IRVINE RANCH WATER DISTRICT 15600 Sand Canyon Ave., P.O. Box 57000, Irvine, CA 92619-7000 (949) 453-5300

December 14, 2012

To: Interested Parties

Subject: **NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE PROPOSED SYPHON RESERVOIR INTERIM FACILITIES PROJECT**

The Irvine Ranch Water District (IRWD) is proposing the construction of interim facilities at the base of the Syphon Reservoir to allow IRWD to operate the reservoir for recycled water use. As the Lead Agency under the California Environmental Quality Act (CEQA), the IRWD has prepared an Initial Study/Draft Mitigated Negative Declaration (IS/MND) which evaluates the potential environmental effects of the proposed project.

Project Location: The proposed Syphon Reservoir Interim Facilities project site is approximately 6 acres located within the IRWD service boundary in the Santiago Hills in the City of Irvine, California. The project site is located northwest of the intersection of Portola Parkway and Sand Canyon Avenue and includes the area directly south of the Syphon Reservoir between the south face of the dam and Portola Parkway.

Project Description: The proposed facilities include a covered and fenced concrete approximately 3,600-square-foot pad housing chlorination equipment, bulk hypochlorite storage, and metering pumps; a larger fenced concrete pad around the disinfection system that supports the mechanical strainers, a backwash water supply pump, and a backwash lift station; an air compressor and piping for the temporary reservoir aeration system; a 4-inch backwash force main that would be buried in an existing dirt road that traverses up the left face of the dam; piping and valves to connect the reservoir drain line to the proposed strainer and disinfection facility and to the proposed 36-inch Zone A RW transmission main on the Crean Lutheran School property; and drainage facilities to connect the reservoir drain pipe and existing dam under-drain system to a new 48-inch storm drain pipe on the Crean Lutheran School property. Other proposed facilities include an electrical line and transformer for the equipment, an approximately 15-foot-wide gravel access road off Portola Parkway, a 4-inch domestic water pipeline, a 16-inch emergency reservoir drain, a 16-inch steel recycled water line, and an 8-inch storm drain.

Public Review Period: The IS/MND is being made available for public review for a period of 30 days beginning December 14, 2012 and concluding January 14, 2013. The electronic version of the IS/MND may be viewed at the following website address: http://www.irwd.com/environment/duplicate-of-environmental-documents.html

Printed copies of the IS/MND are also available for review at the Irvine Ranch Water District Headquarters located at 15600 Sand Canyon Avenue, Irvine, California 92618-3102.

Comments on the IS/MND must be received in writing no later than 5:00 p.m., January 14, 2013 and sent to:

Irvine Ranch Water District
Attn: Jo Ann Corey, Engineering Technician III
15600 Sand Canyon Avenue
Irvine, California 92618-3102

All comments received related to issues in the IS/MND will be included in the final package that is forwarded to the Board of Directors for final consideration.

Public Meeting: The Board will consider the adoption of the IS/MND and any comments received on the IS/MND, along with the proposed project at a regularly scheduled Board meeting to be held on January 28, 2013 at 5:00 p.m. at Irvine Ranch Water District Headquarters, located at 15600 Sand Canyon Avenue, Irvine, California 92618. All parties are welcome to attend and provide testimony as to the proposed project and/or the IS/MND.

If you have any questions regarding the IS/MND, please contact Ms. Jo Ann Corey at (949) 453-5326.

DRAFT

Syphon Reservoir Interim Facilities
Initial Study/Mitigated Negative Declaration

Prepared for:

Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618
Contact: Jo Ann Corey

Prepared by:

DUDEK
31878 Camino Capistrano, Suite 200
San Juan Capistrano, California 92675
Contact: Rachel Struglia, PhD, AICP

DECEMBER 2012

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Meaning
AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalOSHA	California Occupational Safety and Health Administration
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2E	carbon dioxide equivalent
dBA	A-weighted decibel
DSOD	Division of the Safety of Dams
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
HCP	Habitat Conservation Plan
IRWD	Irvine Ranch Water District
MND	initial study/mitigation negative declaration
MWRP	Michelson Water Recycling Plant
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Communities Conservation Plan
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NROC	Nature Reserve of Orange County
OSHA	Occupational Safety and Health Administration
PM_{10}	particulate matter with a diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with a diameter less than or equal to 2.5 microns
ppm	parts per million
PVC	polyvinyl chloride
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCADA	Supervisory Control and Data Acquisition system
SCAQMD	South Coast Air Quality Management District
SO_2	sulfur dioxide
SO_x	sulfur oxides
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

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1.0 INTRODUCTION

The Irvine Ranch Water District (IRWD) is planning to convert the Syphon Reservoir, which has been used for agricultural water storage over the past 60 years, to a recycled water reservoir, located in the northern portion of the City of Irvine, California. This initial study/mitigation negative declaration (MND) evaluates the potential effects on the environment from constructing new water treatment facilities at the base of the dam to allow IRWD to operate the reservoir for recycled water use.

1.1 California Environmental Quality Act Compliance

IRWD is the lead agency pursuant to the California Environmental Quality Act (CEQA) and is responsible for analyzing and approving the proposed Syphon Reservoir Interim Facilities Project (Proposed Project or Project) CEQA document. IRWD has determined that an MND is the appropriate environmental document to be prepared in compliance with CEQA. This finding is based on the initial study environmental checklist (Section 3.0 of this MND). As provided for by CEQA Section 21064.5, an MND may be prepared for a project subject to CEQA when the project will not result in significant environmental impacts that cannot be mitigated to a level below significance.

This draft MND has been prepared by Dudek for IRWD, in conformance with Section 15070, subsection (a), of the CEQA Guidelines. The purpose of the MND and initial study is to determine the potential significant impacts associated with construction and operation of the Proposed Project, and incorporate mitigation measures into the Project design as necessary to reduce or eliminate the significant or potentially significant effects of the Project.

1.2 Purpose and Scope

The combination of drought conditions, jurisdictional limitations, and court-ordered restrictions has severely reduced imported water supplies for Southern California. Faced with the probability of future water shortages, development of local water resources and maximizing the use of recycled water is critical to satisfy IRWD's increasing water needs. IRWD purchased Syphon Reservoir in January 2010 and is planning to use the reservoir to store recycled water to meet peak demands. The purpose of this Project is to construct the necessary infrastructure improvements at the existing Syphon Reservoir to allow IRWD to utilize the facility for recycled water storage. The recycled water would be used for a range of purposes within IRWD's service area, including landscape irrigation, agricultural irrigation, commercial uses, and industrial uses (carpet drying, concrete production, composting, etc.). IRWD would need to upgrade the reservoir infrastructure to make use of the reservoir as a recycled water storage facility.

1.3 Findings of this Initial Study/Mitigated Negative Declaration

IRWD finds that the Project would not have a significant adverse effect on the environment based on the results of the initial study/environmental checklist as described in Section 3.0 of the MND. Some potentially significant effects have been identified and mitigation measures have been incorporated into the Project to ensure that these effects remain at less-than-significant levels. An MND is therefore proposed to satisfy the requirements of CEQA (California Public Resources Code, Section 210000 et seq.; 14 CCR 15000 et seq.). This conclusion is supported by the following findings:

Findings

1. **Aesthetics:** The Proposed Project would not have a substantial effect on a scenic vista or substantially degrade the existing visual quality of the site. See Section 3.1, Aesthetics, for additional information.
2. **Agricultural Resources:** The Proposed Project would not result in impacts to prime, unique, or farmland of statewide importance. See Section 3.2, Agricultural and Forestry Resources, for additional information.
3. **Air Quality:** Short-term construction-related impacts are anticipated to occur due to fugitive dust and emissions from vehicles, but at a level below significance. The operational phase of the Project would not result in a substantial increase in emissions and impacts would be less than significant. See Section 3.3, Air Quality, for additional information.
4. **Biological Resources:** The Proposed Project would not result in significant impacts to special-status wildlife and plant species and habitat on the Project site. The Proposed Project has also been considered in the Central and Coastal Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP). Implementation of the mitigation measures would reduce impacts to less-than-significant levels. See Section 3.4, Biological Resources, for additional information.
5. **Cultural Resources:** The potential exists for cultural resources to be located within the Project site; implementation of the proposed mitigation measures would reduce potential impacts to unknown locations of cultural resources to less-than-significant levels. See Section 3.5, Cultural Resources, for additional information.
6. **Geology and Soils:** The Proposed Project would not expose people or structures to adverse risk associated with geologic or soil conditions. Impacts would be less than significant. See Section 3.6, Geology and Soils, for more information.

7. **Greenhouse Gas Emissions:** The Proposed Project would result in minimal construction-related emissions. During the operational phase, emissions would be consistent with existing conditions. Therefore, impacts would be less than significant. See Section 3.7, Greenhouse Gas Emissions, for additional information.
8. **Hazards and Hazardous Materials:** The Proposed Project would not introduce hazardous materials to people or the environment. Implementation of mitigation measures would reduce impacts to less than significant. See Section 3.8, Hazards and Hazardous Materials, for additional information.
9. **Hydrology and Water Quality:** Construction activities associated with implementation of the Project have the potential to result in temporary construction-related impacts on water quality from erosion and sedimentation. However, the Project would implement best available control measures to reduce construction-related erosion. Impacts would be less than significant. See Section 3.9, Hydrology and Water Quality, for additional information.
10. **Land Use and Planning:** The Proposed Project would not have a significant impact to land use and planning. See Section 3.10, Land Use and Planning, for more information.
11. **Mineral Resources:** The Proposed Project would not have an impact on mineral resources. See Section 3.11 Mineral Resources, for additional information.
12. **Noise:** The Proposed Project would not impact sensitive receptors during construction or operation of the Proposed Project. Implementation of Project design features would reduce impacts to less than significant. Refer to Section 3.12, Noise, for more information.
13. **Population and Housing:** The Proposed Project would not have an impact on population and housing as discussed in Section 3.13, Population and Housing.
14. **Public Services:** The Proposed Project would not result in direct or indirect impacts to public services. See Section 3.14, Public Services, for additional information.
15. **Recreation:** The Proposed Project would not result in impacts to recreation. See Section 3.15, Recreation, for additional information.
16. **Transportation/Traffic:** During short-term construction of the Proposed Project, construction activities would result in a slight increase in traffic due to construction worker commutes and equipment and materials deliveries. At a maximum, approximately five construction workers would be on site at any given time. No lane closures or closure of the Class I Trail on the north side of Portola Parkway would occur during construction of the Proposed Project. Operation of the Project would require a weekly truck trip for sodium hypochlorite delivery and up to five round trip truck trips associated with IRWD's maintenance staff inspections. Further, there would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Impacts would be less than significant. See Section 3.16, Transportation and Traffic, for additional information.

17. **Utilities and Service Systems:** The Proposed Project would not have a significant impact to utilities and service systems. See Section 3.17, Utilities and Service Systems, for additional information.
18. **Mandatory Findings of Significance:** The Proposed Project would result in less-than-significant impacts with implementation of the project design features and mitigation measures. See Section 3.18, Mandatory Findings of Significance, for more information.

1.4 Review of the Initial Study/Mitigated Negative Declaration

In accordance with CEQA, a good-faith effort has been made during the preparation of this initial study/MND to contact affected agencies, organizations, and persons who may have an interest in this Project.

In reviewing the initial study/MND, affected public agencies and interested members of the public should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the Project are proposed to be avoided or mitigated.

Comments may be made on the initial study/MND in writing before the end of the comment period. Following the close of the public comment period, IRWD will consider this initial study/MND and comments thereto in determining whether to approve the Proposed Project.

Written comments on the initial study/MND should be sent to the following address by 5:00 p.m., January 14, 2013.

Irvine Ranch Water District
Jo Ann Corey
Water Resources & Environmental Compliance
15600 Sand Canyon Avenue
Irvine, California 92618
Phone: 949-453-5326

Approval and certification of this CEQA document will occur by the IRWD Board of Directors. Date and time information on the meeting where this document will be considered can be determined by contacting Jo Ann Corey.

1.5 Project Contact Persons

The IRWD contact person for this Project is Jo Ann Corey. Ms. Corey can be contacted by the information provided in Section 1.4.

2.0 PROJECT DESCRIPTION

2.1 Existing Setting

The Syphon Reservoir Interim Facilities Project site is located in the City of Irvine, in Orange County, California. Figure 2-1 shows the regional location of the Syphon Reservoir. The Project site is located within the IRWD service boundary in the Santiago Hills in north Irvine as shown on Figure 2-2. More specifically, the Project site is located northwest of the intersection of Portola Parkway and Sand Canyon Avenue and includes the area directly south of the Syphon Reservoir between the south face of the dam and Portola Parkway as shown on Figure 2-3. The Project site is located within a Central and Coastal NCCP/HCP preserve area.

2.2 Background Information

Syphon Reservoir was constructed in 1949 and was acquired by the IRWD in 2010 with the intention of utilizing this facility for recycled water storage. The tertiary treated water proposed to be stored in the Syphon Reservoir originates from the Michelson Water Recycling Plant (MWRP), which is shown on Figure 2-2. Prior to IRWD's acquisition of the reservoir, the reservoir was owned by The Irvine Company and was used for agricultural irrigation water storage. IRWD is in the process of studying the feasibility of expanding the reservoir to accommodate a majority of its recycled water storage needs and may pursue an expanded project in the future. Meanwhile, IRWD intends to utilize the existing reservoir for recycled water storage on an interim basis until the expansion project can be constructed and is therefore in the process of designing the infrastructure necessary to convert the reservoir from an agricultural storage basin to a recycled water reservoir.

A separate Environmental Impact Report (EIR) will be prepared in the future for the Syphon Reservoir expansion project. Once the Syphon Reservoir expansion is approved, it is anticipated that the interim facilities would be replaced with larger facilities to handle a higher rate of flow through the system. Should the Syphon Reservoir expansion be delayed or not occur, these facilities would become permanent.

Project Objectives

The objectives of the Syphon Reservoir Interim Facilities Project include the following:

- Construct interim facilities that will aid conversion of Syphon Reservoir from an irrigation water storage facility to seasonal storage for recycled water to meet the demand of recycled water customers.

- Enhance IRWD's water supply reliability.
- Increase IRWD's ability to store excess recycled water during periods when demand is low (winter) so the water can be used when demand increases (summer).

