

**SIXTH ADDENDUM  
PRECISE DEVELOPMENT PLAN AND DESALINATION PLANT PROJECT  
FINAL ENVIRONMENTAL IMPACT REPORT (EIR 03-05)  
CITY OF CARLSBAD, CALIFORNIA**

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## 1.0 INTRODUCTION/PROJECT BACKGROUND

The purpose of this document is to analyze the proposed modifications to the Carlsbad Desalination Project (CDP) approved intake and discharge system pursuant to the California Environmental Quality Act (CEQA). The CDP has previously been analyzed under CEQA in the Carlsbad Precise Development Plan and Desalination Plant Final Environmental Impact Report (FEIR) for the CDP, which was certified by the City of Carlsbad (City) on June 13, 2006 (City of Carlsbad, 2006). The FEIR analyzed a 50 million gallon per day (MGD) seawater desalination plant and off-site water conveyance facilities located within the cities of Carlsbad, Oceanside, and Vista. The CDP and water conveyance facilities were subsequently modified, and these minor changes were addressed in the First through Fifth Addendum to the FEIR.

A Supplement to the FEIR (Supplemental EIR) was also prepared and adopted by the San Diego County Water Authority (Water Authority) on August 25, 2016 (SCH #2015091060) to evaluate changes to the CPD intake and discharge system that would facilitate permanent stand-alone operation of the CDP and the potential to increase the maximum daily production of the CDP from 54 MGD to 60 MGD in the future due to technological water processing improvements. These changes were made to satisfy the requirements of the Amendment to the Water Quality Control Plan for Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and Other Non-Substantive Changes (Desalination Amendment), which was adopted by the State Water Resources Control Board (SWRCB) on May 6, 2015.

Since certification of the Supplemental EIR, the project proponent in collaboration with the SWRCB and San Diego Regional Water Quality Control Board (RWQCB) during the project's subsequent permitting with RWQCB identified design modifications to the CDP intake and discharge system that will further reduce biological impacts identified in the Supplemental EIR. The proposed modifications are required by the SWRCB and RWQCB to further reduce the environmental impacts of the approved project on marine life, in compliance with the Desalination Amendment. It is these proposed modifications that are the subject of this Sixth Addendum that the RWQCB, as a Responsible Agency, will further evaluate pursuant to CEQA Guidelines §15096 (f) and (g). The modifications include relocating (from on shore to submerged in the Agua Hedionda Lagoon) and altering the intake screening system; changes to the intake and discharge tunnels, the discharge pond and channel and auxiliary facilities; relocating the fish friendly intake pumping structure, and implementing a pilot intake program (pilot project) to test the design modifications effectiveness (proposed modifications) prior to finalizing the design and construction of the full scale intake facilities.

This Sixth Addendum includes a discussion of the CEQA Requirements for an addendum (Section 2.0), details regarding the project location (Section 3.0), a description of the previously approved project (Section 4.0), a description of the proposed modifications to the previously approved project (Section 4.0), a description and purpose for each of these modifications (Section 5.0), the Water

Authority actions required to approve these proposed modifications (Section 6.0), and an analysis of the potential impacts of the proposed modifications (Sections 7.0 through Section 10.0).

## **2.0 CEQA REQUIREMENTS**

As specified in CEQA Guidelines Section 15096, Responsible Agencies are required to comply with CEQA when taking their respective discretionary actions regarding a project, and CEQA provides that they may rely on a CEQA document prepared by the Lead Agency to meet this requirement. However, they must independently consider the CEQA document, and not just rely on the Lead Agency's findings: "A Responsible Agency complies with CEQA by considering the EIR or negative declaration prepared by the Lead Agency and by reaching its own conclusions on whether and how to approve the project involved." [State CEQA Guidelines §15096(a)] and "Prior to reaching a decision on the project, the responsible agency must consider the environmental effects of the project as shown in the EIR or negative declaration." [State CEQA Guidelines §15096(f)].

CEQA also provides for the Responsible Agency's adoption of alternatives or mitigation measures: "A responsible agency has responsibility for mitigating or avoiding only the direct or indirect environmental effects of those parts of the project which it decides to carry out, finance, or approve." [State CEQA Guidelines §15096(g)(1)] and "When an EIR has been prepared for a project, the Responsible Agency shall not approve the project as proposed if the agency finds any feasible alternative or feasible mitigation measures within its powers that would substantially lessen or avoid any significant effect the project would have on the environment." [State CEQA Guidelines §15096(g)(2)].

CEQA Guidelines Sections 15162 through 15164 discuss a lead or responsible agency's responsibilities in handling new information that was not included in a project's certified EIR. The provisions of Section 15164 apply to the Water Authority as the Lead Agency under CEQA because the proposed modifications to the approved project involve actions that are under the purview of the Water Authority.

Section 15162 of the CEQA Guidelines provides:

- (a) When an EIR has been certified ... for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:
  1. Substantial changes are proposed in the project which will require major revisions of the previous EIR...due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
  2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR ... due to the

involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete...shows any of the following:
  - (A) The project will have one or more significant effects not discussed in the previous EIR;
  - (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
  - (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
  - (D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Alternatively, where some changes or additions are necessary to the previously certified EIR, but none of the changes or additions meet the standards as provided for a subsequent EIR pursuant to CEQA Guidelines, Section 15162, then the lead or responsible agency is directed to prepare an addendum to the FEIR. (CEQA Guidelines, Section 15164). Further, the addendum should include a *“brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162,”* and that *“explanation must be supported by substantial evidence.”* (CEQA Guidelines, Section 15164(e)). The addendum need not be circulated for public review, but may simply be attached to the FEIR (CEQA Guidelines, Section 15164(c)).

This Sixth Addendum to the FEIR fulfills and conforms to the provisions of CEQA (California Public Resources Code, Section 21000 et seq.) and the CEQA Guidelines, Section 15164, providing for the preparation of an addendum. The CEQA Guidelines allow the preparation of an addendum to an EIR under the following circumstances (14 CCR 15000 et seq.):

1. Only minor technical changes or additions are necessary to make the EIR under consideration adequate;
2. The changes and additions to the EIR do not raise important new issues about significant effects on the environment;
3. None of the conditions described in Section 15162, CEQA Guidelines, calling for the preparation of a subsequent EIR have occurred.

### 3.0 PROJECT LOCATION AND REGIONAL SETTING

The proposed Project modifications including the pilot project are located in the City of Carlsbad in the northern portion of San Diego County, California (Figure 1, Project Location). Other components of the approved project, including pipelines located in the City of Carlsbad, the City of Vista, and the City of San Marcos. The project site is located on the Encina Power Station (EPS) site and within the Agua Hedionda Lagoon between the Interstate 5 (I-5) and the Pacific Ocean. The proposed modifications would be constructed on the approved project site at 4590 Carlsbad Boulevard, Carlsbad, California 92008 and within the Agua Hedionda Lagoon.

Land uses surrounding the project site area include residential and active and passive recreational uses such as swimming, surfing, walking, bird watching, fishing, and the mobile aquaculture facility to the north; residential, commercial and industrial uses to the south; Interstate 5 (I-5) and North County Transit District (NCTD) railroad tracks to the east; and beyond that open space and agriculture, and the Pacific Ocean to the west. As noted above, the NCTD railroad tracks bisect the Precise Development Plan (PDP) area. Also to the north, adjacent to the outer lagoon is the Hubbs-Sea World Research Institute and fish hatchery (HSWRI). This facility has been in operation since 1995, and includes a 22,000-square-foot hatchery which is contributing to the restoration of the California white sea bass population through aquaculture and fishery enhancement.

Agua Hedionda Lagoon is one of three coastal lagoons within the City of Carlsbad and is located in the west-central portion of the City. The lagoon comprises approximately 230 acres of water surface and extends 1.7 miles inland from the coast. At its widest point, the lagoon is 0.5 mile wide. Agua Hedionda Creek enters the lagoon at its easternmost point. For geographic reference the lagoon is subdivided into the outer lagoon which is west of the NCTD railroad tracks, the middle lagoon which is bound by the NCTD railroad tracks on the west and I-5 on the east, and the inner lagoon which is east of I-5. The area surrounding the lagoon is characterized by open areas along the northern and southern shorelines with residential development occurring on the bluffs above the lagoon to the north. Active agricultural fields occupy a portion of the slopes along the southern shoreline. The middle and inner lagoons are leased to the City as an aquatic-oriented recreational area. The middle lagoon has a recreation facility that is used by the YMCA for water sports and overnight camp groups. The inner lagoon is used for water sports, such as boating and jet skiing, and is administered by the City of Carlsbad, which issues recreational use permits and collects fees. The outer lagoon, where the intake facilities would be located, also includes existing aquaculture uses that benefit from the Pacific Ocean inflows that occur through the lagoon inlet/outlet. These flows are made possible by periodic dredging of the lagoon.

South of the power plant area is the San Diego Gas and Electric (SDG&E) Operations Center and Cannon Park. Single-family residential neighborhoods are located generally south of Cannon Road, and west of Carlsbad Boulevard. The neighborhood west of Carlsbad Boulevard is referred

to as the Terra Mar subdivision. North and south of Cannon Road between the NCTD Railroad right-of-way and I-5 are commercially and industrially zoned areas.

To the west of the EPS across Carlsbad Boulevard, is the Pacific Ocean and Carlsbad State Beach.

#### **4.0 DESCRIPTION OF APPROVED PROJECT**

The “approved project” consists of the various actions described and analyzed in multiple, previously-approved documents: the FEIR, First through Fifth Addenda, and the Supplemental EIR. The approved project includes construction and permanent stand-alone operation of the CDP with the potential for producing a maximum daily of 60 MGD of product water, water conveyance infrastructure, and other ancillary facilities required for operation of the CDP and distribution of the product water.

The approved on-site facilities include the CDP, pump station, modifications to the existing EPS intake structure, a new intake/discharge system that has not yet been constructed, and other facilities such as electrical buildings and conveyance pipelines needed for operation of the CDP. The approved project also includes off-site improvements such as pump stations, flow control facilities, conveyance pipelines, minor changes to the Twin Oaks Valley Water Treatment Plant, pipeline relining, and accessory facilities required to operate these facilities. The intake/discharge system that was approved in the Supplemental EIR has yet to be constructed and includes a new screening/fish-friendly pumping structure, a fish return system, and auxiliary facilities. Proposed modifications to this system are the subject of this sixth addendum and are described in Section 5.0 below.

#### **5.0 DESCRIPTION OF PROPOSED MODIFICATIONS TO THE APPROVED PROJECT**

Since December 14, 2015, the CDP has been operating and permitted to produce up to 56,000 acre feet per year (AFY) equivalent to 50 MGD average flow of desalinated water while operating in conjunction with the EPS by using the power plant’s cooling water discharge as its feedwater. As analyzed in the Supplemental EIR, the rated capacity of the approved project could also be increased from a maximum daily of 54 MGD to a maximum daily of 60 MGD due to membrane technology advances since original project approvals. The Supplemental EIR also included a new screening/fish-friendly pumping structure, a fish return system, and auxiliary facilities that were approved, but not constructed as of the time of this analysis. The retirement of the EPS at the end of 2018 results in the need to retrofit the Desalination Plant for a transition to permanent stand-alone operation and for compliance with the Desalination Amendment.

After certification of the Supplemental EIR by the Water Authority, additional alternatives were developed to optimize design and placement of the intake improvements with respect to their ability to further reduce impacts on marine life. The proposed modifications are required by the

SWRCB and RWQCB to reduce the environmental impacts of the approved project on marine life, in compliance with the Desalination Amendment. The RWQCB as a Responsible Agency, in coordination with the project proponent (Poseidon Resources (Channelside) LP), evaluated over 20 different intake and discharge alternatives for the approved project to further minimize environmental impacts and comply with the Desalination Amendment. Alternative 21 was selected for further evaluation by the RWQCB, and pursuant to CEQA Guidelines §15096 (f) and (g), the proposed modifications resulting from the implementation of these design changes are analyzed in this Sixth Addendum. These design modifications are necessary to comply with the Desalination Amendment requirement to use the best available site, design, and technology to minimize the intake and mortality of all forms of marine life and to obtain a National Pollutant Discharge Elimination System (NPDES) permit.

### **Pilot Project**

Currently the existing data on narrow-slot wedge wire screens (WWS) does not include adequate operational data to assess the performance and reliability in an estuarine/marine environment similar to Agua Hedionda Lagoon. Therefore, the purpose of the pilot project component is to confirm the design, operation, and maintenance requirements for WWS as the intake technology for the permanent stand-alone operation of the CDP in the lagoon. The pilot project will provide data on the capabilities of each WWS technology to manage free-floating debris and biofouling in the lagoon.

The pilot project would be located near the existing intake for the approved project or alternatively across the lagoon in conjunction with the HSWRI. Operating for approximately 2 years, the pilot project will be designed as a simultaneous, side-by-side evaluation of two WWS intake types with two different cleaning methods for a combination of three different types of WWS types being evaluated. After one year, one of the WWS will be replaced with the untested WWS for evaluation. The 1-mm slot width WWS that will be studied are: 1) passive stainless steel WWS (horizontal orientation) with an airburst cleaning system 2) active (rotating) stainless steel WWS (vertical orientation) equipped with an airburst cleaning system and 3) passive copper nickel WWS (horizontal orientation) without a cleaning system.

The pilot system will intake up to 1.73 MGD of seawater with a through screen velocity of 0.5 feet per second or less, consistent with the requirements in the Desalination Amendment. If connected to the HSWRI intake system, HSWRI will use the feedwater for their needs and then as permitted will discharge up to 2.16 MGD of seawater back into Agua Hedionda Lagoon. Two intake type screens would be connected by new high density polyethylene (HDPE) pipeline of approximately 12-inches in diameter and 1,500 feet in length extending from the existing HSWRI lagoon intake pumping system. In addition, valves will be installed on the two new pipelines and on HSWRI existing intake to allow for operational flexibility. The existing HSWRI pump station would be used to operate the two WWS screens and may be modified to increase operational flexibility of the

pilot project. The compressor and receivers for the airburst cleaning systems would be located onshore with air piping delivering compressed air to the WWS intake offshore. A generator may also be required to power the compressor. The generator may be gasoline or diesel powered, or may be powered by electricity from the grid. If the pilot project is established without a connection to the HSWRI, the pilot facility would discharge using one of two alternatives methods: 1) into the discharge pond; and 2) directly to the lagoon. Construction of the pilot project may take up to 6 months and would include the following phases:

- HDPE piping would be outfitted with concrete ballasts and laid on the lagoon floor with the assistance of barges, cranes, and divers.
- Divers would attach the WWS assemblies to the HDPE piping under water.
- Pump station and piping modifications would take place on land at HSWRI.

The pilot project would be operated over a two year period to ensure that the WWS performance is evaluated under both seasonal and inter-annual variations in lagoon conditions comparing scaled-down versions of both passive and active screen options for the new intake system. The passive screen would be airburst based on the vendor-recommended frequency (once/day) and the active screen would be rotated based on the vendor-recommended frequency (rotated for two minutes twice a day in each direction).

### **Intake/Discharge Design Modifications**

In general, the proposed modifications for the approved permanent standalone intake/discharge system would include installation of a submerged intake system in Agua Hedionda Lagoon (including WWS and pipelines), relocation of the approved fish-friendly pumping structure, auxiliary facilities, and improvements to the existing EPS intake and discharge tunnels, discharge pond and channel (see Figure 2, Proposed Modifications Location).

Submerged WWSs in the Agua Hedionda Lagoon will be located approximately 900 feet from the existing EPS intake tunnel and connected to new pipelines that would direct seawater to the existing EPS intake tunnels (see Figure 3, New Active WWS Intake Site Plan, and Figure 4, New Passive WWS Intake Site Plan). The CDP process and dilution water of 299 MGD would pass through the submerged intake screening system and the existing intake pump station would continue to deliver the process feedwater (up to 127 MGD) to the CDP for processing through the pre-treatment and reverse osmosis membrane desalination system. Approximately half the water volume processed by the CDP would leave the CDP as potable drinking water, and the other half would be concentrated seawater with approximately twice the original intake water salinity. Specifically, depending on seawater temperature, treatment process cleaning needs, etc., the CDP operates at product water recovery rates between 48% to 50% (e.g., 48 to 50 gallons of fresh water produced for every 100 gallons of seawater processed by the RO system). In addition, a small amount of intake seawater is used for backwash of the pretreatment filters. The plant

operator adjusts the flows between the RO brine discharge and backwash waste streams to optimize the efficiency and effectiveness of plant operations as seen in the following Table 1:

**Table 1**  
**CDP Process Water Use with Various Recovery Rates**

CDP Process Intake (MGD)	Product Water (MGD)	Recovery Rate (%)	RO Brine Discharge <sup>1</sup> (MGD)	Backwash Waste Streams <sup>2</sup> (MGD)	Combined Discharge (MGD)
127	60	48	65	2	67
127	60	49	62.5	4.5	67
127	60	50	60	7	67

<sup>1</sup> RO Brine Discharge rate is derived as follows: Product Water / Recovery Rate = Intake Seawater Required then, Intake Seawater Required – Product Water = RO Brine Discharge (eg. 60 MGD/0.48 = 125 MGD, then 125 MGD - 60 MGD = 65 MGD).

<sup>2</sup> Backwash Waste Streams = CDP Process Intake – Product Water – RO Brine Discharge.

The remaining water passing through the intake screens would be transferred to the discharge tunnel by the fish-friendly pumps to reduce the salinity of the brine discharge (flow augmentation) from the CDP before being discharged into the Pacific Ocean. Under all operating conditions, the quantity and quality of discharge from the CDP is the same or less than that analyzed in the SEIR:

- The maximum daily average intake flow is 299 MGD;
- The maximum combined discharge flow (RO brine and backwash) is 67 MGD;
- The salinity of the combined discharge is between 64 to 67 ppt;
- The maximum salinity in the discharge pond after mixing with the dilution water from the flow augmentation system is 42 ppt; and
- The maximum salinity in the Pacific Ocean is less than or equal to 2 ppt over natural background salinity measured at the edge of the brine mixing zone 200 meters (656 feet) away from the point of discharge.

The design of different components of the proposed modifications is described below in additional detail.

### **WWSs**

The WWS intake system would have a maximum intake capacity of approximately 299 MGD, with 1- mm slot widths and a through-slot velocity that would be designed for 0.5 feet per second or less for compliance with the Desalination Amendment. The individual WWS unit could be procured with either active or passive cleaning capabilities that would be determined based on the results of the pilot project. Active screens provide mechanical cleaning while passive screens

contain no mechanical components. Both types of screens would be designed to meet the Desalination Amendment requirements and constructed similarly.

If the active WWS intake system is installed it would consist of a total of 16 rotating WWS units and 4 pipelines, also referred to as intake laterals. Four of the sixteen, 108-inch diameter by 10-foot tall WWS units would be mounted vertically on risers to a single header which is connected to a single pipeline. A total of four separate pipelines (with 4 WWSs connected to each individual pipeline and header) are generally oriented north to south.

Similarly, if the passive WWS intake system is installed it would consist of a total of 16 static WWS units and 4 pipelines. Four of the sixteen, 78-inch diameter by 20-foot long WWS units would be mounted horizontally on risers to a single header which is connected to a single pipeline. A total of four separate pipelines (with 4 WWSs connected to each individual pipeline and header) are generally oriented north to south.

The screens will either be fabricated from super-duplex stainless steel or copper nickel. Passive screens would be cleaned regularly by divers to control biofouling on the screens. Active rotating screens (powered by a motor) are equipped with a brushing mechanism and would most likely require less cleaning of biofouling on the screens.

An airburst system (if required) would be used to attempt to dislodge debris that may collect on screens. The airburst system would consist of two receiver tanks (5,000 to 10,000 gallons) that are approximately 12 feet high and located north of the discharge pond, two air compressors located within a new structure (approximately 16 feet wide, 24 feet long, and 12 feet high) near the new pump station, and conveyance piping. If active screens are utilized based on the results of the pilot project, the proposed modifications may not require the use of an airburst system for debris cleaning.

In addition to the airburst system, a floating debris/boom curtain around the intake screens to block floating debris from entering the screening area. The floating debris boom would extend from the surface of the lagoon to approximately 3 to 5 feet below the surface of the water and would be anchored with concrete blocks. The floating debris boom would be a solid barrier to avoid any marine life impacts and would also serve as stand-off zone to prevent unauthorized access to the screened area, while allowing maintenance vessels to access the area through an adjustable entrance/exit. Public access to the outer lagoon area, beyond the shoreline is currently prohibited. As such, the portion of the lagoon outside of the screened intake area that was previously open to the public will remain open.

### ***Intake Laterals***

The intake system will be comprised of four 88-inch diameter intake lateral that are each approximately 900 feet long, extending out into the lagoon from the existing intake location. Installation

of the HDPE lateral would involve trenching of the lagoon floor and the assembled pipe would be floated into place. The intake system would be ballasted with concrete collars (that would also serve to anchor the pipe to the lagoon floor), and finally the pipe would be flooded with seawater to submerge the pipe on the lagoon floor. Overtime, the trenched area will naturally backfill.

The offshore end of each lateral would include a 100 foot long, 88-inch diameter super duplex stainless steel header. Each header will include riser connections for the four WWS units (as described above). The trash racks at the existing intake forebay would be removed and the four laterals would be connected into the existing intake structure such that the intake would only be able to withdraw water from the laterals. Each of the laterals would be equipped with an access port on the upstream end to accommodate cleaning and maintenance (see lateral maintenance discussion).

### ***Fish-Friendly Pumping Structure***

The Fish-friendly Pumping Structure as evaluated in the Supplemental EIR would be relocated to an existing vault adjacent the intake and discharge tunnels or if during the design phase the vault is found to be unsuited for the Fish-friendly Pumping Structure, the structure will be located adjacent to the EPS discharge tunnel approximately 100 feet south of the existing EPS lagoon inlet (see Figure 5, Alternative New Fish-friendly Pumping Station). The existing vault area must be further evaluated for structural capabilities for relocating the pumping station. A total of three axial flow submersible pumps would be installed with two in service and one serving as a backup. The submersible pumps will be placed within the pump station vault. The discharge piping from the submersible pumps would be located above grade for a short distance then turning downward into the below grade discharge tunnel leading to the discharge pond. The pumps would be similar to those described in the Supplemental EIR to reduce the potential mortality of marine life passing through the system.

### ***Interconnection Pipelines and Existing EPS Tunnel, Discharge Pond and Channel Modifications***

The CDP's intake and discharge connection points to existing EPS intake and discharge tunnels would be relocated to accommodate stand-alone operations with the proposed modifications. After relocating the connecting points, the EPS intake and discharge tunnels would be sealed off just south of the relocated CDP intake pump station connection point. To enhance turbulence for a more rapid ocean mixing, 5 ton quarry stone (or similar methodology to enhance mixing) may be placed on the EPS discharge channel bottom at the landward side between Carlsbad Boulevard bridge and the mean high tide line (Jenkins, 2018).

