 18-month DSB closure timed to encompass just one peak season – e.g., from October of Year 1 to March of Year 1.5 – would include about 100 days of peak season loss at an 89% occupancy rate and about 445 days of off-peak season loss at a 72% rate, which would be 49,947 lost camping nights ((122 x 0.89 x 100) + (122 x 0.72 x 445) = 49,947). A 24-month closure would result in about 67,000 nights of lost camping opportunities.

- Reduced project footprint: The project as currently proposed has a much smaller footprint than SCWD had previously configured. Until recently, SCWD had anticipated installing wellheads within DSB on both the upcoast and downcoast sides of San Juan Creek. This would have required temporary closures of both the DSB campground and DSB's highly popular North Day Use Area. The previously proposed project footprint would have also resulted in permanent infrastructure in the form of a pipeline to be installed within the lagoon at the mouth of the creek to connect the wellheads.

  The redesigned project now concentrates all development at DSB within the campground on the downcoast side of San Juan Creek. The revised proposed project completely avoids the North Day Use Area and eliminates the need for the pipeline within the lagoon. The development would consist of two wellheads (shown as "D" and "E" on **Exhibit 2**), an electrical building, pipelines, and supporting infrastructure.

- Combined projects: The Conceptual Agreement also provides for SCWD to conduct, as part of its project, a set of improvements and upgrades to the DSB campground that State Parks had long planned but had anticipated would occur several years in the future. By doing the two projects concurrently, there will be a single temporary campground closure instead of two separate closures and the campground improvements will be available to the public sooner.

To address the expected 18- to 24 month campground closure and the resulting loss of access and recreational opportunities, the Conceptual Agreement calls for State Parks to offer additional nearby camping opportunities to mitigate for the temporary closure of campsites at DSB. State Parks has identified two other coastal campgrounds that are subject to seasonal closures and has agreed to keep these sites open during times they would otherwise be closed. These sites include the San Mateo Campground, which is about 10 miles downcoast from DSB and the San Onofre Bluffs Campground, which is about 14 miles downcoast. The San Mateo Campground has 156 campsites, of which 100 are open year-round and 56 are open only during peak season from April to October. The San Onofre Bluffs Campground has 175 total campsites, all of which are open only during peak season from the end of May to September.

Like DSB, these other campgrounds operate close to capacity during peak season and would therefore only minimally alleviate the loss of DSB camping during peak season. However, with the SCWD schedule minimizing the amount of construction that occurs at DSB during peak season and with State Parks able to open these other campgrounds for extended offseason periods, the overall availability of campsites spread over the construction period will be about the same as if the DSB campground remained open. For example, if DSB is closed for 18 months, opening these two campgrounds when they would normally be closed would provide a total of about 59,000 camping opportunities to mitigate for the approximately 50,000 lost camping opportunities that

will occur during the DSB closure. SCWD and State Parks would also coordinate to provide adequate notice to the interested public about the temporary DSB campground closure and of these alternate camping opportunities.

To ensure that these measures are implemented in a manner that maximizes public access to the shoreline, **Special Condition 3** imposes several requirements meant to avoid or reduce the effects of the DSB campground closure, **Special Condition 3** requires that SCWD prepare a detailed Public Access Mitigation Plan that, based on the project's final construction schedule and the occupancy rates for peak and off-peak camping, identifies the expected total number of lost overnight camping opportunities, and then specifies the increased coastal camping and recreational opportunities to be provided that will make up for those lost opportunities, consistent with the measures described in the Conceptual Agreement. These additional opportunities will be created largely through increased seasonal openings at other coastal campgrounds. The Plan will also identify measures that SCWD, in partnership with State Parks, will implement to facilitate opening these additional camping opportunities – for example, identifying funding sources and developing an outreach plan to inform the interested public of the openings. The Plan will also identify any new or modified infrastructure, such as gates or kiosks, needed to implement these openings and to describe what permits and approvals are needed to allow these infrastructure changes. Further, the Plan shall ensure that the openings happen concurrent with, or as close as feasible to, the DSB campground closure.

In addition to the mitigation provided by opening the two campgrounds, SCWD has agreed to implement a number of improvements at DSB campground as part of its project. These improvements are described in the Conceptual Agreement that SCWD developed with State Parks and are meant to enhance the camping experience once the campground re-opens. As noted above, State Parks had planned to provide these improvements as part of a future project, but SCWD's involvement now allows them to be implemented sooner than would occur otherwise and with a single campground closure period instead of two closures.

The Conceptual Agreement calls for SCWD and State Parks to coordinate on providing the following campground improvements and modifications:

- Utility hookups: The DSB campground currently does not provide water, sewer, or electrical hookups at the individual campsites, and these will be provided as part of the planned improvements.

[4] San Mateo Campground is normally closed for about 120 each year during its off-peak season and San Onofre Bluffs Campground is closed during a 248-day offseason. Opening them during those times within the 18-month DSB closure would provide the following: camping opportunities:

San Mateo:	56 sites x 0.72 occupancy rate x 425 off-peak days =	17,136
San Onofre:	175 sites x 0.72 occupancy rate x 333 off-peak days =	41,958
	Total additional camping opportunities:	**59,094**.

- Improvements to access and circulation: The campground's roads, parking areas, and pedestrian/bike paths will be modified to reduce conflicts between users.
- Enhanced interpretation and education areas: The campground's existing interpretive center and amphitheater will be replaced with a new interpretation and education center.
- Improved restroom facilities: The campground's existing restroom facilities will be upgraded.
- Landscape restoration and improvement: SCWD will conduct restoration and replanting of the areas affected during wellfield construction and additional landscape improvements will be made.
- Other improvements: The project will also likely include updated signage, fences, kiosks, and other similar amenities.

At this point, most of these expected improvements are not fully designed and are subject to additional review and planning by SCWD and State Parks, with many of the final details and commitments expected to be included as part of a Right of Entry permit approval from State Parks to SCWD. Further, many of these proposed improvements may be subject to subsequent application by SCWD or State Parks for coastal development permits once their designs are more complete and a full description and assessment can be provided.

To ensure that these improvements occur in a timely manner so as to minimize impacts to public access and are consistent with relevant Coastal Act requirements, **Special Condition 4** requires SCWD to submit, for Executive Director review and approval, a Public Access and Recreation Enhancement Plan that builds on the Conceptual Agreement and specifies the type and number of the new or improved campsite amenities, including the utility hookups to be provided, the improvements to campground roads and pathways, the enhanced interpretive areas, and the others identified improvements.

As an additional public access improvement, and in addition to elements included in the Conceptual Agreement, **Special Condition 4** requires the Plan to identify all feasible measures that will be taken to accommodate the potential future location of an additional segment of the California Coastal Trail ("CCT") into DSB. This adjacent stretch of CCT routes trail users along a busy section of the Pacific Coast Highway and away from the shoreline. Although there is not currently a plan to provide an additional CCT route to within the campground or closer to the shore within other parts of DSB, there are likely to be future opportunities to better accommodate trail users by adding a CCT segment away from the Highway – for instance, during future projects within DSB or nearby areas needed to adapt to sea level rise or coastal erosion concerns. **Special Condition 4** requires that the improvements planned by SCWD and State Parks maintain a connection between the campground trails and the existing CCT to facilitate future location of the trail if feasible and appropriate. This is also in recognition of State Parks being one of four partner agencies with the Coastal Commission that support the continued expansion and improvement of the CCT.

To further maximize public access to the shoreline, the Plan shall identify measures that will provide maximum feasible access to DSB for the area's underserved or lower-income communities. Adding electrical, water, and sewer connections at all or some of the campsites would represent a significant improvement in the available amenities but may also result in a higher daily fee. To address the potential that campground improvements may reduce access and affordability for some users, **Special Condition 4** requires that the Enhancement Plan identify feasible measures to maintain existing fees or reduce the anticipated future fees in a manner that provides opportunities for lower-income individuals to experience camping at DSB. These measures may include construction of low-cost campsites or shelters, implementing a fee schedule that accommodates lower-income campers, assigning a percentage of campsites to be available at a lower fee, conducting outreach in different languages to notify the public of these opportunities, and other measures.

The Plan shall also identify the responsible parties for implementing its different measures, identify those measures that will require a coastal development permit or other approvals, and include a schedule that provides the expected timelines for environmental review, permitting, and implementation of the various measures.

Conclusion
As described above, and with implementation of **Special Conditions 3** and **4**, the project would be carried out in a manner that would protect coastal access and recreation opportunities under the Coastal Act. The Commission therefore finds that the proposed project, as conditioned, is consistent with the coastal access and recreation sections (Sections 30210, 30211, and 30220) of the Coastal Act.