2.3 Proposed Project

The Proposed Project includes construction and operation of interim facilities on IRWD property just south of the reservoir between the face of the dam and the future Crean Lutheran Church High School Sports Complex. The location of the Crean Lutheran Church High School Sports Complex is shown on Figure 2-3 and will likely be constructed after the Syphon Reservoir Interim Facilities are built. Figure 2-4 illustrates the anticipated layout of the Proposed Project components. The proposed facility would be accessible from Portola Parkway via a paved road within the Crean complex that would connect a new all-weather access road to the site. The proposed facilities include the following:

- A covered and fenced concrete approximately 3,600-square-foot pad with a containment curb housing chlorination equipment, bulk hypochlorite storage, and metering pumps
- A larger fenced concrete pad around the disinfection system that supports the mechanical strainers, a backwash water supply pump, and a backwash lift station
- An air compressor and piping for the temporary reservoir aeration system
- A 4-inch backwash force main that would be buried in an existing dirt road that traverses up the left face of the dam
- Installation of the 36-inch Zone A RW pipeline from the edge of Portola Parkway to the interim facilities
- Installation of a 48-inch storm drain pipeline from the edge of Portola Parkway to the interim facilities
- Piping and valves to connect the reservoir drain line to the proposed strainer and disinfection facility and to the proposed 36-inch Zone A RW transmission main on the Crean property
- Drainage facilities to connect the reservoir drain pipe and existing dam under-drain system to a new 48-inch storm drain pipe on the Crean property
- A permanent electrical line and transformer for the proposed equipment
- A temporary electrical power line on temporary power poles located along an existing dirt access road located on the adjacent IRWD property on the southeast. This temporary electrical power line will be used until the permanent electrical power line is constructed.

- An approximately 15-foot-wide gravel access road
- A 4-inch domestic water pipeline (on the right side, parallel to the electrical line)
- A 16-inch emergency reservoir drain
- A 16-inch steel recycled water line
- An 8-inch polyvinyl chloride (PVC) storm drain
- Area lights for security operated by timer and photocell technology.

During the final design process, minor alterations to these listed facilities may be identified as being necessary on the Project site.

The final three pipelines noted above enter the Crean property in a southerly direction to intersect with drainage facilities parallel to Portola Parkway. On the Crean property, the Project will install the 36-inch Zone A RW transmission main to connect the piping from the proposed strainer and disinfection facility to the 36-inch Zone A RW transmission main located in Portola Parkway. The Project will also install the new 48-inch storm drainpipe on the Crean property to connect the reservoir drainpipe and under-drain system to the existing storm drain box culvert adjacent to Portola Parkway.

Proposed Strainer System

The proposed strainer and backwash equipment would include two new 14-inch strainers. The strainers would come equipped with a backwash system that is set to automatically backwash based on a set pressure differential and/or a timer. The strainer backwash water supply would be recycled water that would be pumped from the discharge manifold of the strainer piping back through the strainers. The backwash wastewater would drain to a new lift station that would pump the backwash water back into Syphon Reservoir. The flow through the strainer system would be set at 5 cubic feet per second and controlled by a flowmeter and an electrically activated butterfly valve.

Proposed Disinfection System

An on-site, bulk storage, sodium hypochlorite disinfection system would be part of the proposed interim facility. The hypochlorite system would pump metered sodium hypochlorite into the discharge manifold in order to achieve a 5-part-per-million (ppm) chlorine residual in the recycled water system. This system would be further enclosed by its own smaller, separate chain-link fence with privacy screen and include two hypochlorite storage tanks along with dosing equipment. Compressed air piping would be installed to connect a new air compressor unit to the

existing manifold for the temporary reservoir aeration system. The aeration line would be located along the foot of the dam and would connect with the existing 2-inch steel pipe on top of the dam shown on Figure 2-4. An eyewash/shower safety station would be located on site, adjacent to the sodium hypochlorite system. The disinfection system would be installed on a concrete pad with a curb and canopy at a maximum height of 13 feet. The hypochlorite system would be screened with a 10-foot-high fence, which would provide visual blockage as well as security. The facility and fencing would be painted in neutral earth-toned colors. In addition, the facility housing the disinfection system would be set back from Portola Parkway.

Proposed Pipelines

As described previously, there are six proposed pipelines and one electrical line associated with the Project. The proposed 16-inch emergency reservoir drain would be connected to Syphon Reservoir and would travel in a southerly direction through the Project site, connecting to a proposed manhole, before connecting to the proposed 48-inch storm drain that would be installed through the Crean property to connect with drainage facilities parallel to Portola Parkway. The estimated maximum depth of construction for this pipeline would be 26 feet below ground surface if the IRWD project moves forward first. If the Crean project moves forward first, it is likely that IRWD would only have to trench as deep as 8 feet for the proposed pipelines on the Crean property. However, these numbers are estimates because Crean does not have a grading plan for their site at the time of this IS/MND's publication. Regardless of depth of trenching, it is possible that groundwater would be encountered during construction.

The proposed 16-inch steel recycled water line would also travel in a southerly direction parallel to the 16-inch emergency reservoir drain through the Project site, and then travel farther west connecting to the proposed 36-inch Zone A RW pipe installed through the Crean property until connecting with the 36-inch Zone A RW pipe in Portola Parkway. The proposed 8-inch PVC storm drain would extend from the access road south to the proposed pressure manhole where it would connect with the 16-inch emergency reservoir drain. All pipelines would be constructed beneath the storm drain channel and would not require disturbance of the drainage channel along Portola Parkway. The connection of the 48-inch storm drain to the existing box culvert, would be conducted using an open trench method.

A proposed 4-inch domestic water line and electrical line would be placed underneath the access road and would connect to the facility with the strainers and hypochlorite disinfection system. The proposed 4-inch backwash force main would travel from the strainer facility along the northern foot of the dam until connection with the existing open concrete channel (also referred to as the Highline Canal). From the interim facilities, the proposed aeration line would first travel north and then east along the top of the dam to connect with the existing aeration manifold.

Construction

Construction of the interim facilities is anticipated to take 3 to 4 months and would start in February 2013. Project construction activities typically would be conducted Monday through Friday between 7:30 a.m. and 4:00 p.m. No nighttime lighting of the site would be required because all construction activities would occur during the day.

The first phase of construction would consist of site clearing and grubbing, site preparation, demolition of an existing concrete weir box, and site grading activities. This first phase of construction would last approximately 2 to 3 weeks, necessitate a crew of four workers, and require the use of one front-end loader, one backhoe, and one water truck, all on site full time.

The second phase of construction would entail installation of buried and exposed piping, construction of an access road, and mechanical, electrical/control, and structural facilities. The second phase of construction would last approximately 12 to 14 weeks, necessitate a crew of five workers, and require the use of one front-end loader (on site full time), one backhoe (on site full time), one bobtail dump truck (25 to 30 trips), one transit mix concrete truck (5 trips), one vibratory walk-behind compactor (on site full time), and one water truck (on site full time). Construction methods for installation of piping would require excavation and trenching at a maximum depth of 26 feet below ground surface. If water is encountered during open trench construction, it would be discharged to the storm drain under a permit from the Regional Water Quality Control Board (RWQCB). Trench width would vary depending upon the size (diameter) of the pipeline but would generally be between 2 to 6 feet. Excavated soils would be placed back within the trench and spread over the site in other disturbed areas. No off-site trucking of soils would be necessary.

Construction equipment and parking for construction workers would be staged in disturbed areas of the site. Following construction, disturbed areas would be restored to pre-existing conditions.

Construction of the Project would disturb approximately 1.83 acres of the 6.39-acre site. To reduce impacts during construction, IRWD is including the following Project design features:

- **PDF-AQ-A:** Best available control measures shall be used during construction to reduce particulate emissions and reduce soil erosion and trackout, through the following Project features:
    - Construction staff will cover or water daily as necessary any on-site stockpiles of debris, dirt, or other material that could become airborne during wind conditions.
    - Construction staff will use adequate water and/or other dust palliatives on all disturbed areas in order to avoid particle blow-off.

  - Construction staff will wash down, sweep paved streets or implement other measures as necessary to control trackout or fugitive dust.
  - If necessary, construction staff will use gravel bags and catch basins during ground-disturbing operations.
  - Construction staff will erect as needed temporary wind breaks to mitigate wind erosion.
- **PDF-AQ-B:** During construction, equipment and vehicle emissions will be reduced through the following Project features:
  - Construction staff will properly tune and maintain construction equipment.
- **PDF-HYDRO-A:** Standard erosion control measures will be implemented by the Project and could include the use of sediment barriers, silt basins, and/or silt fences.
- **PDF-NOI-1:** Compliance with the City of Irvine's Noise Ordinance Section 6-8-205A, which limits construction activities between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. and 6:00 p.m. on Saturdays or as otherwise permitted by the City of Irvine.

Operation

Once operational, all Project components would operate via IRWD's Supervisory Control and Data Acquisition system (SCADA). A 1,000-gallon tank truck would visit the site once per week to deliver sodium hypochlorite. IRWD would visit the facility approximately five times per week to check that all facilities/equipment are working properly, the site/facilities are secure, and to take note of any items requiring maintenance. There would be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. One worker would administer operational activities related to the Syphon Reservoir Interim Facilities.

2.4 Discretionary Actions/Approvals

The following discretionary actions and/or approvals would be necessary prior to construction of the Project:

- Adoption of the Initial Study/MND—IRWD Board of Directors
- Project Approval/Approval for Use of Funds—IRWD Board of Directors
- Approval of the Application for Approval of Plans and Specifications for the Repair or Alteration of a Dam or Reservoir—Department of Water Resources, Division of the Safety of Dams
- California Department of Public Health (CDPH) Permit

- Approval for sodium hypochlorite storage tanks—Orange County Fire Authority
- Confirmation of NCCP/HCP Compliance (U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG)) as facilitated by the Nature Reserve of Orange County (NROC)
- RWQCB—Notice of Intent and General Construction Activity Stormwater Permit, pursuant to the National Pollutant Discharge Elimination System (NPDES).

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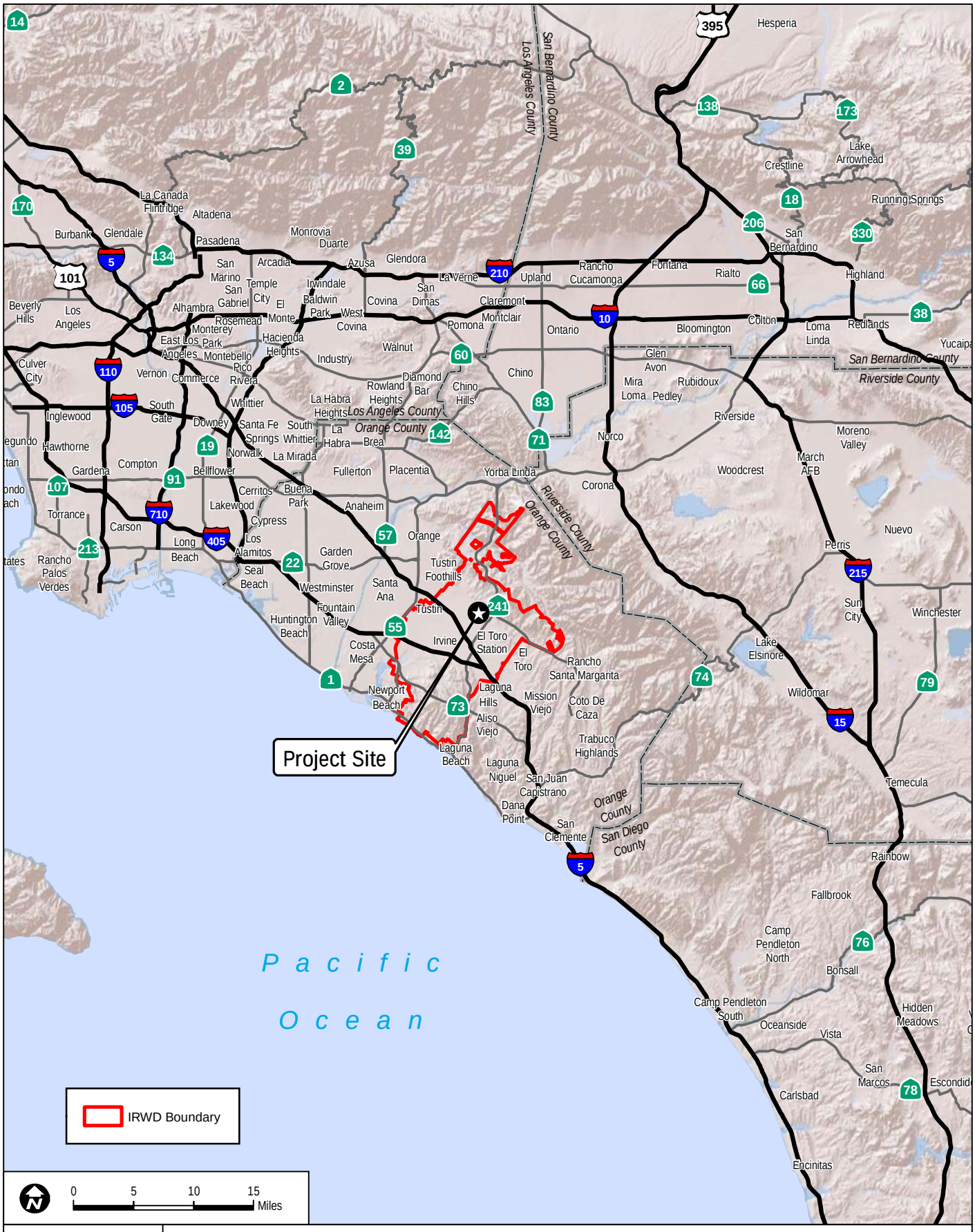

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SOURCE: IRWD 2009

FIGURE 2-1

Regional Map

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IRWD Syphon Reservoir Interim Facilities - MND