In addition, a barrier, (i.e., sheetpile wall, stacked concrete blocks, or similar) would be constructed in the pond to enhance mixing and to function as a collection area for debris originating from WWS intake system maintenance.

## Construction Schedule

The EPS decommissioning occurred on December 11, 2018. The transition to CDP stand-alone operation involves: 1) continued use of the EPS screens and pumps while constructing the Fish-friendly pumping station (Interim Improvements) and the pilot project; 2) operation of the EPS screens in conjunction with the fish-friendly dilution pumps, while the WWS intake system is constructed and the interconnection pipelines and EPS tunnels are modified (Permanent Improvements); and 3) operation of the permanent standalone intake and discharge modification for the Desalination Plant.

As a result, construction of the proposed modifications would occur in two separate phases with the first phase focused on construction of the fish-friendly pump station and pilot project and the second phase would install the new WWS intake system. The first phase of construction for the fish-friendly pump station and pilot project is estimated to begin in the mid-2019 and last for approximately 6 months. The second phase of construction for the new WWS intake system is anticipated to start at the beginning of 2023 and last approximately one year. The following general construction sub-phases would be required for construction of the proposed modifications:

### Construction - Phase 1 (Interim Improvements): Fish-friendly pump station and the pilot project

- Fish-friendly pump station:
  - Mobilization
  - Site Preparation
  - Demolition of portions of the existing forebay and intake vault area and creation of intake area to accommodate new pump station.
  - Installation of the new pump station adjacent to the existing pump station area, including electrical facility to power the pump station.
  - Connection of the new brine line from the intake area to the pump station area.
  - Sealing of the discharge tunnel.
- Installation of a temporary physical barrier (i.e., concrete blocks or similar) in the discharge pond for enhanced mixing.
- Pilot project:
  - Option 1 - Modifications to the existing HSWRI pump station, as necessary, and installation of the WWS intake system pilot project offshore of the HSWRI pump station.
  - Option 2 – Connection of the WWS intake system pilot project to a new pump station on the existing CDP site and installation of the WWS intake system pilot project offshore of the EPS Intake.

## Construction - Phase 2 (Permanent Improvements): WWS Intake System, Intake and Discharge Tunnel, Discharge Pond and Channel Modifications

- Mobilization.
- Trenching of the lagoon floor for lateral and screen foundation installation.
- Installation of a physical barrier in the discharge pond for enhanced mixing and debris maintenance purposes during pigging operations.
- Installation
- Concurrent work:
  - Air burst system (if determined through the pilot project as beneficial).
  - Lateral and screen installation without connection to intake structure.
  - Floating debris boom/curtain.
- Connection of the new intake line from the intake tunnel to the existing intake pump station.
- Sealing the intake and discharge tunnels.
- Plant Shutdown:
  - Modify intake structure to receive intake laterals.
  - Connect laterals to intake structure.
- Commissioning and testing.
- Demobilization.

### ***Intake/Discharge System Maintenance***

#### Passive vs. Active WWS Maintenance

If passive screens are installed they would be cleaned in place by divers that would be based on a floating barge. When the barge is not in use, it will be tied to the existing EPS inlet structure. If the active rotating screens (motorized) are installed they would be equipped with a brushing mechanism that would require less biofouling cleaning (specific cleaning requirements would be determined by the pilot project results) by divers that would be based on a floating barge. Visual inspections would occur periodically using a submersible camera and/or divers to determine cleaning requirements. An entire pipeline would be isolated to clean all screens along a pipeline at one time. The screen exterior and interior would be cleaned as follows:

- Exterior - Divers would use a combination of manual cleaning with brushes and hydro-blasting using pressurized water spray nozzles on the external surfaces of the screens.

The seawater used for hydro-blasting would pass through one of the adjacent screens prior to use. Biofouling debris removed from the exterior of the screens would remain in the lagoon. Accumulated silts and marine sediments near the screens would be removed periodically via pumping from a maintenance barge. The material would be discharged to a tank mounted on the barge that would filter the material from the water using siltation curtains before returning the water to the lagoon or the material would be pumped to the discharge pond and would pass through siltation curtains before exiting into the ocean. Alternatively, material would be pumped to Fishing Beach where sediment would settle out and water would be returned to the lagoon (similar to the current practice for lagoon dredging). In this scenario accumulated sediment would be spread out on Fishing Beach within an existing easement granted to Poseidon for this purpose or hauled off-site for disposal (see Figure 6).

- Interior - Both manual cleaning and hydro-blasting would be used in the internal surfaces of the screens. Divers would enter the screen via hatches (likely at one of the endcaps). Any biofouling debris that has released from within the screen would be removed using a trash pump. The trash pump would discharge to a tank mounted on the barge that would filter the biofouling debris from the water using siltation curtains before returning the debris water to the lagoon or the material would be pumped to the discharge pond and may pass through siltation curtains before exiting into the ocean. Solids collected would then be dewatered and hauled off site for disposal.
- Alternatively, active or passive WWS would be removed and refurbished at an off-site location. Spare WWS would be mounted in place of the WWS removed from cleaning. If WWS were removed, the lateral would remain out of service until all replacement WWS were installed and ready for operation.

Screen cleaning would occur as frequently as necessary to ensure the screening system is able to meet the CDP's intake requirements. Under typical passive screen operating conditions, it is estimated that the screens would be cleaned once a month (12 cleanings annually) and likely less frequently if the active screens are installed. During challenging conditions such as winter storm events or algal blooms, more frequent cleaning may be required to manage free-floating debris that may collect on or near the WWSs.

An airburst system may be used to attempt to dislodge debris that may collect on screens. The airburst system would consist of two receiver tanks (5,000 to 10,000 gallons) that are approximately 12 feet high and surrounded by security fencing, two air compressors located within a new structure (approximately 16 feet wide, 24 feet long, and 12 feet high), and conveyance piping. Manual cleaning of the screens by divers would be conducted as needed during the monthly screen cleaning events to remove floating debris that may accumulate on the screens. If active screens are utilized (to be determined after the pilot project), the airburst system may not be needed.

A floating debris boom/curtain around the intake screens would block floating debris from entering the screening area. The floating debris boom extends from the surface three to 5 feet down into the water. The debris boom would be a solid barrier rather than a mesh to avoid marine life impacts. The debris boom would act as a stand-off zone to prevent the public from entering the screened area where airbursting may occur and where screens could be damaged by anchors. Portions of the floating debris boom would be adjustable to allow for surface maintenance vessel entrance/exit to the protected area. The boom would also have to be maintained by manually removing floating debris that may accumulate.

### Intake Lateral Maintenance

Maintenance of the intake laterals could involve physical removal of biofouling debris by pipe pigging. Pigging would be conducted quarterly and will require a shutdown of 1 or 2 days (per lateral) for each pigging event (i.e., a total of 16 pigging events per year). Pigging operations would ensure that the debris removed from the lateral's internal surfaces can be efficiently collected. The pig would be launched from a barge and the pressure to drive the pigging process would come from the fish-friendly pump station, or a barge-mounted pump taking suction from an intake lateral (so that pumped flow has been screened through the wedgewire screens).

Debris removed by pigging and additional flushing water would be directed to the discharge pond. Existing stop logs in the existing tunnels will be used to divert the flow and debris into the existing discharge tunnel and ultimately into the pond. The management of the pigging debris will be accomplished through two separate means: 1) hydraulic sorting (settling) of solids based on particle size and velocities in the discharge pond and 2) physical barrier and if needed, a temporary silt curtain (or similar). Debris removal from the discharge pond will be conducted as needed if debris accumulates during maintenance and cleaning activities. Debris removal operations would be designed to comply with the California Ocean Plan Water Quality Objectives.

## **6.0 REQUIRED ACTIONS**

To process the proposed modifications, the Water Authority will:

1. As the lead agency under CEQA, consider the Sixth Addendum along with the SEIR, FEIR and prior addenda; and
2. Approve an amendment to the Carlsbad Seawater Desalination Project Water Purchase Agreement (Contract ID 061501) for the approved project between the Water Authority and Poseidon Resources (Channelside) LP, and authorizing construction of the facilities described in this Sixth Addendum, and subsequent permits.

As noted in the SEIR, additional approvals may be required as follows:

- U.S. Army Corps of Engineers: 404 Permit (Nationwide Permit)

- California Coastal Commission: Coastal Development Permit Amendment
- California Department of Fish and Wildlife: Streambed Alteration Agreement
- RWQCB – Renewal of NPDES CA0109233 and 401 Water Quality Certification
- City of Carlsbad
  - Amendment to the Precise Development Permit
  - Amendment to the Special Use Permit
  - Conditional Use Permit

## **7.0 IDENTIFICATION AND ANALYSIS OF ENVIRONMENTAL EFFECTS**

The following environmental issue areas that were included in the previous environmental documents are analyzed:

- Aesthetics
- Air Quality/Greenhouse Gas Emissions
- Biological Resources
- Cultural/Tribal Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise and Vibration
- Transportation and Traffic
- Public Utilities and Service Systems
- Cumulative Impacts

The analysis also discusses whether the proposed modifications described in Section 5.0 would trigger significance criteria identified in the CEQA Guidelines, Section 15162, in each of these areas. For each environmental issue area, a comparative analysis of the impacts presented in the previous environmental documents is provided. The analysis includes a determination regarding the occurrence of any new significant impacts or an increase in the severity of previously identified impacts. Finally, an analysis is presented to determine whether there are any changed circumstances or new information relative to the proposed modifications.

This section evaluates the potential environmental effects of the proposed modifications. Each portion of the analysis begins with a summary of the previously analyzed environmental effects of the approved project (from the previous environmental documents).

The potential environmental effects of the proposed modifications are then evaluated and compared to the effects that were previously analyzed for the approved project. This analysis supports the Water Authority's determination that the proposed modifications would not result in new significant impacts that were not analyzed in the previous environmental documents and would not result in a substantial increase in the severity of significant impacts that were identified in the previous environmental documents.

As stated in Section 1.0, activities associated with the proposed modifications are subject to the requirements and mitigation measures identified in the previous environmental documents. Where such requirements apply and are relevant, they are noted in the discussion below.

The previous environmental documents are on file at the Water Authority's office, 4677 Overland Avenue, San Diego, California, 92123.

The following presents the environmental analysis of impacts associated with the proposed modifications. In instances where the impacts resulting from several proposed modification components would be similar, their corresponding analyses have been grouped together. In instances where impacts differ by proposed modification component, they are discussed separately.

## **Aesthetics**

### ***Previous Analysis***

Analysis of aesthetic impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.1, pages 4.1-3 through 4.1-12. See also the CEQA Findings for the FEIR, pages 10 and 11. These sections identify the components of the proposed modifications that may produce visual impacts or affect visual character upon implementation.

The previous environmental documents concluded that because aesthetic impacts from construction activities would be short-term and within limited areas, construction-related impacts to visual resources would be considered less than significant.

The FEIR analyzed the addition of CDP facilities on the EPS site and determined that impacts would be less than significant with implementation of mitigation measures for landscaping and trees, screening mechanical equipment, minimizing external lighting, and conforming to the PDP visual requirements. The Supplemental EIR determined that aesthetic impacts from on-site modifications to the existing seawater intake, including installation of new screening/fish-friendly pumping structure, a fish return system, and auxiliary facilities would have a less than significant impact on aesthetics.

Off-site product water conveyance facilities, including vaults, pump stations, chemical injection facilities, pipelines, and flow control buildings were analyzed in the previous environmental documents. Each of the previous environmental documents concluded that visual impacts associated with implementation of the proposed project would be less than significant.

### ***Analysis of the Proposed Modifications***

The EPS site is an industrial site that includes the existing CDP facilities and the EPS buildings, smoke stack, and ancillary facilities. Scenic vistas and scenic corridors in the City of Carlsbad that are near the proposed modifications include the coastline views as well as the beach and coastal corridor (City of Carlsbad, 2014). There are no officially designated or eligible State scenic highways or identified scenic resources in proximity to the proposed modifications or desalination plant site (Caltrans, 2013).

The proposed modifications would include relocation of the fish-friendly pump station that would be enclosed within the pump station vault. The submersible pumps will be placed within the discharge vault. The discharge piping from the submersible pumps will be located above grade for a short distance then turning downward into the below grade discharge tunnel leading to the discharge pond. The proposed modifications would also include submerged intake laterals and WWSs within the Agua Hedionda Lagoon, but these intake laterals would not be visible within the lagoon. Although the proposed modifications would include the addition of a floating debris boom in the lagoon at the location of the WWS intake, the boom would be in a limited portion of the lagoon and would not rise substantially above the existing water surface. As a result, the floating debris boom would not be highly visible and would not substantially change the visual character of the lagoon. Similarly, the pilot project would only include submerged pipes and WWSs within the lagoon and internal modifications to existing HSWRI pump facilities to operate the pilot project. The proposed modifications are designed with the same visual character as the existing aesthetic on the EPS site and of the CDP.

Construction of the proposed modifications may cause short-term, temporary aesthetic impacts, including equipment storage, materials, soil stockpiling and debris exposed to public views. However, these impacts are short-term in nature and affect a limited industrial and commercial area. Additionally, the proposed modifications would be required to comply with the construction staging area location and screening measures in the FEIR. As such, they are not considered to have a substantial adverse effect on a scenic vista, nor would they substantially damage scenic resources in the area.

During operation of the proposed modifications, occasionally trips by divers would occur for screen maintenance. This would involve the presence of divers and marine vessels in the lagoon but would occur intermittently and for short durations. Sediment removed during the cleaning of the intake laterals by pigging would end up in the discharge pond with the new physical barrier, and if needed, temporary silt curtains (or similar) would be placed in the

discharge pond to trap and settle out sediment within the discharge pond and zone of initial dilution in accordance with Ocean Plan requirements. Therefore, impacts to water quality during operations and maintenance would be less than significant.

Additionally, air bursting may result in the formation of bubbling at the water surface near the WWS intake during maintenance activities. However, the disturbance of the surface water in the lagoon would be confined to the WWS intake area and would only occur intermittently and over a short duration. As such, the operation and maintenance of the proposed modifications would not substantially or permanently alter the existing visual character of the lagoon.

The construction and operation of a similar pump station was evaluated in both the FEIR and Supplemental EIR and were determined to have less than significant impacts with incorporation of mitigation measures for screening and lighting. Similarly, the proposed fish-friendly pump system would comply with the landscape plan and other mitigation measures for screening and reduced lighting. The intake laterals and WWSs would be located underwater within the lagoon and would not be visible by the public.

The FEIR stated that the construction and operation of the desalination plant would comply with the City of Carlsbad's Scenic Corridor Guidelines for portions of the desalination plant site adjacent to or within the Carlsbad Boulevard Theme Corridor and NCTD railroad corridor. Additionally, a mitigation measure was included in the FEIR to provide for appropriate replacement of any trees that are removed as a result of construction of the desalination plant, which reduced the potentially significant impact to scenic resources to a less than significant level. Mitigation measures to control nighttime exterior lighting fixture were also provided in the FEIR. All outdoor lighting fixtures would be subject to City ordinances to reduce light pollution, glare, and nighttime sky glow. The proposed modifications would not include large amounts of windows or other potentially reflective surfaces that could produce substantial amounts glare. These measures would reduce potential lighting and glare impacts to surrounding areas and nighttime views to a less than significant level.

As such, the inclusion of the proposed modifications would not result in additional impacts or increase the severity of impacts identified in the previous environmental documents, and therefore would not change the FEIR conclusions that aesthetic impacts would be less than significant.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There are no changes with respect to circumstances under which the proposed project would be undertaken, and there is no new information of substantial importance that has become available relative to visual or aesthetic resources. No substantial changes in the aesthetic or visual environment have occurred that were not accounted for through certification of the previous

environmental documents and no substantial new sensitive receptors or scenic resources have been identified within the vicinity of the proposed modifications.

### ***Conclusion***

Based on the above, no new significant aesthetic impacts or a substantial increase in previously identified aesthetic impacts would occur as a result of the proposed modifications. All mitigation measures previously adopted for the approved project will apply to the proposed modifications described herein, as applicable. Therefore, the impacts to aesthetic resources and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Section 15162.

### **Air Quality and Greenhouse Gas Emissions**

#### ***Previous Analysis***

Analysis of air quality impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.2, pages 4.2-10 through 4.2-21. See also CEQA Findings, page 11. These sections outline how the proposed project may impact existing and future air quality conditions.

The previous environmental documents concluded that direct impacts to air quality as a result of construction and operation of the approved project were less than significant with incorporation of mitigation measures. However, the FEIR findings identified that the increased electricity demand could result in a significant indirect increase in criteria pollutants because the generation of that electricity could be achieved by fossil fueled power plants within the San Diego Air Basin (SDAB). Similarly, the Supplemental EIR analyzed the air quality impacts from construction and operation of on-site modifications to the existing seawater intake, including installation of new screening/fish-friendly pumping structure, a fish return system, and auxiliary facilities. The Supplemental EIR also analyzed the emissions from maintenance of a passive screen system by divers and from a motorized active screen system that would require electricity to move the screens and manual cleaning by divers. Although the Supplemental EIR found that direct impacts to air quality from construction and operation would be less than significant, the Findings of Fact and Statement of Overriding Considerations for the Supplemental EIR determined that a considerable cumulative contribution to air quality impacts could occur during operation of the CDP and changes described in the Supplemental EIR. This cumulative impact was determined based on the potential for indirect criteria air pollutant emissions resulting from electricity consumption for operation of the CDP and the facilities analyzed in the Supplemental EIR. No mitigation measures were identified that could feasibly avoid or substantially lessen this effect.

The Supplemental EIR also evaluated GHG impacts from intake modifications including a screened intake, fish-friendly pump system, and associated facilities. The Supplemental EIR found that these impacts would be less than significant.

### ***Analysis of the Proposed Modifications***

#### ***Air Quality***

The Supplemental EIR analyzed on-site modifications to the existing seawater intake, including installation of new screening/fish-friendly pumping structure and auxiliary facilities which are similar to those of the proposed modifications. However, the proposed modifications would also include the construction of intake laterals, WWSs, and a pilot project of two small-scale laterals and WWSs.

Construction of these facilities would result in temporary increases in criteria pollutant emissions associated with soil disturbance, dust emissions, and combustion pollutants from on-site construction equipment and marine vessels, as well as from personal vehicles, vendor/delivery trucks, and trucks hauling soil and aggregate material. Construction emissions for all of the proposed modifications were modeled using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (see Appendix A).

Construction of the pilot project, intake pipelines and WWSs, and fish-friendly pump station and associated facility improvements would be accomplished in two primary construction phases: 1) construction of the fish-friendly pump system and pilot project; and 2) construction of the WWS intake system.

The pilot project would be constructed over a 6-month period starting in mid-2019 (concurrent with the first phase of construction for the fish-friendly pump station). This would involve the HDPE piping to be assembled and laid on the lagoon floor via concrete ballasts using a barge, crane, and divers. The divers would also attach the WWS assemblies to the pipelines and onshore modifications to the pump station at HSWRI would occur to allow operation of the pilot project.

The construction of a Fish-friendly pump station and auxiliary facilities would also start construction in mid-2019 (concurrent with construction of the pilot project), lasting approximately 6 months. Improvements during the first construction phase would be made to the mechanical, electrical, and concrete aspects of the forebay, intake vault, and pump station.

The second phase of construction, installation of the WWS intake component and auxiliary facilities, would start at the beginning of 2023 and last approximately one year. This would include installation of the intake laterals, the WWS arrays, airburst system if needed, floating debris boom, pond barrier and tie-in of these systems to the EPS intake and discharge tunnels.

Table 2, Estimated Maximum Daily Construction Criteria Pollutant Emissions, shows the construction criteria pollutant emissions for each year associated with the proposed modifications.

**Table 2**  
**Estimated Maximum Daily Construction Emissions (pounds per day)**

Year	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2019	9.85	92.68	41.76	0.12	5.83	4.35
2023	14.10	124.84	55.68	0.19	7.35	5.70
<b>Maximum Daily Emissions</b>	14.10	124.84	55.68	0.19	7.35	5.70
<i>Emission Threshold</i>	75	250	550	250	100	55
Threshold Exceeded?	No	No	No	No	No	No

**Source:** See Appendix A for complete results.

**Note:** 2019 emission represent the construction of the fish-friendly pump station and pilot project and 2023 emissions represent construction of the new WWS intake system for the CDP.

As shown above, construction of the proposed modifications would not exceed San Diego County Air Pollution Control District (SDAPCD) thresholds for criteria pollutant emissions and would result in a less than significant impact. Furthermore, these emissions are less than those analyzed in the Supplemental EIR for improvements to the existing CDP intake system and would therefore not exceed any air quality impacts already analyzed for the approved project in the previous environmental documents.

The pilot project would be operated for two years prior to construction of the full-scale intake system for the CDP. Operation of the new intake system for the CDP would include energy for the pump station and maintenance for intake and WWS cleaning. Operation of the pilot project (pump station and motorized active screens) and the new WWS intake system for the CDP (pump station and motorized active screens, if selected based on the results of the pilot project) would use electricity provided by SDG&E through the electrical grid. As a result, operation of the pump stations and motorized active screens for both the pilot project and the new WWS intake system for the CDP would not result in the direct emission of criteria air pollutants.

However, both the passive and active screens would require cleaning and maintenance by divers that would result in criteria pollutant emissions from the operation of marine vessels. The operation of the pilot project would not overlap with the operation of the new WWS intake system for the CDP. As a result, the maximum daily emissions from maintenance of the WWS intakes for both the pilot project and the new WWS intake system for the CDP would involve a maximum of one cleaning/maintenance trip per day. Table 3, Estimated Annual Operational Criteria Pollutant Emissions, shows the criteria pollutant emissions estimated to occur during these types of maintenance activities for both the pilot project (2019) and the new WWS intake system for the CDP (2023).

**Table 3**  
**Estimated Maximum Daily Operational Emissions (pounds per day)**

Year	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
2019	0.91	7.79	2.55	0.01	0.35	0.35
2023	0.95	7.97	2.62	0.01	0.38	0.37
<b>Maximum Daily Emissions</b>	<b>0.95</b>	<b>7.97</b>	<b>2.62</b>	<b>0.01</b>	<b>0.38</b>	<b>0.37</b>
<i>Emission Threshold</i>	75	250	550	250	100	55
Threshold Exceeded?	No	No	No	No	No	No

**Source:** See Appendix A for complete results.

**Note:** 2019 emission represent the construction of the fish-friendly pump station and pilot project and 2023 emissions represent construction of the new WWS intake system for the CDP.

As shown above, operation and maintenance of the proposed modifications would not exceed SDPACD thresholds for criteria pollutant emissions and would result in a less than significant impact.

As previously stated, the Supplemental EIR Findings of Fact and Statement of Overriding Considerations identified the potential indirect criteria pollutant emissions from electrical generation used to operate the CDP as a cumulatively significant impact. The proposed modifications would not substantially change the operational and maintenance criteria pollutant emissions previously analyzed in the Supplemental EIR and would not result in a new significant impact. Additionally, operation and maintenance activities for the proposed modifications would not exceed SDAPCD thresholds and many of these activities were already analyzed in the Supplemental EIR. Therefore, the proposed modifications would not make this previously identified cumulative impact from indirect criteria pollutant emissions from electrical generation substantially more severe.