E. Marine Resources and Water Quality

Section 30230 of the Coastal Act states:

> Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act states:

> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of

ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Seawater desalination projects generally involve four main types of adverse effects to marine life and water quality: 1) those associated with the selected intake method used to provide seawater to the facility; 2) those associated with how the facility's effluent is discharged back into the ocean; 3) those that occur during project construction; and 4) those that occur at the facility during ongoing project operations. With this project, however, SCWD's selection of slant wells as its intake method essentially eliminates potential intake-related effects on marine life and water quality, and its choice to use an existing wastewater outfall to discharge its effluent greatly reduces the project's potential effects on those same resources. The project also includes several mitigation measures that will avoid or reduce potential impacts during construction and operations. These aspects of the project, its mitigation measures, and the Special Conditions required to allow conformity to relevant Coastal Act policies regarding protection of marine life and water quality are described separately below.

Intake method

SCWD selected a project site and design that allows for the use of slant wells as its intake method. This type of well is installed from land at an angle so that it extends to beneath the seafloor where it pulls in water from the underlying substrate (see **Exhibit 3**). Properly designed and operated, they essentially eliminate impacts to marine life during desalination operations. By pulling water in at an almost imperceptible rate through sub-seafloor sediments, they eliminate the impingement and entrainment effects generally caused by intakes that pull water directly from the open water column.[5]

Slant wells can be located only where the substrate beneath the ocean floor provides enough permeability to allow seawater that has naturally percolated through the seafloor to be drawn in to the well and to be replenished from the water column above. The most suitable locations are often near the mouths of coastal rivers and creeks where alluvium has been carried downstream for millennia to create a substrate within the ocean floor with the necessary permeability. Along with avoiding marine life impacts and thereby avoiding the need to provide compensatory mitigation for those impacts, SCWD also benefits from the natural filtering provided by the overlying substrates, which helps reduce the pre-treatment costs, energy demands, and chemical use commonly experienced by a typical seawater desalination facility that uses intakes in the open ocean water column. Importantly, in selecting this site, SCWD also met the requirement of the state's Ocean Plan, as determined by the San Diego Regional Water Quality Control Board ("Regional Water Board"), that a seawater desalination facility's

[5] Impingement occurs when the velocity of water being pulled into an intake traps fish or other large marine organisms against the intake screen where they are killed or injured. Entrainment occurs when smaller organisms are pulled with the ocean water through an intake screen where they are killed due to the stressors within the intake system and facility, such as temperature or pressure changes, chemicals, shearing forces, or others.

location must avoid and minimize the intake and mortality of marine life to the extent feasible.[6]

Discharge method and its impacts to marine life

SCWD has partnered with the South Orange County Wastewater Authority ("SOCWA") to allow the desalination facility's effluent to be routed through the SOCWA's existing San Juan Creek Ocean Outfall, which serves SOCWA's wastewater treatment facility located in Dana Point. The outfall extends to about two miles offshore and discharges about 100 feet below the water surface. It terminates at a several hundred-foot long diffuser system that includes about 100 diffuser ports spaced along its length, which allows the discharged effluent to mix more rapidly within the ocean water column.

The Regional Board determined that the outfall has sufficient capacity to handle the desalination facility's discharge of about five million gallons per day and further determined that combining the desalination discharge with the other effluent would reduce the overall water quality impacts that might result from two separate discharges. Part of the advantage of combining these discharges is that adding the highly saline desalination facility effluent to what is essentially a "fresh" or non-saline wastewater effluent allows the combined discharges to mix more quickly in the ocean, thereby reducing the area of ocean water that experiences water quality exceedances. Additionally, although SCWD has not yet determined the facility's final operating design parameters, the project's use of subsurface intakes is likely to result in its effluent carrying a lower chemical burden than is present in effluent from desalination facilities that use open intakes, since the slant wells naturally provide much of the filtering and pretreatment that is otherwise carried out through the use of various chemicals and flocculants. Further, for this project, the discharge occurs in water depths that allow the saline desalination effluent can fully mix into the seawater before it reaches the ocean floor, so it does not create a benthic "dead zone" on the seafloor.

Nonetheless, adding the desalination effluent to the existing wastewater system will result in some adverse impacts to marine life and water quality due mostly to the higher overall velocity of the combined effluents going through the diffuser system – that is, adding the approximately 5 mgd of desalination effluent to the system creates an additional velocity impact that would otherwise not occur. The outfall's diffusers are designed so that effluent enters the ocean at a high enough velocity to ensure rapid mixing within the ocean water column; however, those velocities are strong enough to create shear forces in the water column that cause mortality to some of the small marine life passing by in the ocean water close to the diffusers. The Regional Board's evaluation of this impact, which was based on methods identified in the State Ocean Plan, determined that the contribution of the desalination effluent would generate velocities causing mortality to several species of planktonic marine life. The Board determined that the overall impact, characterized as the Area of Production Foregone ("APF"), would result in marine life losses that could be mitigated by the creation or restoration of about 7.45 acres of marine or estuarine habitat.

[6] See Regional Board Orders #R9-2022-0005 and #R9-2022-0006.

An APF is calculated based on the amount of marine life mortality that results from a facility's intake or discharge impact as a proportion of the marine life present within a "source water area," which is the area of ocean water that has the potential to be affected by the facility. The APF expresses, in acres, how much additional area of nearby ocean water and habitat it would take to produce the type and number of marine organisms lost due to impacts -- in this case, due to the shear forces associated with an outfall diffuser system. Each affected species may have its own APF based on the length of time individuals of each species would be at a size subject to being killed due to discharge effects or the speed of ocean currents that move these species to within the area near the discharge where marine organisms could be affected, among other factors. The APF is derived from the Empirical Transport Model, which is the method specified by the Ocean Plan for identifying the extent of marine life losses caused by a facility. For the Doheny discharge, the Regional Board determined that losses of the main species affected by the discharge would result in APFs ranging from about one to 47 acres, with this range reflecting the size and duration differences among the species, as noted above. For this project, the Board also considered the potential ranges and proportions of effluent volumes the wastewater and desalination discharges would contribute to the overall effluent velocities under different operating conditions. In accordance with requirements of the Ocean Plan, the Board determined that the desalination effluent would result in an overall APF that would require SCWD to provide 7.45 acres of suitable mitigation. Because SCWD's study used somewhat different methods than the typical studies the Regional Board uses to determine these types of impacts, the Board's approval also requires SCWD to conduct a confirmatory study supporting this preliminary conclusion, results of which may necessitate more or less mitigation than the currently required 7.45 acres.

Mitigation required for discharge impacts: The Board's approval required SCWD to mitigate for the project's discharge-related impacts by conducting mitigation within the Los Cerritos Wetlands Recovery project site along the Los Angeles/Orange County border about 50 miles north of the proposed project site. This restoration project is being conducted by the Los Cerritos Wetlands Authority ("LCWA"), a governmental entity created in 2006 through a joint powers agreement among the California Coastal Conservancy, the Rivers and Mountains Conservancy, and the Cities of Long Beach and Seal Beach. The Los Cerritos site includes several hundred acres of remanent wetlands and developed areas, much of which is now planned to be part of a multi-phase and multi-year wetland restoration project.

Until recently, SCWD had planned to fund part of the work needed to complete early phases of the wetland restoration on a portion of the Los Cerritos site; however, in September 2022, the LCWA instead received adequate funding from other sources to fully complete the first phase of the restoration project, making it unavailable to SCWD

[7] For example, while the desalination facility would produce a relatively steady effluent volume, the effluent volume from the wastewater treatment facility varies significantly by time of day and seasonally, so the proportional contribution of each would result in different volumes contributing to this adverse velocity effect.

as mitigation. As a result, SCWD will need to identify a different mitigation project to compensate for marine life impacts. Given the relatively small acreage required to compensate for impacts from the proposed project, it should be possible to quickly identify feasible and appropriate alternatives. Commission staff, in discussions with SCWD and other agencies, preliminarily identified at least three sites that could provide suitable mitigation for SCWD's impacts. These include a mitigation bank adjacent to the Los Cerritos site that is being developed by the Beach Oil Mineral Partners ("BOMP") and for which the Commission has approved a coastal development permit (CDP 9-18-0395) and authorized the Executive Director to become a signatory. Another is the Newland Marsh restoration site in the City of Huntington Beach, which is an approximately 40-acre site owned by the Huntington Beach Wetlands Conservancy that has a preliminary restoration plan already in place. One additional opportunity is the restoration of the Aliso Creek estuary, which is a 6.5-acre estuary just downcoast in Laguna Beach, which has a completed conceptual restoration design in place. SCWD would need to address a different set of issues and concerns at each site, but all three would appear to allow for completion of suitable, feasible, and timely mitigation.

To ensure the project's impacts to marine resources are fully mitigated, **Special Condition 5** requires that SCWD prepare a Marine Life Mitigation Plan that identifies a site or sites that will provide for creation or restoration of a minimum of 7.45 acres of estuarine or marine habitats. More specifically, it requires SCWD to describe the existing characteristics of site, define restoration goals, develop a restoration plan and describe necessary site management and maintenance measures. Furthermore, SCWD will need to define performance criteria and propose a monitoring and reporting strategy to assess success of the restoration project towards the defined goals. Finally, **Special Condition 5** requires SCWD to include a schedule for implementation of the mitigation project that provides for the completion of construction of the mitigation project prior to onset of marine life impacts, to the maximum extent feasible. If this timeline is not achievable, SCWD will be required to provide an explanation demonstrating good cause for the delay and a proposed strategy to provide appropriate remedial action for any delay in providing mitigation before facility impacts occur.