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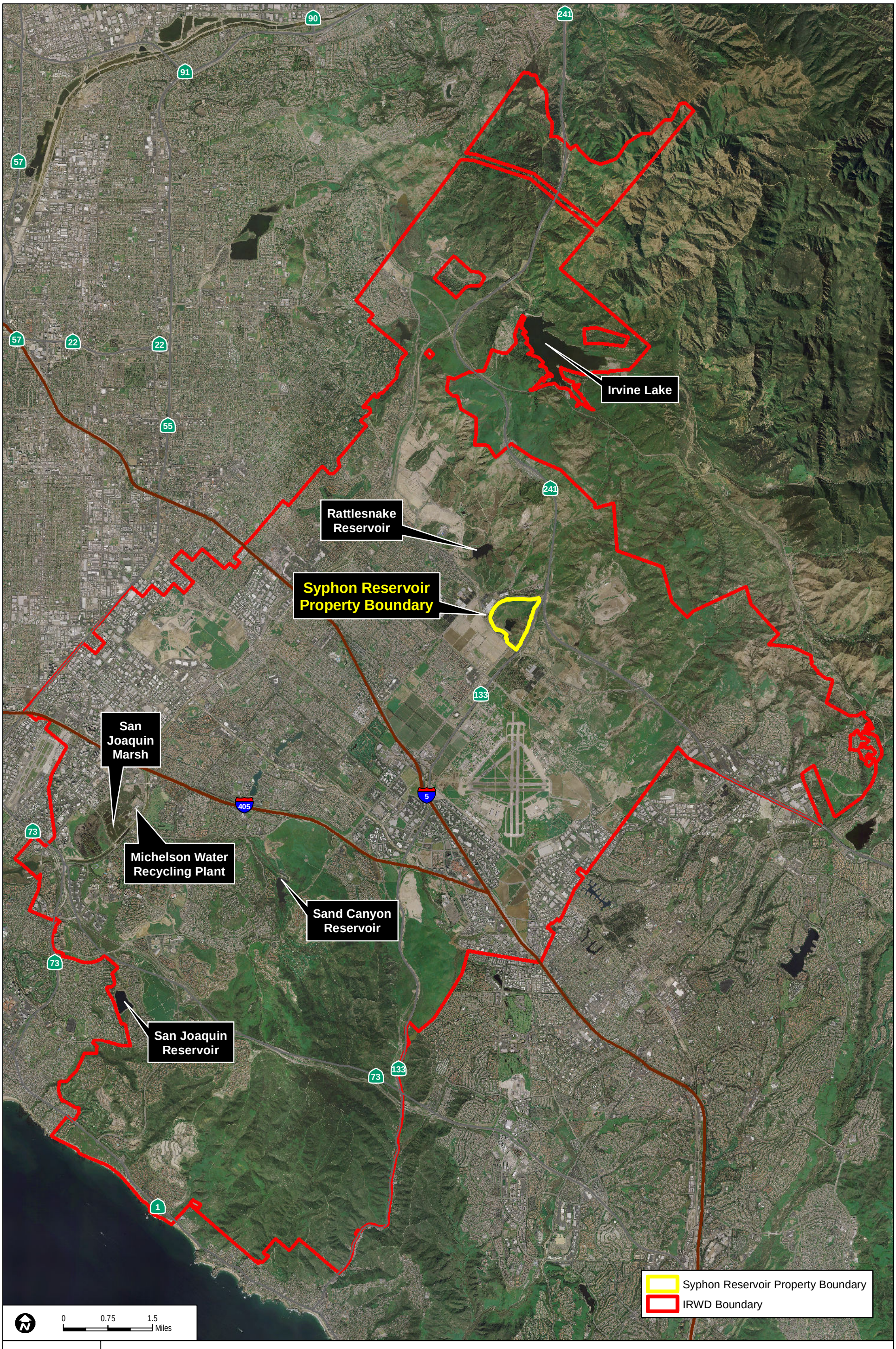

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SOURCE: IRWD 2009

FIGURE 2-2

Vicinity Map

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IRWD Syphon Reservoir Interim Facilities - MND

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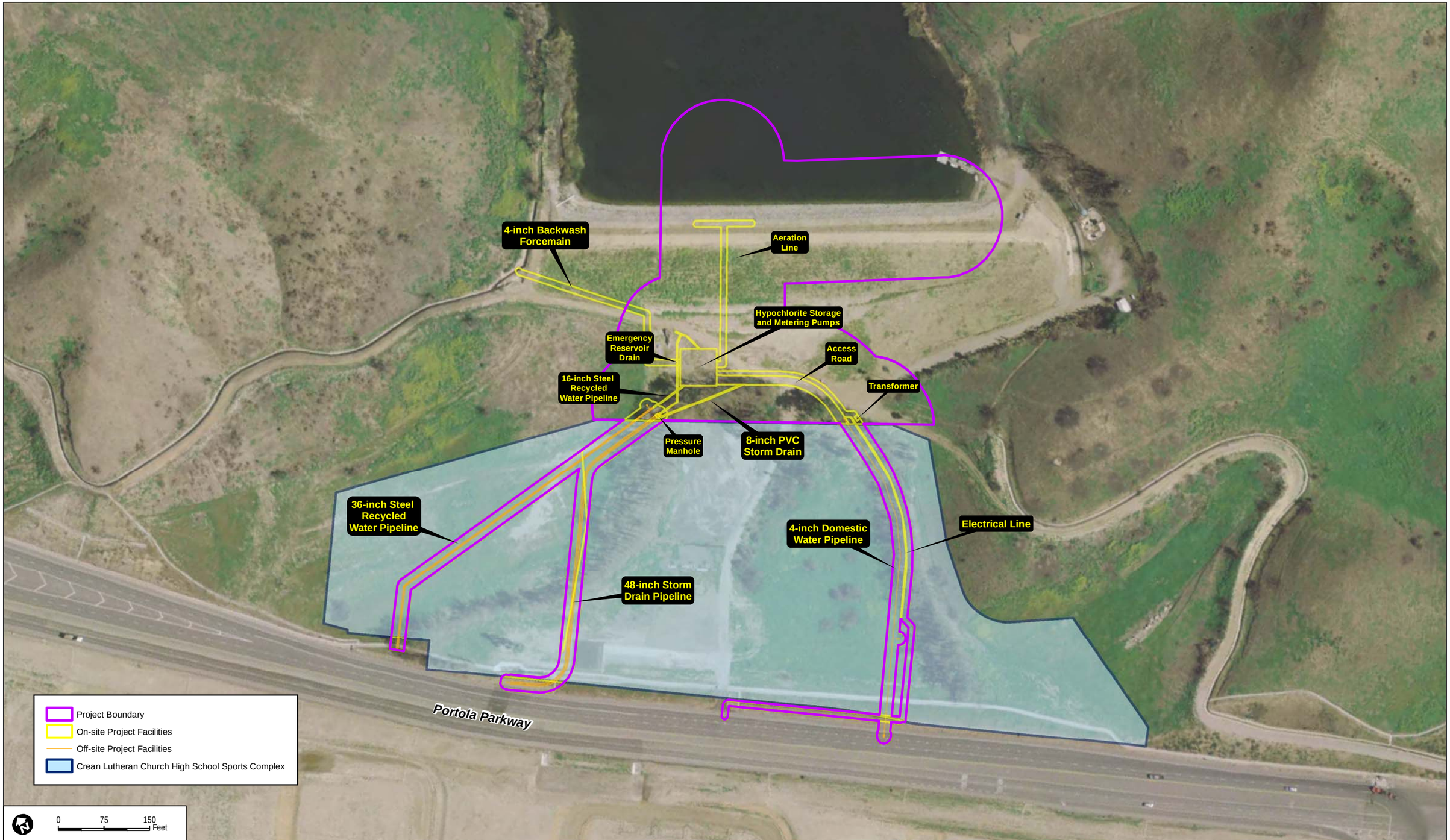

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SOURCE: IRWD 2009; URS October 2012; Hunsaker 2012

FIGURE 2-3

Proposed Project Site

IRWD Syphon Reservoir Interim Facilities - MND

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7036-04

SOURCE: IRWD 2009; URS October 2012

FIGURE 2-4

Proposed Site Plan

IRWD Syphon Reservoir Interim Facilities - MND

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3.0 INITIAL STUDY ENVIRONMENTAL CHECKLIST

1.	**Project title:**	Syphon Reservoir Interim Facilities Project
2.	**Lead agency name and address:**	Irvine Ranch Water District (IRWD) 15600 Sand Canyon Avenue Irvine, California 92618
3.	**Contact person and phone number:**	Jo Ann Corey, Engineering Technician III 949.453.5326
4.	**Project location:**	The Project site is located northwest of the intersection of Portola Parkway and Sand Canyon Avenue in the City of Irvine, California, directly south of the Syphon Reservoir between the south face of the dam and Portola Parkway.
5.	**Project sponsor's name and address:**	N/A
6.	**General plan designation:**	Preservation
7.	**Zoning:**	Preservation
8.	**Description of project:**	See Section 2.0, Project Description.

9. Surrounding land uses and setting:

- Existing General Plan/Land Use
  - North: Water Bodies (Syphon Reservoir) and Preservation within NCCP Reserve
  - South: Vacant (location of the future Crean Lutheran Church High School Sports Complex), Residential
  - East: Preservation within NCCP Reserve
  - West: Preservation within NCCP Reserve, Recreation
- Zoning
  - North: Water Bodies (Syphon Reservoir), Preservation
  - South: Medium Density Residential
  - East: Preservation
  - West: Preservation, Recreation

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

IRWD Board of Directors	Adoption of the Initial Study/MND
IRWD Board of Directors	Project Approval/Approval for Use of Funds
Department of Water Resources, Division of the Safety of Dams	Approval of the Application for Approval of Plans and Specifications for the Repair or Alteration of a Dam or Reservoir
Orange County Fire Authority	Approval for On-site Storage of Bleach
U.S. Fish and Wildlife Service and California Department of Fish and Game	Confirmation of NCCP/HCP Compliance as facilitated by Nature Reserve of Orange County

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology and Soils
☐ Greenhouse Gas Emissions	☐ Hazards and Hazardous Materials	☐ Hydrology and Water Quality
☐ Land Use and Planning	☐ Mineral Resources	☐ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☐ Transportation and Traffic	☐ Utilities and Service Systems	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Signature 12/14/12 Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and

   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 Aesthetics

I. AESTHETICS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion

a) **Less-than-Significant Impact.** There are no scenic vistas identified in the City of Irvine's (City's) General Plan. As shown on Figure A-4, Scenic Highways, of the City's General Plan, the closest designated viewpoint to the Project site is located at the intersection of Portola Parkway and Sand Canyon Road, which is approximately 1,900 feet southeast of the Project site (City of Irvine 2012). Due to the elevated topography of the area east and west of the Project site and naturally vegetated topography at this viewpoint, views to the Project site would not be visible at this location. Construction equipment would be screened at the construction staging area, setback away from Portola Parkway, and would be removed upon the completion of construction. Therefore, impacts would be **less than significant.**

b) **No Impact.** There are no state scenic highways located within the vicinity of the Proposed Project (Caltrans 2012). Additionally, no scenic highways were depicted on Figure A-4, Scenic Highways, in the City's General Plan (City of Irvine 2012). Therefore, the Project would not substantially damage scenic resources including, but not limited to, trees, rock outcrops, or historic buildings within a state scenic highway. **No impact** would occur.

c) **Less-than-Significant Impact.** As depicted on Figure 3-1, the view of the Project site from Portola Parkway includes the Syphon Reservoir dam face, hills, ridgelines and terraced slopes, and natural vegetation. Syphon Reservoir has existed for the past 60 years and, thus, has been part of the visual character of the area. The uses surrounding the interim facilities site include Syphon Reservoir, vacant lands designated for preservation, recreation, residential uses, and an elementary school. The Project would include the construction of facilities immediately south of Syphon Reservoir that would convert the reservoir from an agricultural storage basin to a recycled water reservoir. Conversion to recycled water storage would not result in any changes to the visual landscape, including changes to the color of the water or marked changes in water level. There are few opportunities for passersby to view the reservoir, as it is higher in elevation than most viewers are located with the exception of an intermittent view available to motorists along the State Route 133 toll road travelling south.

In addition, most of the facilities would be underground or at ground surface with the exception of the covered concrete pad with a canopy housing mechanical strainers, a backwash water supply pump, a backwash lift station, chlorination equipment, and bulk hypochlorite storage and metering pumps. The tallest aboveground structure (concrete pad with a curb and canopy) would be 13 feet high. Figure 3-2 shows the elevation of the proposed canopy. This structure would be screened with an approximately 10-foot-high fence, which would provide visual blockage from Portola Parkway. The facility and fencing would be painted in neutral earth-toned colors. In addition, the facility housing the disinfection system would be set back from Portola Parkway. Furthermore, it is anticipated that when the Crean Lutheran Church High School Sports Complex is developed at a future time, the Syphon Reservoir Interim Facilities would not be visible from Portola Parkway. As such, these minor structures/facilities for the reservoir would not result in substantial degradation to the existing visual character or quality of the site and its surroundings. The majority of the surrounding areas would still maintain its natural topography. Therefore, impacts would be **less than significant.**

d) **Less-than-Significant Impact.** During construction of the Project, no nighttime lighting of the site would be required since all construction activities would occur during the day. Once operational, area lights would be installed for security purposes and would be operated by timer and photocell technology. Lighting would be directed to the specific location intended for illumination to limit spillover, and all lighting would be shielded. Therefore, the Proposed Project would not create a new source of light or glare that would adversely affect day or nighttime views in the area. Impacts would be **less than significant.**

3.2 Agriculture and Forestry Resources

II. AGRICULTURE – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a) **No Impact.** According to the State of California Department of Conservation Farmland Mapping and Monitoring Program (California Department of Conservation 2010), the Project site is designated as "Other Land." The California Department of Conservation defines "Other Land" as land not included in any other mapping category. Common examples of uses categorized under Other Land include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines, borrow pits, and water bodies smaller than 40 acres; and vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres.