### Greenhouse Gas Emissions

Construction and operation of the proposed modifications would also generate greenhouse gas (GHG) emissions from operation of construction equipment, marine vessels, motor vehicles, and for electrical generation for operations and maintenance activities. Under the worst-case scenario for annual GHG emissions, the proposed modifications would operate active screens that would require electricity to power the motor used to rotate the screens. Additionally, periodic manual cleaning by divers would also be required that would result in GHG emissions from marine vessel use. The estimated construction GHG emissions were amortized over the estimated life of the proposed modifications and added to the operational and maintenance GHG emissions that would result from the proposed modifications. Table 4, Estimated Annual GHG Emissions, shows the combined amortized construction GHG emissions and annual operational GHG emissions.

**Table 4**  
**Estimated Annual GHG Emissions (total metric tons)**

Construction Year	MT CO <sub>2</sub> e Emissions
Construction in 2019	365.55
Construction in 2023	843.92
<i>Total Construction Emissions</i>	<i>1209.47</i>
<b><i>Amortized Construction Emissions</i></b>	<b><i>24.19</i></b>
Annual Operational Emissions <sup>1</sup>	17.99
<b>Total Annual Emissions</b>	<b>42.18</b>

**Source:** See Appendix A for complete results.

CO<sub>2</sub>e = carbon dioxide equivalent.

<sup>1</sup> Based on worst-case GHG emissions scenario of active/rotating screens using electricity and manual cleaning by divers 6 times per year.

As shown above, operation and maintenance of the proposed modifications would not exceed SDPACD screening threshold of 900 metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>E) for GHG emissions. Additionally, as described in the Supplemental EIR the Special Conditions of the Coastal Development Permit by the California Coastal Commission require implementation of Energy Minimization and Greenhouse Gas Reduction Plan (GHG Plan), which would assess, reduce, and mitigate GHG emissions, and which establishes a protocol for identifying, securing, monitoring, and updating measures to eliminate the CDP’s net carbon footprint. As a result, the GHG emissions for the CDP and the proposed modifications would be reduced to “net zero” through implementation of the GHG Plan. Furthermore, these emissions include operation and maintenance activities that were already analyzed in the Supplemental EIR (e.g., operation of new fish-friendly pumps and increasing the annual average product water produced by the CDP) and therefore overstate the actual additive emissions that would occur as a result of the proposed modifications.

***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

The type and extent of construction activities and the operational characteristics associated with the proposed modifications would not be substantially different from what was evaluated in the previous environmental documents for the approved project. All energy use required to deliver product water would be incurred by pumps at the CDP, and this energy use was previously analyzed in the FEIR for the CDP. The proposed modifications would not exceed the SDAPCD screening threshold for Air Quality criteria pollutants or GHG emissions and would not substantially increase operational GHG emissions from what was analyzed in the previous environmental documents. The GHG emissions from construction activities associated with the proposed modifications would not exceed those identified in the FEIR, and 25,000 tons of carbon offsets as mitigation for construction-related emissions from the construction of the CDP will be purchased, which far exceeds the offsets that would actually be needed for construction-related impacts, even with the addition of the proposed modifications (see Appendix A). Additionally, the GHG Plan was approved by the CCC in

August 2008. With implementation of the GHG Plan, the proposed project will demonstrate a “net zero” impact on GHG emissions from indirect sources (electrical energy consumption).

Therefore, there are no changes with respect to circumstances under which the proposed project would be undertaken, and there is no new information of substantial importance that has become available relative to air quality or GHG emissions. No substantial changes in the pollutant emissions or GHG emissions have occurred that were not accounted for through certification of the previous environmental documents and no substantial new sensitive receptors or scenic resources have been identified within the vicinity of the proposed modifications.

### ***Conclusion***

The proposed modifications would not substantially change the operational and maintenance criteria pollutant emissions previously analyzed in the Supplemental EIR and would not result in a new significant impact. Additionally, the proposed modifications are consistent with the GHG Plan requirement demonstrating a “net zero” impact on GHG emissions from indirect sources (electrical energy consumption). The approved project as revised would not increase the severity of identified air quality impacts, nor would it result in any new significant effects related to air emissions that were not previously identified in the previous environmental documents. Additionally, in light of the wide range of global warming activity prior to the certification of the FEIR in June 2006, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance which was not known and could not have been known when the previous environmental documents were approved, has since been identified. Therefore, the impacts to air quality and GHG emissions from the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

### **Biological Resources**

#### ***Previous Analysis***

Analysis of biological resources impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.3, pages 4.3-18 through 4.3-54. See also CEQA Findings, pages 12 through 14. The previous environmental documents concluded that no significant unmitigable impacts to marine environment biological resources would occur as a result of the approved project. The proposed modifications would not affect any terrestrial biological resources.

The FEIR analyzed the CDP’s potential effects on the marine environment related to effects of chemical additives, impingement, entrainment, and salinity. In the FEIR it was determined that the CDP would either not require the EPS to increase the quantity or velocity of water withdrawn, or if the CDP was operated in the “stand-alone” condition, would not withdraw seawater with a

through-screen velocity greater than 0.5 feet per second. Therefore, the FEIR concluded that the CDP would not result in significant impacts related to impingement of marine life. With regards to entrainment, the FEIR concluded that the small proportion of marine organisms lost to entrainment as a result of the desalination plant operated either in the co-located or stand-alone scenarios, would not have a substantial effect on the species' ability to sustain their populations because of their widespread distribution and high reproductive potential. The most frequently entrained species are very abundant in the area of EPS intake, Agua Hedionda Lagoon, and the Southern California Bight; and therefore, the actual ecological effects due to any additional entrainment from the desalination plant were determined to be less than significant. However, despite these findings in the FEIR, the RWQCB and the California Coastal Commission required mitigation (Marine Life Mitigation Plan [MLMP]) under the standards that those agencies applied in issuing permits to operate the CDP to fully mitigate mortality of marine life. The mitigation consists of creation of 66.4 acres of estuarine habitat to fully offset all impacts associated with impingement and entrainment of all forms of marine life. The FEIR also concluded that chemical additives would be neutralized prior to discharge and that impacts from these chemical additives on marine life would be less than significant. Additionally, the FEIR concluded that under typical conditions, the discharge from the desalination plant would not exceed a salinity level of 36.2 parts per thousand (ppt) within the Zone of Initial Dilution (ZID), which is below the significance criteria of 38.4 ppt. To ensure that impacts remain at a less than significant level, a mitigation measure was included in the FEIR for purposes of requiring monitoring of the combined operations of the desalination plant and the EPS to ensure that salinity levels remain within the parameters that have been analyzed.

The Supplemental EIR analyzed the potential for marine organism effects with the implementation of 1 mm screens, a through-screen seawater intake velocity of 0.5 feet per second or lower, fish-friendly pumps, a fish return system, and an increase in average annual product water from the CDP. The Supplemental EIR concluded that overall there would be less impacts to marine organisms from entrapment, impingement, and entrainment with those changes compared to those analyzed in the FEIR. The fish return system and other components of the intake system analyzed in the Supplemental EIR would also disturb benthic habitat; however, these impacts were determined to be less than significant after mitigation. The RWQCB and California Coastal Commission requirements for mitigation that would be implemented by the MLMP would mitigate for the impingement and entrainment losses analyzed in the Supplemental EIR. Furthermore, the Supplemental EIR found that the brine mixing zone (BMZ), the area where the concentrated brine would exceed salinity limits before being diluted to within 2 ppt of ambient ocean salinity, would be smaller than the ZID analyzed in the FEIR (656-foot radius in the Supplemental EIR compared to a 1,000-foot radius in the FEIR). Therefore, impacts were determined to be less than significant.

### ***Analysis of the Proposed Modifications***

Impingement is the pinning of larger organisms against the screen mesh by the flow of the withdrawn water and is typically a result of high intake water velocities. The proposed modifications are required by the SWRCB for compliance with the Desalination Amendment to reduce impacts to marine life. The proposed modifications would withdraw the same amount of water that was analyzed in the Supplemental EIR, using 1-mm slot width WWS arrays that are compliant with the Desalination Amendment. Intake water would be drawn at a through-screen velocity of 0.5 feet per second or less, the same as analyzed in the Supplemental EIR, and in compliance with the requirements of the Desalination Amendment for minimizing impingement. As a result, no impingement is anticipated to result from the proposed modifications, the same as analyzed in the Supplemental EIR.

Entrainment is the passage of smaller organisms through the screening slots. The amount of entrainment mortality for any species from intake operation is dependent on the number of marine organisms entrained and the subsequent mortality of those organisms as they pass through the process equipment. For the purposes of this analysis the mortality of marine organisms entrained in the CDP and proposed modifications is assumed to be 100%, the same as analyzed in the previous environmental documents. Based on intake-related entrainment through the feedwater system, the flow augmentation system, with a combined maximum of 299 MGD would be 65.97 acres using the methodology set forth in Appendix E of the Staff Report for the Desalination Amendment after accounting for a 1% credit for 1 mm screening technology.

To further reduce impacts to marine life pursuant to the Desalination Amendment, the SWRCB requires that the proposed modifications include 1-mm WWS arrays on the intake pipes. This is compliant with the Desalination Amendment and similar to the screen size analyzed in the Supplemental EIR. Additionally, the same amount of intake seawater would be used with implementation of the proposed modifications as previously analyzed in the Supplemental EIR. The proposed modifications would be subject to the Desalination Amendment requirement to mitigate for any impacts to marine life, including those from entrainment. Therefore, with implementation of the proposed modifications there would not be an increase in the entrainment impacts from those analyzed in the previous environmental documents.

The BMZ for the CDP would generally be a 200-meter (656 foot) radius semi-circle from the terminus of the discharge channel in the Pacific Ocean. Outside of the BMZ, salinity would not exceed 2 ppt over ambient background salinity, in compliance with the Desalination Amendment. The benthic area encompassed by the BMZ would be approximately 18.51 acres. Potential salinity impacts would be the same as those analyzed in the Supplemental EIR because the seawater intake, brine discharge, and dilution water flow rates would remain the same. Additionally, there is no naturally occurring hard substrate, giant kelp, or surfgrass habitat exists

within the area of the BMZ; however, there is approximately 0.31 acres of man-made jetties that could be considered a non-natural hard substrate environment. The BMZ would extend over sandy, soft-bottom habitat, which is generally less productive in terms of biological diversity and density of organisms, thereby reducing the potential for impacts to marine life and special-status species in the BMZ. Any impacts to marine life would be mitigated through the existing mitigation measures included in the Supplemental EIR.

Construction of the proposed modifications would result in permanent disturbance of benthic habitat within the Agua Hedionda Lagoon. Similarly, the Supplemental EIR analyzed potential benthic impacts from the fish return system, which would not be implemented with the proposed modifications. The lagoon was originally a natural, seasonal estuary that was often closed off from the Pacific Ocean. The lagoon was opened to the Pacific Ocean to provide cooling water for the EPS and the outer portion of the lagoon and connection to the Pacific Ocean are dredged approximately every two years for maintenance purposes. Temporary disturbance of benthic habitat would also occur as a result of anchoring the derrick barge used during construction. However, this benthic impact would be temporary and limited to the duration of construction. Approximately 0.2 acres of permanent benthic impact would result from the WWS intake arrays placed on the bottom of the lagoon. The WWS arrays and intake pipes were sited to avoid impacts to eelgrass and other sensitive habitats within the lagoon and are located within the approved dredging footprint in the lagoon. The intake laterals would be located within trenches in the lagoon floor that would refill with benthic sediment over time. Benthic impacts resulting from the proposed modifications would be mitigated through compliance with the Desalination Amendment requirements for mitigating impacts to marine life.

The RWQCB and California Coastal Commission requirements for mitigation that would be implemented by the MLMP would compensate for the level of productivity that is anticipated to be lost as a result of the proposed modifications. Furthermore, the Desalination Amendment requires mitigation for marine life mortality that would be fulfilled through the MLMP. Therefore, any impacts to marine life would be fully mitigated and impacts would be less than significant.

Based on the above analysis, the proposed modifications would not result in impacts that were not previously identified and mitigated per previous environmental documents. With mitigation, impacts to biological resources would be similar to those discussed in the previous environmental documents and would remain less than significant.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in biological resource conditions within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding biological resources has

become available. Therefore, no changes in circumstances and no new information of substantial importance relative to biological resources have been identified.

### ***Conclusion***

The proposed modifications were designed based on feedback from the RWQCB staff during permitting the CDP for stand-alone operation to further minimize biological impacts from the CDP operations in compliance with the Desalination Amendment. None of the proposed modifications or additions involve new significant impacts or a substantial increase in previously identified impacts related to biological resources. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding biological resources which was not known and could not have been known when the previous environmental documents were approved. Therefore, the biological resources impacts and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

### **Cultural Resources**

#### ***Previous Analysis***

Analysis of cultural impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.4, pages 4.4-14 through 4.4-27. See also CEQA Findings, pages 14 and 15. The previous environmental documents concluded that cultural resource impacts were less than significant with mitigation implemented in previously undisturbed areas near known archaeological and paleontological resources sites.

The FEIR utilized a records search and literature review to determine that 30 cultural resources sites lie within the on-site and off-site areas of the desalination plant. Two cultural sites were found to be located within the on-site desalination plant area, neither of which were determined to be historic resources. The FEIR concluded that impacts to historical resources were less than significant.

The FEIR concluded that the two cultural resources, CA-SDI 6751 and CA-SDI-16885, found on the desalination plant site would be potentially impacted by construction. CA-SDI-16885 has been partially investigated and determined to not be significant, while the significance eastern portion of CA-SDI-16885 is unknown. The significance of CA-SI- 6751 is also unknown. The FEIR determined that while the potential for impacts is considered low, construction activities may reveal that significant impacts could occur. Therefore, the FEIR provided mitigation measures in the form of demolition and construction monitoring to ensure that impacts remain at a less than significant level.

The Supplemental EIR, included outreach to local Tribes that may have tribal cultural resources that could be affected by the improvements in and around the lagoon including the fish-friendly pump station, intake modifications and fish return feature. However, no tribal cultural resources were identified as part of this process.

The FEIR determined that the site is not a known formal or informal cemetery. Due to the disturbed nature of the site from previous excavation and fill activities the FEIR did not conclude that it is highly unlikely that human remains are present within the development area of the CDP. However, in the unlikely event that human remains are discovered during construction the FEIR did include mitigation measures for cultural monitoring during construction, including procedures for actions should any human remains be discovered during construction activities. The FEIR determined that cultural mitigation measures provided would ensure that impacts remain at a less than significant level.

### ***Analysis of the Proposed Modifications***

The proposed modifications would include the excavation and grading activities necessary to improve the existing concrete intake area and pump station vault. Onshore work would occur in previously disturbed areas or areas with existing structures. Offshore work areas would occur in the outer Agua Hedionda Lagoon for improving the existing intake inlet/forebay area and placement of the intake laterals, WWS arrays, debris curtain anchors and pilot project on the bottom of the lagoon. However, the lagoon has been operated for access to seawater for cooling of the EPS and HSWRI intake for decades. This has included maintenance of the lagoon area where construction would occur by dredging lagoon bottom sediments to maintain seawater flow for the EPS intake. As a result, the areas where offshore construction of the proposed modifications would occur are also previously disturbed and it is unlikely that any cultural resources exist on the surface of the lagoon bottom, where the intake pipes and WWS intake system would be placed.

Mitigation in the form of cultural monitoring that was identified in the previously certified FEIR would be required during all phases ground disturbing construction activities for the modifications. In general, the potential for unknown cultural resources to occur within the proposed modifications site has not changed since the time of the analysis conducted in the previously certified FEIR.

Additionally, the proposed modifications would affect a similar area that was evaluated in the Supplemental EIR for potential tribal cultural resources. Portions of the modifications that would be constructed within the lagoon are within areas that have been subject to extensive dredging as part of the construction and regular maintenance of the lagoon, and therefore would not contain significant cultural resources. After outreach to local Tribes, no tribal cultural resources were identified in the Supplemental EIR. Therefore, the proposed modifications, which occur in a similar area to those analyzed in the Supplemental EIR would also not result in the disturbance of tribal cultural resources.

Therefore, no new potential impacts to cultural resources would result from the proposed modifications, and no cultural resources mitigation beyond that identified in the FEIR and other previous environmental documents would be required. As a result, implementation of proposed modifications at this location would not have an effect on cultural or paleontological resources. Any work conducted at this site would also be subject to the mitigation in Section 4.4.4 of the FEIR, as applicable. Implementation of these mitigation measures would ensure that impacts remain less than significant. Therefore, the proposed modifications would not result in new significant impacts or increase the severity of impacts identified in the previous environmental documents, and therefore would not change the conclusion in the previous environmental documents.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in cultural, resource conditions within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding cultural resources has become available. Therefore, no changes in circumstances and no new information of substantial importance relative to cultural resources have been identified.

### ***Conclusion***

None of the proposed modifications involve new significant impacts or a substantial increase in previously identified impacts related to cultural resources. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding cultural resources which was not known and could not have been known when the previous environmental documents were certified/ approved has since been identified. Therefore, the impacts to cultural resources as a result of the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

### ***Geology and Soils***

#### ***Previous Analysis***

Analysis of geology/soils impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.5, pages 4.5-10 through 4.5-17. See also CEQA Findings, pages 15 and 16.

The previous environmental documents found that long-term impacts due to unstable soil types and seismic-related geologic hazards would be less than significant with the identified mitigation measures incorporated. The previous environmental documents also found that during construction activities, erosion could be accelerated, which could undermine slopes, cause siltation of surface waters, and

expose and damage underground facilities. This impact was found to be less than significant with implementation of identified mitigation measures. Additionally, the previous environmental documents found that impacts to mineral resources would be less than significant.

### ***Analysis of the Proposed Modifications***

The FEIR determined that the overall subsurface profile (including formational deposits of the Santiago Formation) and overlying thickness of non-saturated soils indicated that the potential for large-scale liquefaction to occur at the desalination plant site is very low. In addition, the proposed modifications would adhere to current building code standards that are intended to reduce potential for structural damage resulting from liquefaction.

The proposed modifications would include some excavation for the improvements to the existing intake area. The soil characteristics on the site have not altered since the FEIR and soil characteristics in the localized area beneath the proposed modifications are expected to be the same as those identified throughout the EPS and CDP site. Any soils material removed as part of the proposed modifications would be required to follow the same landfill disposal mitigation measures and regulations as identified in the previously approved environmental documents. Therefore, impacts from the proposed modifications would be less than significant, consistent with the previously certified FEIR. Any potential geologic impacts of the proposed modifications would be mitigated to a less-than-significant level with incorporation of the previously identified mitigation in the FEIR.

The onshore footprint for the proposed modifications is within an existing built-up areas, or on a site adjacent to light industrial and commercial facilities. These areas are not suitable for mineral extraction. Therefore, the proposed modifications would not result in impacts to geology and soils beyond what was originally evaluated in the previous environmental documents and impacts would be less than significant.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in geological, seismic, soils, or mineral resource conditions within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding known geological hazards, conditions, or resources has become available. Therefore, no changes in circumstances and no new information of substantial importance relative to geology and soil resources have been identified.

## ***Conclusion***

None of the proposed modifications or additions involve new significant impacts or a substantial increase in previously identified impacts related to geology, seismic, soils, or mineral resources within the previous environmental documents. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding geological resources which was not known and could not have been known when the previous environmental documents were approved has since been identified. Therefore, the geology/soils impacts and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

## **Hazards and Hazardous Materials**

### ***Previous Analysis***

Analysis of hazards impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.6, pages 4.6-9 through 4.6-17. See also CEQA Findings, pages 16 and 17.

The previous environmental documents determined that construction would require grading and trenching that could potentially disturb and release hazardous materials into the environment from subsurface contamination potentially discovered during construction. The previous environmental documents included measures to mitigate this potential for exposure to unanticipated contamination during construction and impacts were determined to be less than significant.

### ***Analysis of the Proposed Modifications***

During construction, gasoline, diesel fuel, lubricating oil, grease, solvents, paint, and welding gases would potentially be used at the proposed modifications site. The proposed modifications would implement FEIR mitigation measures, which require preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that will include both construction and post-construction pollution prevention and pollution control measures. Additionally, as stated in the FEIR the proposed modifications would be subject to the requirements of the NPDES permit for waste discharges and the City of Carlsbad's Standard Urban Stormwater Management Plan. Potential impacts related to hazards and hazardous materials during construction would be similar to the approved project and would remain less than significant with the proposed modifications.

Construction of the proposed modifications would require additional, but similar, excavation activities as those analyzed in the previous environmental documents. The proposed modifications site was not identified as having contaminated soils that would be released into

the environment upon excavation in the previously certified FEIR. However, the FEIR stated that there was the potential for release or exposure of subsurface contamination during construction at other parts of the CDP site and provided a mitigation measure to reduce this potential impact to less than significant. The proposed modifications would be subject to the same or equivalent mitigation measures identified in the FEIR, which would reduce potential impacts from the exposure of subsurface contamination during construction. Therefore, impacts from the proposed modifications would be less than significant with the incorporation of mitigation measures, consistent with the previously certified FEIR.

The proposed modifications would not result in new impacts or increase the severity of impacts previously considered and identified in the previous environmental documents, and therefore impacts would remain less than significant. With compliance with all applicable laws and implementation of the Water Authority's Emergency Response Plan, long-term impacts from hazards and hazardous materials would remain less than significant.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in hazards or hazardous materials conditions within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding hazards or hazardous materials has become available. Therefore, no changes in circumstances and no new information of substantial importance relative to hazards or hazardous materials have been identified.

### ***Conclusion***

None of the proposed modifications or additions involve new significant impacts or a substantial increase in previously identified impacts related to hazards and hazardous materials. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding hazards and hazardous materials which was not known and could not have been known when the previous environmental documents were approved has since been identified. Therefore, the hazards and hazardous materials impacts and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

## **Hydrology and Water Quality**

### ***Previous Analysis***

Analysis of hydrology/water quality impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.7, pages 4.7-10 through 4.7-25. See also CEQA Findings, pages 17 through 20.

The previous environmental documents concluded that construction of the approved project could result in significant short-term surface water quality impacts associated with exposed soils, fuels, lubricants, and solid and liquid wastes that would be used and stored within active construction areas. The previous environmental documents included measures to avoid or mitigate potential effects by requiring the approved project prepare a SWPPP and, if appropriate, a Stormwater Management Plan (if grading or building permits are determined to be necessary) to reduce water quality impacts to less than significant.

The previous environmental documents concluded that impacts to hydrology and water quality due to installation of the pipelines and associated infrastructure would be less than significant.