The required Marine Life Mitigation Plan will be developed in consultation with the Regional Water Quality Control Board and will require the Regional Board's approval. In addition, the Plan will need to reflect any changes to the final mitigation acreage requirement that are identified by the confirmatory study that was required by the Regional Board.

Construction-related effects

While SCWD's selection of slant wells as the facility's intake method avoids intake impacts to marine life and water quality, construction of the wells near the beach and to coastal waters has the potential to adversely affect marine resources, water quality and

[8] While subsequent phases of the LCWA restoration project might later be available to SCWD, they are not far enough along in the planning and design process to provide a feasible mitigation option for SCWD's current mitigation needs.

the biological productivity of those coastal waters. While the project would not require in-water construction, most of the slant well construction activities would involve the use of heavy equipment and take place on land adjacent or close to coastal waters where construction activities could result in accidental releases or spills of fuel or other hazardous materials. Similarly, construction of the desalination facility at a location adjacent to the lower reaches of San Juan Creek just upstream from the ocean has the potential to cause adverse impacts to water quality and other coastal resources.

SCWD plans to construct the two wellheads at a location as far from the beach as feasible but close enough to the shoreline to allow the slant wells to extend a sufficient distance under the seafloor so that they can collect the needed amount of water. Each of the two wellhead construction sites and locations for the project's drill rig would be about 130- by 75-feet and enclosed within temporary fencing. Other construction equipment would be staged and stored within the campground, but away from the open beach area.

The wellhead/vault systems would be located slightly inland from the beach and at a slightly higher elevation, both of which reduce the risk of coastal hazards and beach erosion (see additional information in Section IV.F – Coastal Hazards). The final location of each wellhead/vault will be based on additional geotechnical analysis to be done at the site closer to the start of construction to ensure that the wells can reach seaward to the desired sub-seafloor alluvial deposits.

Because well construction will require the use of heavy equipment and vehicles, it would involve the risk of spills or releases of fuel, oil, and other hazardous materials. To avoid and minimize the potential for spills, **Special Condition 6** requires SCWD to submit a Spill Prevention and Response Plan that identifies all measures that will be implemented to avoid potential spills and to properly respond to any that do occur. Similarly, construction of the facility near San Juan Creek would have the potential for spills and **Special Condition 6** requires SCWD to submit a similar plan to address these issues during construction at that location.

All facets of the project's construction would also be required, through **Special Condition 7**, to adhere to a number of construction Best Management Practices ("BMPs") identified in plans to be developed by SCWD. These BMPs are to include measures such as proper debris and trash removal, proper equipment fueling and maintenance done in a way to avoid spills, training of project personnel, and other similar measures meant to avoid and reduce potential effects on coastal resources.

Operational effects

Facility operations would involve the use of heavy equipment, machinery, and vehicles, and would require onsite storage of chemical used in the production of drinking water, all of which involve the potential for spills and releases. The facility will be subject to standard NPDES permit conditions regarding stormwater controls, though the requirements of **Special Condition 6** regarding spill prevention and response also

apply to facility operations to minimize the risk of spills and to ensure adequate response should they occur.

Conclusion

Although the Commission finds that the proposed project has the potential to adversely impact marine resources, water quality, and the biological productivity of coastal waters, with implementation of **Special Conditions 6** and **7**, the project would be carried out in a manner in which marine resources and water quality are maintained, species of special biological significance are given special protection, the biological productivity of coastal waters is sustained, and healthy populations of all species of marine organisms will be maintained. In addition, the proposed project, as conditioned, would maintain the biological productivity of coastal waters appropriate to maintain optimum populations of marine organisms. The Commission therefore finds the proposed project, as conditioned, consistent with the relevant marine resource and water quality protection provisions of the Coastal Act.

F. Seismic and Coastal Hazards

Coastal Act Section 30250 states, in relevant part:

> New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.

Coastal Act Section 30253 states, in relevant part:

> New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard. (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, 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 proposed project would be located in an area subject to several types of coastal, seismic, and other hazards. These hazards are described separately below, along with an evaluation of design and mitigation measures included in the project and those necessary to allow for Coastal Act conformity. To generally address the risks associated with these hazards, **Special Condition 8** provides, among other things, that SCWD acknowledges and assumes the risk of siting its project at locations subject to these potential hazards.

Seismic

The Coastal Act requires that proposed development assure stability and structural integrity, which for this proposed project means that it must be able to adequately withstand anticipated seismic forces to allow it to continue functioning as a critical facility providing water to the SCWD service area.

Like most of coastal Southern California, the project sites lie in an area subject to earthquakes and relatively severe seismic hazards. Although none of the project components are located on or near any known active fault, the project is located within 60 miles of numerous major, active fault systems capable of producing large earthquakes and strong ground-shaking in the project area. The most acute seismic hazards at the site stem from the Newport-Inglewood Fault Zone (NIFZ), a series of northwest-trending, right-lateral, strike-slip fault segments extending from the southern edge of the Santa Monica Mountains to offshore of southern Orange County, where the NIFZ merges with the Rose Canyon fault occurring offshore of San Diego County. At its nearest, the NIFZ is approximately three miles offshore of the project site. Movement along this fault system has generated a number of earthquakes in recent history, most notably the magnitude (M_w) 6.4 1933 Long Beach earthquake, which occurred along a trace of the NIFZ offshore of Huntington Beach. The 1933 earthquake caused 120 fatalities and extensive structural damage in Long Beach and other communities but is not considered to represent the largest earthquake that could occur along this fault system. The USGS estimates that the NIFZ has an approximately 1% chance of generating an earthquake of M6.7 or greater in the next 30 years, with a maximum event of up to M7.4 (Field et al. 2013); more recent paleoseismic and modeling studies of this fault system suggest that an “end-to-end” rupture along the full Newport-Inglewood/Rose Canyon fault system may be capable of producing M7.4 - 7.6 earthquakes (Leeper et al. 2017; Sahakian et al. 2017). While the most severe seismic hazards at the project site are associated with the NIFZ, other nearby faults, both inland and offshore, appear to have higher average slip rates, implying greater potential for activity, and could also produce strong ground-shaking in the project area. In combination, these local and regional active faults are responsible for a number of seismic hazards at the project sites including ground shaking, liquefaction and ground settlement.

As discussed in greater detail in the applicant’s Preliminary Geotechnical Study,[9] a major earthquake (>M6.0) on one of the many local or regional faults considered would produce strong ground shaking[10] at the project sites, with potential to damage buildings,

[9] Ninyo & Moore, Preliminary Geotechnical Study, Doheny Desalination Project Beach Facilities, South Coast Water District, Dana Point, California, February 5, 2015.

[10] Seismic hazards are often discussed in terms of the strength or intensity of ground shaking rather than earthquake magnitude. Measures of ground-shaking account for the attenuation of seismic waves due to distance from a rupture and amplification or damping due to substrate types (e.g., soft sediments vs. hard

plant structures, pipelines, slant wells, or other project components. The Preliminary Geotechnical Study included a preliminary site-specific ground shaking hazard analysis in accordance with the California Building Code (CBC 2013) and American Society of Civil Engineers (ASCE 7-10) standards applicable at the time. The analysis consisted of a review of available seismologic information for nearby faults and performance of probabilistic and deterministic seismic hazard analyses to develop acceleration response spectrum curves for the site. The probabilistic analysis was performed for earthquake hazards having a 2% chance of being exceeded in 50 years (2,475-year average recurrence interval event), while the deterministic analysis modeled the potential ground motions for a M7.1 earthquake on the NIFZ three miles offshore the project site. A peak ground acceleration (PGA) of 0.57g was estimated for the project sites, assuming "Site Class D (stiff soil)" conditions that reasonably approximate the alluvial soils beneath the site.

Ground shaking of this strength has the potential to induce soil liquefaction, dynamic settlement and lateral spreading at the site, posing further threats to project elements. Liquefaction a phenomenon in which unconsolidated granular soils (typically silts and sands) located below the water table experience sudden loss of shear strength when subjected to strong seismic ground shaking. Under saturated or near-saturated conditions, strong, sustained ground shaking results in a rapid increase in pore water pressures and thus a loss of grain-to-grain contact, causing temporary fluid-like behavior in the affected sediments. Liquefaction typically occurs in saturated, low-cohesion sediments at depths of less than 50 feet below the ground surface. Due to the deep, unconsolidated alluvial sediments – interbedded deposits of sand, silt, clay, gravel and cobbles laid down over time by San Juan Creek – and shallow groundwater underlying the project area, each of the project sites is located with a mapped liquefaction hazard zone.[11] The liquefaction analysis contained in the Preliminary Geotechnical Study was qualitative but cited previous studies for projects located in the near vicinity indicating that liquefaction could result in dynamic ground settlement ranging from approximately 2 to 14 inches. Differential settlement of this magnitude could pose potential threats to project infrastructure (e.g., buildings, pipelines) unless proper design measures are implemented. The Preliminary Geotechnical Study also noted the potential for lateral spreading – a liquefaction hazard resulting in the lateral movement of the ground – at the proposed plant and slant well sites, where there are existing "free-face" slopes along the San Juan Creek channel and beach frontage, respectively.