The Proposed Project would entail conversion of a reservoir from use as agricultural water storage to recycled water storage. This conversion would have no impact on agriculture in the area since most of the agricultural uses in Irvine have already been converted to residential land uses as part of the build out of Irvine's Northern Sphere Area. As part of the Northern Sphere Area project, 7,743 acres (3,100 acres of agricultural lands) in the city's northern sphere of influence were annexed and converted to non-agricultural land uses. This conversion was from Agricultural, Institutional, Estate-Density Residential (0–1 dwelling units per gross acre), Preservation, Recreation, Water Body, and Educational Facility to designations that included Medium Density Residential, Research and Industrial, Community Commercial, Multi-Use, Preservation, Water Bodies, and Recreation (City of Irvine 2001). The Proposed Project would not convert prime, unique, or farmland of statewide importance to other uses because this conversion has already occurred, and **no impact** would result.

b) **No Impact.** According to the City's Zoning Map, the Project site is zoned for Preservation (City of Irvine 2010). The Preservation zone does not include the preservation of agricultural lands. The Project site is not subject to a Williamson Act contract (California Department of Conservation 2004). Therefore, no conflict with an existing zoning for agricultural use or a Williamson Act contract would occur and the Proposed Project would have **no impact**.

c) **No Impact.** According to the City's Zoning Map, the Project site is zoned for Preservation (City of Irvine 2010). No forest land, timberland, or Timberland Production areas (as defined in California Public Resources Code Sections 12220(g), 4526, or 51104(g)) are located within or adjacent to the Project site. Therefore, the Project would not conflict with existing zoning for forest land, timberland, or Timberland Production areas; **no impact** would result.

d) **No Impact.** No forest lands are located on the Project site or within the Project vicinity; therefore, the Project would not result in the loss of or conversion of forest lands to non-forest uses. **No impact** would result.

e) **No Impact.** According to the State of California Department of Conservation Farmland Mapping and Monitoring Program (California Department of Conservation 2010), the Project site is designated as "Other Land." No forest lands are located on the Project site or within the Project vicinity. As such, the Proposed Project would not result in conversion of farmlands to non-agricultural use or conversion of forest lands to non-forest lands, as none exist. Therefore, **no impact** would result.

3.3 Air Quality

III. AIR QUALITY – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

a) **Less-than-Significant Impact.** The Project site is located within the South Coast Air Quality Management District (SCAQMD). The SCAQMD is the agency primarily responsible for comprehensive air pollution control in the South Coast Air Basin (SCAB), which includes all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects sources, and enforces measures through educational programs or fines when necessary.

The applicable air quality plan for the SCAB is the Air Quality Management Plan (AQMP). In 2007, the SCAQMD adopted a final AQMP for attainment of the National Ambient Air Quality Standards (NAAQS) for ozone and particulate matter with a diameter less than or equal to 2.5 microns ($PM_{2.5}$) within the SCAB, which is the current applicable air quality plan since the 2012 AQMP is still in development. The 2007 AQMP reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land use and development. The City's General Plan designated the Project site as Preservation. Accordingly, the Proposed Project would not conflict with or propose to change existing land uses or applicable policies as designated in the City's General Plan. The Proposed Project would not include residential land uses and would not generate an increase in residential population. It is anticipated that once

construction is completed, operation of the Proposed Project would require one additional employee, which would likely be an employee from the existing regional population; thus, the Proposed Project would not result in a substantial increase in employment. Operation of the Project would result in minimal emissions from a 1,000-gallon tank truck that would deliver sodium hypochlorite once per week; vehicle trips to the site five times per week to inspect, monitor, and maintain the facilities, as necessary; and two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Therefore, the Project once constructed would not conflict with or obstruct implementation of the AQMP.

During the Project's proposed approximately 4-month construction period, air emissions would result from heavy equipment hauling and exhaust, construction-related worker trips, and associated fugitive dust emissions from clearing and grading. The total disturbance area would be approximately 1.83 acres of the 6.39-acre site. The types and quantities of construction equipment that would be used for the Proposed Project would be typical of the industry and would not be of sufficient magnitude in quantity to exceed those assumptions used in the preparation of construction equipment emissions in the AQMP. Because the AQMP has accounted for construction-related emissions, construction emissions generated by the Proposed Project would be consistent with the construction-related emissions inventory projected in the AQMP. The threshold of significance (i.e., conflict with or obstruct implementation of the applicable air quality plan) would not be exceeded. Impacts are considered **less than significant.**

b) **Less-than-Significant Impact.** An area is designated in attainment when it is in compliance with the NAAQS and/or the California Ambient Air Quality Standards (CAAQS). These standards are set by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB), respectively, for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or public welfare. Criteria pollutants of primary concern that are considered in this air quality assessment include ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and $PM_{2.5}$ and particulate matter with a diameter less than or equal to 10 microns (PM_{10}). Although there are no ambient standards for volatile organic compounds (VOCs) or oxides of nitrogen (NO_x), they are important as precursors to ozone.

SCAB Attainment Designation. The entire SCAB is designated as a nonattainment area for both ozone NAAQS and CAAQS. The EPA has classified the SCAB as an "extreme" nonattainment area and has mandated that the SCAB achieve attainment by no later than June 15, 2024. The entire SCAB has not exceeded the NAAQS for NO_2 in the past 5 years, based on published monitoring data, and is currently designated as an attainment

area under federal standards. The NO_2 NAAQS was revised in 2010, and all areas of California have been designated unclassifiable/attainment. The SCAB is designated as a nonattainment area for the NO_2 CAAQS. The SCAB is designated as an attainment area for CO and SO_2 NAAQS and CAAQS. The SCAB is in attainment with federal lead standards except for Los Angeles County. The SCAB is designated as a "serious" nonattainment area for the PM_{10} NAAQS and as a nonattainment area for PM_{10} CAAQS. In regard to $PM_{2.5}$ attainment status, the SCAB is designated as a nonattainment area by CARB and the EPA.

SCAQMD Thresholds. Construction of the Proposed Project would result in emissions of criteria air pollutants for which CARB and the EPA have adopted ambient air quality standards (i.e., NAAQS and CAAQS). Projects that emit these pollutants or their precursors have the potential to cause or contribute to violations of these standards. The SCAQMD has adopted significance thresholds that, if exceeded, would indicate the potential to contribute to violations of NAAQS or CAAQS. The relevant SCAQMD construction and operation thresholds are shown in Table 3-1.

Table 3-1
SCAQMD Air Quality Significance Thresholds

Pollutant	Construction	Operation
Criteria Pollutants Mass Daily Thresholds		
VOC	75 pounds/day	55 pounds/day
NO_x	100 pounds/day	55 pounds/day
CO	550 pounds/day	550 pounds/day
SO_x	150 pounds/day	150 pounds/day
PM_{10}	150 pounds/day	150 pounds/day
$PM_{2.5}$	55 pounds/day	55 pounds/day

Source: SCAQMD 2011

Construction Emissions

Construction of the Proposed Project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, dust emissions, and combustion pollutants from on-site construction equipment, as well as from worker vehicles, vendor trucks, and off-site trucks hauling construction materials. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles. Fugitive dust emissions would primarily result from trenching activities. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of

operation, and for dust, the prevailing weather conditions. Therefore, such emission levels can be estimated with a corresponding uncertainty in precise ambient air quality impacts.

Emissions from the construction phase of the Project were estimated using the SCAQMD's California Emissions Estimator Model (CalEEMod), Version 2011.1.1. For purposes of the modeling, it is anticipated that construction of the Proposed Project would commence in February 2013 and would last approximately 4 months. Construction would consist of the following phases:

- Phase 1 – Grading (including site preparation, demolition, and grading) (3 weeks)
- Phase 2 – Trenching (pipeline installation) (2 weeks)
- Phase 3 –Facilities Construction (12 weeks).

Table 3-2 includes the detailed construction schedule used in the air quality modeling.

Table 3-2
Syphon Reservoir Interim Facilities Construction Schedule

Construction Phase	Duration (days)	Start Date	End Date	Workers	Trucks	Equipment	
						Type	#
Grading	16	2/1/2013	2/22/2013	4	60 Hauling Trucks	Tractors/Loaders/Backhoes	2
Trenching	8	2/23/2013	3/6/2013	5	2 Vendor Trucks	Excavators	1
						Plate Compactors	1
						Pumps	1
Facilities Construction	61	3/7/2013	5/30/2013	5	2 Vendor Trucks	Off-Highway Trucks	1
						Plate Compactors	1
						Tractors/Loaders/Backhoes	2

Table 3-3 shows the estimated maximum unmitigated daily construction emissions associated with construction of the Proposed Project.

Table 3-3
Estimated Daily Maximum Construction Emissions
(pounds per day unmitigated)

	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Grading	1.38	9.67	7.59	0.01	2.41	0.72
Trenching	1.99	13.88	10.36	0.02	1.26	0.92
Facilities Construction	2.97	22.2	11.78	0.03	1.32	1.15
Maximum Daily Emissions	*2.97*	*22.2*	*11.78*	*0.03*	*2.41*	*1.15*
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix A for complete results.
The PM_{10} and $PM_{2.5}$ estimates reflect control of fugitive dust required by SCAQMD Rule 403.

As shown, daily construction emissions would not exceed the thresholds for VOCs, NO_x, CO, sulfur oxides (SO_x), PM_{10}, or $PM_{2.5}$. As a precautionary measure, IRWD proposes to implement air quality control measures to reduce emissions, as outlined in the list of Project design features incorporated by the Proposed Project in the project description of this MND. Therefore, construction of the Project would result in a **less-than-significant impact**.

Operational Emissions. Operation of the Project would produce VOC, NO_x, CO, SO_x PM_{10}, and $PM_{2.5}$ emissions from vehicle sources, including the 1,000-gallon tank truck that would be delivering sodium hypochlorite to the site, staff visiting the site to inspect the facilities, and maintenance vehicles. Truck traffic on paved roads would also generate PM_{10} and $PM_{2.5}$ emissions from fugitive dust and brake and tire wear.

It is anticipated that there would be one 1,000-gallon tank truck that would deliver sodium hypochlorite once per week and inspection vehicle trips site five times per week. There would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Therefore, for this analysis, Project operation would involve 104 one-way hypochlorite truck trips in a year from Santa Fe Springs to the Project site (approximately 32 miles one way); on a daily basis, there would be two one-way trips. The analysis also assumed four one-way vehicle trips for staff inspections and maintenance vehicle trips from IRWD office to the Project site (approximately 9 miles one way).

CalEEMod Version 2011.1.1 was used to calculate emission factors for the hypochlorite trucks and inspection and maintenance vehicle trips. The year 2014 was selected to represent the first year of Project operation. Table 3-4 shows the estimated maximum unmitigated daily operation emissions associated with the hypochlorite truck trips and inspection and maintenance vehicle trips.

Table 3-4
Estimated Daily Maximum Operational Emissions
(pounds per day unmitigated)

Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Motor Vehicles	0.05	0.31	0.41	0.00	3.95	0.02
Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix A for complete results.

As shown in Table 3-4, daily operational emissions would not exceed the thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. As such, the Proposed Project would result in **less-than-significant impacts** during operation.

c) **Less-than-Significant Impact.** As stated above, the SCAB is a nonattainment area for ozone, NO_2, PM_{10}, and $PM_{2.5}$ under the NAAQS and/or CAAQS. The poor air quality in the SCAB is the result of cumulative emissions from motor vehicles, off-road equipment, commercial and industrial facilities, and other emission sources. Projects that emit these pollutants or their precursors (e.g., VOC and NO_x for ozone) potentially contribute to poor air quality. As indicated in Tables 3-3 and 3-4, the construction and operational emissions from the Proposed Project would not exceed SCAQMD significance thresholds. Furthermore, the Project would not conflict with the SCAQMD 2007 AQMP, which addresses the cumulative emissions in the SCAB. As a precautionary measure, IRWD proposes to implement air quality control measures to reduce emissions during construction, as outlined in the list of Project design features incorporated by the Proposed Project in Section 2.3 of this MND. Accordingly, the Proposed Project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Thus, this impact would be **less than significant**.

d) **Less-than-Significant Impact.** Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Individuals most likely to be affected by air pollution, as identified by CARB, include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The greatest potential for toxic air contaminant (TAC) emissions during construction would be diesel particulate emissions from heavy equipment operations, heavy-duty trucks, and the associated health impacts to sensitive receptors. Both residential land uses

and schools are considered sensitive receptors. Potential sensitive receptors in the Project area include nearby residences located approximately 1,000 feet south of the Project site, and Stonegate Elementary School, which is located approximately 2,300 feet southwest of the Project site. As noted previously, the Proposed Project would not result in substantial pollutant emissions or concentrations and would implement best available control measures to further reduce some unavoidable emissions. Therefore, impacts to sensitive receptors would be **less than significant**.

The Project would not require the extensive use of heavy-duty construction equipment, which is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions, and it would not involve extensive use of diesel trucks, which are also subject to an Airborne Toxics Control Measure. Construction of the Proposed Project would last approximately 4 months, after which Project-related TAC emissions would cease. Thus, the Proposed Project would not result in a long-term (i.e., 70 years) source of TAC emissions. No residual TAC emissions and corresponding cancer risk are anticipated after construction. Additionally, the Project will implement Project design features to further minimize emissions during construction. As such, the exposure of Project-related TAC emission impacts to sensitive receptors during construction would be **less than significant**.

Operation of the Project would require a weekly truck trip for sodium hypochlorite delivery and up to five round trip truck trips associated with IRWD's maintenance staff inspections. Further, there would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. The vehicle emissions associated with delivery of hypochlorite and routine inspection and maintenance would not result in substantial emissions of TACs or criteria air pollutants as shown on Table 3-4. The sensitive receptors are located over 1,000 feet away from the Project site. Thus, operation of the Proposed Project would result in **less–than-significant impacts**.

e) **Less-than-Significant Impact.**

Construction Odor Impacts. Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the Proposed Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from construction equipment tailpipes. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered **less than significant**.

Operational Odor Impacts. Operation of the Project would require a weekly truck trip for sodium hypochlorite delivery and up to five round trip truck trips associated with IRWD's maintenance staff inspections. Further, there would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Typically, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The Project would entail construction of facilities that would convert the reservoir from an agricultural storage basin to a recycled water reservoir. In order to mitigate the potential for odor impacts, the Proposed Project includes an aeration line and hoses that pump dissolved oxygen into the water. The aeration system also helps keep water moving, which prevents vectors such as mosquitos from being attracted to the water and becoming a public health nuisance.

SCAQMD Rule 402 (Nuisance) also prohibits emission of any air contaminants or other material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. Enforcement of Rule 402 would minimize the potential for ongoing odor problems should the Proposed Project result in odor complaints. Therefore, Project operations would not create objectionable odors that would affect a substantial number of people. Impacts associated with odors would be considered **less than significant**.