### ***Analysis of the Proposed Modifications***

The proposed modifications would not substantially change the salinity levels of the brine discharge or the BMZ compared to the previous environmental documents; specifically, the Supplemental EIR. See the discussion of potential salinity effects of the proposed modifications under Biological Resources.

Ground disturbing construction activities are not anticipated to encounter groundwater on site. If groundwater is encountered, it would be dewatered and project design features and mitigation measures outlined within the FEIR would mitigate any potential impacts associated with groundwater. In addition, if groundwater is encountered on-site, all applicable permits would be obtained. As such, impacts to groundwater would be less than significant. The proposed modifications would not utilize groundwater resources; and would only draw surface water from Agua Hedionda Lagoon. The proposed modifications would not result in a change in groundwater infiltration when compared to the analysis found within the FEIR or change groundwater quality.

Construction of the proposed modifications would require demolition, excavation, grading, which would expose soils and increase erosion potential. Additionally, material stockpiles, fuels, lubricants, and waste would be stored within the construction area. Under the proposed modifications, the Construction Activity Storm Water Permit and other permits obtained from the RWQCB would be changed due to the differences in construction activity as permitted under the FEIR. These changes are not expected to be substantial. Additionally, operations of

the CDP that would alter water quality or waste discharge would not substantially change as a result of the proposed modifications, and discharge requirements established for the desalination plant that have been imposed by the RWQCB to protect receiving waters will be adhered to with the operation of the desalination plant's modified intake and discharge facilities. Therefore, impacts from the proposed modifications would be less than significant, consistent with the previously certified FEIR.

During operations cleaning of the WWS via an air burst may occur to release any trapped debris. Cleaning of the intake laterals via pigging could temporarily release this debris and sediment into the lagoon. However, this debris would consist of naturally occurring biofouling and sediment, identical to existing constituents in the lagoon and ocean water. A floating debris boom would also be installed as part of the project to capture any debris that may affect water quality in the area. As a result, debris removed by pigging and additional flushing water would be directed to the discharge pond and managed by hydraulic sorting (settling) of solids based on particle size and velocities in the discharge pond and by the physical barrier and if needed, a temporary silt curtain (or similar). Debris removal from the discharge pond would be conducted as needed and cleaning operations/debris removal is designed to comply with the California Ocean Plan Water Quality Objectives. Therefore, impacts to water quality during operations and maintenance would be less than significant.

The proposed modifications could result in short-term construction-related surface water impacts that would be reduced to less-than-significant levels with implementation of mitigation measures outlined within the FEIR. Through this mitigation, the previous environmental documents concluded that approved project's impacts to hydrology and water quality would be less than significant. The proposed modifications would also implement these same mitigation measures, resulting in less than significant impacts to hydrology and water quality.

### ***Changes With Respect to the Circumstances under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in hydrology or water quality conditions within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding hydrology or water quality has become available. Therefore, no changes in circumstances and no new information of substantial importance relative to hydrology or water quality have been identified.

### ***Conclusion***

None of the proposed modifications or additions involve new significant impacts or a substantial increase in previously identified impacts related to hydrology and water quality. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding hydrology and water quality which was not known and could not have been known when the previous environmental

documents were approved has since been identified. Therefore, the hydrology and water quality impacts and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

## **Land Use/Planning**

### ***Previous Analysis***

Analysis of land use impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.8, pages 4.8-10 through 4.8-20. See also CEQA Findings, page 20.

The previous environmental documents concluded that land use impacts would be less than significant with mitigation, because short-term construction related effects would not conflict with zoning or land use policies.

### ***Analysis of the Proposed Modifications***

The proposed modifications would modify the intake and discharge facilities, but would not change any aspect of the existing or proposed use of the desalination plant site for seawater intake and discharge that was analyzed under the previous environmental documents. This proposed use would be compatible use under the General Plan Land Use designation of Utility, and Zoning designation of Public Utility. Therefore, there are no changes that would require revisions of the previous environmental documents, no changes with respect to the circumstances under which the project is undertaken, and no new information of importance with regards to conflicts with applicable land use plans.

Construction of the proposed modifications could result in short-term effects to surrounding land uses, including traffic delays, noise, visual effects, and dust. However, these short-term effects would not result in a land use conflicts and are within the scope of the analysis contained in the previous environmental documents. Impacts would remain less than significant with implementation of the proposed modifications.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in land use policies or requirements within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding land use has become available. Therefore, no changes in circumstances and no new information of substantial importance relative to land use have been identified.

## ***Conclusion***

None of the proposed modifications or additions involve new significant impacts or a substantial increase in previously identified impacts related to land use/planning within the previous environmental documents. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding land use/planning which was not known and could not have been known when the previous environmental documents were approved has since been identified. Therefore, the land use/planning impacts and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

## **Noise and Vibration**

### ***Previous Analysis***

An analysis of noise impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.9, pages 4.9-5 through 4.9-14. See also CEQA Findings, pages 20 and 21.

The FEIR analysis indicated that all proposed project-related construction activities would comply with the local jurisdictions' noise ordinance for allowable construction hours. Due to compliance with construction noise restrictions, it was anticipated that construction and operation of the CDP would not result in a significant noise impact based. It was estimated in the FEIR that maximum noise levels would range up to approximately 85 decibels (dB), while the average sound level for an 8-hour work day was expected to range up to approximately 75 dB.

### ***Analysis of the Proposed Modifications***

Construction of the proposed modifications would result in a temporary increase of noise levels in the vicinity of the CDP site. Construction equipment anticipated for development of the proposed modifications includes standard equipment that would be employed for any routine construction project of this scale including tractors/backhoes, trenchers, paving equipment, loaders, graders, cranes, off-highway trucks, and other pieces of heavy construction equipment. The use of construction equipment with substantially higher noise and vibration generation characteristics (such as rock drills, blasting equipment, etc.) is not anticipated for development of the proposed modifications. However, limited pile driving could occur within the existing discharge pond area to create a barrier during construction.

Construction noise is difficult to quantify because of the many variables involved, including the size of equipment used, percentage of time, and number of pieces of equipment that will actually operate on the site. However, maximum construction noise levels at 50 feet would typically range from approximately 75 to 85 dB for the type of equipment anticipated to be used for construction

of the proposed project. The range of maximum noise levels associated with various pieces of construction equipment is depicted in Table 5.

**Table 5**  
**Construction Equipment Noise Emission Levels**

Equipment	Typical Sound Level (dB) 50 Feet from Source
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	76
Crane, derrick	88
Crane, mobile	83
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jackhammer	88
Loader	85
Paver	89
Pile-driver (impact)	101
Pile-driver (sonic)	96
Pneumatic tool	85
Pump	76
Rail saw	90
Rock drill	98
Roller	74
Saw	76
Scraper	89
Truck	88

**Source:** FTA 2006.

The closest residences to the areas where heavy construction equipment would be used (i.e., near the existing CDP and EPS intake areas) would be located approximately 400 feet or more from the closest construction area for the proposed modifications. Based on a conservative scenario with the loudest possible piece of construction equipment (i.e., impact pile driver) operating consistently and assuming standard noise attenuation of 6 dB for every doubling of distance (FTA, 2006), the predicted maximum construction noise levels at the nearest sensitive receptor would be 83 dB. This would not exceed the 85 dB disclosed in the previous environmental documents, and average sound levels for an 8-hour workday would remain below 75 dB due at the nearest residential property line. This noise level could intermittently occur for a few days when construction equipment is operating immediately adjacent to the residential

properties. All construction activity will be limited to the City of Carlsbad's permitted hours of construction. Therefore, the proposed modifications would result in less than significant impacts, consistent with the previously certified FEIR.

Ground-borne vibration is typically attenuated over short distances. Excavation, pile driving, and heavy grading during the potential widening of the intake area may result in a small amount of localized ground-borne vibration and/or noise associated with heavy equipment use. However, construction would not necessitate the use of blasting; therefore, any ground-borne vibration and/or ground-borne noise would be minimal and highly localized. The site is separated from residences by intervening topography, which would ensure that minor levels of vibration and/or ground-borne noise from construction would dissipate before reaching residents. The heavier pieces of construction equipment, including pile drivers, associated with construction of the proposed modifications would result in a peak particle velocity substantially below 0.1 inches/second at the nearest residential property line, which is the point at which continuous vibration can cause annoyance and the exposure of people to excessive ground-borne vibration (FTA, 2006). Furthermore, pile driving is only expected to occur within the discharge pond area, where vibrations would be further attenuated by the water. Construction is not anticipated to result in continuous vibration, nor is it expected to exceed the magnitude listed above.

All construction activity will be limited to the permitted hours of construction. As such, the construction activities would not exceed relevant noise standards. Noise levels at sensitive receptors are not expected to exceed the levels analyzed in the previous environmental documents due to the intermittent nature of construction activities on a day-to-day basis. Additionally, construction would not expose residents to excessive ground-borne vibration. Therefore, the proposed modifications would not result in new significant impacts or increase the severity of impacts identified in the previous environmental documents, and would not change the conclusion that no significant noise impacts would occur.

The noise level increase from the operation of the proposed pumps and the potential for use of motor operated wedgewire screens is expected to be minimal at the nearest sensitive receptor and would not represent a substantial permanent increase in the existing ambient noise level. Furthermore, the pumps would be enclosed in the below grade pump station vault providing additional noise attenuation from operation of the proposed modifications. Additionally, the pumps would be located over 450 feet from the closest sensitive noise receptor and there is intervening topography blocking the line of sight from these receptors, which would substantially reduce noise at these receptors. Because the intake is located within an enclosed lagoon, there is no potential for noise associated with operations to have a substantial impact on fishes or marine mammals.

Noise from similarly pumping and motorized wedgewire screen operations were analyzed in the Supplemental EIR (see Appendix S-A to the Supplemental EIR) and were found to not be

significant. If rotating WWSs are installed as part of the new intake system, underwater noise would be generated by the motors used to operate the rotating screens. However, the screens would only be operated intermittently and for short periods of time throughout a typical day of operation and the noise generated from the rotating screens would be at low sound levels. The low sound level and infrequent nature of the noise that could be generated by the rotating screens would not exceed any relevant thresholds for marine mammals, including the Fisheries Hydroacoustic Working Group (FHWG) interim threshold criteria for harm to fishes or the National Marine Fisheries Service (NMFS) Level B harassment thresholds for low, mid, and high frequency cetaceans. As a result, operation of the intake system using rotating WWSs would not result in a significant noise impact to marine life. As such, operational noise from the pumps analyzed in this addendum would be less than significant.

During maintenance of the proposed modifications, if an air burst system is used it could generate noise from running the compressors. However, if an air burst system is used for maintenance and cleaning of the WWS intake system, it would only be operated intermittently and for short periods of time. Furthermore, the air compressors would be located within a new structure (approximately 16 feet wide, 24 feet long, and 12 feet high) near the new pump station that would attenuate noise during operation of the air compressors. The air compressors would also be located over 400 feet from the nearest sensitive noise receptors, with intervening topography between the receptors and the air compressors that would further attenuate this maintenance-related noise. Additionally, because the intake is located within an enclosed lagoon, there is no potential for noise associated with these maintenance activities to have a substantial impact on fishes or marine mammals. As a result, noise impacts during maintenance would be less than significant.

Additionally, the proposed modifications would not increase the number of daily workers for operation of the CDP that could increase ambient noise levels resulting from vehicle trips to and from the site. Therefore, the proposed modifications would result in less than significant impacts, consistent with the previously environmental documents. Once construction is complete, the proposed modifications are not anticipated to result in additional operational noise that was not previously analyzed in the previous environmental documents. Therefore, noise and vibration effects would be similar to the approved project and impacts would remain less than significant.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in noise or vibration policies or requirements within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding noise or vibration has become available. Therefore, no changes in circumstances and no new information of substantial importance relative to noise or vibration have been identified.

## ***Conclusion***

None of the proposed modifications or additions involve new significant impacts or a substantial increase in previously identified impacts related to noise and vibration. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding noise and vibration which was not known and could not have been known when the previous environmental documents were approved has since been identified. Therefore, the noise and vibration impacts and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

## **Transportation and Traffic**

### ***Previous Analysis***

Analysis of traffic impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.10, pages 4.10-4 through 4.10-13. See also CEQA Findings, pages 21 and 22.

The previous environmental documents concluded that the approved project would result in short-term construction traffic impacts associated with the portions of the off-site pipeline to be located within existing roadways. Temporary construction traffic trips include crew vehicles and deliveries of pipeline and other materials. The previous environmental documents included mitigation measures requiring that construction not result in unacceptable levels of service during peak hour periods on any affected roadways, and that specific traffic control measures as set forth within an approved traffic control plan are implemented. With implementation of mitigation measures, traffic impacts were considered less than significant.

The previous environmental documents also concluded that long-term traffic impacts from inspection and monitoring activities would be less than significant, due to the small percentages that these activities would add to total daily traffic on affected roadways.

### ***Analysis of the Proposed Modifications***

Similar to the previous environmental documents, the proposed modifications could result in short-term construction traffic increases. The proposed modifications would not result in additional workers at the CDP and construction related traffic would be temporary and are not expected to be substantial due to the limited size and schedule for construction related activities. Additionally, construction activities would be confined to the EPS site location and lagoon, and would not utilize public roadways for construction, as with the off-site water delivery pipelines. Construction traffic due to the proposed modifications would be required to adhere to the approved traffic control plan provided as mitigation within the FEIR to ensure

minimal disruption to the level of service of nearby roadways. Therefore, impacts from the proposed modifications would be less than significant with the incorporation of mitigation, consistent with the previous environmental documents.

After construction, vehicle trips associated with operation of the proposed modifications would be similar to those previously analyzed under the previous environmental documents. Furthermore, the proposed modifications would not result in an increase in permanent staffing at the CDP that would create additional operational vehicle trips. As such, the proposed modifications would not result in an increase in traffic on local roadways during operations and maintenance compared to that analyzed in the previous environmental documents. Therefore, long-term impacts to transportation and traffic would be similar to the approved project and impacts would remain less than significant.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in transportation and traffic conditions within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding transportation and traffic has become available. Therefore, no changes in circumstances and no new information of substantial importance relative to transportation and traffic have been identified.

### ***Conclusion***

None of the proposed modifications or additions involve new significant impacts or a substantial increase in previously identified impacts related to transportation and traffic. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding transportation and traffic which was not known and could not have been known when the previous environmental documents were approved has since been identified. Therefore, the transportation and traffic impacts and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

### **Public Utilities and Service Systems**

#### ***Previous Analysis***

Analysis of public utilities and service impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 4.11, pages 4.11-6 through 4.11-22. See also CEQA Findings, pages 23 through 25.

The analysis of public services and utilities in the previous environmental documents concluded that the water treatment plant and associated infrastructure would not result in significant impacts to fire protection services, schools, wastewater treatment facilities, landfills, stormwater drainage

facilities, or electric power services. The Supplemental EIR analyzed the increase in energy required to operate intake facilities, including a fish-friendly pump station, and determined that it would not result in the wasteful, inefficient, or unnecessary use of energy during operations.

### ***Analysis of the Proposed Modifications***

The proposed modifications would not result in residential, commercial, or industrial growth, and therefore, similar to the approved project, would not require additional services or utilities. The proposed modifications are similar to the facilities analyzed for operation in the Supplemental EIR, including continual operation of a fish-friendly pump station and energy used to operate the active/rotating screens. Therefore, the proposed modifications would not use a substantially different amount of energy than what was analyzed in the Supplemental EIR for the pump station and active/rotating screens. All energy use required to deliver product water to the components of the proposed modifications would be incurred by pumps at the CDP and part of the proposed modifications, and this energy use was previously analyzed in the previous environmental documents. Therefore, the proposed modifications would not result in any new significant impacts or increase the severity of impacts identified in the previous environmental documents and would not change the conclusion that no significant impacts to public utilities and services would occur.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There have been no substantial changes in public utilities and services, or to the requirements of agencies that provide such services within the area of the proposed modifications since the time of certification of the previous environmental documents. Additionally, no new information of substantial importance regarding public utilities and services has become available. Therefore, no changes in circumstances and no new information of substantial importance relative to public utilities and services have been identified.

### ***Conclusion***

None of the proposed modifications or additions involve new significant impacts or a substantial increase in previously identified impacts related to public utilities and services. Additionally, there are no substantial changes to the circumstances under which the proposed project will be undertaken, and no new information of substantial importance regarding public utilities and services which was not known and could not have been known when the previous environmental documents were approved has since been identified. Therefore, the public utilities and services impacts and the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Sections 15162.

## **8.0 CUMULATIVE IMPACTS**

### **Previous Analysis**

Analysis of cumulative impacts and EIR-identified mitigation measures of the approved project are contained in the FEIR, Section 5.0, pages 5-1 through 5-13. See also CEQA Findings, pages 25 through 27.

### ***Analysis of the Proposed Modifications***

The type and extent of construction activities and the operational characteristics associated with the proposed modifications would not be substantially different from what was evaluated in the previous environmental documents for the approved project. Therefore, no changes relative to the analysis or conclusions regarding cumulative impacts would occur with the proposed modifications, and the findings of the previous environmental documents remain the same for the revised proposed project.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

Since approval of the previous environmental documents, additional cumulative development may have been proposed and/or constructed. The amount of land development projects that have been proposed and/or developed in the intervening time since the preparation of the previous environmental documents is not considered to be substantial. The following provides a cumulative analysis of the proposed modifications.

### ***Aesthetics***

The proposed modifications would be of a similar scale and architecture of the surrounding industrial area and would mostly occur within existing developed areas, underground, or submerged in the lagoon out of sight. The floating debris boom would be located on the water surface within the lagoon but would not extend more than a few feet above the water surface and would be located to a small portion of the lagoon area occupied by the new WWS intake. As such, the incremental effect of the proposed modifications on any potential significant cumulative impact would not be cumulatively considerable.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative aesthetic impacts which was not known and could not have been known when the previous environmental documents were approved that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative aesthetic impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

## ***Air Quality and Greenhouse Gas Emissions***

The proposed modifications contribution to temporary regional or localized cumulative air quality impacts is not considered to be significant because construction of the proposed modifications occurs over a relatively short time period and occupies a relatively small area. This is primarily due to the short-term nature of cumulative effects within the vicinity of the proposed modifications. Any additional cumulative development would not change these conclusions because the scope of the cumulative development is relatively small within the context of the air basin, and because as noted in the previous environmental documents construction-related emissions would be short-term in nature. There would not be a substantial increase in new operational air pollutant emissions not already considered in the previous environmental documents. Furthermore, the Findings of Fact and Statement of Overriding Considerations for the Supplemental EIR determined that indirect criteria pollutant emissions from electrical generation to operate the approved project would result in a cumulative impact. The proposed project's indirect operational emissions would be similar to those analyzed in the Supplemental EIR and would not substantially change this previously identified cumulative impact.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative air quality impacts which was not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative air quality impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

## ***Biological Resources***

The proposed modifications do not involve new significant impacts or a substantial increase in previously identified impacts since the new intake system is designed to further minimize marine life mortality and impacts. This includes minimizing impacts from salinity levels and the BMZ, entrapment and impingement through intake configuration and low intake velocities, and entrainment by using 1-mm WWS intake arrays and a fish-friendly pumping system. This conclusion would not be changed with additional cumulative development due to the limited scope of proposed modifications and the fact that the incremental effect of the proposed modifications on any potential significant cumulative impact in the context of the Pacific Ocean would not be cumulatively considerable.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative biological impacts which was not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative biological impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

### ***Cultural Resources***

The proposed modifications will require relatively minor grading and excavation at an already disturbed site. The mitigation measures required for the approved project provides for avoidance, documentation, and/or recovery of important cultural resources, and as a result, all impacts related to cultural resources are reduced to less-than-significant levels. As such, the proposed modifications would not have a cumulatively considerable contribution to a cumulative cultural resource impact. Similar mitigation measures would also be required for any additional cumulative development, and therefore the level of cumulative impact would not change.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative cultural resource impacts which was not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative cultural resource impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

### ***Geology and Soils***

The proposed modifications will require relatively minor site preparation and excavation of soils. The approved project mitigation to control and address erosion and seismic and soils hazards, in conjunction with similar standard measures required of cumulative development, would reduce cumulative impacts to less-than-significant levels. This includes following existing regulations and mitigation measures from the previously approved environmental documents for the proper disposal of soil material from construction and maintenance. Therefore, the proposed modifications would not have a cumulatively considerable contribution to a cumulative impact related to geology and soils.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative geology/soils impacts which were not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative geology and soils impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

### ***Hazards and Hazardous Materials***

The proposed modifications, as well as other cumulative development, would be subject to existing regulatory controls that would result in minimization of hazards, and therefore the previous environmental documents concluded that the proposed project would not contribute to cumulative considerable increases in hazards or hazardous materials. Any additional cumulative development would have similar regulatory controls.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative hazard impacts which was not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative hazards impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

### ***Hydrology and Water Quality***

The proposed modifications would not contribute to cumulatively considerable impacts because construction would be temporary and subject to existing regulatory controls. Impacts of any additional cumulative development would be similar, and would be subject to similar regulatory control measures. Operational effects of increased salinity levels for the proposed modification would be limited to the BMZ, which was analyzed in the previous environmental documents and found to be less than significant. The release of floating debris during maintenance and cleaning of the new WWS intake system would be collected and disposed of using floating debris booms, silt screens, and settling in the existing discharge pond in compliance with California Ocean Plan Water Quality Objectives.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative hydrology/water quality impacts which was not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative hydrology/water quality impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

### ***Land Use and Planning***

The proposed modifications would not contribute to significant impacts resulting from cumulative development that may have the effect of dividing an established community or conflicting with land use or environmental policies. The proposed modifications would not involve any land use designation changes and therefore would not be cumulatively considerable. Furthermore, any additional cumulative development would be subject to the existing regulations, plans, and land use planning standards that would limit potential cumulative impacts.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative land use impacts which was not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative land use impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

### ***Noise and Vibration***

The proposed modifications will not result in cumulatively considerable construction noise and vibration because existing construction noise regulations and the relatively short time frame for construction would prevent such an occurrence. Construction of the proposed modifications would result in noise levels below those analyzed in the previous environmental documents and would have a less than significant impact. Further, any additional cumulative development would be subject to the existing noise regulations that would limit potential cumulative impacts. Operational noise would be similar to what was analyzed in the previous environmental documents and found to be less than significant.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative noise and vibration impacts which was not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative noise and vibration impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

### ***Transportation and Traffic***

Similar to noise impacts, traffic impacts from the proposed modifications are primarily associated with construction. Since the time frame for construction is relatively short and traffic control plans to minimize traffic impacts are required, it is not anticipated that a substantial increase in current traffic levels resulting from cumulative development will occur prior to completion of construction for the proposed modifications. Any additional cumulative development would not change these conclusions because the construction travel routes are not anticipated to substantially conflict with construction traffic for the proposed modifications and such development would be subject to existing regulations requiring traffic control plans that would limit potential cumulative impacts.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative traffic impacts which was not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative traffic impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

### ***Public Utilities and Service Systems***

The cumulative impacts analysis for energy and wastewater were considered to be less than significant because the proposed modifications would not increase the need for public utilities or services above what was previously analyzed. Energy use by a similar intake system, including a fish-friendly pump station and rotating screen intake was analyzed in the Supplemental EIR and

found to be less than significant. Similarly, the proposed modifications would not substantially alter the energy use of the approved project compared to what was analyzed in the previous environmental documents. The additional cumulative development would not change the analysis or conclusions of the previous environmental documents because they would not result in substantial additional demand on such systems.