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rock) and thus provide a better estimate of the amount of damage that may occur at a given site. Ground shaking is often expressed as the *acceleration* experienced by an object during an earthquake. The *spectral acceleration* occurs at different oscillation frequencies, which can be plotted to form a ground shaking *response spectrum*. The *peak ground acceleration* (PGA) is a measure of is the maximum force (expressed as a % of the acceleration of gravity, *g*) experienced by a small mass located at the surface of the ground during an earthquake. PGA is often used in seismic design as a hazard index for short, stiff structures.

[11] California Geological Survey, "Earthquake Zones of Required Investigation, Dana Point Quadrangle, Official Map, December 21, 2001.

As noted above, the California Building Code (CBC 2019) requires that all buildings, structures and non-structural components (e.g., architectural, mechanical, electrical and plumbing equipment) be designed and constructed to resist the effects of earthquake motions in accordance with design loads and other requirements contained in the most current version of the ASCE 7 standards (ASCE 7-22). CBC Section 1613 and ASCE 7 lay out specific procedures for determining seismic design criteria for different site classes (determined by soil properties) and structure/component risk categories based on probabilistic and deterministic analysis of seismic loading (i.e., ground acceleration) for a specific location. The CBC also mandates quantitative analysis of and design for potential liquefaction hazards at a project site. It is anticipated that SCWD will conduct a site-specific, design-level geotechnical study to inform the seismic and structural design of the proposed facilities prior to construction, and to identify necessary measures to avoid and minimize the identified site-specific seismic hazards. For example, in general terms, liquefaction hazards at the project sties can be mitigated through some combination of avoiding liquefiable zones, in-situ ground improvements (e.g., soil densification, compacted fill), structural improvements, and/or use of deep-pile foundations extending through the liquefiable zones. However, neither the exact locations and severity of such seismic hazards, nor the necessary project design changes to address them, have yet been identified.

Additionally, because the proposed facility would serve SCWD as a component of its regular water supply and as an emergency source of water, it is considered by the Commission to be a critical facility. As such, it is subject to design and building standards meant to allow the project to continue to operate in the face of the severe seismic hazards it might experience, discussed above. The site-specific, design-level seismic hazards assessments must take into account the project's status as a critical facility, and evaluate hazards and make design recommendations accordingly (e.g., by applying standards applicable Risk Category IV structures).

In order to assure the stability and structural integrity of project structures and minimize hazards related to seismic ground shaking, liquefaction and ground settlement, the Commission is requiring **Special Condition 9.** This condition requires SCWD to submit, for the Executive Director's review and approval, a site-specific, design-level Geotechnical Study and Seismic Hazards Assessment which includes the following components: (1) Project plans depicting the final locations and dimensions of all new significant structures, including buildings, pipelines, storage tanks, walls and berms; (2) design-level geotechnical analyses, specific to each project site, evaluating ground shaking and liquefaction-related hazards based on current building codes and ASCE guidelines and the most current, best available science, and recommending specific design and mitigation measures to address these seismic hazards; (3) engineering analyses, specific to each project site and the structures proposed for those sites, demonstrating that project structures would be designed and constructed to withstand expected levels of ground shaking, liquefaction and ground settlement, and lateral spreading, as determined in the geotechnical analysis, and describing the specific design elements and mitigation measures that would be used to assure the integrity of

each structure; and (4) a repair and maintenance plan detailing the measures that would be implemented to maintain to assure that all significant structures would continue to perform according to their design bases during an earthquake. These required elements shall assume that the proposed project represents a critical facility (Risk Category IV) and apply appropriate standards in the analysis and design.

Additionally, and given the potential for seismic events and other hazards described below affecting the facility, **Special Condition 10** requires SCWD to prepare a Disaster Response Plan that identifies measures it will implement to assure the facility can continue to operate and that project personnel can access the facility and appropriately respond to any coastal resource impacts that may occur,.

Tsunami-related Hazards
The proposed site for SCWD's desalination facility site appears to be sufficiently elevated to avoid most tsunami-related effects. However, the proposed wellhead sites just inland of and only slightly higher than the beach, could be adversely affected by tsunami inundation or by the scour that can accompany a tsunami.

SCWD evaluated tsunami-induced erosion, runup, and inundation under both present and expected future sea levels. The primary tsunami scenario considered was based on a two-meter high solitary wave that could be generated by a major landslide on the east side of San Clemente Island, about 59 miles offshore. This scenario is meant to represent an extreme condition, though it has no probability assigned to it – e.g., it does not necessarily represent a 100-year or 500-year event. SCWD's consultant, Michael Baker International ("MBI"), modeled the tsunami wave in the nearshore zone to account for the potential shoaling and then determined maximum total water level elevations (TWLs) which were then used to map potentially vulnerable areas within the project area and beyond. The study estimated this scenario's TWL under current sea levels to be 15.3 feet above the North American Vertical Datum of 1988 (NAVD88) and, using an additive approach to evaluate future sea levels of +7.1 feet higher, estimated a TWL of 22.4 feet. Under this future sea level rise scenario, all wellheads would be inundated by tsunami flow. The MBI study also looked at the potential for tsunami-induced erosion, estimating that as much as 12 feet of beach sediment cover could be eroded in a single tsunami event. However, MBI also concluded that the wellheads could be designed with the proposed steel vaults to withstand the tsunami inundation if foundations were sufficiently deep to account for potential scour.

For evaluating the facility location, the best available statewide tsunami hazard mapping can be found on the American Society of Civil Engineers (ASCE) Tsunami Design Geodatabase (TDG). The ASCE 7-22 TDG for the Dana Point area includes mapping funded by the California Geologic Survey (CGS) that was developed using relatively high resolution modeling of tsunami conditions developed through probabilistic tsunami hazard analysis. The ASCE 7-22 TDG provides information about tsunami hazards for the 2,475-year event, which is the maximum considered tsunami used in the design of critical infrastructure and has a two-percent probability of occurring over a 50-year design life. The TDG does not consider sea level rise and represents tsunami hazards

during a mean high water tide condition. The ASCE 7-22 TDG provides a valuable and necessary source of information to verify that a project site will not be sited in an area of extreme tsunami hazard. The TDG shows tsunami runup elevations around the site varying from approximately 19.5 to 26 feet NAVD88 with little to no inundation occurring on the project site. The TDG shows limited inundation of the areas to the east and north of the site, suggesting that routes critical to accessing the site would remain usable after a tsunami.

For the wellhead locations, the potential exists for extreme scour and widespread damage, particularly with a 2,475-year tsunami event. As conditioned by **Special Condition 1**, the wellheads will be designed to minimize the risk of direct damage and **Special Condition 10** will ensure that SCWD provides plans describing how it will maintain and recover facility services during and after a hazardous event.

Coastal Flooding and Erosion

The proposed project includes several major components located on or near Doheny State Beach. Much of Doheny State Beach is made up of what was once a dynamic river mouth of San Juan Creek that has since been fixed by development, including channelization of the Creek's lower reach. These shoreline components are of the most concern for coastal flooding and erosion which are expected to worsen with sea level rise. MBI conducted an updated Coastal Hazards Analysis in 2019 that evaluated hazards related to wave-related flooding as well as both seasonal and long-term beach erosion, including the effects of sea level rise. The study evaluated both current conditions as well as a range of sea level rise projections ranging from +2.0 to +7.1 feet. Additionally, the project's Final EIR considered model results from CoSMoS[12] using its +1.6, +6.6, and +16.4 feet sea level rise scenarios. Using the Ocean Protection Council's (" OPC's") 2018 sea level rise projections for the nearby La Jolla tide station, sea level rise projections for 2070 range from +2.0, +3.6, and +5.2 feet for the low, medium-high, and extreme risk aversion ("H++") scenarios. For 2100 these increase to +3.6, +7.1, and +10.2 feet respectively. While the Coastal Hazards Analysis did not directly consider H++ projections for 2100, the supplemental analysis of CoSMoS model results for the more extreme +16.4 feet projection help provide the information needed to evaluate low-likelihood but high-consequence events consistent with the Commission's guidance on sea level rise planning for critical infrastructure.