3.4 Biological Resources

IV. BIOLOGICAL RESOURCES – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐

IV. BIOLOGICAL RESOURCES – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Discussion

This section analyzes the Proposed Project's potential impacts to special-status plants, wildlife, and habitats, as well as its consistency with adopted conservation plans. The analysis is based on the November 2012 Biological Technical Report prepared by Dudek for the Project. This technical report is included in Appendix B.

a) **Less-than-Significant Impact with Mitigation Incorporated**. Various biological surveys of the Project area were conducted by Dudek biologists in 2011 and again in 2012. A Biological Technical Report (Dudek 2012) and a Biological Habitat Assessment memorandum (Dudek 2011) were prepared for the entire Syphon Reservoir property. Three upland vegetation communities (coastal sage scrub, annual grassland, disturbed mulefat scrub) and two land cover types (developed land and disturbed land) are located within the Project site. No federally or state-listed special-status plant species occur within the Project site. Two special-status wildlife species, California gnatcatcher (*Polioptila californica*) (a federally listed threatened, state-listed species of special concern, and NCCP/HCP covered target species) and coyote (*Canis latrans*) (NCCP/HCP covered), were detected during the 2011 and 2012 field surveys. A total of 13 other special-status wildlife species are determined to have a moderate potential to occur on site. These wildlife species include: burrowing owl (*Athene cunicularia*), California horned lark (*Eremophila alpestris*), Cooper's hawk (*Accipiter cooperii*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), red-shouldered hawk (*Buteo lineatus*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), white-tailed kite (*Elanus leucurus*), coast horned lizard (*Phrynosoma blainvillei*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), orange throated whiptail (*Aspidoscelis hyperythra*),and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*).

The Project would impact 0.96 acre of land supporting annual grassland, coastal sage scrub, and disturbed mulefat scrub vegetation communities potentially supporting the special-status wildlife species listed above. Impacts to the riparian species (red-shouldered hawk, white-tailed kite, and Cooper's hawk) and their habitat are considered less than significant due to the disturbed character of riparian habitat (i.e., disturbed mulefat scrub) on site that would be impacted and the amount of habitat available in the Project vicinity. Impacts to the grassland species (northern harrier, burrowing owl, prairie falcon, ferruginous hawk, California horned lark, orange-throated whiptail) and their habitat are considered less than significant because of the limited habitat on site and the larger amount of habitat available in the Project vicinity. Impacts to other special-status species including coyote, Southern California rufous-crowned sparrow, coast horned lizard, coastal western whiptail, and northwestern San Diego pocket mouse are not significant because the number of individuals of these species likely to be lost (i.e., direct mortality) is insubstantial and would not appreciably affect the species in the region.

Implementation of mitigation measures would reduce the take of special-status wildlife species known to occur on site (i.e., California gnatcatcher and coyote). Impacts to California gnatcatcher and its habitat are considered significant. However, because of the small amount of disturbed habitat impacted by the Project, and the larger non-disturbed habitat available in the Project vicinity, it is unlikely that the species is breeding on site. If construction activities occur during the gnatcatcher breeding season (February 15 through July 15), direct and indirect impacts to nesting are considered significant if nesting is detected within 500 feet of construction. Therefore, impacts are considered potentially significant unless mitigated. With implementation of mitigation measure MM-BIO-1 through MM-BIO-6, potential impacts to California gnatcatcher and its habitat would be reduced to **less than significant**.

If construction activities occur during combined bird breeding season (January through September), direct and indirect impacts to nesting sensitive raptors and species addressed under the Migratory Bird Treaty Act may occur. These impacts are considered potentially significant if the species is nesting on site or if nesting is within 300 feet of construction for resident/migratory birds and within 500 feet of construction for raptors or other special-status bird species. Impacts to resident breeding birds, migratory birds, and raptors, are considered significant unless mitigated. With implementation of mitigation measure MM-BIO-7, potential impacts to nesting birds would be reduced to less than significant.

Mitigation Measures

MM-BIO-1 To the maximum extent practicable, no grading of coastal sage scrub habitat that is occupied by nesting gnatcatchers will occur during the breeding season (February 15 through July 15).

MM-BIO-2 Prior to the commencement of grading operations, all areas of coastal sage scrub habitat to be avoided shall be identified with temporary fencing or other markers clearly visible to construction personnel. Additionally, prior to the commencement of grading operation, a survey will be conducted to locate gnatcatchers and cactus wrens within 100 feet of the outer extent of projected soil disturbance activities, and the locations of any such species shall be clearly marked and identified on the construction/grading plans.

MM-BIO-3 A qualified monitoring biologist will be on site during any clearing of coastal sage scrub. IRWD will advise USFWS and CDFG at least seven calendar days prior to the clearing of any habitat occupied by Identified Species to allow USFWS and CDFG to work with the monitoring biologist in connection with bird flushing/capturing activities.

MM-BIO-4 Following the completion of initial grading, all areas of coastal sage scrub habitat to be avoided by construction equipment and personnel will be marked with temporary fencing or other appropriate markers clearly visible to construction personnel.

MM-BIO-5 Preconstruction meetings involving the monitoring biologist, construction supervisors, and equipment operators will be conducted and documented to ensure maximum practicable adherence to these measures.

MM-BIO-6 Coastal sage scrub located within the likely dust drift radius of construction areas shall be periodically sprayed with water to reduce accumulated dust on the leaves as necessary and recommended by the monitoring biologist.

MM-BIO-7 If construction activity occurs during the combined bird breeding season (i.e., January through September), a one-time biological survey for nesting bird species must be conducted within the proposed impact area within 72 hours prior to construction. This survey is necessary to assure avoidance of impacts to nesting raptors and/or birds protected by the federal Migratory Bird Treaty Act. If any active nests are detected, the area will be flagged and mapped on the Project construction plans along with buffers established by a qualified biologist, typically 500-foot buffer for raptors, 300-foot buffer for other special-status birds,

or an appropriate buffer established by the Project biologist for other nesting birds, and it will be avoided until the nesting cycle is complete or unsuccessful or as otherwise recommended by a qualified biologist.

b) **Less-than-Significant Impact with Mitigation Incorporated.** Direct permanent impacts associated with the Project are limited to the IRWD property and include the access road, a pressure manhole, an electrical transformer, and an operations facility. No direct permanent impacts are proposed on the Crean property.

Other activities associated with the Project would result in temporary impacts to biological resources and include the removal of vegetation and trenching of pipeline alignments. The proposed facilities that would result in such temporary impacts include the proposed storm drain, several water lines, and electrical conduit. All impacts on the Crean property are considered temporary, as are some of the impacts that would occur on the IRWD property. Table 3-5 identifies the temporary and permanent impacts for each vegetation community on the Project site.

Table 3-5
Impacts to Vegetation Communities and Land Cover Types

Vegetation Community or Land Cover Type	Jurisdictional/Regulated	Impact Acreages (linear foot)			Total
		IRWD property		*Crean Property*[1]	
		Permanent	*Temporary*	*Temporary*	
Uplands					
Coastal Sage Scrub (NA-VDTCSS)[2]	Yes; NCCP/HCP	0.04	0.01	0.20	0.25
Annual Grassland (AGL)	No	0.00	0.04	0.62	0.66
Disturbed Mule Fat Scrub (dMFS)	No	0.02	0.02	0.02	0.06
Disturbed (DIS)	No	0.04	0.04	0.00	0.08
Developed (DEV)	No	0.15	0.06	0.57	0.78
	Grand Total	0.25	0.17	1.41	1.83

[1]No Direct Permanent Impacts proposed on the Crean property.
[2]Includes the disturbed form (dNA-VDTCSS).

Direct impacts to non-special-status vegetation communities on site are not considered significant because these resources are not unique community types and do not support special-status species. Because the storm drain outlet structure is not expected to significantly alter the Portola Drainage Channel, which is also not considered jurisdictional (HWA 2012) and because the drainage conveyed by the storm drain outlet structure is already directed towards this channel, there are no significant alterations to

the channel that would occur and impacts are not considered significant. Direct impacts (both permanent and temporary) to coastal sage scrub vegetation on site is considered significant and constitutes an authorized take under the NCCP/HCP as determined by the NROC. The impact disturbance of 0.05 acre to coastal sage scrub is considered significant unless mitigated. With implementation of MM-BIO-2, MM-BIO-4 through MM-BIO-6, MM-BIO-8, and MM-BIO-9, potential impacts to sensitive habitat would be reduced to less than significant.

Mitigation Measures

MM-BIO-8 The Project shall mitigate for permanent impacts to approximately 0.05 acre of coastal sage scrub, at a 1:1 ratio, totaling 0.05 acre, through a deduction of IRWD's existing take allowance for habitats occurring with the NCCP/HCP Reserve for permanent impacts.

MM-BIO-9 Areas of the Project site that are temporarily impacted as a result of the Project shall require site restoration by backfilling, restoring pre-impact site conditions, and applying a native hydroseed mix. IRWD will continue to manage the Syphon Reservoir property consistent with ongoing management activities conducted for the NCCP/HCP in coordination with NROC. Such management will ensure that temporary impacts are successfully mitigated and thus reduced below significant.

c) **Less-than-Significant Impact.** There are no wetlands communities on site. The site was thoroughly evaluated for wetland areas on site (i.e., areas that support predominance of hydrophytic vegetation, hydric soil conditions, and evidence of hydrology); and no wetland areas, hydrophytic vegetation or hydric soils were identified. Impacts are considered **less than significant**.

d) **Less-than-Significant Impact.** The Project site itself does not function as a movement corridor and is not expected to aid in the movement of wildlife species because of its close proximity to other disturbed and developed sites. Thus, implementation of the Proposed Project would not alter wildlife movement. The IRWD Syphon Reservoir property adjacent to the site also does not function as a wildlife corridor, but rather it serves as a biological resource area and most likely provides wildlife habitats associated with the reservoir and the undeveloped NCCP/HCP reserve lands to the north and northeast.

Project construction would result in a short-term increase in noise and dust levels, which may disrupt wildlife usage in adjacent habitat areas (i.e., IRWD Syphon Reservoir property to the east). Chemical spills or other pollution discharges could also result in adverse impacts to special-status wildlife species. These impacts would also adversely affect wildlife corridor function. However, these effects are expected to be avoided and minimized to the extent feasible through implementation of the mitigation measures and incorporation of Project design features. Because the Project site does not function as a potential wildlife corridor and the adjacent IRWD Syphon Reservoir property functions as a biological resource area in the NCCP/HCP reserve rather than a wildlife corridor, there are no anticipated significant indirect impacts to wildlife movement or corridors associated with implementation of the Proposed Project.

Potential long-term indirect impacts to special-status wildlife resulting from Project implementation may include dust, noise, and general human presence that may temporarily disrupt species and habitat vitality and create construction-related soil erosion and runoff. With respect to the latter, all Project grading will be subject to the typical restrictions (e.g., best management practices) and requirements that address erosion and runoff (since the Project site is greater than 1 acre, a Stormwater Pollution Prevention Plan (SWPPP) would be required). Additionally, the Project is located in an area that already receives construction traffic as part of operations and maintenance of the Syphon Reservoir, and the Proposed Project is not considered a substantial change from existing conditions with regard to potential indirect impacts such as dust and general human presence. Potential long-term indirect impacts effects are expected to be avoided and minimized to the extent feasible through implementation of the mitigation measures. Impacts would be **less than significant**.

e) **Less-than-Significant Impact.** The Proposed Project would not conflict with any local policies or ordinances protecting biological resources. The Project has been designed to avoid impacts to mature native trees and dense stands of native shrubs; therefore, impacts would be **less than significant**.

f) **Less-than-Significant Impact.** The entire Project area is located within the NCCP/HCP. A portion of the Project site (i.e., Crean property) is designated as Non-Reserve Open Space, and another portion of the site (i.e., IRWD property) is designated Reserve Open Space. The portion of the Proposed Project within the IRWD property is within the NCCP/HCP Reserve and therefore requires consistency with the allowable uses in the Reserve as defined by the NCCP/HCP. Section 5.3 of the NCCP/HCP defines the permitted uses within the NCCP/HCP Reserve. These permitted uses include “activities related to the provision and operation of necessary public infrastructure facilities identified in” other portions of the

NCCP/HCP and Implementation Agreement (County of Orange 1996). Syphon Reservoir is clearly included as an existing facility within the NCCP/HCP Reserve (including Figure 27 of the NCCP/HCP), and the Proposed Project consists of minor alterations to existing facilities to provide necessary public services (i.e., recycled water). Section 5.9 of the NCCP/HCP further defines the Infrastructure Policies of the NCCP/HCP Reserve, including specific reference to water lines, reservoir, and associated facilities (e.g., pump stations, pressure control facilities, and access roads). The section provides specific siting criteria and avoidance and minimization measures for the design of these facilities. The Proposed Project is largely located on existing disturbed areas and impacts to native habitat are expected to be minimized to the extent feasible through implementation of mitigation measures MM-BIO-1 through MM-BIO-9. Furthermore, IRWD is a participating landowner under the NCCP/HCP. Implementation of the Proposed Project is consistent with the Natural Treatment System Master Plan EIR and the regional biological resource planning conducted in the area (i.e., the NCCP/HCP). Therefore, Project impacts would be **less than significant**.

The portion of the Proposed Project located within the Crean property is located outside of the NCCP/HCP Reserve and has been planned for development since approval of the Minor Amendment for that property (LSA 2009). The Minor Amendment provides additional Reserve acreage over and above the value of the habitat on the Crean property, and therefore the habitat values on the Crean property are already mitigated and replaced and no additional mitigation related to NCCP/HCP covered species and habitat is required. Therefore, impacts to the Crean property as a result of the Project are not considered significant.

3.5 Cultural Resources

V. CULTURAL RESOURCES – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

a) **No Impact.** According to a listing of Irvine historical places generated by the National Register of Historical Places, the Project site is not identified as a historical resource (NPS 2012). Additionally, no historical resources are depicted on Figure E-1, Historical/Archaeological Landmarks, of the City's General Plan Cultural Resources Element (City of Irvine 2012). Therefore, **no impacts** to historical resources would result.

b) **Less-than-Significant with Mitigation Incorporated.** According to Figure E-1, Historical/Archaeological Landmarks, of the City's General Plan Cultural Resources Element, there are no archaeological resources located within the Project site (City of Irvine 2012). Furthermore, a pedestrian survey of the Project site was conducted on November 7, 2012, by a Dudek archaeologist, and no archaeological resources were observed during this survey. Results of an archival records search completed for the larger Syphon Reservoir Project identified several cultural resources within a half-mile radius of the Project area, although no resources are within the area of potential effect for the current Project site. One archaeological site, CA-ORA-601, was previously recorded near the southeast corner of the Syphon Reservoir dam, but no cultural materials extend within or near to the current Project site area of potential effect. However, there is still a chance that unknown cultural resources are present beneath the surface within the Project site area of potential effect. In the unlikely event that unknown archaeological resources are uncovered during site disturbance, the Project will implement mitigation measure MM-CR-1. Additionally, the Project would be required to comply with state law related to findings of remains and Native American artifacts. Implementation of mitigation measure MM-CR-1 would reduce potential impacts to **less-than-significant levels**.