There are no substantial changes to the circumstances under which the approved project will be undertaken and no new information of substantial importance relative to cumulative utilities/services impacts which were not known and could not have been known when the previous environmental documents were approved, that has since been identified. Therefore, the effects of additional cumulative development regarding cumulative utilities/services impacts do not meet the standards for a subsequent or supplemental EIR pursuant to CEQA Guidelines, Sections 15162.

## **9.0 GROWTH-INDUCING IMPACTS**

### **Previous Analysis**

Analysis of growth-inducing impacts of the approved project are contained in the FEIR, Section 9.0, pages 9-1 through 9-7. See also CEQA Findings, pages 54 and 55.

### ***Analysis of the Proposed Modifications***

The proposed modifications would not increase the capacity of the CDP that wasn't already analyzed in the previous environmental documents. Therefore, the proposed modifications would not result any additional residential, commercial, or industrial growth from what was evaluated in the previous environmental documents. Therefore, no changes relative to the analysis or conclusions related to growth inducement would occur with the proposed modifications.

### ***Changes With Respect to the Circumstances Under Which the Proposed Project is Undertaken/New Information***

There are no substantial changes under which the approved project will be undertaken, because there are no substantial changes in growth potential or growth planning that would affect the analysis contained in the previous environmental documents. No new information of substantial importance relative to growth inducement has become available since the certification of the previous environmental documents.

## **10.0 CONCLUSION**

Impacts associated with the proposed modifications would not result in a new significant impact or substantial increase in the severity of identified impacts in the previous environmental documents. There are no substantial changes to the circumstances under which the approved

project will be undertaken, and no new information of substantial importance which was not known and could not have been known when the previous environmental documents were approved, and that have since been identified. Therefore, the proposed modifications do not meet the standards for a subsequent or supplemental EIR as provided pursuant to CEQA Guidelines, Section 15162 et. seq.. As such, this Sixth Addendum to the FEIR satisfies CEQA requirements for the proposed modifications described herein.

## **11.0 REFERENCES**

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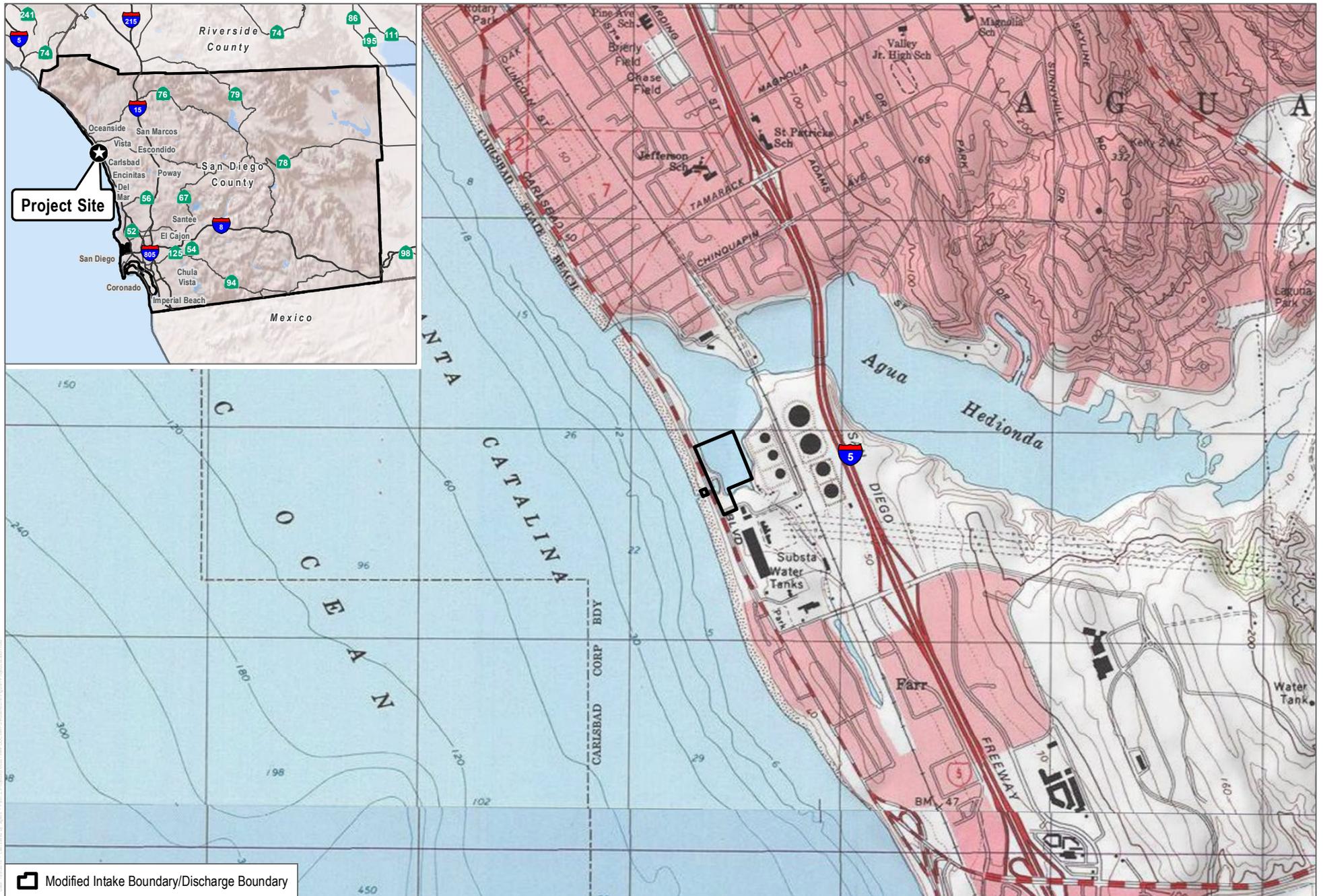
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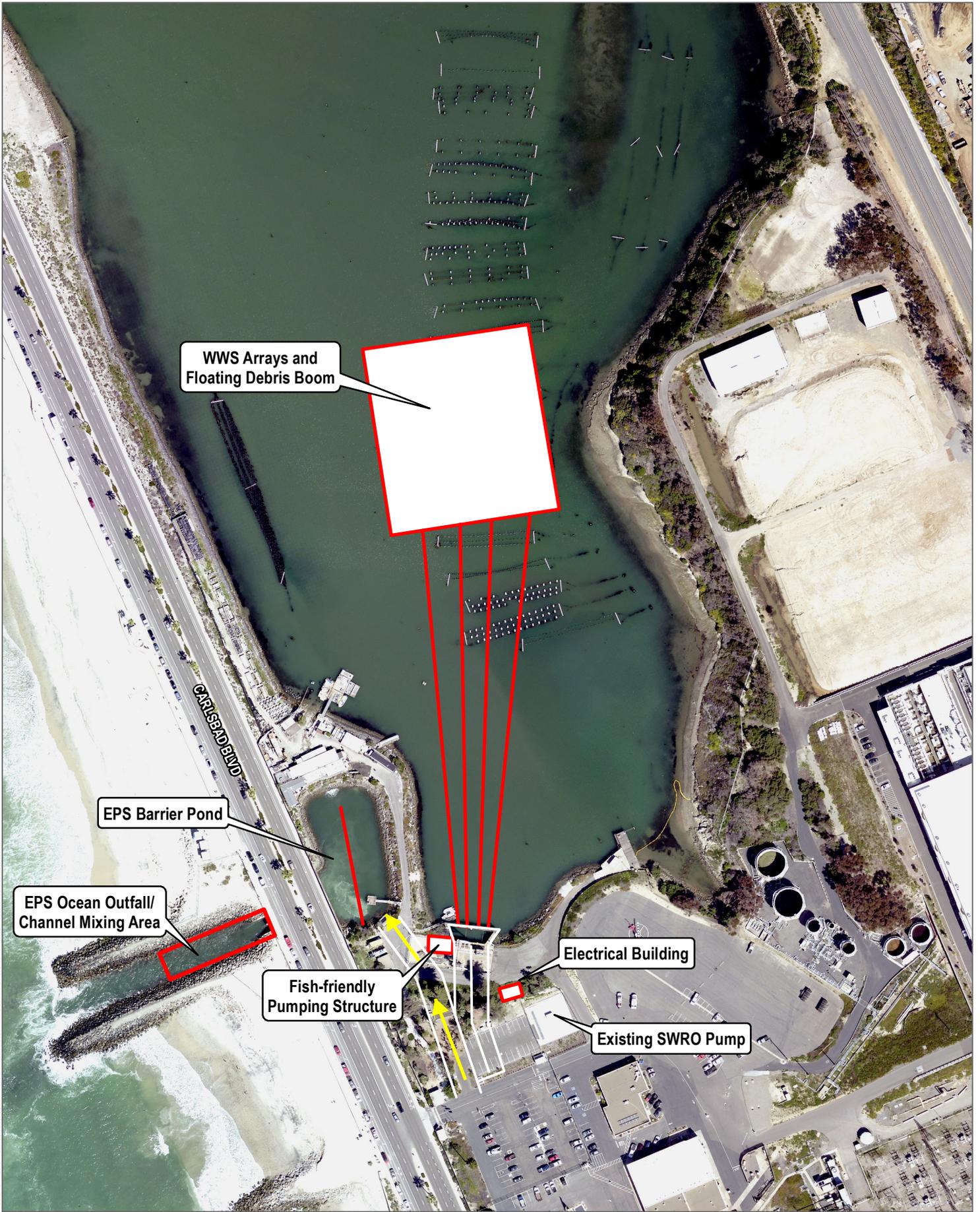
Water Authority. 2013. *Third CEQA Addendum for the Precise Development Plan and Desalination Plant proposed project Final EIR*. September 2013.



SOURCE: USGS 7.5-Minute Series San Luis Rey Quadrangle

**FIGURE 1**

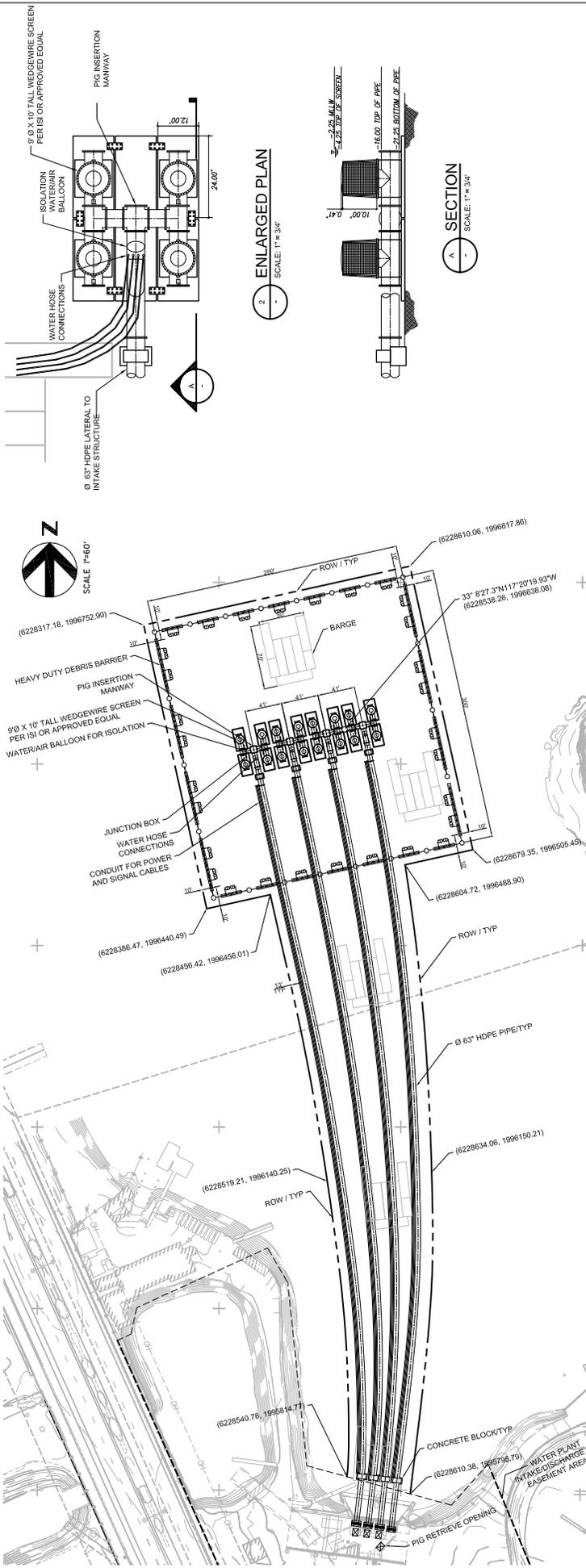
**Project Location**



SOURCE: SANGIS 2017



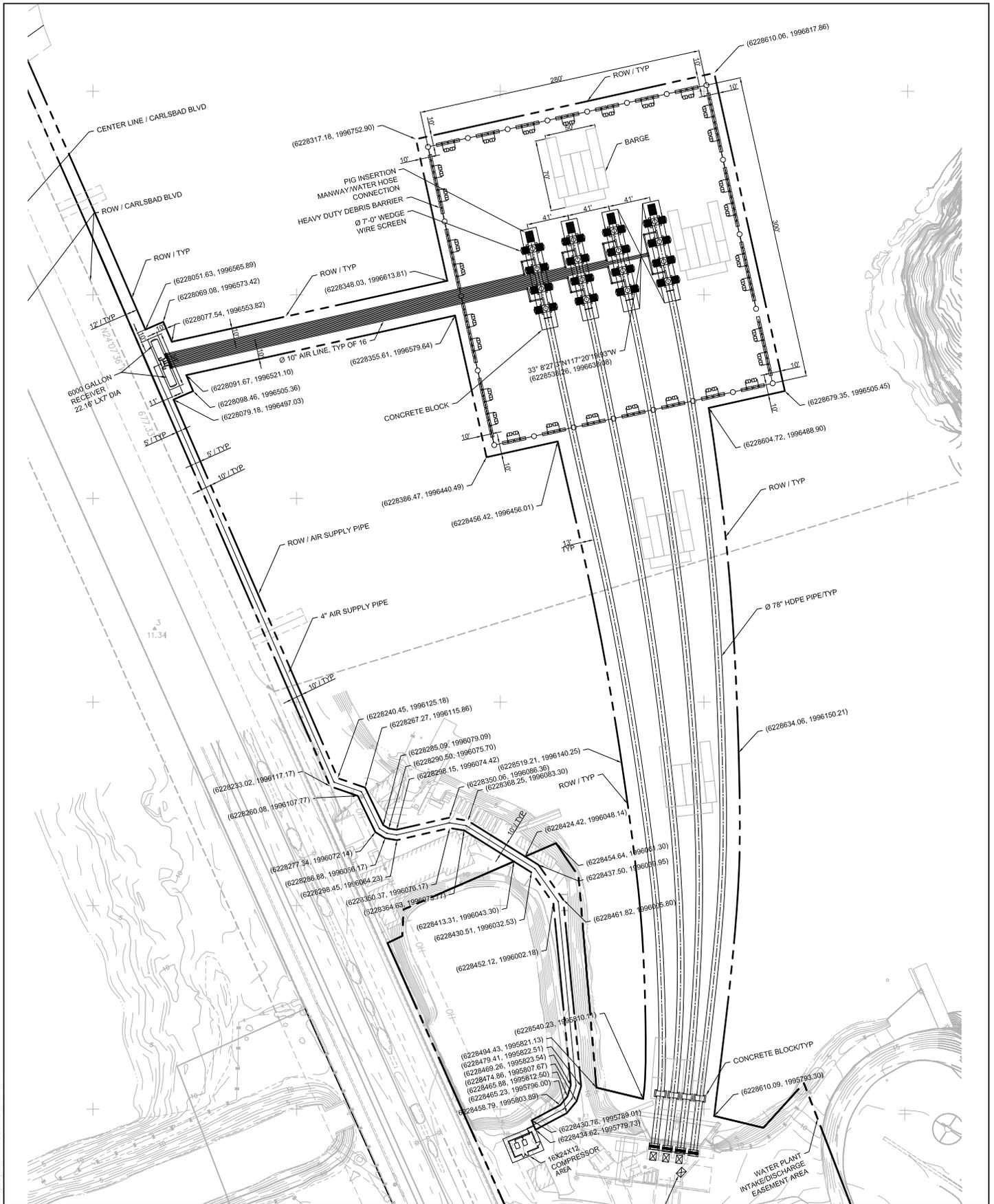
**FIGURE 2**  
 Proposed Modifications Location  
 Carlsbad Desalination Plant 6th Addendum



**FIGURE 3**  
New Active WWS Intake Site Plan  
Carlsbad Desalination Plant 6th Addendum

SOURCE: Poseidon Channelside 2017





SOURCE: Poseidon Channelside 2017

FIGURE 4

New Passive WWS Intake Site Plan  
Carlsbad Desalination Plant 6th Addendum



Modified Intake Boundary/Discharge Boundary  
 Alternative New Fish-friendly Pumping Station

SOURCE: SANGIS 2017

**DUDEK**

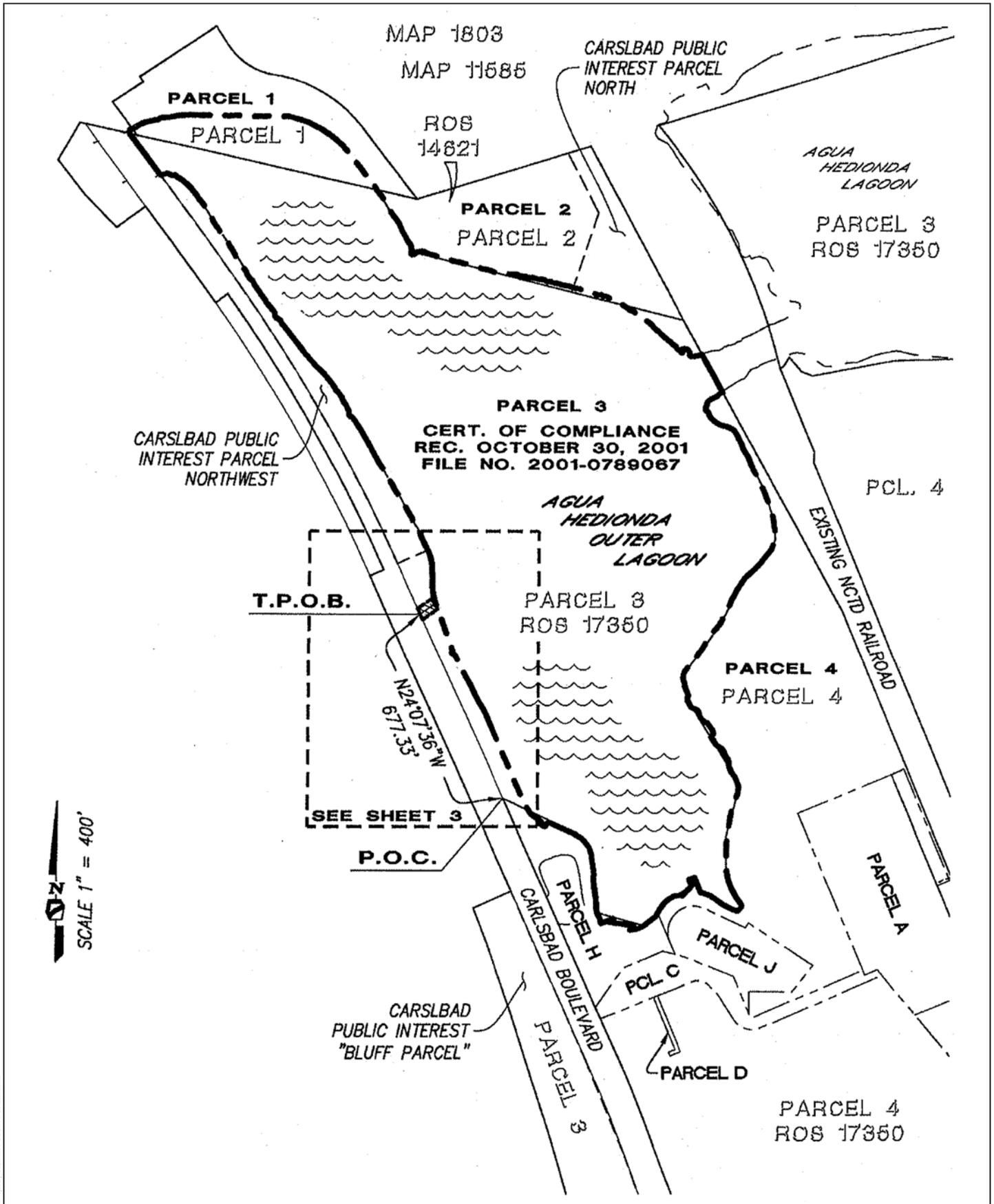


0 50 100 Feet

**FIGURE 5**

**Alternative New Fish-friendly Pumping Station**

Carlsbad Desalination Plant 6th Addendum



SOURCE: Poseidon Channelside 2017

FIGURE 6

Posiedon Fishing Beach Easement  
Carlsbad Desalination Plant 6th Addendum

# **APPENDIX A**

*Air Quality and Greenhouse Gases*

# **Construction Emissions**

**Demonstration Project Marine Vessels Assumptions**

<b>Vessel 1 - Demonstration Project</b>	
Name	Tug Boat
Vessel Type	Tug Boats
Main Engine Power (hp)	1000
Engine Power Range (Low)	751
Engine Power Range (High)	1900
Main Engine Power (kW)	745.7
Number of Main Engines	1
Auxiliary Engine Power (hp)	100
Auxiliary Engine Power (kW)	74.57
Number of Auxiliary Engines	1
Main Engine Load Factor	0.5
Auxiliary Engine Load Factor	0.31
Main Engine Model Year	2000
Model Year Range (Low)	2000
Model Year Range (High)	2003
Main Engine Age	19
Main Engine Useful Life	21
Auxiliary Engine Model Year	2000
Auxiliary Engine Age	19
Auxiliary Engine Useful Life	23
Brake Specific Fuel Consumption (g/hp-h)	184
Operational Time (hours/day)	4
Work Days (days)	20
Operational Year	2019