MBI evaluated TWLs for extreme wave conditions along Doheny Beach by analyzing 15 of the largest storm events on record (through 2010) and selecting the January 17-18, 1988 event as a the 100-year event. This event, which caused significant damage along the Orange County coastline, has commonly been used to represent extreme wave conditions in local coastal engineering design considerations. MBI estimated TWLs for eroded and accreted beach conditions to capture the range of potential beach slopes, a

[12] CoSMoS is the "Coastal Storm Modeling System" developed by the U.S. Geological Survey to make detailed predictions of several types of coastal hazards, including storm-induced coastal flooding, erosion, and cliff failures. The Commission has used CoSMoS as a tool to help identify predicted future conditions at numerous locations along the California coast and to anticipate and manage expected effects on coastal resources.

key parameter in wave runup models. MBI estimated 100-year TWLs of 13.1-14.8 feet NAVD88 for present sea level conditions, 16.7-18.4 NAVD88 for +3.6 feet of sea level rise, and 20.2-21.9 feet NAVD88 for +7.1 feet of sea level rise. The proposed Wellheads D and E sit at around 18 feet NAVD88 and so would have the potential for wave overtopping to occur during extreme wave conditions with sea level rise. The FEMA VE Zone at Wellheads D and E, which represents an estimate of the (current) 100-year TWL, is 19 feet NAVD88. This suggests that MBI's analysis may be an underprediction of current and future wave hazards at the site. Regardless, SCWD plans to design and construct the wellheads to accommodate periodic wave overtopping, largely through the use of concrete and steel vaults. While access to the wellheads may be limited during extreme wave conditions, access could be quickly restored during low tide conditions.

GHD also evaluated the CoSMoS flood model results for +1.6, +6.6, and +16.4 feet of sea level for the project area. The flooding extent represents areas that would be inundated for prolonged periods, not necessarily the shorter duration wave overtopping considered by TWLs. The analysis suggests that the wellhead sites are located on areas high enough in elevation to avoid prolonged periods of coastal sustained flooding for up to +6.6 feet of sea level rise; however, these areas could be significantly flooded under more extreme, long-term sea level rise such as the +16.4 feet scenario considered in CoSMoS.

In terms of coastal erosion, MBI analyzed beach change and the potential for seasonal and long-term beach erosion with sea level rise, however this was primarily focused on determining how beach change influenced coastal flooding. GHD also evaluated shoreline change for the project through an analysis of available aerial imagery, with the most recent image from 2016. The broad conclusion by both GHD and MBI was that the beach in this location was in a relative state of equilibrium due to its location directly adjacent to the river mouth. GHD also included an analysis of model results from CoSMoS-COAST shoreline change model for shorelines at Year 2100 for various sea level rise increments, which show approximately 250 feet of shoreline recession and with 6.6 feet of sea level rise. Depending on future sand input from San Juan Creek, the proposed wellhead sites could be vulnerable to coastal erosion and undermining during the life of the project, particularly with more accelerated sea level rise of +3.6 feet by 2070 where shoreline recession of over 100 feet could occur and leave the wellheads vulnerable to seasonal or storm-induced erosion within the project's expected 50-year operating life.

Due to the relatively high degree of uncertainty about projected shoreline change in this area and the potential for the wellheads to be affected during their expected design life, a future reevaluation of coastal hazards and adaptation plan is warranted to ensure ongoing consistency with the Coastal Act's hazards and armoring policies. **Special Condition 11** requires SCWD to develop a coastal hazards response and monitoring program. This program would include the identification of beach width or other threshold triggers that will provide adequate notice to allow the SCWD to implement adaptation strategies for the well heads – including through modification, relocation, or removal – to avoid their damage and to ensure the project would not need future installation of

shoreline protective devices. Further, the program includes development of a monitoring protocol to better understand beach change at the project site and to ensure that identified threshold triggers will recognized. Additionally, **Special Condition 12** prohibits the future use of shoreline protective devices consistent with Section 30253 of the Coastal Act to ensure that the project, and any future modifications necessary to reduce coastal hazard risks, will not result in negative impacts to the beach.

Flooding along San Juan Creek
As noted previously, the desalination facility would be located adjacent to San Juan Creek in an area of designated floodplain. It would therefore be subject to several types of riverine flooding events.

Fluvial flooding, also known as riverine flooding, is driven by intense flow of water through riverine channels. Pluvial flooding is surface flooding driven by intense rainfall on impermeable surfaces with limited drainage or storage capacity. The proposed facility area is currently vulnerable to both fluvial and pluvial flooding. It is located within a Federal Emergency Management Agency AO zone, which is a designation assigned areas that have a one percent of flooding any year (commonly referred to as the “100-year flood”) at a water depth averaging about one foot. GHD examined a range of hydraulic models to better understand the sources of flooding and determined that the flooding was a result of several factors. One source includes floodwaters in San Juan Creek, resulting from a constriction in flow created by the Pacific Coast Highway (PCH) north and southbound bridges, which would be high enough to overtop the concrete channel levees and flood the site and surrounding area. Another source is from periods of high floodwaters in the creek that cause backwater flow through the drainage pipes that normally drain the site and surrounding area. A third source comes from runoff from the immediate localized watershed which, during periods of high floodwaters in the creek, is unable to fully drain and causes surface flooding in the surrounding area.

During a 100-year or greater flood event, high water levels in the adjacent channel that overtop the levee would drive flooding at the proposed site location; however, GHD demonstrates through modeling a condition with no assumed overtopping of the levee that flooding would still occur on portions of the site and surrounding area but to a lesser degree due to backwater flow from stormwater conduits.

To address flood hazards at the site, GHD analyzed and evaluated several alternatives including raising the channel levee, blocking or installing flap gates on stormwater conduit outfalls, constructing a pump station, constructing a detention basin onsite, and elevating the site through fill. The evaluation’s Alternative 1 includes re-grading the site to an elevation of 28.2 feet NAVD88 (one foot higher than the 100-year flood elevation), constructing a detention basin, and capping the existing drainage inlet adjacent to the site and relocating it eastward in the project site. Alternative 1a is a refined version of Alternative 1 that avoids placing fill in the adjacent Caltrans right of way. Alternative 2 includes floodwall improvements to eliminate San Juan Creek overtopping during a 100-year event and re-grading the project site to 26 feet NAVD88. Alternative 3 is similar to Alternative 2, though would add a new detention basin at the southern end of the project

site. Alternative 4 includes installing a flap gate at one of the storm drains, raising the floodwall, raising the site to a minimum elevation of 23.5 feet NAVD88, and installing a pump station. Alternative 4 involves the least amount of site fill and greatest reductions to flooding in the surrounding area by addressing both levee overtopping (raised floodwalls) and drainage capacity (pump station). None of the alternatives would increase peak flood elevations or worsen flooding in the surrounding area and, in fact, all would reduce flooding in the surrounding area. Alternative 1, the proposed alternative, involves the greatest amount of fill but achieves flood reductions without depending on future improvements to the channel levees or broader stormwater drainage system. Alternative 1 minimizes a reliance on regional improvements and does not preclude future improvements to flood risk reduction around San Juan Creek.

GHD also evaluated flooding from more extreme flood events, namely the 500-year flood event. The proposed project site during a 500-year flood event and existing conditions would experience flow depths of over 3 feet in some areas. The peak 500-year flood elevation is estimated to be 28.3 feet NAVD88, 0.1 feet higher than the proposed site fill elevation of 28.2 feet NAVD88 for Alternative 1. This suggests that during 500-year flood conditions, portions of the site may experience minor flooding on the order of a few inches. GHD recommends that the critical facilities on site be designed to include flood proofing design to account for this extreme condition. **Special Condition 13** requires the final design to include flood proofing measures that account for extreme flooding.

In general. sea level rise is expected to worsen fluvial flooding especially in low-gradient channels near the coast such as San Juan Creek by increasing downstream water levels enough to back up floodwaters into upstream reaches. GHD evaluated the potential for sea level rise to worsen fluvial flooding at the proposed project site for up to +7.1 feet of sea level rise (the medium-high risk aversion projection for 2100). They found that the there was no influence of the higher ocean water levels on floodwaters north of the PCH bridges for the sea level rise increments less than +7.1 feet. For +7.1 feet, GHD found that higher ocean water levels did slow the receding of floodwaters during the 100-year flood event but did not increase peak floodwater elevations. GHD explains that this is likely due to the flow constrictions of the PCH bridges driving floodwaters at this stretch of San Juan Creek. It is possible that even more extreme sea level rise such as the +10.2 feet H++ projection for 2100 could increase peak flood elevations; however, this was not considered by GHD.

Future Changes with Potential to Impact the Project

In addition to more extreme sea level rise, several other future conditions could change the magnitude of hazards at the site and the proposed project's impacts on hazards in the surrounding area. Continued worsening drought has the potential to substantially reduce sediment inputs to area beaches from San Juan Creek, resulting in more extreme erosional pressure on the beaches where the wellheads and slant wells would be sited. Worsening climate change could result in higher flood risk from increasingly intensified precipitation events such as atmospheric rivers and could result in more extreme flow conditions than evaluated for this project. And lastly, future widening or

reconstruction of the PCH bridges could reduce the existing flow constrictions. The reduction or elimination of these flow constrictions could reduce floodwaters in the project area but could also mean that the proposed project (as compared to the existing condition with no fill) may impact floodwaters around it, as commonly results from large fill projects in floodplains. As a result, **Special Condition 10** requires SCWD to document its consultation with regional flood risk reduction agencies to ensure that the project does not constrain any planned future flood projects meant to reduce flood risk in the area.