Mitigation Measure

MM-CR-1: In the event that cultural resources are discovered during construction, work must cease, and Irvine Ranch Water District shall be contacted immediately. A qualified archaeologist shall be consulted to assess the significance of the resource and provide proper management and/or handling recommendations.

c) **Less-than-Significant with Mitigation Incorporated.** According to Figure E-2, Paleontological Sensitivity Zones, of the City's General Plan Cultural Resources Element, the Project site is located in an area that contains sedimentary rocks with limited histories of producing significant fossils (City of Irvine 2012). This may either be the result of a lack of fossils or a lack of systematic exploration of exposures of these rock units. The General Plan map of paleontological sensitivity is useful for planning purposes, but it is based on coarse-scale geologic data.

GEI Consultants Inc. (2012) made site-specific geologic interpretations of the entire Syphon Reservoir area based on review of existing geologic maps, aerial photographs, and their geologic reconnaissance and subsurface explorations. The disinfection facilities, access road, transformer, emergency reservoir drain, steel recycled water pipeline, and pressure manhole would be underlain by a mix of alluvium and slope wash deposits. The strainer and disinfection facilities are flanked on the northeast by the dam embankment fill, and on the northwest by the Vaqueros/Sespe Formation predominantly made up of sandstone, with infrequent and thin layers of shale and siltstone.

The Project site has been previously disturbed from past activities (citrus orchards) in the Project vicinity and construction of the dam itself (URS 2009). Because of these historic earth-disturbing activities, and because the majority of the site is underlain by recent alluvium, there is very little possibility that earth-disturbing activities for the disinfection facility, pipelines, access roads, and transformer would encounter in-situ or intact fossil remains (embankment fill has been previously disturbed, and the alluvium is too young to have fossilized the remains of organisms).

The one exception could be along the backwash force main, which is mapped as the Vaqueros/Sespe Formation. It is likely the broader presence of these formations that led to the classification of the area on the City's General Plan map as having moderate paleontological sensitivity. Being an older sandstone and mudstone formation, it is possible that in-situ fossils could be uncovered during trenching activities necessary to install the force main. According to the City's General Plan, these formations are not known to have yielded numerous fossils of significance in the planning area (City of Irvine 2012). However, these formations have yielded several vertebrate fossils in the broader region, according to the University of California Museum of Paleontology collections database (UCMP 2012). Given the minimal volume of excavation that would occur for installation of the force main relative to the enormous extent of the Vaqueros/Sespe Formations, the potential to discover fossils during excavation is low.

In the unlikely event that paleontological resources are uncovered during site disturbance, mitigation measure MM-CR-2 is provided. With implementation of mitigation measure MM-CR-2, potential impacts to paleontological resources would be reduced to **less than significant.**

Mitigation Measure

MM-CR-2: The Irvine Ranch Water District shall contract with a qualified professional paleontologist or a qualified geologist to be available "on-call" throughout the duration of ground-disturbing activities. If, in the unlikely event that potential fossils are discovered by construction crews, all earthwork or other types of ground disturbance within 50 feet of the find shall stop immediately until the qualified professional paleontologist can evaluate the find. The professional paleontologist may record the find and allow work to continue, or recommend a course of action to be considered for treatment and salvage. If treatment and salvage is recommended, such recommendations shall be subject to review and approval by the Irvine Ranch Water District and/or its contractor.

d) **Less-than-Significant with Mitigation Incorporated.** There are no known human remains or formal cemeteries located within the Project site. State and local laws require that, if human remains are encountered, the Orange County Medical Examiner/Coroner be notified. Although human remains are not anticipated to be encountered, the potential for additional cultural resources to be present within the Project site does exist. Therefore, impacts are considered potentially significant unless mitigated. With implementation of mitigation measure MM-CR-3, potential impacts to human remains would be reduced to **less than significant**.

Mitigation Measure

MM-CR-3: In the unlikely event that human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to California Public Resources Code Section 5097.98. The county coroner shall be notified of any human remains found immediately. If the remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant. With the permission of the Irvine Ranch Water District, or an authorized representative, the most likely descendant may inspect the site of the discovery. IRWD will meet and confer with the most likely descendant regarding their recommendations prior to disturbing the site by further development activity.

3.6 Geology and Soils

VI. GEOLOGY AND SOILS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion

a.i) **Less-than-Significant Impact**. The Proposed Project is located within seismically active Southern California, an area where several of the faults and fault zones are considered active by the California Geological Survey (formerly the California Division of Mines and Geology). The purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to regulate development near active faults to mitigate the hazards of surface fault rupture. There are some inactive faults located on or within the immediate vicinity of the Project site. However, the nearest active fault to the Project site is the San Joaquin Hills Fault, approximately 10 miles southwest of the site (GEI 2012). The Proposed Project would not

result in the construction of housing on the site. Therefore, the Project would not expose people or structures to significant effects related to rupture of a known earthquake fault.

a.ii) **Less-than-Significant Impact.** The Project site is located in seismically active Southern California and is, therefore, subject to moderate to severe ground shaking in the event of a major earthquake along any of the active faults in the region. As stated previously, the Proposed Project would not involve construction of housing on the site, but it would include a small facility housing disinfection equipment, associated pipelines, and an electrical line that would assist IRWD in converting Syphon Reservoir to recycled water storage. With compliance with all applicable laws and regulations, including the Standard Specifications for Public Works Construction (2012), the Project would not expose people or structures to significant effects related to strong ground shaking.

a.iii) **Less-than-Significant Impact.** The Project site is located in seismically active Southern California and is, therefore, subject to moderate to severe ground shaking in the event of a major earthquake along any of the active faults in the region. When saturated, loose to medium dense, sandy soils can be prone to liquefaction during a ground-shaking event, thereby causing the soils to act like a liquid and compromising their integrity. The Project site is in an area of soft and hardened soils and high ground water (GEI 2012). There is a potential for liquefaction to occur within the near surface, loose to medium dense sandy alluvium beneath the existing dam just north of the proposed site. Because the Proposed Project would not involve housing or large structures on the site but would include a small covered disinfection facility on a concrete pad and pipelines/electrical line that would assist IRWD in converting Syphon Reservoir to recycled water storage, there would be no significant impact to people or structures as a result of seismic-related ground failure, including liquefaction. With compliance with all applicable laws and regulations, including the Standard Specifications for Public Works Construction, the Project would not expose people or structures to significant effects related to ground failure, including liquefaction.

a.iv) **No Impact.** The Project site is identified as highlands with over 20% slope (City of Irvine 2012, Figure D-3). However, an in-depth geotechnical investigation conducted for the larger Syphon Reservoir property indicates that no deep-seated landslides exist at the Syphon Reservoir site (GEI 2012). The Project would not expose people or structures to significant effects related to landslides.

b) **Less-than-Significant Impact.** During construction, the Project is anticipated to disturb approximately 1.83 acres on the site. During the 4-month-long construction period, erosion may occur where the soils are temporarily exposed. The limited amount of disturbance on site is not anticipated to cause a significant amount of soil erosion or loss of topsoil.

Additionally, because the Project would be greater than 1 acre in size, IRWD would be required to submit a notice of intent to the Santa Ana RWQCB in order to obtain approval to carry out construction activities under the General Construction Permit (Order No. 2009-0009-DWQ). This permit would include a number of design, management, and monitoring requirements for the protection of water quality and the reduction of construction phase impacts related to stormwater (and some non-stormwater) discharges. Permit requirements would include the preparation of an SWPPP, which would include measures such as perimeter controls, sediment barriers, silt basins, silt fences, stormwater inlet protection, covering/watering temporary soil stockpiles, installation of sandbags and straw waddles, and/or other measures to prevent soil from eroding off site.

In the event that the Project is exempted from permit requirements under the Construction General Permit, PDF-HYD-A and MM-BIO-7 both commit the applicant to basic best management practices for the control of erosion on the Project site. For these reasons, Project -related impacts to soils on site during construction would be less than significant.

Once construction is complete, the soils on site that are currently exposed would not be exposed because they would be covered in gravel (the access road) or a concrete pad (the disinfection facility). The location of the off-site pipelines is proposed for development as a sports complex by the Crean Lutheran Church. Impacts would be **less than significant**.

c) **Less-than-Significant Impact.** See response 3.6.a.iii and 3.6.a.iv. With compliance with all applicable laws and regulations, including the Standard Specifications for Public Works Construction, the Project is not anticipated to result in impacts related to on-site ground failure. Impacts are considered **less than significant**.

d) **Less-than-Significant Impact.** Expansive soils contain significant amounts of clay particles that have the ability to give up water (shrink) or take on water (swell). They are generally found in areas that were historically flood plain or lake areas, but they can also occur in hillside areas. The soils underlying the Project site consist of alluvium, which is comprised of interlayered silt, sand, and clay with trace amounts of gravel and cobbles (GEI 2012). In addition, the soils underlying the aeration line consist of embankment fill, and the soils underlying the backwash force main consist of the Vaqueros/Sespe Formation (GEI 2012). The alluvium and the embankment soils have been characterized as having low to medium plasticity, and slope wash and colluvium have a low to high plasticity. Soils with high plasticity and/or fine organic content tend to have expansive behavior; therefore, the potential exists for expansive soils to be locally present on site.

While there may be potential for expansive soils on site, the Project does not propose housing or large buildings on site that would ultimately create a substantial risk to life or

property on or off the site. In addition, in accordance with standard engineering practice and in compliance with the California Building Code, local building/grading codes, and Standard Specifications for Public Works Construction, structures would be either founded on a mat of compacted non-expansive fill, or would be designed to withstand shrink-swell behavior of soils without suffering damage. Trenches dug for pipelines and subsurface utilities would be backfilled with non-expansive material. Impacts are therefore considered **less than significant**.

e) **No Impact.** As stated previously, the Proposed Project would not build housing on the site but would include a disinfection facility and associated pipelines that would assist IRWD in converting Syphon Reservoir to recycled water storage. There would be an eye/wash shower station on site, and wastewater would be disposed of through a proposed 8-inch PVC storm drain that would ultimately connect to storm drain facilities parallel to Portola Parkway. There are no facilities on site that would require septic tanks or alternative waste water connection; therefore, the Project would **not result in impacts** due to wastewater disposal.

3.7 Greenhouse Gas Emissions

VII. GREENHOUSE GAS EMISSIONS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

a) **Construction Emissions**

Less-than-Significant Impact. Global climate change is a cumulative impact; a Project contributes to this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases (GHGs). Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the California Natural Resource Agency, which noted in its Public Notice for the proposed CEQA amendments that the evidence before it indicates that, in most cases, the impact of GHG emissions should be

considered in the context of a cumulative impact, rather than a Project-level impact (California Natural Resources Agency 2009a).

Neither the State of California nor the SCAQMD has adopted emission-based thresholds for GHG emissions under CEQA. The California Governor's Office of Planning and Research's *Technical Advisory, CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review* states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008, p.4). Furthermore, the advisory document indicates in the third bullet item on page 6 that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice."

There are currently no established thresholds for assessing whether the GHG emission of a project in the SCAB, such as the Proposed Project, would be considered a cumulative considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. Since there are currently no established thresholds of significance for GHG emissions, a screening threshold of 900 metric tons carbon dioxide equivalent (CO_2E) per year was applied to the Proposed Project based on the approach outlined in the CAPCOA report *CEQA and Climate Change* (CAPCOA 2008). The CAPCOA report references the 900-metric-ton guideline as a conservative threshold for requiring further analysis and mitigation. While the CAPCOA threshold has not been adopted by CARB or other air quality agencies, it is the lowest non-zero GHG significance threshold that has been evaluated in California. This emission level is based on the amount of vehicle trips, the typical energy and water use, and other factors associated with projects.

For purposes of modeling, it was assumed that construction of the Proposed Project would commence in February 2013 and would include the following subphases:

- Phase 1 – Grading (including site preparation, demolition, and grading) (3 weeks)
- Phase 2 – Trenching (pipeline installation) (2 weeks)
- Phase 3 – Facilities Construction (12 weeks).

Total construction is expected to take approximately 4 months (completion anticipated in May 2013). While some equipment would be used only for a week or two during this construction phase, it was conservatively assumed that all equipment would operate for the duration of the Project construction. A more detailed description of the construction schedule, including equipment utilized and construction equipment hours of duration, is included in Appendix A.

CalEEMod was used to calculate the annual GHG emissions, which are primarily associated with use of off-road construction equipment and on-road construction and worker vehicles. CalEEMod was used to calculate the annual GHG emissions, expressed in units of CO_2E, based on the representative Project construction scenario described in detail in Section 3.3, Air Quality. Based on the CalEEMod model, a total of 104 metric tons of CO_2E would be generated during construction of the Project in 2013.

Project-generated GHG emissions would be below the CAPCOA annual threshold value of 900 metric tons CO_2E. **Therefore, construction of the Proposed** Project **would not result in a cumulatively considerable contribution to GHG emissions that would significantly impact the global climate.**

Operational Emissions

Once the interim facilities are constructed, operation of the Project would require a weekly truck trip for sodium hypochlorite delivery and up to five round trip truck trips associated with IRWD's maintenance staff inspections. Further, there would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Annual GHG emissions associated with anticipated truck and vehicle travel was estimated to be approximately 12 metric tons CO_2E per year (see Appendix A for complete results).