<b>Vessel 2 - Demonstration Project</b>	
Name	Crew Boat
Vessel Type	Crew and Supply
Main Engine Power (hp)	500
Engine Power Range (Low)	251
Engine Power Range (High)	500
Main Engine Power (kW)	372.85
Number of Main Engines	1
Auxiliary Engine Power (hp)	100
Auxiliary Engine Power (kW)	74.57
Number of Auxiliary Engines	1
Main Engine Load Factor	0.45
Auxiliary Engine Load Factor	0.43
Main Engine Model Year	2000
Model Year Range (Low)	2000
Model Year Range (High)	2003
Main Engine Age	19
Main Engine Useful Life	22
Auxiliary Engine Model Year	2000
Auxiliary Engine Age	19
Auxiliary Engine Useful Life	22
Brake Specific Fuel Consumption (g/hp-h)	184
Operational Time (hours/day)	4
Work Days (days)	20
Operational Year	2019

**Emissions Factors**

Vessel	Engines	g/kW-h		g/kW-h			g/kW-h		g/hp-h	
		ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>		
Tug Boat	Main	0.68		7.31	1.97	0.00276	0.36	0.3528	545.6	
	Auxiliary	0.81		7.31	2.78	0.00276	0.32	0.3136	545.6	
Crew Boat	Main	0.68		7.31	1.97	0.00276	0.36	0.3528	545.6	
	Auxiliary	0.81		7.31	2.78	0.00276	0.32	0.3136	545.6	

**Engine Load Factor**

	Tug Boat	Crew Boat
Main	0.50	0.45
Auxiliary	0.31	0.43

**Engine Useful Life**

	Tug Boat	Crew Boat
Main	21	22
Auxiliary	23	22

**Engine Fuel Correction Factor**

Vessel	Engines	ROG	NO <sub>x</sub>	g/kW-h			g/kW-h		CO <sub>2</sub>
				CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>		
Tug Boat	Main		1	0.93	1	1	0.72	0.72	1
	Auxiliary		1	0.93	1	1	0.72	0.72	1
Crew Boat	Main		1	0.93	1	1	0.72	0.72	1
	Auxiliary		1	0.93	1	1	0.72	0.72	1

### Engine Deterioration Factor

Vessel	Engines	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Tug Boat	Main		0.44	0.21	0.25	1	0.67	0.67
	Auxiliary		0.28	0.14	0.16	1	0.44	0.44
Crew Boat	Main		0.44	0.21	0.25	1	0.67	0.67
	Auxiliary		0.28	0.14	0.16	1	0.44	0.44

Time to and from Port of San Diego	Tug Boat	Crew Boat
Distance (nautical miles) <sup>a</sup>	37.2	37.2
Speed (knots) <sup>b</sup>	12	12
Time (hours)	3.1	3.1
Max. Daily Number of Trips to or from Port	1	1
Total Number of Trips to or from Port	2	2

a. Distance based on route from Port of San Diego to Agua Hedionda Lagoon.

b. Conservatively assumed that the Santa Barbara Channel Vessel Speed Reduction Trial would apply as slowest speed

### Lagoon Intake Marine Vessels Assumptions

Vessel 1 - Lagoon Intake		Vessel 2 - Lagoon Intake	
Name	Tug Boat	Name	Crew Boat
Vessel Type	Tug Boats	Vessel Type	Crew and Supply
Main Engine Power (hp)	1000	Main Engine Power (hp)	500
Engine Power Range (Low)	751	Engine Power Range (Low)	500
Engine Power Range (High)	1900	Engine Power Range (High)	251
Main Engine Power (kW)	745.7	Main Engine Power (kW)	372.85
Number of Main Engines	1	Number of Main Engines	1
Auxiliary Engine Power (hp)	100	Auxiliary Engine Power (hp)	100
Auxiliary Engine Power (kW)	74.57	Auxiliary Engine Power (kW)	74.57
Number of Auxiliary Engines	1	Number of Auxiliary Engines	1
Main Engine Load Factor	0.5	Main Engine Load Factor	0.45
Auxiliary Engine Load Factor	0.31	Auxiliary Engine Load Factor	0.43
Main Engine Model Year	2000	Main Engine Model Year	2000
Model Year Range (Low)	0	Model Year Range (Low)	0
Model Year Range (High)	1971	Model Year Range (High)	1971
Main Engine Age	22	Main Engine Age	22
Main Engine Useful Life	21	Main Engine Useful Life	22
Auxiliary Engine Model Year	2000	Auxiliary Engine Model Year	2000
Auxiliary Engine Age	22	Auxiliary Engine Age	22
Auxiliary Engine Useful Life	23	Auxiliary Engine Useful Life	22
Brake Specific Fuel Consumption (g/hp-h)	184	Brake Specific Fuel Consumption (g/hp-h)	184
Operational Time (hours/day)	8	Operational Time (hours/day)	8
Work Days (days)	20	Work Days (days)	20
Operational Year	2022	Operational Year	2022

Emissions Factors		g/kW-h	g/kW-h	g/kW-h	g/hp-h	g/kW-h	g/kW-h	g/hp-h
Vessel	Engines	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Tug Boat	Main		0.68	7.31	1.97	0.00276	0.36	0.3528
	Auxiliary		0.81	7.31	2.78	0.00276	0.32	0.3136
Crew Boat	Main		0.68	7.31	1.97	0.00276	0.36	0.3528
	Auxiliary		0.81	7.31	2.78	0.00276	0.32	0.3136

### Engine Load Factor

	Tug Boat	Crew Boat
Main	0.50	0.45
Auxiliary	0.31	0.43

### Engine Useful Life

	Tug Boat	Crew Boat
Main	21	22
Auxiliary	23	22

### Engine Fuel Correction Factor

Vessel	Engines	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Tug Boat	Main		1	0	1	1	0	0
	Auxiliary		1	0.93	1	1	0.72	0.72
Crew Boat	Main		1	0	1	1	0	0
	Auxiliary		1	0	1	1	0	0

### Engine Deterioration Factor

Vessel	Engines	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Tug Boat	Main	0.44		0.21	0.25	1	0.67	0.67
	Auxiliary	0.28		0.14	0.16	1	0.44	0.44
Crew Boat	Main	0.44		0.21	0.25	1	0.67	0.67
	Auxiliary	0.28		0.14	0.16	1	0.44	0.44

### Time to and from Port of San Diego

	Tug Boat	Crew Boat
Distance (nautical miles) <sup>a</sup>	37.2	37.2
Speed (knots) <sup>b</sup>	12	12
Time (hours)	3.1	3.1
Max. Daily Number of Trips to or from Port	1	1
Total Number of Trips to or from Port	2	2

a. Distance based on route from Port of San Diego to Agua Hedionda Lagoon.

b. Conservatively assumed that the Santa Barbara Channel Vessel Speed Reduction Trial would apply as slowest speed

SOURCE: CARB 2007a. Appendix B, Emissions Estimation Methodology for Commercial Harbor Craft Operating in California

**Demonstration Project**

**Maximum Daily Emissions From Construction**

**pounds/day**

**MT/day**

	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
<b>Vessel Emissions</b>	5.00	42.18	13.02	0.04	2.13	2.09	64.32
<b>Onshore Emissions</b>	4.85	50.50	28.74	0.08	3.70	2.26	3.43
<b>Total</b>	9.85	92.68	41.76	0.12	5.83	4.35	67.75

**Total Annual Emissions From Construction**

**tons/year**

**MT/year**

	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
<b>Vessel Emissions</b>	0.09	0.75	0.23	0.00	0.04	0.04	114.17
<b>Onshore Emissions</b>	0.21	1.82	1.33	0.01	0.11	0.09	251.38
<b>Total</b>	0.30	2.57	1.56	0.01	0.15	0.13	365.55

**Lagoon Intake**

**Maximum Daily Emissions From Construction**

**pounds/day**

**MT/day**

	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
<b>Vessel Emissions</b>	10.44	86.41	26.77	0.08	4.50	4.41	6.91
<b>Onshore Emissions</b>	3.66	38.43	28.91	0.11	2.85	1.29	4.91
<b>Total</b>	14.10	124.84	55.68	0.19	7.35	5.70	11.82

**Total Annual Emissions From Construction**

**tons/year**

**MT/year**

	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>SOx</b>	<b>PM10</b>	<b>PM2.5</b>	<b>CO2</b>
<b>Vessel Emissions</b>	0.14	1.20	0.37	0.00	0.06	0.06	191.76
<b>Onshore Emissions</b>	0.37	3.06	2.76	0.01	0.16	0.13	652.16
<b>Total</b>	0.51	4.26	3.13	0.01	0.22	0.19	843.92

Carlsbad Desal Intake Alternative 21b - San Diego County, Winter

**Carlsbad Desal Intake Alternative 21b**  
**San Diego County, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	2.00	300.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.6	<b>Precipitation Freq (Days)</b>	40
<b>Climate Zone</b>	13			<b>Operational Year</b>	2023
<b>Utility Company</b>	San Diego Gas & Electric				
<b>CO2 Intensity (lb/MW hr)</b>	720.49	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics -
- Land Use - user defined inputs
- Construction Phase - project schedule; demonstration project in phase 1 interim
- Off-road Equipment -
- Off-road Equipment - site prep equipment
- Off-road Equipment - demolition equipment
- Off-road Equipment - site work equipment
- Off-road Equipment - concrete work equipment
- Off-road Equipment - mechanical work equipment
- Off-road Equipment - electrical work equipment
- Off-road Equipment - mobilization equipment
- Off-road Equipment - site prep equipment
- Off-road Equipment - demolition equipment
- Off-road Equipment - site work equipment
- Off-road Equipment - concrete equipment
- Off-road Equipment - dredging equipment - includes land based and barge based equipment
- Off-road Equipment - demolition equipment
- Off-road Equipment - site work equipment
- Off-road Equipment - concrete equipment
- Off-road Equipment - mechanical equipment
- Off-road Equipment - electrical equipment
- Grading -
- Demolition -
- Trips and VMT - haul trips based on 16 cubic yards per haul
- Construction Off-road Equipment Mitigation - no mitigation assumed

Table Name	Column Name	Default Value	New Value
tbiConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tbiConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tbiConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tbiConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	18.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	21.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	200.00	40.00
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	200.00	75.00
tblConstructionPhase	NumDays	200.00	25.00
tblConstructionPhase	NumDays	4.00	10.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	200.00	60.00
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	200.00	20.00
tblConstructionPhase	NumDays	200.00	20.00
tblGrading	MaterialExported	0.00	5,000.00
tblLandUse	LandUseSquareFeet	0.00	300.00
tblLandUse	LotAcreage	0.00	2.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators





tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	10.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	10.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
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tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	VendorTripNumber	0.00	5.00
tbiTripsAndVMT	WorkerTripNumber	0.00	15.00
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tbiTripsAndVMT	WorkerTripNumber	0.00	25.00
tbiTripsAndVMT	WorkerTripNumber	0.00	15.00
tbiTripsAndVMT	WorkerTripNumber	0.00	15.00
tbiTripsAndVMT	WorkerTripNumber	0.00	15.00
tbiTripsAndVMT	WorkerTripNumber	0.00	15.00
tbiTripsAndVMT	WorkerTripNumber	0.00	15.00
tbiTripsAndVMT	WorkerTripNumber	0.00	15.00
tbiTripsAndVMT	WorkerTripNumber	0.00	15.00
tbiTripsAndVMT	WorkerTripNumber	15.00	25.00
tbiTripsAndVMT	WorkerTripNumber	3.00	10.00
tbiTripsAndVMT	WorkerTripNumber	13.00	25.00
tbiTripsAndVMT	WorkerTripNumber	5.00	10.00
tbiTripsAndVMT	WorkerTripNumber	3.00	10.00
tbiTripsAndVMT	WorkerTripNumber	5.00	15.00

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.8477	50.5030	28.7426	0.0754	1.5560	2.1483	3.7043	0.2659	1.9951	2.2611	0.0000	7,500.8762	7,500.8762	2.0483	0.0000	7,552.0835
2022	3.6549	38.4299	28.9109	0.1048	1.9336	1.2961	2.8451	0.4319	1.2342	1.2984	0.0000	10,777.6157	10,777.6157	2.2137	0.0000	10,832.9570
<b>Maximum</b>	<b>4.8477</b>	<b>50.5030</b>	<b>28.9109</b>	<b>0.1048</b>	<b>1.9336</b>	<b>2.1483</b>	<b>3.7043</b>	<b>0.4319</b>	<b>1.9951</b>	<b>2.2611</b>	<b>0.0000</b>	<b>10,777.6157</b>	<b>10,777.6157</b>	<b>2.2137</b>	<b>0.0000</b>	<b>10,832.9570</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.8477	50.5030	28.7426	0.0754	1.5560	2.1483	3.7043	0.2659	1.9951	2.2611	0.0000	7,500.8762	7,500.8762	2.0483	0.0000	7,552.0835

2022	3.6549	38.4299	28.9109	0.1048	1.9336	1.2961	2.8451	0.4319	1.2342	1.2984	0.0000	10,777.6157	10,777.6157	2.2137	0.0000	10,832.9570
<b>Maximum</b>	<b>4.8477</b>	<b>50.5030</b>	<b>28.9109</b>	<b>0.1048</b>	<b>1.9336</b>	<b>2.1483</b>	<b>3.7043</b>	<b>0.4319</b>	<b>1.9951</b>	<b>2.2611</b>	<b>0.0000</b>	<b>10,777.6157</b>	<b>10,777.6157</b>	<b>2.2137</b>	<b>0.0000</b>	<b>10,832.9570</b>
	<b>ROG</b>	<b>NOx</b>	<b>CO</b>	<b>SO2</b>	<b>Fugitive PM10</b>	<b>Exhaust PM10</b>	<b>PM10 Total</b>	<b>Fugitive PM2.5</b>	<b>Exhaust PM2.5</b>	<b>PM2.5 Total</b>	<b>Bio- CO2</b>	<b>NBio- CO2</b>	<b>Total CO2</b>	<b>CH4</b>	<b>N2O</b>	<b>CO2e</b>
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Interim - mobilization	Site Preparation	6/3/2019	6/7/2019	5	5	
2	Phase 1 Interim - site prep	Site Preparation	6/10/2019	6/14/2019	5	5	
3	Phase 1 Interim - demolition	Demolition	6/17/2019	6/28/2019	5	10	
4	Phase 1 Interim - site work	Building Construction	7/1/2019	8/23/2019	5	40	
5	Phase 1 Interim - concrete	Building Construction	8/26/2019	9/20/2019	5	20	
6	Phase 1 Interim - mechanical	Building Construction	9/23/2019	10/18/2019	5	20	
7	Phase 1 Interim - electrical	Building Construction	10/21/2019	11/15/2019	5	20	
8	Phase 2 - mobilization	Site Preparation	1/3/2022	1/7/2022	5	5	
9	Phase 2 - site prep	Site Preparation	1/10/2022	1/14/2022	5	5	
10	Phase 2 - demolition	Demolition	1/17/2022	1/28/2022	5	10	
11	Phase 2 - site work	Building Construction	1/31/2022	5/13/2022	5	75	
12	Phase 2 - concrete	Building Construction	5/16/2022	6/17/2022	5	25	
13	Lagoon Intake - dredge	Grading	6/20/2022	7/1/2022	5	10	
14	Lagoon Intake - demolition	Demolition	7/4/2022	7/15/2022	5	10	
15	Lagoon Intake - site work	Building Construction	7/18/2022	10/7/2022	5	60	
16	Lagoon Intake - concrete	Building Construction	10/10/2022	11/4/2022	5	20	
17	Lagoon Intake - mechanical	Building Construction	11/7/2022	12/2/2022	5	20	
18	Lagoon Intake - electrical	Building Construction	12/5/2022	12/30/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 2 - demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Lagoon Intake - demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 1 Interim - demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 2 - site work	Cranes	1	8.00	231	0.29
Phase 2 - concrete	Cranes	1	8.00	231	0.29
Lagoon Intake - site work	Cranes	1	8.00	231	0.29
Lagoon Intake - concrete	Cranes	1	8.00	231	0.29
Lagoon Intake - mechanical	Cranes	1	8.00	231	0.29
Lagoon Intake - electrical	Cranes	1	8.00	231	0.29
Phase 1 Interim - site work	Cranes	1	8.00	231	0.29
Phase 1 Interim - concrete	Cranes	1	8.00	231	0.29
Phase 1 Interim - mechanical	Cranes	1	8.00	231	0.29
Phase 1 Interim - electrical	Cranes	1	8.00	231	0.29
Phase 2 - site work	Forklifts	1	8.00	89	0.20

Phase 2 - concrete	Forklifts	1	8.00	89	0.20
Lagoon Intake - site work	Forklifts	1	8.00	89	0.20
Lagoon Intake - concrete	Forklifts	1	8.00	89	0.20
Lagoon Intake - mechanical	Forklifts	1	8.00	89	0.20
Lagoon Intake - electrical	Forklifts	1	8.00	89	0.20
Phase 1 Interim - concrete	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Interim - mechanical	Pumps	2	8.00	84	0.74
Phase 1 Interim - mechanical	Forklifts	2	8.00	89	0.20
Phase 2 - site prep	Excavators	1	8.00	158	0.38
Phase 2 - site work	Generator Sets	1	8.00	84	0.74
Lagoon Intake - dredge	Cranes	1	8.00	231	0.29
Lagoon Intake - site work	Generator Sets	1	8.00	84	0.74
Lagoon Intake - mechanical	Off-Highway Trucks	1	8.00	300	0.38
Lagoon Intake - mechanical	Generator Sets	1	8.00	84	0.74
Lagoon Intake - electrical	Generator Sets	1	8.00	84	0.74
Phase 1 Interim - concrete	Cement and Mortar Mixers	2	8.00	9	0.56
Phase 1 Interim - demolition	Off-Highway Trucks	4	8.00	300	0.38
Phase 2 - demolition	Excavators	1	8.00	158	0.38
Phase 1 Interim - electrical	Generator Sets	1	8.00	84	0.74
Phase 1 Interim - site prep	Excavators	1	8.00	158	0.38
Lagoon Intake - demolition	Excavators	1	8.00	158	0.38
Phase 1 Interim - demolition	Cranes	1	8.00	231	0.29
Phase 2 - demolition	Off-Highway Trucks	4	8.00	300	0.38
Phase 2 - site work	Off-Highway Trucks	4	8.00	300	0.38
Phase 2 - concrete	Cement and Mortar Mixers	2	8.00	9	0.56
Lagoon Intake - site work	Pumps	2	8.00	84	0.74
Phase 1 Interim - site work	Forklifts	1	8.00	89	0.20
Phase 1 Interim - demolition	Excavators	1	8.00	158	0.38
Lagoon Intake - demolition	Off-Highway Trucks	2	8.00	300	0.38
Phase 1 Interim - demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 - concrete	Off-Highway Trucks	2	8.00	300	0.38
Phase 2 - site work	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 - concrete	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Lagoon Intake - site work	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Lagoon Intake - concrete	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Lagoon Intake - mechanical	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Lagoon Intake - electrical	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Interim - site work	Off-Highway Trucks	3	8.00	300	0.38
Lagoon Intake - dredge	Off-Highway Trucks	4	8.00	300	0.38
Phase 1 Interim - mechanical	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Interim - electrical	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 - demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Lagoon Intake - demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Interim - site work	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Interim - mobilization	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Lagoon Intake - dredge	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Lagoon Intake - concrete	Cement and Mortar Mixers	2	8.00	9	0.56
Phase 2 - mobilization	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 - site prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 2 - site work	Welders	2	8.00	46	0.45
Lagoon Intake - concrete	Off-Highway Trucks	2	8.00	300	0.38
Lagoon Intake - site work	Welders	1	8.00	46	0.45

Phase 1 Interim - electrical	Forklifts	2	7.00	89	0.20
Lagoon Intake - mechanical	Welders	1	8.00	46	0.45
Lagoon Intake - electrical	Welders	1	8.00	46	0.45
Phase 1 Interim - concrete	Forklifts	1	8.00	89	0.20
Phase 2 - concrete	Generator Sets	1	8.00	84	0.74
Phase 1 Interim - mechanical	Welders	2	8.00	46	0.45
Phase 1 Interim - electrical	Welders	2	8.00	46	0.45
Phase 1 Interim - site work	Excavators	1	8.00	158	0.38
Phase 1 Interim - site prep	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Phase 1 Interim - site work	Bore/Drill Rigs	1	2.00	221	0.50
Lagoon Intake - concrete	Generator Sets	1	8.00	84	0.74
Phase 1 Interim - site work	Generator Sets	1	8.00	84	0.74
Phase 1 Interim - concrete	Generator Sets	1	8.00	84	0.74
Phase 1 Interim - mechanical	Generator Sets	1	8.00	84	0.74
Lagoon Intake - dredge	Graders	1	8.00	187	0.41
Phase 1 Interim - concrete	Off-Highway Trucks	2	8.00	300	0.38
Lagoon Intake - site work	Off-Highway Trucks	4	8.00	300	0.38
Phase 2 - demolition	Rubber Tired Dozers	1	8.00	247	0.40
Lagoon Intake - demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 1 Interim - demolition	Rubber Tired Dozers	1	8.00	247	0.40
Phase 2 - concrete	Welders	3	8.00	46	0.45
Lagoon Intake - concrete	Welders	3	8.00	46	0.45
Phase 1 Interim - site work	Welders	3	8.00	46	0.45
Phase 1 Interim - concrete	Welders	3	8.00	46	0.45

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 2 - site work	7	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 - concrete	10	15.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Lagoon Intake - site work	7	25.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Lagoon Intake - concrete	10	15.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Lagoon Intake - mechanical	6	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Lagoon Intake - electrical	5	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Interim - site work	9	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Interim - concrete	9	15.00	10.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Interim - mechanical	9	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Interim - electrical	7	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 - demolition	6	15.00	0.00	18.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Lagoon Intake - demolition	6	25.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Interim - demolition	6	15.00	0.00	76.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Interim - mobilization	1	10.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Lagoon Intake - dredge	5	25.00	5.00	626.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Interim - site prep	2	10.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 - mobilization	1	10.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 - site prep	2	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

**3.2 Phase 1 Interim - mobilization - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2037	2.0452	2.0148	2.7200e-003		0.1365	0.1365		0.1256	0.1256		269.0991	269.0991	0.0851		271.2276
<b>Total</b>	<b>0.2037</b>	<b>2.0452</b>	<b>2.0148</b>	<b>2.7200e-003</b>		<b>0.1365</b>	<b>0.1365</b>		<b>0.1256</b>	<b>0.1256</b>		<b>269.0991</b>	<b>269.0991</b>	<b>0.0851</b>		<b>271.2276</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122		144.5540
Worker	0.0444	0.0308	0.2924	8.2000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		81.6914	81.6914	2.6400e-003		81.7573
<b>Total</b>	<b>0.0684</b>	<b>0.6512</b>	<b>0.4698</b>	<b>2.1700e-003</b>	<b>0.1160</b>	<b>4.9800e-003</b>	<b>0.1210</b>	<b>0.0315</b>	<b>4.7400e-003</b>	<b>0.0363</b>		<b>225.9415</b>	<b>225.9415</b>	<b>0.0148</b>		<b>226.3113</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2037	2.0452	2.0148	2.7200e-003		0.1365	0.1365		0.1256	0.1256	0.0000	269.0991	269.0991	0.0851		271.2276
<b>Total</b>	<b>0.2037</b>	<b>2.0452</b>	<b>2.0148</b>	<b>2.7200e-003</b>		<b>0.1365</b>	<b>0.1365</b>		<b>0.1256</b>	<b>0.1256</b>	<b>0.0000</b>	<b>269.0991</b>	<b>269.0991</b>	<b>0.0851</b>		<b>271.2276</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122		144.5540
Worker	0.0444	0.0308	0.2924	8.2000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		81.6914	81.6914	2.6400e-003		81.7573
<b>Total</b>	<b>0.0684</b>	<b>0.6512</b>	<b>0.4698</b>	<b>2.1700e-003</b>	<b>0.1160</b>	<b>4.9800e-003</b>	<b>0.1210</b>	<b>0.0315</b>	<b>4.7400e-003</b>	<b>0.0363</b>		<b>225.9415</b>	<b>225.9415</b>	<b>0.0148</b>		<b>226.3113</b>