Conclusion
The proposed project involves siting critical infrastructure in areas vulnerable to coastal flooding and erosion and fluvial flooding. SCWD proposes to address these risks by designing wellheads to be able to withstand periodic wave overtopping and by elevating the proposed plant site to 28.2 feet NAVD88, one foot above the estimated 100-year flood elevation. The applicant evaluated a range of sea level rise including extreme sea level rise over the life of the project. Sea level rise is expected to worsen coastal erosion and coastal flooding but not the fluvial flooding at the plant site. As described above, the inclusion of **Special Conditions 8** through **13** allows the project to be found consistent with the hazards policies of the Coastal Act.

G. Energy Minimization and Greenhouse Gas Reduction

Coastal Act Section 30253(4) states:

> New development shall: … (4) Minimize energy consumption and vehicle miles traveled.

Section 30253(4)'s requirement to minimize energy consumption reduces impacts to coastal resources caused by greenhouse gas ("GHG") emissions. SCWD plans to use renewable and greenhouse gas-free electricity to the extent feasible, though it has not yet determined how much and from what sources it would obtain the approximately 27,000 megawatts its facility would use each year.

Electricity use by seawater desalination facilities is generally much greater than the electricity needed to provide other sources of water and unless obtained from renewable energy sources, can contribute significantly to California's GHG. The effects of these emissions – global heating, sea level rise, ocean acidification, and others – affect many, if not all, of the coastal resources the Coastal Act is meant to protect, including public access (Coastal Act Sections 30210-30214), recreation (Sections 30212.5, 30213, 30220-30222), marine resources (Sections 30230-30231), wetlands (Sections 30231, 30233), ESHA (Section 30240), agriculture (Sections 30241-30242), natural land forms (30251), and existing development (Sections 30235, 30253).

SCWD expects to use several types of energy reduction devices in its facility operations that will reduce its electrical use and plans, to the extent feasible, to obtain its electricity from renewable sources, such as rooftop solar photovoltaic systems, fuel cells, and others. To the extent SCWD uses these sources, it will eliminate all or some of the indirect GHG emissions that would otherwise result from the facility's electricity use. However, to fully eliminate its indirect GHG emissions and thereby avoid the resulting adverse effects on the myriad coastal resources noted above, SCWD would need to use renewable energy sources for its entire electricity demand or to mitigate for its indirect GHG emissions through the purchase of emission offsets or credits.

As part of its proposed project, SCWD has committed to obtain emission offsets or credits from recognized entities, but only to the extent that any remaining indirect GHG emissions from its facility operations would exceed the amount of indirect emissions that would occur if SCWD were to instead continue using imported water. That is, SCWD proposes to make up the incremental difference between any higher indirect emissions resulting from its facility's electricity use and those that would have resulted from the electricity needed to import water to its service area.

For several reasons, however, this approach is not likely to result in "net carbon neutral" operations. First, as the Commission has determined previously, this type of "imported water offset" does not reliably provide a one-to-one reduction of emissions. This is due primarily to a lack of a direct relationship between the amount of water provided by a local water supply project in Southern California and the amount of water imported into Southern California during any year. The amount of water made available for import relies on various factors, such as precipitation, snowfall, reservoir storage, conditions in the Colorado River basin, and others, along with the provisions of contracts among various agencies and regional water suppliers. Adding the Doheny desalination project to the local water supply portfolio will not directly affect how much water is available or imported into the region. Additionally, any imported water that might be "freed up" due to the proposed project would likely be redirected to other water users in the region. Further, because the indirect emissions resulting from importing water are generated from electricity used to transport that water from hundreds of miles away through a series of pipelines and pumps, any reduction in those emissions resulting from SCWD not using the imported water that has already travelled most of that distance would be difficult, if not impossible to measure, and would likely be relatively de minimis – for example, any "avoided" emissions would be just those that might not be generated from the electricity no longer needed to pump the water over the last few miles to the SCWD service area.

As a result, **Special Condition 14** modifies SCWD's emissions reduction proposal plan to require that the combination of selected electricity sources, energy reduction measures, and offsets or credits result in fully "net carbon neutral" facility operations. It also requires that SCWD provide annual accounting of its electricity use from non-renewable, GHG-emitting sources and document that each year of facility operations will be fully "net carbon neutral." With this requirement, the project will avoid and minimize its potential contributions to GHG emissions that would further exacerbate the

diminishment of the coastal resources noted above and will be consistent with Coastal Act Section 30253(4)..

Conclusion
The project includes several measures that will minimize its energy use and will avoid or reduce expected amounts of greenhouse gas emissions resulting from its electricity use. With **Special Condition 14**, the project will be able to achieve "net carbon neutral" energy use and alleviate its potential contributions to climate change due to its electrical use. The Commission therefore finds the project to be consistent with relevant Coastal Act policies regarding energy use and protection of coastal resources.

H. Environmental Justice

Coastal Act Section 30604(h) states:

> When acting on a coastal development permit, the issuing agency, or the Commission on appeal, may consider environmental justice, or the equitable distribution of environmental benefits throughout the state.

Section 30604(h) provides for the Commission to evaluate environmental justice considerations when making permit decisions. As defined in Section 30107.3(a) of the Coastal Act, "environmental justice" means "the fair treatment and meaningful involvement of people of all races, cultures, incomes and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." Section 30107.3(b)(4) states that environmental justice includes, "[a]t a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions."

In March 2019, the Commission adopted an environmental justice policy ("EJ Policy") to guide and inform its implementation of Section 30604(h) in a manner that is fully consistent with the standards of, and furthers the goals of, Chapter 3 of the Coastal Act and certified local coastal programs. The EJ Policy further articulates environmental justice as the following:

> The term "environmental justice" is currently understood to include both substantive and procedural rights, meaning that in addition to the equitable distribution of environmental benefits, underserved communities also deserve equitable access to the process where significant environmental and land use decisions are made.

[13] Coastal Act Section 30013, which provides that the Commission is to advance the principles of environmental justice and equality, references California Government Code section 65040.12(e), which defines "environmental justice" as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies."

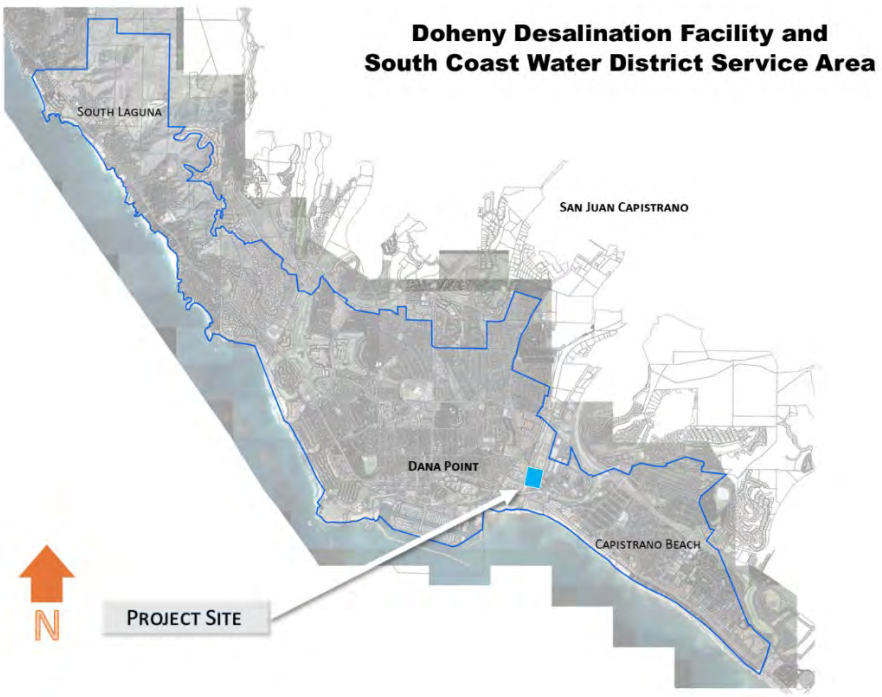
Ensuring access to the Commission's proceedings means making sure that those who are affected by proposed development have a meaningful and equitable opportunity to voice concerns in an open and transparent public process. Substantively, the EJ Policy describes how the Commission will work to ensure equitable access to the coast, support measures that protect existing affordable housing, and ensure that environmental justice communities are not disproportionately affected by climate change, water contamination, overuse, or diminished environmental services. Opponents of the proposed project have raised procedural concerns such as access to project information and lack of sufficient outreach. They also raised substantive concerns about the project's potential to increase water bill impacts on low-income communities in SCWD service territory. Proponents, meanwhile, have asserted the project would benefit the region by providing a reliable source of water during emergencies independent of water imports from northern California and the Colorado. The Commission addresses these concerns in this section.

Identifying Communities of Concern

The Commission's EJ Policy was created to provide a framework to consider fair outcomes and requires staff to reach out to and include the voices of environmental justice community members who have been historically marginalized in the governmental review process and whose households have been disproportionately burdened by environmental hazards often stemming from industrial development. The goal is to make sure these voices are thoughtfully considered by the Commission during the process.

Although the project site is along the San Juan Creek in the City of Dana Point, the project impacts could extend beyond the plant due to the production and distribution of the desalinated water and its associated costs. Commission staff have analyzed impacts for surrounding communities, both the immediate community and the larger SCWD's service area shown in the figure below.