Should major repairs of the drainages, pipelines, or tanks be required, GHG emissions would be similar to those identified above. Major grading is not expected during facility maintenance. Furthermore, operation of equipment and worker vehicles associated with major repairs would be temporary in nature as with routine maintenance activities. GHG emissions generated by off-road equipment and maintenance vehicles would be temporary and would not generate daily GHG emissions typically associated with long-term land uses, such as residential and commercial development. Furthermore, the Proposed Project would not increase population or result in an increase in vehicle trips over existing conditions. **Impacts associated with operational GHG emissions would be less than cumulatively considerable.**

b) **Less-than-Significant Impact.** As mentioned in response 3.7.a above, Project construction, operation, and maintenance would result in less-than-significant GHG emissions and would not result in a cumulative contribution to global climate change. On July 8, 2008, the City of Irvine approved its Energy Plan. The Energy Plan was reviewed for strategies that may apply to construction of the Proposed Project. The Energy Plan sets out long-term objectives for energy efficiency, use of renewable energy, and reducing carbon emissions. The Energy Plan is intended to reduce GHG emissions citywide to 1990 levels by 2020 and to 80% below 1990 levels by 2050. None of the measures adopted by the City in the Energy Plan would apply directly to the Proposed Project. Because there are no relevant adopted GHG reduction measures that would apply to the Proposed Project, it is not likely to result in a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. It should be noted, however, that the Climate Change Scoping Plan adopted by CARB includes a measure that would encourage expanded use of recycled water because it reduces the electrical usage, and related GHG emissions from generation, associated with transport and treatment of fresh water supplies. Impacts would be **less than significant**.

3.8 Hazards and Hazardous Materials

VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion

a) **Less-Than-Significant with Mitigation Incorporated.** The Project would entail construction of facilities on IRWD property and the Crean property (IRWD has an access easement across the property), immediately south of Syphon Reservoir, that would convert the reservoir from an agricultural storage basin to a recycled water reservoir. Most of the facilities would be underground or at ground surface with the exception of the covered concrete pad housing mechanical strainers, a backwash water supply pump, a backwash lift station, chlorination equipment, and bulk hypochlorite storage and metering pumps (including two hypochlorite storage tanks along with dosing equipment). Construction of the facility would involve the transport and use of small quantities of hazardous materials such a motor fuel, and oil and lubricants for construction equipment. In addition, routine operation and maintenance of the facility would require periodic deliveries of chlorine to replenish supplies. These activities have the potential result in inadvertent release of hazardous materials.

However, the potential for such releases and the impacts to human health and the environment are controlled and minimized with federal, state, and local laws and regulations associated with hazardous waste and worker safety (Occupational Safety and Health Administration (OSHA) and California Occupational Safety and Health Administration (CalOSHA)).The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 established a program administered by the EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The Resource Conservation and Recovery Act was amended in 1984 by the Hazardous and Solid Waste Amendments, which affirmed and extended

the "cradle to grave" system of regulating hazardous wastes. In addition, OSHA's mission is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. OSHA establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs.

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act (California Health and Safety Code, Section 25500 et seq.; 19 CCR 2620 et seq.), requires local governments to regulate local businesses using hazardous materials in excess of certain quantities to prepare a Hazardous Materials Business Plan that describes their facilities, inventories, emergency response plans, and training programs to their local Certified Unified Program Agency and to report releases to their Certified Unified Program Agency and CalOSHA. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste. Hazardous Materials Business Plans shall include the following: (1) a hazardous material inventory in accordance with 19 CCR 2729.2–2729.7, (2) emergency response plans and procedures in accordance with 19 CCR 2731, and (3) training program information in accordance with 19 CCR 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the state.

During short-term construction, hazardous materials that would be used or stored on site include petroleum products used to power construction equipment. Unmanaged releases of hazardous materials during construction are readily controlled to a non-significant level through control or remediation of accidental releases of petroleum products. Mitigation Measure MM-HAZ-1 would be implemented to prevent any significant hazard through the routine transport, use, or disposal of petroleum products during construction. In addition, during the construction period, standard best management practices would be applied to ensure that all hazardous materials (i.e., construction equipment fuels) are stored properly and that no hazards occur during construction. Operation of the Project would involve a 1,000-gallon tank truck that would deliver sodium hypochlorite once per week and vehicle trips that would visit the site five times per week to check that all facilities/equipment are working properly, the site/facilities are secure, and take notes of any items requiring maintenance. There would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Therefore, **with the incorporation of MM-HAZ-1, impacts would be less than significant.**

Mitigation Measure

MM-HAZ-1: If petroleum products are accidentally released to the environment during construction, the spill and/or contaminated soils or material from the contaminated area shall be removed and remediated to a threshold that meets regulatory requirements established by law or agencies overseeing the remediation.

b) **Less-Than-Significant with Mitigation Incorporated.** The Project would involve construction of facilities on the IRWD site and Crean property (IRWD has an access easement across the property), immediately south of Syphon Reservoir, that would convert the reservoir from an agricultural storage basin to a recycled water reservoir. The Project would not result in the use of hazardous materials, and therefore the potential for the accidental conditions associated with the release of hazardous material into the environment would be less than significant. During short-term construction, hazardous materials that would be used or stored on site include petroleum products used to power construction equipment. Unmanaged releases of hazardous materials during construction are readily controlled to a non-significant level of hazard through control or remediation of accidental releases of petroleum products. Implementation of MM-HAZ-1 mentioned above would ensure impacts are reduced to a level below significant. Additionally, best management practices would be applied to reduce potential concerns from accidental conditions. Operation of the Project would involve a 1,000-gallon tank truck that would deliver sodium hypochlorite once per week and vehicle trips that would visit the site five times per week. IRWD operators would check that all facilities/equipment are working properly, the site/facilities are secure, and take note of any items requiring maintenance. There would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. As such, impacts would be **less than significant with mitigation incorporated.**

c) **No Impact.** Stonegate Elementary School is the closest school to the Project site and is located 0.43 mile to the southwest. Because the school would be greater than a quarter mile away, there would be no impacts associated with emissions or handling of hazardous or acutely hazardous materials, substances, or waste within a quarter mile of a school**.**

d) **No Impact.** According to the State of California Department of Toxic Substance Control EnviroStor Database (DTSC 2011), the Project site is not included on a list of hazardous material sites. Additionally, a review of the environmental database report provided by Environmental Data Resources Inc. indicated that the Syphon Reservoir and Dam, as well as adjacent properties, were not listed on any agency databases (URS

2009). Therefore, the Proposed Project would not create a significant hazard to the public or the environment.

e) **No Impact.** The Project site is not located within the John Wayne Airport Land Use Plan. According to the airport land use plan, the Project site is located outside the established safety zones and the 60 A-weighted decibel (dBA) noise contours for the airport. In addition, the Project would not entail the construction of habitable structures. Therefore, the Proposed Project would not result in a safety hazard for people residing or working in the Project area. **No impact** is expected.

f) **Less-than-Significant Impact.** As depicted in Figure 1 of the Orange County Airport Land Use Commission's Land use Plan for John Wayne Airport, the Project site is located outside of the John Wayne International Airport Land Use Planning Area. The John Wayne International Airport is located approximately 7 miles southwest of the Project site and is outside of the 60 Community Noise Equivalent Level (CNEL) noise contour (Orange County Airport Land Use Commission 2008; City of Irvine 2012). Therefore, the Proposed Project would not result in a safety hazard for people residing or working in the Project area. Impacts would be **less then significant**.

g) **Less-than-Significant Impact.** Access to the Project site is provided by Portola Parkway. It is not anticipated that any lane closures or the Class I Trail on the north side of Portola Parkway would need to be closed during construction of the Proposed Project. The Proposed Project would not conflict with the City's Emergency Plan. During short-term construction of the Proposed Project, construction activities would result in a slight increase in traffic due to construction worker commutes and equipment and materials deliveries. It is anticipated that about five construction workers maximum would be on site at any given time. Additionally, truck trips for delivery of construction materials and hauling of construction debris would be very few based on the small size of the construction effort. Operation of the Project would require a weekly truck trip for sodium hypochlorite delivery and up to five round trip truck trips associated with IRWD's maintenance staff inspections. Further, there would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Therefore, because of the small number of construction trips and the design volume of Portola Parkway to accommodate 32,000 average daily traffic (City of Irvine 2011) along Portola Parkway between Sand Canyon and Jeffrey Road, emergency access would remain adequate. Therefore, the Project is not anticipated to physically interfere with an adopted emergency response plan or emergency evacuation plan. Implementation of the proposed traffic control plan would reduce impacts to **less than significant**.

h) **Less-than-Significant Impact.** According to Figure J-2, Fire Hazard Areas, of the City's General Plan, the Project site is not located within a fire hazard area (City of Irvine 2012). However, the Orange County Fire Authority Very High Fire Hazard Severity Zone Map designates the Project site within a moderate fire hazard severity zone (Orange County Fire Authority 2012). The Project does not consist of housing that would expose people to a significant risk of loss, injury, or death involving wildland fires. However, the Project includes two hypochlorite storage tanks that if heated by fire could potentially explode. Based on the location of the hypochlorite storage tanks being near the foot of the dam, it is unlikely that the tank would be susceptible to wildland fire. The Project area would be kept free of vegetation, trees, bushy vegetation, and tall-growing grasses and shrubs for safety purposes and to buffer the area for defensible space purposes. The hypochlorite storage tanks would be installed in accordance with the Uniform Fire Code and the Uniform Building Code. In addition, Orange County Fire Authority would review the location of the hypochlorite storage tanks and has approval authority over the location of the tanks to ensure that the structure meets the fire protection requirements. Therefore, the Project would not expose people or structures to a significant loss, injury, or death involving wildland fires. Impacts would be **less than significant**.

3.9 Hydrology and Water Quality

IX. HYDROLOGY AND WATER QUALITY -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐

IX. HYDROLOGY AND WATER QUALITY -- Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Discussion

a) **Less-than-Significant Impact**. The Proposed Project would not violate any water quality standards or waste discharge requirements. Water quality standards are implemented by compliance with the NPDES enforced by the RWQCB. Short-term construction activities for the Project would have some potential to affect the quality of stormwater discharged from the site. Land disturbance activities could result in erosion and sedimentation downstream. Spills or leaks of petroleum products used by construction equipment could also adversely affect the quality of stormwater. Construction activities would disturb approximately 1.83 acres. Since the Project would disturb more than 1 acre of soil, IRWD must file a Notice of Intent with the RWQCB and obtain a General Construction Activity Stormwater Permit, pursuant to the NPDES regulations established under the Clean Water Act. Short-term erosion effects during the construction phase of the Project would be prevented through the incorporation of an SWPPP and implementation of best management practices and best available technologies. Best management practices would be selected to achieve maximum sediment and erosion control and represent the best available technology that is economically achievable. During operation activities of the Project, IRWD would incorporate a Project -specific SWPPP and best management practices.

The tertiary treated water proposed for storage in the Syphon Reservoir originates from the MWRP. After storage in the reservoir, the water would pass through the on-site disinfection system before distribution to customers. Part of the Project includes backwash wastewater from the proposed strainer system that would drain to a new lift station that would then pump the backwash water back into the Syphon Reservoir, thus not creating additional wastewater treatment requirements. The on-site disinfection system would ensure that all RWQCB-directed and California Department of Public Health water quality requirements for recycled water are met prior to release of the water to customers.

In addition, due to proximity to the Bowerman Landfill and the shallow groundwater in the Project area, IRWD conducted groundwater quality testing (Appendix C) and results show that all results were below detection limits except iron and selenium. Iron is not a concern from a health exposure perspective, and it is below the drinking water secondary maximum contaminant level of 300 micrograms per liter (secondary maximum contaminant levels address aesthetic concerns). Selenium is below the state and federal regulatory limits. Compliance with the terms and conditions of the NPDES permit is required by state law, and since IRWD is required to address water quality impacts and discharge requirements related to the construction and operation activities, compliance with these regulations reduces impacts to **less than significant** levels.

b) **Less than Significant Impact**. The maximum depth of the construction would be 8 feet below ground surface. While groundwater exists as shallow as 3 feet below ground surface, and dewatering may be necessary during trenching of the pipelines, the volume of water to be extracted is anticipated to be small (approximately 20 to 25 gallons per minute for a maximum of 4 hours per day) and would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Impacts would be **less than significant**.

c) **Less-than-Significant Impact**. The Project would result in the construction of a 3,600-square-foot concrete pad that would house the disinfection facility. The introduction of this impervious surface would result in localized site drainage changes. However, given the proximity of the remaining undeveloped area around this facility coupled with its small size, water could still safely and efficiently flow in a downstream gradient. Therefore, the introduction of this impervious surface would not result in a significant alteration of on-site drainage. The remainder of the on-site facilities would not result in changes to existing ground surface conditions; therefore, changes to on-site drainage patterns would not occur. Impacts would be **less than significant**.

d) **Less-than-Significant Impact**. The Proposed Project would not change site drainage. Pavement proposed as part of the Project would consist of the concrete pad for the disinfection facility, which is approximately 3,600 square feet. The proposed access road would be gravel so that water would drain and continue to flow as it does now. Therefore, the Proposed Project would not substantially alter the existing drainage pattern of the site or area, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. Impacts would be **less than significant**.

e) **Less-than-Significant Impact.** The Project would entail construction of facilities that would convert the reservoir from an agricultural storage basin to a recycled water reservoir. The existing conditions of the site currently allow stormwater to either sheet flow or be conveyed in underground storm drains. Stormwater is discharged into an existing storm drain box culvert adjacent to Portola Parkway. Since the stormwater generated by the Project is expected to be small, the amount generated by the Project and combined with the stormwater discharges from the eyewash/shower safety station is negligible. Additionally, the stormwater discharges from the Project do not contribute to a stormwater drainage system that would have its capacity affected by the Project. Therefore, the Project would not contribute a substantial amount of stormwater into the stormwater drainage system or create additional sources of pollution. Impacts are considered **less than significant**.

f) **Less-than-Significant Impact.** The Project would involve construction of facilities immediately south of the Syphon Reservoir that would contribute to the conversion of the reservoir from an agricultural storage basin to a recycled water reservoir. The Project would provide storage of water that originates from the MWRP and that would also pass through the on-site disinfection facility before distribution to customers. Furthermore, the Project includes an aeration line and hoses that would pump dissolved oxygen into the reservoir water, which helps prevents fish die-off as well as preventing stagnant water, which can lead to vector control problems. These treatment mechanisms help maintain reservoir water quality. Therefore, the Project would not degrade water quality but would provide treated water for irrigation and other uses in IRWD's service area that complies with water quality standards. The Project will be required to prepare and implement an SWPPP and best management practices during construction per NPDES requirements, and will therefore ensure that water quality is not degraded from the construction of the Project. Therefore, impacts would be **less than significant**.