**3.3 Phase 1 Interim - site prep - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	0.4935	5.0192	5.5659	8.2700e-003		0.2854	0.2854		0.2626	0.2626		818.6674	818.6674	0.2590			825.1429
<b>Total</b>	<b>0.4935</b>	<b>5.0192</b>	<b>5.5659</b>	<b>8.2700e-003</b>		<b>0.2854</b>	<b>0.2854</b>		<b>0.2626</b>	<b>0.2626</b>		<b>818.6674</b>	<b>818.6674</b>	<b>0.2590</b>			<b>825.1429</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122			144.5540
Worker	0.0444	0.0308	0.2924	8.2000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		81.6914	81.6914	2.6400e-003			81.7573
<b>Total</b>	<b>0.0684</b>	<b>0.6512</b>	<b>0.4698</b>	<b>2.1700e-003</b>	<b>0.1160</b>	<b>4.9800e-003</b>	<b>0.1210</b>	<b>0.0315</b>	<b>4.7400e-003</b>	<b>0.0363</b>		<b>225.9415</b>	<b>225.9415</b>	<b>0.0148</b>			<b>226.3113</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	0.4935	5.0192	5.5659	8.2700e-003		0.2854	0.2854		0.2626	0.2626	0.0000	818.6674	818.6674	0.2590			825.1429
<b>Total</b>	<b>0.4935</b>	<b>5.0192</b>	<b>5.5659</b>	<b>8.2700e-003</b>		<b>0.2854</b>	<b>0.2854</b>		<b>0.2626</b>	<b>0.2626</b>	<b>0.0000</b>	<b>818.6674</b>	<b>818.6674</b>	<b>0.2590</b>			<b>825.1429</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122			144.5540
Worker	0.0444	0.0308	0.2924	8.2000e-004	0.0822	5.9000e-004	0.0827	0.0218	5.4000e-004	0.0223		81.6914	81.6914	2.6400e-003			81.7573
<b>Total</b>	<b>0.0684</b>	<b>0.6512</b>	<b>0.4698</b>	<b>2.1700e-003</b>	<b>0.1160</b>	<b>4.9800e-003</b>	<b>0.1210</b>	<b>0.0315</b>	<b>4.7400e-003</b>	<b>0.0363</b>		<b>225.9415</b>	<b>225.9415</b>	<b>0.0148</b>			<b>226.3113</b>

**3.4 Phase 1 Interim - demolition - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					1.3000	0.0000	1.3000	0.1969	0.0000	0.1969			0.0000				0.0000
Off-Road	4.7133	48.1506	27.7759	0.0683		2.1386	2.1386		1.9859	1.9859		6,731.6484	6,731.6484	1.9840			6,781.2490
<b>Total</b>	<b>4.7133</b>	<b>48.1506</b>	<b>27.7759</b>	<b>0.0683</b>	<b>1.3000</b>	<b>2.1386</b>	<b>3.4386</b>	<b>0.1969</b>	<b>1.9859</b>	<b>2.1827</b>		<b>6,731.6484</b>	<b>6,731.6484</b>	<b>1.9840</b>			<b>6,781.2490</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0678	2.3062	0.5281	5.9300e-003	0.1328	8.8200e-003	0.1416	0.0364	8.4300e-003	0.0448		646.6907	646.6907	0.0603			648.1986
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003			122.6359
<b>Total</b>	<b>0.1344</b>	<b>2.3524</b>	<b>0.9667</b>	<b>7.1600e-003</b>	<b>0.2560</b>	<b>9.7000e-003</b>	<b>0.2657</b>	<b>0.0691</b>	<b>9.2400e-003</b>	<b>0.0783</b>		<b>769.2278</b>	<b>769.2278</b>	<b>0.0643</b>			<b>770.8345</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					1.3000	0.0000	1.3000	0.1969	0.0000	0.1969			0.0000				0.0000
Off-Road	4.7133	48.1506	27.7759	0.0683		2.1386	2.1386		1.9859	1.9859	0.0000	6,731.6484	6,731.6484	1.9840			6,781.2490
<b>Total</b>	<b>4.7133</b>	<b>48.1506</b>	<b>27.7759</b>	<b>0.0683</b>	<b>1.3000</b>	<b>2.1386</b>	<b>3.4386</b>	<b>0.1969</b>	<b>1.9859</b>	<b>2.1827</b>	<b>0.0000</b>	<b>6,731.6484</b>	<b>6,731.6484</b>	<b>1.9840</b>			<b>6,781.2490</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0678	2.3062	0.5281	5.9300e-003	0.1328	8.8200e-003	0.1416	0.0364	8.4300e-003	0.0448		646.6907	646.6907	0.0603			648.1986
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003			122.6359
<b>Total</b>	<b>0.1344</b>	<b>2.3524</b>	<b>0.9667</b>	<b>7.1600e-003</b>	<b>0.2560</b>	<b>9.7000e-003</b>	<b>0.2657</b>	<b>0.0691</b>	<b>9.2400e-003</b>	<b>0.0783</b>		<b>769.2278</b>	<b>769.2278</b>	<b>0.0643</b>			<b>770.8345</b>

**3.5 Phase 1 Interim - site work - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	4.4242	38.2047	27.7072	0.0619		1.7899	1.7899		1.6887	1.6887		5,960.8771	5,960.8771	1.6354			6,001.7627
<b>Total</b>	<b>4.4242</b>	<b>38.2047</b>	<b>27.7072</b>	<b>0.0619</b>		<b>1.7899</b>	<b>1.7899</b>		<b>1.6887</b>	<b>1.6887</b>		<b>5,960.8771</b>	<b>5,960.8771</b>	<b>1.6354</b>			<b>6,001.7627</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122			144.5540
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003			122.6359
<b>Total</b>	<b>0.0906</b>	<b>0.6666</b>	<b>0.6160</b>	<b>2.5800e-003</b>	<b>0.1571</b>	<b>5.2700e-003</b>	<b>0.1623</b>	<b>0.0424</b>	<b>5.0100e-003</b>	<b>0.0474</b>		<b>266.7872</b>	<b>266.7872</b>	<b>0.0161</b>			<b>267.1899</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	4.4242	38.2047	27.7072	0.0619		1.7899	1.7899		1.6887	1.6887	0.0000	5,960.8771	5,960.8771	1.6354			6,001.7626
<b>Total</b>	<b>4.4242</b>	<b>38.2047</b>	<b>27.7072</b>	<b>0.0619</b>		<b>1.7899</b>	<b>1.7899</b>		<b>1.6887</b>	<b>1.6887</b>	<b>0.0000</b>	<b>5,960.8771</b>	<b>5,960.8771</b>	<b>1.6354</b>			<b>6,001.7626</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122			144.5540
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003			122.6359
<b>Total</b>	<b>0.0906</b>	<b>0.6666</b>	<b>0.6160</b>	<b>2.5800e-003</b>	<b>0.1571</b>	<b>5.2700e-003</b>	<b>0.1623</b>	<b>0.0424</b>	<b>5.0100e-003</b>	<b>0.0474</b>		<b>266.7872</b>	<b>266.7872</b>	<b>0.0161</b>			<b>267.1899</b>

**3.6 Phase 1 Interim - concrete - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6787	29.9441	21.5464	0.0459		1.4671	1.4671		1.3941	1.3941		4,338.1705	4,338.1705	1.1005		4,365.6840
<b>Total</b>	<b>3.6787</b>	<b>29.9441</b>	<b>21.5464</b>	<b>0.0459</b>		<b>1.4671</b>	<b>1.4671</b>		<b>1.3941</b>	<b>1.3941</b>		<b>4,338.1705</b>	<b>4,338.1705</b>	<b>1.1005</b>		<b>4,365.6840</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0480	1.2409	0.3549	2.6900e-003	0.0677	8.7800e-003	0.0765	0.0195	8.4000e-003	0.0279		288.5003	288.5003	0.0243		289.1081
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003		122.6359
<b>Total</b>	<b>0.1146</b>	<b>1.2870</b>	<b>0.7935</b>	<b>3.9200e-003</b>	<b>0.1909</b>	<b>9.6600e-003</b>	<b>0.2006</b>	<b>0.0522</b>	<b>9.2100e-003</b>	<b>0.0614</b>		<b>411.0373</b>	<b>411.0373</b>	<b>0.0283</b>		<b>411.7440</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6787	29.9441	21.5464	0.0459		1.4671	1.4671		1.3941	1.3941	0.0000	4,338.1705	4,338.1705	1.1005		4,365.6840
<b>Total</b>	<b>3.6787</b>	<b>29.9441</b>	<b>21.5464</b>	<b>0.0459</b>		<b>1.4671</b>	<b>1.4671</b>		<b>1.3941</b>	<b>1.3941</b>	<b>0.0000</b>	<b>4,338.1705</b>	<b>4,338.1705</b>	<b>1.1005</b>		<b>4,365.6840</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0480	1.2409	0.3549	2.6900e-003	0.0677	8.7800e-003	0.0765	0.0195	8.4000e-003	0.0279		288.5003	288.5003	0.0243		289.1081
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003		122.6359
<b>Total</b>	<b>0.1146</b>	<b>1.2870</b>	<b>0.7935</b>	<b>3.9200e-003</b>	<b>0.1909</b>	<b>9.6600e-003</b>	<b>0.2006</b>	<b>0.0522</b>	<b>9.2100e-003</b>	<b>0.0614</b>		<b>411.0373</b>	<b>411.0373</b>	<b>0.0283</b>		<b>411.7440</b>

**3.7 Phase 1 Interim - mechanical - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2117	25.8950	21.8839	0.0368		1.5330	1.5330		1.4824	1.4824		3,465.4524	3,465.4524	0.5659		3,479.6008
<b>Total</b>	<b>3.2117</b>	<b>25.8950</b>	<b>21.8839</b>	<b>0.0368</b>		<b>1.5330</b>	<b>1.5330</b>		<b>1.4824</b>	<b>1.4824</b>		<b>3,465.4524</b>	<b>3,465.4524</b>	<b>0.5659</b>		<b>3,479.6008</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122		144.5540
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003		122.6359
<b>Total</b>	<b>0.0906</b>	<b>0.6666</b>	<b>0.6160</b>	<b>2.5800e-003</b>	<b>0.1571</b>	<b>5.2700e-003</b>	<b>0.1623</b>	<b>0.0424</b>	<b>5.0100e-003</b>	<b>0.0474</b>		<b>266.7872</b>	<b>266.7872</b>	<b>0.0161</b>		<b>267.1899</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.2117	25.8950	21.8839	0.0368		1.5330	1.5330		1.4824	1.4824	0.0000	3,465.4524	3,465.4524	0.5659		3,479.6008
<b>Total</b>	<b>3.2117</b>	<b>25.8950</b>	<b>21.8839</b>	<b>0.0368</b>		<b>1.5330</b>	<b>1.5330</b>		<b>1.4824</b>	<b>1.4824</b>	<b>0.0000</b>	<b>3,465.4524</b>	<b>3,465.4524</b>	<b>0.5659</b>		<b>3,479.6008</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122		144.5540
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003		122.6359
<b>Total</b>	<b>0.0906</b>	<b>0.6666</b>	<b>0.6160</b>	<b>2.5800e-003</b>	<b>0.1571</b>	<b>5.2700e-003</b>	<b>0.1623</b>	<b>0.0424</b>	<b>5.0100e-003</b>	<b>0.0474</b>		<b>266.7872</b>	<b>266.7872</b>	<b>0.0161</b>		<b>267.1899</b>

**3.8 Phase 1 Interim - electrical - 2019**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2311	17.8703	14.0230	0.0232		1.0295	1.0295		0.9811	0.9811		2,181.5532	2,181.5532	0.4706		2,193.3193
<b>Total</b>	<b>2.2311</b>	<b>17.8703</b>	<b>14.0230</b>	<b>0.0232</b>		<b>1.0295</b>	<b>1.0295</b>		<b>0.9811</b>	<b>0.9811</b>		<b>2,181.5532</b>	<b>2,181.5532</b>	<b>0.4706</b>		<b>2,193.3193</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122		144.5540
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003		122.6359
<b>Total</b>	<b>0.0906</b>	<b>0.6666</b>	<b>0.6160</b>	<b>2.5800e-003</b>	<b>0.1571</b>	<b>5.2700e-003</b>	<b>0.1623</b>	<b>0.0424</b>	<b>5.0100e-003</b>	<b>0.0474</b>		<b>266.7872</b>	<b>266.7872</b>	<b>0.0161</b>		<b>267.1899</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2311	17.8703	14.0230	0.0232		1.0295	1.0295		0.9811	0.9811	0.0000	2,181.5532	2,181.5532	0.4706		2,193.3193
<b>Total</b>	<b>2.2311</b>	<b>17.8703</b>	<b>14.0230</b>	<b>0.0232</b>		<b>1.0295</b>	<b>1.0295</b>		<b>0.9811</b>	<b>0.9811</b>	<b>0.0000</b>	<b>2,181.5532</b>	<b>2,181.5532</b>	<b>0.4706</b>		<b>2,193.3193</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0240	0.6204	0.1775	1.3500e-003	0.0339	4.3900e-003	0.0382	9.7400e-003	4.2000e-003	0.0139		144.2501	144.2501	0.0122		144.5540
Worker	0.0666	0.0462	0.4386	1.2300e-003	0.1232	8.8000e-004	0.1241	0.0327	8.1000e-004	0.0335		122.5371	122.5371	3.9500e-003		122.6359
<b>Total</b>	<b>0.0906</b>	<b>0.6666</b>	<b>0.6160</b>	<b>2.5800e-003</b>	<b>0.1571</b>	<b>5.2700e-003</b>	<b>0.1623</b>	<b>0.0424</b>	<b>5.0100e-003</b>	<b>0.0474</b>		<b>266.7872</b>	<b>266.7872</b>	<b>0.0161</b>		<b>267.1899</b>

**3.9 Phase 2 - mobilization - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1647	1.6756	2.2379	3.1100e-003		0.0901	0.0901		0.0829	0.0829		301.2390	301.2390	0.0974		303.6746
<b>Total</b>	<b>0.1647</b>	<b>1.6756</b>	<b>2.2379</b>	<b>3.1100e-003</b>		<b>0.0901</b>	<b>0.0901</b>		<b>0.0829</b>	<b>0.0829</b>		<b>301.2390</b>	<b>301.2390</b>	<b>0.0974</b>		<b>303.6746</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0372	0.0230	0.2314	7.4000e-004	0.0822	5.6000e-004	0.0827	0.0218	5.1000e-004	0.0223		73.6526	73.6526	2.0100e-003		73.7028
<b>Total</b>	<b>0.0520</b>	<b>0.5025</b>	<b>0.3681</b>	<b>2.0400e-003</b>	<b>0.1160</b>	<b>1.5200e-003</b>	<b>0.1175</b>	<b>0.0315</b>	<b>1.4300e-003</b>	<b>0.0330</b>		<b>214.2039</b>	<b>214.2039</b>	<b>0.0127</b>		<b>214.5217</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1647	1.6756	2.2379	3.1100e-003		0.0901	0.0901		0.0829	0.0829	0.0000	301.2390	301.2390	0.0974		303.6746
<b>Total</b>	<b>0.1647</b>	<b>1.6756</b>	<b>2.2379</b>	<b>3.1100e-003</b>		<b>0.0901</b>	<b>0.0901</b>		<b>0.0829</b>	<b>0.0829</b>	<b>0.0000</b>	<b>301.2390</b>	<b>301.2390</b>	<b>0.0974</b>		<b>303.6746</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0372	0.0230	0.2314	7.4000e-004	0.0822	5.6000e-004	0.0827	0.0218	5.1000e-004	0.0223		73.6526	73.6526	2.0100e-003		73.7028
<b>Total</b>	<b>0.0520</b>	<b>0.5025</b>	<b>0.3681</b>	<b>2.0400e-003</b>	<b>0.1160</b>	<b>1.5200e-003</b>	<b>0.1175</b>	<b>0.0315</b>	<b>1.4300e-003</b>	<b>0.0330</b>		<b>214.2039</b>	<b>214.2039</b>	<b>0.0127</b>		<b>214.5217</b>

**3.10 Phase 2 - site prep - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3671	3.4526	5.4931	8.2800e-003		0.1760	0.1760		0.1620	0.1620		801.2542	801.2542	0.2591		807.7328
<b>Total</b>	<b>0.3671</b>	<b>3.4526</b>	<b>5.4931</b>	<b>8.2800e-003</b>		<b>0.1760</b>	<b>0.1760</b>		<b>0.1620</b>	<b>0.1620</b>		<b>801.2542</b>	<b>801.2542</b>	<b>0.2591</b>		<b>807.7328</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0706</b>	<b>0.5140</b>	<b>0.4838</b>	<b>2.4100e-003</b>	<b>0.1571</b>	<b>1.7900e-003</b>	<b>0.1589</b>	<b>0.0424</b>	<b>1.6900e-003</b>	<b>0.0441</b>		<b>251.0302</b>	<b>251.0302</b>	<b>0.0137</b>		<b>251.3731</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3671	3.4526	5.4931	8.2800e-003		0.1760	0.1760		0.1620	0.1620	0.0000	801.2542	801.2542	0.2591		807.7328
<b>Total</b>	<b>0.3671</b>	<b>3.4526</b>	<b>5.4931</b>	<b>8.2800e-003</b>		<b>0.1760</b>	<b>0.1760</b>		<b>0.1620</b>	<b>0.1620</b>	<b>0.0000</b>	<b>801.2542</b>	<b>801.2542</b>	<b>0.2591</b>		<b>807.7328</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0706</b>	<b>0.5140</b>	<b>0.4838</b>	<b>2.4100e-003</b>	<b>0.1571</b>	<b>1.7900e-003</b>	<b>0.1589</b>	<b>0.0424</b>	<b>1.6900e-003</b>	<b>0.0441</b>		<b>251.0302</b>	<b>251.0302</b>	<b>0.0137</b>		<b>251.3731</b>

**3.11 Phase 2 - demolition - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					0.3250	0.0000	0.3250	0.0492	0.0000	0.0492			0.0000				0.0000
Off-Road	3.1393	27.0287	22.7658	0.0625		1.1793	1.1793		1.0969	1.0969		6,038.8208	6,038.8208	1.7937			6,083.6639
<b>Total</b>	<b>3.1393</b>	<b>27.0287</b>	<b>22.7658</b>	<b>0.0625</b>	<b>0.3250</b>	<b>1.1793</b>	<b>1.5043</b>	<b>0.0492</b>	<b>1.0969</b>	<b>1.1462</b>		<b>6,038.8208</b>	<b>6,038.8208</b>	<b>1.7937</b>			<b>6,083.6639</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0129	0.4254	0.1189	1.3400e-003	0.0315	1.2200e-003	0.0327	8.6200e-003	1.1700e-003	9.7900e-003		147.6149	147.6149	0.0137			147.9582
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003			110.5543
<b>Total</b>	<b>0.0687</b>	<b>0.4599</b>	<b>0.4660</b>	<b>2.4500e-003</b>	<b>0.1547</b>	<b>2.0500e-003</b>	<b>0.1567</b>	<b>0.0413</b>	<b>1.9400e-003</b>	<b>0.0432</b>		<b>258.0937</b>	<b>258.0937</b>	<b>0.0168</b>			<b>258.5125</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					0.3250	0.0000	0.3250	0.0492	0.0000	0.0492			0.0000				0.0000
Off-Road	3.1393	27.0287	22.7658	0.0625		1.1793	1.1793		1.0969	1.0969	0.0000	6,038.8208	6,038.8208	1.7937			6,083.6639
<b>Total</b>	<b>3.1393</b>	<b>27.0287</b>	<b>22.7658</b>	<b>0.0625</b>	<b>0.3250</b>	<b>1.1793</b>	<b>1.5043</b>	<b>0.0492</b>	<b>1.0969</b>	<b>1.1462</b>	<b>0.0000</b>	<b>6,038.8208</b>	<b>6,038.8208</b>	<b>1.7937</b>			<b>6,083.6639</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0129	0.4254	0.1189	1.3400e-003	0.0315	1.2200e-003	0.0327	8.6200e-003	1.1700e-003	9.7900e-003		147.6149	147.6149	0.0137			147.9582
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003			110.5543
<b>Total</b>	<b>0.0687</b>	<b>0.4599</b>	<b>0.4660</b>	<b>2.4500e-003</b>	<b>0.1547</b>	<b>2.0500e-003</b>	<b>0.1567</b>	<b>0.0413</b>	<b>1.9400e-003</b>	<b>0.0432</b>		<b>258.0937</b>	<b>258.0937</b>	<b>0.0168</b>			<b>258.5125</b>

**3.12 Phase 2 - site work - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1121	24.7501	22.3777	0.0615		1.0441	1.0441		0.9826	0.9826		5,863.9567	5,863.9567	1.6401		5,904.9584
<b>Total</b>	<b>3.1121</b>	<b>24.7501</b>	<b>22.3777</b>	<b>0.0615</b>		<b>1.0441</b>	<b>1.0441</b>		<b>0.9826</b>	<b>0.9826</b>		<b>5,863.9567</b>	<b>5,863.9567</b>	<b>1.6401</b>		<b>5,904.9584</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0706</b>	<b>0.5140</b>	<b>0.4838</b>	<b>2.4100e-003</b>	<b>0.1571</b>	<b>1.7900e-003</b>	<b>0.1589</b>	<b>0.0424</b>	<b>1.6900e-003</b>	<b>0.0441</b>		<b>251.0302</b>	<b>251.0302</b>	<b>0.0137</b>		<b>251.3731</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1121	24.7501	22.3777	0.0615		1.0441	1.0441		0.9826	0.9826	0.0000	5,863.9567	5,863.9567	1.6401		5,904.9584
<b>Total</b>	<b>3.1121</b>	<b>24.7501</b>	<b>22.3777</b>	<b>0.0615</b>		<b>1.0441</b>	<b>1.0441</b>		<b>0.9826</b>	<b>0.9826</b>	<b>0.0000</b>	<b>5,863.9567</b>	<b>5,863.9567</b>	<b>1.6401</b>		<b>5,904.9584</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0706</b>	<b>0.5140</b>	<b>0.4838</b>	<b>2.4100e-003</b>	<b>0.1571</b>	<b>1.7900e-003</b>	<b>0.1589</b>	<b>0.0424</b>	<b>1.6900e-003</b>	<b>0.0441</b>		<b>251.0302</b>	<b>251.0302</b>	<b>0.0137</b>		<b>251.3731</b>