[14] In this staff report, the terms "underserved communities" and "environmental justice communities" are used interchangeably with the term "communities of concern." All these terms refer to low-income communities, communities of color, and other populations with higher exposure and/or sensitivity to adverse project impacts due to historical marginalization, discriminatory land use practices, and/or less capacity to mitigate adverse impacts.



SCWD Service Area & Project Location

In this section, staff used socioeconomic, demographic, and environmental indicators to identify communities of concern as well as the environmental burdens among them to evaluate the distribution of the project's environmental burdens and benefits, as well as cumulative patterns. Staff evaluated various quantitative and qualitative sources of information for the SCWD service area described below, including the area near the project's proposed location in Dana Point. Staff analyzed census tract data in the selected geographies to identify low-income communities (either through the low-income definition from AB 1550 or at two times the federal poverty level[4]), populations with limited English proficiency and communities with high exposure to pollutants, adverse environmental impacts or sensitivities to pollution according to CalEnviroScreen 4.0.

[15] AB 1550 identifies "Low-income communities" as census tracts with median household incomes at or below 80 percent of the statewide median income or with median household incomes at or below the threshold designated as low-income by HCD's State Income Limits adopted pursuant to Section 50093 of the Health and Safety Code. This provides a more reliable measure of low-income communities due to higher costs and wages in California than the Federal Poverty Level.

[16] Individuals that consider a language other than English to be their primary language and they have a limited ability to read, speak, write or understand English.

[17] CalEnviroScreen 4.0 (CES) ranks census tracts in California based on potential exposures to pollutants, adverse environmental conditions, socioeconomic factors and the prevalence of certain health

In addition to gathering and evaluating quantitative information from online sources, Commission staff conducted outreach to interested parties and posted a Frequently Asked Questions ("FAQ") brochure in Spanish and English on its website, inviting interested stakeholders to engage with staff during its review and with the Commission before and during the hearing. Staff met with individuals from local and statewide EJ groups, tribal members, social justice representatives, representatives from environmental organizations, and nearby residents and ratepayers in the SCWD service area. Because COVID-19 restrictions made many in-person meetings challenging, staff conducted most outreach by email, phone, and video conference. Out of sensitivity to avoid overextending EJ stakeholders, a number of these meetings were conducted jointly with the State Lands Commission, which is also reviewing the project.

SCWD provides potable water, recycled water, and wastewater services to approximately 35,000 residents and 1,000 businesses in South Orange County. The service area includes the communities of Dana Point, South Laguna Beach, and small parts of San Clemente and San Juan Capistrano. There are pockets of communities surrounding the plant that may be considered environmental justice communities of concern. The map below identifies census tracts in proximity with the facility and of the communities surrounding the project site, census tracts 42201 and 42310 are considered "low-income" communities according to AB 1550 parameters.[18,19]

Staff also identified several neighborhoods as housing-burdened throughout SCWD's service territory. Specifically, the census tracts adjacent to the proposed project, 42310 and 42313, which have 90% and 83%, respectively, higher housing burden than the rest of the state. Additionally, these tracts are disproportionately burdened by pollution from diesel, high traffic density, proximity to impaired water bodies and solid waste facilities, making them the most polluted in SCWD's service territory. Finally, several of the surrounding census tracts have individuals who are not proficient in English, with about

conditions. Data used in the CES model come from national and state sources with high sensitivity to pollution.

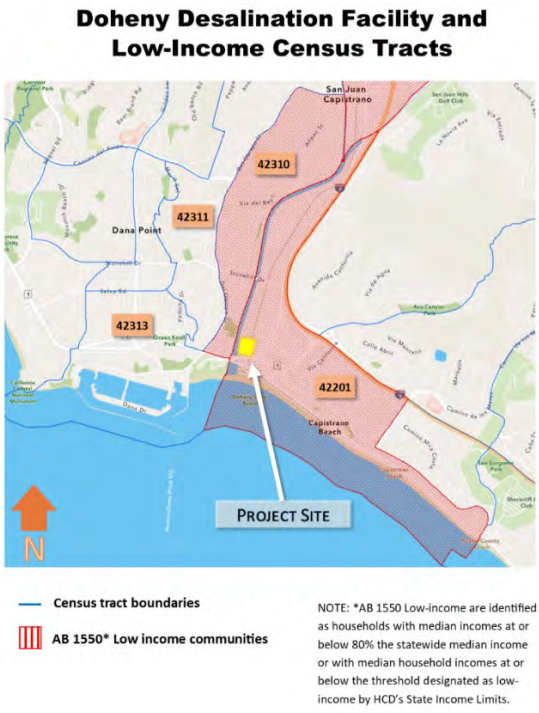
[18] Pursuant to CEQA-Plus SRF loan requirements, the applicant identified census tract 42201 as an area with low poverty rate based on federal poverty guidelines in the environmental justice analysis in the DEIR. However, Commission staff identified additional communities of concern using additional metrics to identify low-income communities, communities of color and other underserved communities that may be affected by the project.

[19] Due to limitations within the service area and the geographies of census data, staff was unable to obtain an specific number of low-income individuals under AB 1550 or 200% federal poverty level served by SCWD.

[20] The housing burden indicator from CalEnviroScreen 4.0 is the percent of households in a census tract that are both low income (making less than 80% of their county's median family income) and severely burdened by housing costs (paying greater than 50% of their income for housing costs).

[21] Pollution Burden in CalEnviroScreen 4.0 represents the potential exposures to pollutants and the adverse environmental conditions caused by pollution.

2,000 individuals who speak Spanish as their primary language.[22] These census tracts are predominantly non-Hispanic white.



Based on qualitative and quantitative information, staff concludes that there are several small communities of concern within the identified geographies of potential impact that may be disproportionately burdened by adverse project impacts, particularly low-income ratepayers throughout the SCWD service territory. Although they represent a relatively small proportion of the SCWD's ratepayers, potential impacts to those communities and the Commission's ability to mitigate those impacts warrant additional consideration pursuant to Section 30604(h) of the Coastal Act.

Procedural Concerns

Of those interviewed by Commission staff, many raised procedural concerns, including lack of meaningful engagement, public participation opportunities, and inadequate informational materials in English and Spanish from the permit applicant. While SCWD conducted a ratepayer survey in English and Spanish and reached out to several organizations, certain community members said this outreach was initiated late in the process, and the information provided was delivered in highly technical language that was not easily understandable. Although there are a number of ratepayers who speak Spanish as their primary language, other community members said they were not aware

[22] Five percent is an important threshold under the Dymally Alatorre Bilingual Services Act, which identifies a "substantial number" as five percent or more of the non-English-speaking population served by the agency. In its language access best practices, CalEPA recommends considering this threshold when identifying language outreach, resource allocation, and language access thresholds. See https://calepa.ca.gov/wp-content/uploads/sites/6/2022/06/Language-Access-Best-Practices.a.hp_.sw_.pdf

of any SCWD outreach or materials about the project in Spanish. A number of EJ organizations were not even aware of the project until Commission staff initiated outreach efforts and formally asked that the project be postponed so they had time to review it.

SCWD indicated that they performed outreach over six years throughout the entire project and permit approval process through noticing and many public meetings. These efforts were largely concentrated around the CEQA requirements and EIR processes, through Notice of Preparation and Notice of Availability and during presentations made during public meetings of the SCWD Board of Directors. The items were noticed in the local newspaper, on the SCWD website, or in social media postings, and SCWD offered assistance in other languages for CEQA notices. SCWD also convened a working group of local stakeholders to analyze feasibility of multiple projects.

Substantive Concerns

Though quantitative data was collected and analyzed in this report, it is the qualitative information and lived experience of community members that is key to understanding existing burdens and the potential of new developments inadvertently exacerbating those impacts. In an ongoing commitment to foster meaningful involvement consistent with Section 30107.3(a) and increase outreach consistent with its Environmental Justice Policy, Commission staff reached out to a number of groups and community members near the project area. Although only a few completely opposed the project, most said they had concerns, including increased costs associated with the desalinated water. Some representatives also raised concerns regarding construction and operation impacts, including brine discharge from the project which is discussed above in Section IV.E.

While community members noted that a public water district would have much lower rates than a private for-profit company undertaking this project, they still raised concerns about the potential economic burdens to low-income ratepayers. Since renters in multifamily units pay for their water through their rent instead of through individual water meters, landlords could raise their rents if rates increase, potentially causing some renters to leave their neighborhoods. Project opponents state that alternatives such as increased conservation and water recycling are far less expensive than desalination. Affordable water is critical for people on limited incomes and a critical component in the State's Human Right to Water Policy, that identifies every human being has a right to safe, clean, affordable, and accessible drinking water as a public health imperative. SCWD states that providing a reliable water supply that is local is worth the cost, since the cost of water imports will continue to increase over time.

[23] See Letter from Eidt, Evelyn, Everts, Ordoña, to Coastal Commission September 15, 2022.