**3.13 Phase 2 - concrete - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7177	20.9587	19.6774	0.0458		0.9188	0.9188		0.8746	0.8746		4,263.5338	4,263.5338	1.0580		4,289.9837
<b>Total</b>	<b>2.7177</b>	<b>20.9587</b>	<b>19.6774</b>	<b>0.0458</b>		<b>0.9188</b>	<b>0.9188</b>		<b>0.8746</b>	<b>0.8746</b>		<b>4,263.5338</b>	<b>4,263.5338</b>	<b>1.0580</b>		<b>4,289.9837</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0297	0.9591	0.2736	2.6100e-003	0.0677	1.9200e-003	0.0696	0.0195	1.8300e-003	0.0213		281.1026	281.1026	0.0214		281.6377
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0854</b>	<b>0.9936</b>	<b>0.6206</b>	<b>3.7200e-003</b>	<b>0.1909</b>	<b>2.7500e-003</b>	<b>0.1937</b>	<b>0.0522</b>	<b>2.6000e-003</b>	<b>0.0548</b>		<b>391.5815</b>	<b>391.5815</b>	<b>0.0244</b>		<b>392.1920</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7177	20.9587	19.6774	0.0458		0.9188	0.9188		0.8746	0.8746	0.0000	4,263.5338	4,263.5338	1.0580		4,289.9837
<b>Total</b>	<b>2.7177</b>	<b>20.9587</b>	<b>19.6774</b>	<b>0.0458</b>		<b>0.9188</b>	<b>0.9188</b>		<b>0.8746</b>	<b>0.8746</b>	<b>0.0000</b>	<b>4,263.5338</b>	<b>4,263.5338</b>	<b>1.0580</b>		<b>4,289.9837</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0297	0.9591	0.2736	2.6100e-003	0.0677	1.9200e-003	0.0696	0.0195	1.8300e-003	0.0213		281.1026	281.1026	0.0214		281.6377
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0854</b>	<b>0.9936</b>	<b>0.6206</b>	<b>3.7200e-003</b>	<b>0.1909</b>	<b>2.7500e-003</b>	<b>0.1937</b>	<b>0.0522</b>	<b>2.6000e-003</b>	<b>0.0548</b>		<b>391.5815</b>	<b>391.5815</b>	<b>0.0244</b>		<b>392.1920</b>

**3.14 Lagoon Intake - dredge - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					0.6005	0.0000	0.6005	0.0679	0.0000	0.0679			0.0000				0.0000
Off-Road	2.5300	23.0987	15.8781	0.0550		0.8667	0.8667		0.7974	0.7974		5,319.2148	5,319.2148	1.7203			5,362.2233
<b>Total</b>	<b>2.5300</b>	<b>23.0987</b>	<b>15.8781</b>	<b>0.0550</b>	<b>0.6005</b>	<b>0.8667</b>	<b>1.4673</b>	<b>0.0679</b>	<b>0.7974</b>	<b>0.8653</b>		<b>5,319.2148</b>	<b>5,319.2148</b>	<b>1.7203</b>			<b>5,362.2233</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.4485	14.7941	4.1363	0.0467	1.0939	0.0424	1.1363	0.2998	0.0406	0.3404		5,133.7183	5,133.7183	0.4776			5,145.6577
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107			140.8189
Worker	0.0929	0.0575	0.5784	1.8500e-003	0.2054	1.3900e-003	0.2068	0.0545	1.2800e-003	0.0558		184.1314	184.1314	5.0300e-003			184.2571
<b>Total</b>	<b>0.5563</b>	<b>15.3311</b>	<b>4.8515</b>	<b>0.0498</b>	<b>1.3331</b>	<b>0.0448</b>	<b>1.3778</b>	<b>0.3640</b>	<b>0.0428</b>	<b>0.4068</b>		<b>5,458.4010</b>	<b>5,458.4010</b>	<b>0.4933</b>			<b>5,470.7337</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Fugitive Dust					0.6005	0.0000	0.6005	0.0679	0.0000	0.0679			0.0000				0.0000
Off-Road	2.5300	23.0987	15.8781	0.0550		0.8667	0.8667		0.7974	0.7974	0.0000	5,319.2148	5,319.2148	1.7203			5,362.2233
<b>Total</b>	<b>2.5300</b>	<b>23.0987</b>	<b>15.8781</b>	<b>0.0550</b>	<b>0.6005</b>	<b>0.8667</b>	<b>1.4673</b>	<b>0.0679</b>	<b>0.7974</b>	<b>0.8653</b>	<b>0.0000</b>	<b>5,319.2148</b>	<b>5,319.2148</b>	<b>1.7203</b>			<b>5,362.2233</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.4485	14.7941	4.1363	0.0467	1.0939	0.0424	1.1363	0.2998	0.0406	0.3404		5,133.7183	5,133.7183	0.4776			5,145.6577
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107			140.8189
Worker	0.0929	0.0575	0.5784	1.8500e-003	0.2054	1.3900e-003	0.2068	0.0545	1.2800e-003	0.0558		184.1314	184.1314	5.0300e-003			184.2571
<b>Total</b>	<b>0.5563</b>	<b>15.3311</b>	<b>4.8515</b>	<b>0.0498</b>	<b>1.3331</b>	<b>0.0448</b>	<b>1.3778</b>	<b>0.3640</b>	<b>0.0428</b>	<b>0.4068</b>		<b>5,458.4010</b>	<b>5,458.4010</b>	<b>0.4933</b>			<b>5,470.7337</b>

**3.15 Lagoon Intake - demolition - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.3556	21.0769	17.7941	0.0429		0.9629	0.9629		0.8979	0.8979		4,141.9322	4,141.9322	1.1802		4,171.4381
<b>Total</b>	<b>2.3556</b>	<b>21.0769</b>	<b>17.7941</b>	<b>0.0429</b>	<b>0.0000</b>	<b>0.9629</b>	<b>0.9629</b>	<b>0.0000</b>	<b>0.8979</b>	<b>0.8979</b>		<b>4,141.9322</b>	<b>4,141.9322</b>	<b>1.1802</b>		<b>4,171.4381</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0929	0.0575	0.5784	1.8500e-003	0.2054	1.3900e-003	0.2068	0.0545	1.2800e-003	0.0558		184.1314	184.1314	5.0300e-003		184.2571
<b>Total</b>	<b>0.0929</b>	<b>0.0575</b>	<b>0.5784</b>	<b>1.8500e-003</b>	<b>0.2054</b>	<b>1.3900e-003</b>	<b>0.2068</b>	<b>0.0545</b>	<b>1.2800e-003</b>	<b>0.0558</b>		<b>184.1314</b>	<b>184.1314</b>	<b>5.0300e-003</b>		<b>184.2571</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.3556	21.0769	17.7941	0.0429		0.9629	0.9629		0.8979	0.8979	0.0000	4,141.9322	4,141.9322	1.1802		4,171.4381
<b>Total</b>	<b>2.3556</b>	<b>21.0769</b>	<b>17.7941</b>	<b>0.0429</b>	<b>0.0000</b>	<b>0.9629</b>	<b>0.9629</b>	<b>0.0000</b>	<b>0.8979</b>	<b>0.8979</b>	<b>0.0000</b>	<b>4,141.9322</b>	<b>4,141.9322</b>	<b>1.1802</b>		<b>4,171.4381</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0929	0.0575	0.5784	1.8500e-003	0.2054	1.3900e-003	0.2068	0.0545	1.2800e-003	0.0558		184.1314	184.1314	5.0300e-003		184.2571
<b>Total</b>	<b>0.0929</b>	<b>0.0575</b>	<b>0.5784</b>	<b>1.8500e-003</b>	<b>0.2054</b>	<b>1.3900e-003</b>	<b>0.2068</b>	<b>0.0545</b>	<b>1.2800e-003</b>	<b>0.0558</b>		<b>184.1314</b>	<b>184.1314</b>	<b>5.0300e-003</b>		<b>184.2571</b>

**3.16 Lagoon Intake - site work - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5471	29.2847	28.1957	0.0723		1.2937	1.2937		1.2320	1.2320		6,921.6374	6,921.6374	1.6850		6,963.7625
<b>Total</b>	<b>3.5471</b>	<b>29.2847</b>	<b>28.1957</b>	<b>0.0723</b>		<b>1.2937</b>	<b>1.2937</b>		<b>1.2320</b>	<b>1.2320</b>		<b>6,921.6374</b>	<b>6,921.6374</b>	<b>1.6850</b>		<b>6,963.7625</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0929	0.0575	0.5784	1.8500e-003	0.2054	1.3900e-003	0.2068	0.0545	1.2800e-003	0.0558		184.1314	184.1314	5.0300e-003		184.2571
<b>Total</b>	<b>0.1078</b>	<b>0.5370</b>	<b>0.7152</b>	<b>3.1500e-003</b>	<b>0.2392</b>	<b>2.3500e-003</b>	<b>0.2416</b>	<b>0.0642</b>	<b>2.2000e-003</b>	<b>0.0664</b>		<b>324.6827</b>	<b>324.6827</b>	<b>0.0157</b>		<b>325.0759</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.5471	29.2847	28.1957	0.0723		1.2937	1.2937		1.2320	1.2320	0.0000	6,921.6374	6,921.6374	1.6850		6,963.7625
<b>Total</b>	<b>3.5471</b>	<b>29.2847</b>	<b>28.1957</b>	<b>0.0723</b>		<b>1.2937</b>	<b>1.2937</b>		<b>1.2320</b>	<b>1.2320</b>	<b>0.0000</b>	<b>6,921.6374</b>	<b>6,921.6374</b>	<b>1.6850</b>		<b>6,963.7625</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0929	0.0575	0.5784	1.8500e-003	0.2054	1.3900e-003	0.2068	0.0545	1.2800e-003	0.0558		184.1314	184.1314	5.0300e-003		184.2571
<b>Total</b>	<b>0.1078</b>	<b>0.5370</b>	<b>0.7152</b>	<b>3.1500e-003</b>	<b>0.2392</b>	<b>2.3500e-003</b>	<b>0.2416</b>	<b>0.0642</b>	<b>2.2000e-003</b>	<b>0.0664</b>		<b>324.6827</b>	<b>324.6827</b>	<b>0.0157</b>		<b>325.0759</b>

**3.17 Lagoon Intake - concrete - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7177	20.9587	19.6774	0.0458		0.9188	0.9188		0.8746	0.8746		4,263.5338	4,263.5338	1.0580		4,289.9837
<b>Total</b>	<b>2.7177</b>	<b>20.9587</b>	<b>19.6774</b>	<b>0.0458</b>		<b>0.9188</b>	<b>0.9188</b>		<b>0.8746</b>	<b>0.8746</b>		<b>4,263.5338</b>	<b>4,263.5338</b>	<b>1.0580</b>		<b>4,289.9837</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0297	0.9591	0.2736	2.6100e-003	0.0677	1.9200e-003	0.0696	0.0195	1.8300e-003	0.0213		281.1026	281.1026	0.0214		281.6377
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0854</b>	<b>0.9936</b>	<b>0.6206</b>	<b>3.7200e-003</b>	<b>0.1909</b>	<b>2.7500e-003</b>	<b>0.1937</b>	<b>0.0522</b>	<b>2.6000e-003</b>	<b>0.0548</b>		<b>391.5815</b>	<b>391.5815</b>	<b>0.0244</b>		<b>392.1920</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7177	20.9587	19.6774	0.0458		0.9188	0.9188		0.8746	0.8746	0.0000	4,263.5338	4,263.5338	1.0580		4,289.9837
<b>Total</b>	<b>2.7177</b>	<b>20.9587</b>	<b>19.6774</b>	<b>0.0458</b>		<b>0.9188</b>	<b>0.9188</b>		<b>0.8746</b>	<b>0.8746</b>	<b>0.0000</b>	<b>4,263.5338</b>	<b>4,263.5338</b>	<b>1.0580</b>		<b>4,289.9837</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0297	0.9591	0.2736	2.6100e-003	0.0677	1.9200e-003	0.0696	0.0195	1.8300e-003	0.0213		281.1026	281.1026	0.0214		281.6377
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0854</b>	<b>0.9936</b>	<b>0.6206</b>	<b>3.7200e-003</b>	<b>0.1909</b>	<b>2.7500e-003</b>	<b>0.1937</b>	<b>0.0522</b>	<b>2.6000e-003</b>	<b>0.0548</b>		<b>391.5815</b>	<b>391.5815</b>	<b>0.0244</b>		<b>392.1920</b>

**3.18 Lagoon Intake - mechanical - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6543	14.3163	13.1748	0.0295		0.6540	0.6540		0.6185	0.6185		2,797.8514	2,797.8514	0.6907		2,815.1190
<b>Total</b>	<b>1.6543</b>	<b>14.3163</b>	<b>13.1748</b>	<b>0.0295</b>		<b>0.6540</b>	<b>0.6540</b>		<b>0.6185</b>	<b>0.6185</b>		<b>2,797.8514</b>	<b>2,797.8514</b>	<b>0.6907</b>		<b>2,815.1190</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0706</b>	<b>0.5140</b>	<b>0.4838</b>	<b>2.4100e-003</b>	<b>0.1571</b>	<b>1.7900e-003</b>	<b>0.1589</b>	<b>0.0424</b>	<b>1.6900e-003</b>	<b>0.0441</b>		<b>251.0302</b>	<b>251.0302</b>	<b>0.0137</b>		<b>251.3731</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6543	14.3163	13.1748	0.0295		0.6540	0.6540		0.6185	0.6185	0.0000	2,797.8514	2,797.8514	0.6907		2,815.1190
<b>Total</b>	<b>1.6543</b>	<b>14.3163</b>	<b>13.1748</b>	<b>0.0295</b>		<b>0.6540</b>	<b>0.6540</b>		<b>0.6185</b>	<b>0.6185</b>	<b>0.0000</b>	<b>2,797.8514</b>	<b>2,797.8514</b>	<b>0.6907</b>		<b>2,815.1190</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107		140.8189
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003		110.5543
<b>Total</b>	<b>0.0706</b>	<b>0.5140</b>	<b>0.4838</b>	<b>2.4100e-003</b>	<b>0.1571</b>	<b>1.7900e-003</b>	<b>0.1589</b>	<b>0.0424</b>	<b>1.6900e-003</b>	<b>0.0441</b>		<b>251.0302</b>	<b>251.0302</b>	<b>0.0137</b>		<b>251.3731</b>

**3.19 Lagoon Intake - electrical - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	1.2580	11.3060	10.6558	0.0195		0.5445	0.5445		0.5178	0.5178		1,838.6124	1,838.6124	0.3805			1,848.1241
<b>Total</b>	<b>1.2580</b>	<b>11.3060</b>	<b>10.6558</b>	<b>0.0195</b>		<b>0.5445</b>	<b>0.5445</b>		<b>0.5178</b>	<b>0.5178</b>		<b>1,838.6124</b>	<b>1,838.6124</b>	<b>0.3805</b>			<b>1,848.1241</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107			140.8189
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003			110.5543
<b>Total</b>	<b>0.0706</b>	<b>0.5140</b>	<b>0.4838</b>	<b>2.4100e-003</b>	<b>0.1571</b>	<b>1.7900e-003</b>	<b>0.1589</b>	<b>0.0424</b>	<b>1.6900e-003</b>	<b>0.0441</b>		<b>251.0302</b>	<b>251.0302</b>	<b>0.0137</b>			<b>251.3731</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	1.2580	11.3060	10.6558	0.0195		0.5445	0.5445		0.5178	0.5178	0.0000	1,838.6124	1,838.6124	0.3805			1,848.1241
<b>Total</b>	<b>1.2580</b>	<b>11.3060</b>	<b>10.6558</b>	<b>0.0195</b>		<b>0.5445</b>	<b>0.5445</b>		<b>0.5178</b>	<b>0.5178</b>	<b>0.0000</b>	<b>1,838.6124</b>	<b>1,838.6124</b>	<b>0.3805</b>			<b>1,848.1241</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0148	0.4795	0.1368	1.3000e-003	0.0339	9.6000e-004	0.0348	9.7400e-003	9.2000e-004	0.0107		140.5513	140.5513	0.0107			140.8189
Worker	0.0558	0.0345	0.3470	1.1100e-003	0.1232	8.3000e-004	0.1241	0.0327	7.7000e-004	0.0335		110.4788	110.4788	3.0200e-003			110.5543
<b>Total</b>	<b>0.0706</b>	<b>0.5140</b>	<b>0.4838</b>	<b>2.4100e-003</b>	<b>0.1571</b>	<b>1.7900e-003</b>	<b>0.1589</b>	<b>0.0424</b>	<b>1.6900e-003</b>	<b>0.0441</b>		<b>251.0302</b>	<b>251.0302</b>	<b>0.0137</b>			<b>251.3731</b>

## **Operational/Maintenance Emissions**

<b>Vessel 1</b>	
Name	Crew Boat
Vessel Type	Crew and Supply
Main Engine Power (hp)	250
Engine Power Range (Low)	176
Engine Power Range (High)	250
Main Engine Power (kW)	186.425
Number of Main Engines	1
Auxiliary Engine Power (hp)	100
Auxiliary Engine Power (kW)	74.57
Number of Auxiliary Engines	1
Main Engine Load Factor	0.45
Auxiliary Engine Load Factor	0.43
Main Engine Model Year	2000
Model Year Range (Low)	2000
Model Year Range (High)	2003
Main Engine Age	23
Main Engine Useful Life	22
Auxiliary Engine Model Year	2000
Auxiliary Engine Age	23
Auxiliary Engine Useful Life	22
Brake Specific Fuel Consumption (g/hp-h)	184
Operational Time (hours/day)	4
Work Days (days)	1
Operational Year	2023

### Emissions Factors

Vessel	Engines	g/kW-h		g/kW-h		g/hp-h		g/kW-h		g/kW-h		g/hp-h	
		ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>					
#REF!	Main		0.68	7.31	1.97	#REF!	0.36	0.3528	545.6				
	Auxiliary		0.81	7.31	2.78	#REF!	0.32	0.3136	545.6				
Crew Boat	Main		0.68	7.31	1.97	#REF!	0.36	0.3528	545.6				
	Auxiliary		0.81	7.31	2.78	#REF!	0.32	0.3136	545.6				

### Engine Load Factor

	#REF!	Crew Boat
Main	0.50	0.45
Auxiliary	0.31	0.43

### Engine Useful Life

	#REF!	Crew Boat
Main	21	22
Auxiliary	23	22

**Engine Fuel Correction Factor**

Vessel	Engines	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>	
#REF!	Main		1	0.93	1	1	0.72	0.72	1
	Auxiliary		1	0.93	1	1	0.72	0.72	1
Crew Boat	Main		1	0.93	1	1	0.72	0.72	1
	Auxiliary		1	0.93	1	1	0.72	0.72	1

**Engine Deterioration Factor**

Vessel	Engines	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>	
#REF!	Main	#REF!		#REF!		1	#REF!	#REF!	1
	Auxiliary	#REF!		#REF!		1	#REF!	#REF!	1
Crew Boat	Main	0.28		0.14	0.16	1	0.44	0.44	1
	Auxiliary	0.28		0.14	0.16	1	0.44	0.44	1

**Time to and from Port of San Diego**

	#REF!	Crew Boat
Distance (nautical miles) <sup>a</sup>	37.2	37.2
Speed (knots) <sup>b</sup>	12	12
Time (hours)	3.1	3.1
Max. Daily Number of Trips to or from Port	0	0
Total Number of Trips to or from Port	0	0

a. Distance based on route from Port of San Diego to Agua Hedionda Lagoon.

b. Conservatively assumed that the Santa Barbara Channel Vessel Speed Speed Reduction Trial would apply as slowest speed.

**Maximum Daily Emissions From Construction Activities**

		pounds/day						MT/day	
Vessel	Engines	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	
Crew Boat	Main	0.62	5.64	1.66	0.01	0.26	0.26	0.46	
	Auxiliary	0.28	2.15	0.89	0.00	0.09	0.09	0.13	
Total		0.91	7.79	2.55	0.01	0.35	0.35	0.59	

\*assumes crew boat with 250 hp main engine, 100 hp auxiliary engine (both from 2000) operating in 2023 for 4 hours per day

**Maximum Daily Emissions From Construction Activities**

		pounds/day						MT/day	
Vessel	Engines	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	
Crew Boat	Main	0.65	5.77	1.70	0.01	0.28	0.27	0.50	
	Auxiliary	0.30	2.20	0.92	0.00	0.10	0.09	0.14	
Total		0.95	7.97	2.62	0.01	0.38	0.37	0.65	

\*assumes crew boat with 250 hp main engine, 100 hp auxiliary engine (both from 2000) operating in 2023 for 4 hours per day

**Passive Screens Maintenance/Cleaning Marine Vessel GHG Emissions**

Vessel	Engines	MT/year CO2
Crew Boat	Main	6.03
	Auxiliary	1.72
<b>Total</b>		<b>7.74</b>

\*assumes crew boat with 250 hp main engine, 100 hp auxiliary engine (both from 2000) operating in 2023 for 4 hours per day and 12 days a year

**Active Screens Maintenance/Cleaning Marine Vessel GHG Emissions**

Vessel	Engines	MT/year CO2
Crew Boat	Main	3.01
	Auxiliary	0.86
<b>Total</b>		<b>3.87</b>

\*assumes crew boat with 250 hp main engine, 100 hp auxiliary engine (both from 2000) operating in 2023 for 4 hours per day and 6 days a year

**Indirect GHG Emissions from Rotating Screen Electricity Use (Power Plant Emissions)**

Operations Annual Electrical Use: 70,080 hp-hr/year  
 0.746 kWh/hp-hr  
 52,280 kWh (kilowatt hours)/year  
 52 MWh (megawatt hours)/year

Indirect GHG gases	Emission Factor* lb/MWh	Annual		CO2 Equivalent Factor	Annual	
		Project Electricity MWh	GHGs metric tons		CO2 Equivalent	CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	592.74	52	14.06	1	14.06	
Nitrous Oxide (N2O)	0.006	52	0.0001	298	0.04	
Methane (CH4)	0.029	52	0.0007	25	0.02	

**Total Indirect GHG Emissions from Rotating Screen Operations Electricity Use= 14.12**

\* Emission factors for CO2, CH4, and N2O are from the CalEEMod software version 2016.3.1 for SDG&E.  
 CO2 adjusted based on 33% RPS by 2020

**Total Active/Rotating Screen Annual Operational GHG Emissions:**

**17.99 MT CO2E/year**