[24] The Water Supply Reliability Working Group participants were Bob Oakley, Buck Hill, Hojyin Ip, Jared Mathis, John Thomas, and Roger Butow.

[25] Assembly Bill 685 added Section 106.3 to the Water Code which declares it is the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water.

A 2021 SCWD a fiscal analysis estimated that water from the project would cost approximately $1,479 per acre-foot, which would represent a cost increase of from about $2 to $7 per household per month, with the range depending in part on whether SCWD is later able to develop agreements with other nearby water districts to purchase some of the project's water. These costs are lower than previous estimates in 2018, as presented in a study on Orange County's water supplies conducted by the Municipal Water District of Orange County ("MWDOC"), in part due to SCWD being able to obtain grants and low-interest loans available to public water agencies. This cost is much lower than identified for other recent seawater desalination projects in California and is about 20% higher than the cost of imported water.[27]

As mentioned earlier, there are a number of households that are low-income and overburdened by housing costs in SCWD's service area; however, SCWD does not have targeted water rate assistance programs for low-income households. SCWD offers general customer assistance via rebates, water conservation consultations, and COVID19-related water shut-off and late-payment policies. SCWD has said that requests for their extended payment plan is low and only two customers are currently enrolled, however, Commission staff found it challenging to access these programs on their website.

Conclusion

Many community members contacted by the Commission were heartened that the desalination proposal was smaller in scale and proposed by a public agency instead of a for-profit company. Even so, most did not take a position on the project, citing a lack of information from SCWD, lingering questions about environmental impacts and concerns about water bills. Moreover, because the cost of the desalinated water is unclear and SCWD has not identified the number of low-income customers, there is the potential that the project may affect a greater number of low-income ratepayers than expected. The lack of low-income assistance programs will disproportionately impact those customers who are already burdened by environmental impacts and the high cost of living along the coast. Robust ratepayer assistance services and proper outreach and enrollment can be critical to mitigating some of the cost burden of rising water rates that will be experienced by the large number of low-income, housing burdened families identified earlier in this report.

Environmental groups were concerned about opening the door to many more desalination projects along the coast instead of curbing water waste particularly from wealthier homeowners. They said continued measures of water conservation, lawn replacement programs, low-water appliance rebates, water recycling, and increased monitoring and enforcement should be a priority for SCWD. SCWD said it has implemented several conservation programs and will continue to investigate how best to

[26] See 9-7b-2018-OC-Study-Report_Final-Draft-with-Appendices_12-12-2018.pdf (mwdoc.com).
[27] As a comparison, SCWD identified its costs for water imported from the Metropolitan Water District as about $1,207 per acre-foot. Water from the recently proposed Poseidon Huntington Beach facility was expected to cost about $2,900 per acre-foot and the costs for water from the proposed Cal-Am facility are estimated to be more than $5,000 per acre-foot.

provide water supplies for its ratepayers. Officials also emphasized that having a local water supply such as seawater desalination benefits all its ratepayers by reducing the reliance on imported water, which is at risk of being disrupted by earthquakes or other hazards.

For these reasons the Commission imposes **Special Condition15**, which requires SCWD to submit within a year, for Executive Director review and approval, a report that includes 1) a low-income customer study that identifies, using income levels of 200% of the federal poverty level and AB 1550, low-income customers and limited English proficient customers in the project's service area; 2) recommendations and feasible programs and strategies that can alleviate cost burdens to low-income customers; and 3) identifies how SCWD will implement feasible programs and strategies into its operations. Implementation of **Special Condition 15** will ensure that SCWD identifies strategies to address impacts to low-income ratepayers and that individuals of all backgrounds have access to information about the project programs offered by SCWD, and ways to participate in the process.

I. Tribal Consultation and Cultural Resources

Coastal Act Section 30244 states:

> Where development would adversely impact archeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

In addition to Coastal Act Section 30244 regarding Tribal cultural resources, the Commission in 2018 adopted a Tribal Consultation policy meant to help establish meaningful and respectful consultation with California's tribal governments and representatives. The policy includes several guiding principles regarding communication with the tribes, acknowledgement of tribal interests and resources, and how to assess the effects that Commission actions may affect tribal interests. After SCWD's December 2020 submittal of its CDP application, Commission staff sent letters to the local Tribal government – the Juaneño Band of Mission Indians Acjachemen Nation – which is known to have ties to the project area to determine if they would be interested in formal or informal consultation. Staff followed up in August and September 2022 with additional offers to consult with nine other tribes and additional Tribal members.

On September 15, 2022, staff met with representatives from the Juaneño Band of Mission Indians Acjachemen Nation, on whose ancestral lands the proposed project would be located. Chairwoman Heidi Lucero said the Tribe generally supports the project because this desalination proposal is not going to be as destructive as the prior proposed Poseidon project in Huntington Beach; however, she remains "very leery" of desalination projects in general. She is very concerned about the discovery of Tribal

[28] See Coastal Commission's Adopted Tribal Consultation Policy, August 8, 2018.

artifacts and burial sites and the disruption of the ecosystem at a time when her community is trying to restore the little amount of natural environment that remains. Vice Chairman Richard Rodman agreed, and both worry about whether the land where SCWD is siting the project is undeveloped, and if so, asked if it could be moved to another location. Because the tribes' villages were once along the waterways, Rodman said that "every time they do these digs, there's a part of me inside that dies a little."

Both indicated that SCWD had reached out and had been very accommodating and provided a good presentation of project information. They noted that SCWD had been very flexible with meeting dates and took tribal members to the site.

On August 8 and September 9, 2022, staff met with an official representative of the Gabrielino-Tongva Tribe of the San Gabriel Band of Mission Indians. The tribal representative said Gabrielino-Tongva Tribal Chief Anthony Morales has not taken a position on the project because he has questions and concerns. He said that SCWD's tribal outreach was inadequate and that when they did reach out, representatives did not use accessible language, instead using technical terminology that was not understood by Tribal elders.

He said Chief Morales had concerns about the small marine life that might be affected by the project, and about the risk of chemicals and brine polluting waterways. He asked if the infrastructure has been inspected and would be monitored to keep communities safe. He also said they would like to see more conservation efforts. While the Tribe is opposed to desalination plants broadly across the coast of California, the representative said Chief Morales appreciates that this project is smaller and operated by a public agency instead of a private for-profit company because water should not be commodified.

SCWD noted that as a result of its meetings with the Tribes, and at the request of at least one Tribal representative, that it would modify a cultural resource monitoring mitigation measure in the project's Final EIR. The updated Mitigation Measure CUL-2 in the Final EIR, which is now incorporated into the Commission's approval as **Special Condition 16**, is shown below with revisions in bold underline (with the term "District" referring to SCWD):

> "**Cultural Resource Monitoring During Construction.** Prior to construction, the District (or its designee) shall retain a CRS that meets the minimum qualifications of the U.S. Secretary of Interior Guidelines (NPS 1983). **Prior to construction, the District (or its designee) shall retain a Native Monitor representing the Juaneño Band of Mission Indians, Acjachemen Nation- Belardes.** The CRS **and native monitor** shall be present during initial deep excavations for pipeline trenches, vaults and desalination facility structures that penetrate below native ground surface. The CRS**, Native Monitor,** and the CM shall have the authority to halt construction if previously unknown cultural resource sites or materials are encountered. **In the event of unexpected cultural resource discovery, the**

Native Monitor and CRS shall have the authority to redirect ground disturbance under consultation with the CM."

Commission staff has also investigated the previous development history of the proposed facility site. Available evidence shows that at least part of the site served as the location for a wastewater treatment facility as recently as the mid-1990s and that much of the site may have been at least partially disturbed previously as part of the channelization and flood control measures installed along this reach of San Juan Creek. Although these prior disturbances might reduce the potential that cultural resources remain, that potential still exists. It is appropriate to include **Special Condition 16** as a measure to protect or properly handle any discoveries.

Conclusion
With inclusion of **Special Condition 16**, the Commission finds the project will be consistent with the requirements of Coastal Act Section 30244.

J. California Environmental Quality Act

Section 13096 of the Commission's administrative regulations requires Commission approval of coastal development permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act ("CEQA"). Section 21080.5(d)(2)(A) of CEQA prohibits approval of a proposed development if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant impacts that the activity may have on the environment. The project as conditioned herein incorporates measures necessary to avoid any significant environmental effects under the Coastal Act, and there are no less environmentally damaging feasible alternatives or mitigation measures. Therefore, the proposed project is consistent with CEQA.

APPENDIX A – Substantive File Documents

Coastal Development Permit Application No. 9-20-0691.

South Coast Water District, Final Environmental Impact Report – Doheny Desalination Project (SCH #2016031038), June 2019.

South Coast Water District, Water Reliability Study Technical Memorandum, by CDM Smith, December 21, 2017.

South Coast Water District, Foundational Actions Funding Program - Advancement of Slant Well Technology and Groundwater Flow and Solute Transport Modeling for the Doheny Ocean Desalination Project, prepared by Geoscience, March 21, 2016.

South Coast Water District, Doheny Ocean Desalination Project Water Cost Analysis, September 2, 2021.