g) **No Impact.** The Project does not propose the construction or relocation of housing. Therefore, the Project would not result in the placement of housing within a 100-year flood hazard area. **No impact** would occur.

h) **Less-than-Significant Impact.** As depicted on Figure J-3, Flood Hazard Areas, in the City's General Plan, Syphon Reservoir is designated as a 100-year flood hazard area (City of Irvine 2012). The Project would result in the construction of a single aboveground facility immediately south of the Syphon Reservoir that would contribute to the conversion of the reservoir from an agricultural storage basin to a recycled water reservoir. The proposed facility would not impede or redirect flood flows. No portion of the existing reservoir spillway and water flow path, which helps dissipate excess reservoir water during extreme weather events, would be modified as a result of this Project. In addition, the Project would not involve the construction of any structures within the 100-year flood hazard area. Therefore, impacts would be **less than significant**.

i) **Less-than-Significant Impact.** As depicted on Figure J-3, Flood Hazard Areas, in the City's General Plan, Syphon Reservoir is designated as a 100-year flood hazard area (City of Irvine 2012). The Proposed Project does not include the construction of a levee or dam. Syphon Reservoir is an existing dam, located immediately north of the Project site. The Project would involve construction of facilities that would convert the reservoir from an agricultural storage basin to a recycled water reservoir. Since the proposed aeration line would be connected to the face of the dam, IRWD would be required to get an approval from the California Department of Resources, Division of the Safety of Dams (DSOD). IRWD would be required to seek approval of the Application for Approval of Plans and Specifications for the Repair or Alteration of a Dam or Reservoir from DSOD, which would ensure that the interim facilities would not result in dam failure and thus prevent loss of life and destruction of property. Therefore, impacts would be **less than significant**.

j) **Less-than-Significant Impact.** Seiche and tsunami are predominantly earthquake-related events that would require a large, near-source earthquake to occur, although they have also been known to occur as a result of massive landslides. A tsunami is not likely to occur since the Project site is located 11 miles northeast of the pacific coastline and at an elevation of over 350 feet. A seiche is a rhythmic motion of water in a partially or completely landlocked water body caused by landslides, earthquake-induced ground accelerations, or ground offset. As an enclosed water body, the Syphon Reservoir, with a 27-acre surface area, is considered to be large enough to produce a seiche. However, the exact location, magnitude, and the general probability for future earthquakes is uncertain; and the potential for the reservoir to generate a seiche in response to such an earthquake depends on many factors, including the reservoir's geometry vis-a-vis the velocity and direction of ground motions. There is substantial uncertainty as to the potential for a seiche to occur, as well as the possible magnitude and ramifications of such an event.

Nevertheless, because the site is located at the foot of the dam, seiche does represent a potential hazard, even if an unlikely one. Finally, mudflows can occur on hillsides in response to earthquake or heavy rain, and usually require saturated surface soils and relatively steep slopes; the potential for mudflow is usually greatly increased following a wildfire. The area upslope of the Proposed Project is the dam face, which is maintained by the IRWD, and the earthen materials have been engineered to avoid failure when saturated. The risk of mudflow is considered low.

All of these potential flood/mudflow hazards are low probability events, and implementation of the Proposed Project would in no way increase the likelihood of such an event occurring or increase the level of existing hazard to the public or surrounding properties. All underground components of the Proposed Project would likely be able to weather a seiche or mudflow without suffering damage. However, the aboveground structures, if subject to significant flooding or mudflow, would likely suffer either repairable or irreparable damage. The potential for seiche to result in flooding downstream of the dam depends on whether or not a seiche wave would be high enough to overtop the dam. According to the Department of Water Resources, DSOD, the Syphon Canyon Dam has 7 feet of freeboard, which means that a seiche wave would have to be higher than 7 feet to result in spillage over the dam crest.

The California Water Code entrusts the regulatory Dam Safety Program to the California Department of Water Resources, DSOD, which regulates dams that are 25 feet or more in height or have an impounding capacity of 50 acre-feet or more. The DSOD has jurisdiction over the Syphon Canyon Dam. The principal goal of this program is to avoid dam failure and thus prevent loss of life and destruction of property. DSOD staff makes periodic inspections of dams and reservoirs under DSOD jurisdiction for the purpose of determining their safety and may require dam owners to perform work to safeguard life and property. Construction of any new dam or the repair or alteration of an existing dam requires DSOD approval. Following construction, the DSOD inspects each dam on an annual basis to ensure the dam is safe, performing as intended, and is not developing problems. Roughly a third of these inspections include in-depth instrumentation reviews of the dam surveillance network data. Lastly, the DSOD periodically reviews the stability of dams and their major appurtenances in light of improved design approaches and requirements, as well as new findings regarding earthquake hazards and hydrologic estimates in California.

Dam safety regulations require periodic inspection and maintenance of dams, and implement controls that make dam failure exceedingly unlikely. For these reasons, and because the Project does not affect the likelihood or the level of hazard to the public or off-site properties, the construction, operation, and maintenance of the Proposed Project would

have a less-than-significant impact with respect to exposure of people or adjacent land uses to a seiche, mudflow, or tsunami. Therefore, impacts from all three hazards are considered to be less than significant.

3.10 Land Use and Planning

X. LAND USE AND PLANNING – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐

Discussion

a) **No Impact.** The Project site is zoned Preservation within the NCCP reserve. Current surrounding uses include Syphon Reservoir immediately to the north, vacant lands designated for preservation to the east, vacant lands designated for preservation and vacant lands designated for recreation to the west, and residential uses and Stonegate Elementary School to the south. The Project would entail construction of facilities that would contribute to the conversion of the reservoir from an agricultural storage basin to a recycled water reservoir, which is consistent with the uses within that zone. As such, the Proposed Project would not physically divide an established community. **No impact** would result.

b) **No Impact.** The City's General Plan Land Use and Zoning designations for the site are Preservation. The Project would entail construction of facilities that would contribute to the conversion of the reservoir from an agricultural storage basin to a recycled water reservoir, which would not conflict with the existing land use and zoning designations of the site. The Project site is also within the NCCP Reserve. Implementation of expanded seasonal storage for recycled water purposes was anticipated and identified as a permitted use in the Central and Coastal NCCP/HCP approved in 1996 by the County of Orange, USFWS, and CDFG. Therefore, the Proposed Project was a use that was anticipated within the NCCP Reserve. As such, there are no conflicts with applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project. **No impact** would result.

c) **Less-than-Significant Impact**. The Project site is located within the Central and Coastal NCCP/HCP Reserve Boundary and is designated as Reserve Open Space (IRWD property) and Non-Reserve Open Space (Crean property). IRWD is a participating landowner under the NCCP/HCP. The Proposed Project would result in 0.05 acre of permanent take of disturbed coastal sage scrub habitat and would require a debit from the IRWD NCCP/HCP Reserve Take allowance. Because a take allowance was granted for projects such as this and because the Project does not substantially impact on-site biological resources and is consistent with the NCCP/HCP, impacts would be **less than significant**.

3.11 Mineral Resources

XI. MINERAL RESOURCES – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion

a) **No Impact.** According to Figure VI-3, Mineral Resources, in the County of Orange General Plan, there are no known mineral resources that would be of value to the region and residents of the state (County of Orange 2011) on the Project site or in the Project vicinity that would be impacted by the Proposed Project. **No impact** would result.

b) **No Impact.** Refer to response 3.11.a. Implementation of the Proposed Project would not result in the loss of availability of a locally important mineral resources recovery site. **No impact** would result.

3.12 Noise

XII. NOISE – Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a) **Less-than-Significant Impact.** The construction activities associated with construction of interim facilities on the IRWD site and Crean property (IRWD has an access easement across the property) would be short-term and conducted in accordance with the City of Irvine Noise Ordinance. Section 6-8-205A of the Noise Ordinance limits construction activities between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities are permitted outside these hours or on Sundays and federal holidays unless a temporary waiver is granted by the chief building officer or his or her authorized representative (City of Irvine 1998). Because IRWD would comply with the City's Noise Ordinance, construction-related impacts would be less than significant. The maintenance activities associated with the operational phase of the Project would not result in an increase to the ambient noise levels. Impacts would **be less than significant**.

b) **Less-than-Significant Impact.** The Project would involve the temporary and intermittent use of construction equipment for various construction activities. There are no operational or maintenance activities that would include vibration. The Proposed Project would not require the use of blasting or any other vibratory construction methods. However, vibrational noise may occur from equipment movement. Vibrational noise is a concern when sensitive receptors, such as homes or schools, are in proximity to the vibration sources. The Project area is located approximately 2,300 feet from the nearest school, and approximately 1,000 feet from the nearest residences. As such, the Proposed Project is not expected to expose people to a generation of excessive groundborne vibration or groundborne noise levels.

c) **Less-than-Significant Impact.** Operation of the **P**roject would result in a once per week delivery of sodium hypochlorite, which would be delivered in a 1,000-gallon tank truck. Operations staff would visit the site five times per week to check that all facilities/equipment are working properly, the site/facilities are secure, and take note of any items requiring maintenance. There would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. The noise generated by the routine operation and maintenance activities would not result in a substantial permanent increase in the ambient noise levels. Therefore, impacts would be **less than significant**.

d) **Less-than-Significant Impact.** Construction of the Proposed Project would temporarily increase ambient noise levels in the Project vicinity above existing levels without the Project. However, given the temporary, short-term nature of the construction noise disturbances and IRWD's compliance with the City's noise ordinance, impacts would be less than significant. In addition, the operational phase of the Project would not result in a substantial noise increase; impacts would be **less than significant**.

e) **No Impact.** As depicted in Figure 1 of the Orange County Airport Land Use Commission's Land Use Plan for John Wayne Airport, the Project site is located outside of the John Wayne International Airport Land Use Planning Area. The John Wayne International Airport is located approximately 7 miles southwest of the Project site and is outside of the 60 CNEL noise contour (Orange County Airport Land Use Commission 2008; City of Irvine 2012). Therefore, the Proposed Project would not expose construction workers to excessive noise levels. **No impact** would occur.

f) **No Impact.** The El Toro Marine Corps Air Station is located approximately 1.2 miles from the Project site but has been closed since 1999. The Tustin Marine Corps Air Station is located approximately 4 miles from the Project site but has been closed since 1993. No other private airstrip is located within the vicinity of the Proposed Project.

Therefore, the Project would not expose people residing or working in the Project area to excessive noise levels. Impacts would be **less than significant**.

3.13 Population and Housing

XIII. POPULATION AND HOUSING – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) **Less-than-Significant Impact.** The Project would entail the construction of facilities that would convert the existing reservoir from an agricultural storage basin to a recycled water reservoir. This would provide storage of recycled water during periods of low recycled water demand (e.g., winter) and surplus to help meet periods of high demand (e.g., summer) for IRWD's existing service area. The Project does not include the expansion of the reservoir and would merely make existing IRWD facilities and capacities more efficient. The Project would not include new homes or business or otherwise generate population growth. The Proposed Project would not result in any change to the existing land use patterns. No direct growth constraint would be removed, nor would a direct stimulus to growth be added. IRWD does not make land use decisions, affect growth control policies, or formulate or produce future population growth. This is the role of municipal government and the regional planning agency. The IRWD's mission is to provide reliable, high-quality water and sewer service. Under the current planning policies of the regional land use agencies, the Project's purpose reflects existing as well as approved future demand for recycled water use. Therefore, the Project would accommodate existing demand and limited planned growth within the area served by IRWD, but it would not induct growth or serve as a catalyst to growth. Impacts would be **less than significant**.

b) **No Impact.** No housing is located on the IRWD site or Crean property; therefore, the Proposed Project would not result in the removal of existing housing or necessitate the construction of replacement housing elsewhere. **No impact** would result.

c) **No Impact.** The Proposed Project would not include housing and would not displace people, necessitating the construction of replacement housing elsewhere. **No impacts** are expected.

3.14 Public Services

XIV. PUBLIC SERVICES a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

Discussion

a.i) **Less-than-Significant Impact.** Fire protection is provided by the Orange County Fire Authority. While the Project would require approval from the Orange County Fire Authority for on-site storage of sodium hypochlorite, it would not increase the need for fire protection in a substantial way or increase response times of such services. See also Section 3.8h for discussion related to wildland fires. Impacts would be **less than significant**.

a.ii) **Less-than-Significant Impact.** Police protection is provided by the City of Irvine. As a precautionary safety measure, the proposed hypochlorite system would be screened with a 10-foot-high fence, which would prevent unauthorized entry into the facility. Further, the facilities would be affixed with motion detection security lighting to deter unnecessary loitering or illegal activity in or around the facilities. Other than short-term construction personnel, the Proposed Project would not result in a substantial increase in people accessing the site. It is anticipated that once construction is completed, operation of the Proposed Project would require one additional employee. As such, the Proposed

Project would not result in an increased need for more police protection. Impacts would be **less than significant**.

a.iii) **No Impact.** The Proposed Project does not include uses that would require the need for school support or affect existing schools. The Proposed Project is expected to employ one additional person to maintain and inspect the facility, which is not a substantial increase in population that would impact schools. Further, since the Project would not involve the construction of housing, impacts to existing schools or the need for additional schools would not occur. **No impact** would result.

a.iv) **No Impact.** The Proposed Project would not include residential uses and therefore would not increase demand for parks. Further, the Proposed Project would not generate a substantial number of permanent jobs that could attract new residents that would utilize park facilities. **No impact** would result.

a.v) **No Impact.** As stated previously, the Proposed Project would not generate an increase in population and, therefore, would not cause an increased demand in public services. No additional public facilities would be impacted by the Proposed Project. **No impact** would result.

3.15 Recreation

XV. RECREATION - Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a) **No Impact.** The Project would entail the construction of facilities that would result in the conversion of the reservoir from an agricultural storage basin to a recycled water reservoir. This Project would not generate an increase in population; therefore, an increase in the local neighborhood and regional park use would not occur. Further, the

on-site fishing uses would not change as a result of the Proposed Project. Therefore, **no impact** would result.

b) **No Impact.** The Project would entail the construction of facilities on the Project site that would convert the reservoir from an agricultural storage basin to a recycled water reservoir. The Proposed Project does not include any recreational facilities. As stated above in 3.16a), the Project would not generate an increase in population; therefore, the construction or expansion of recreational facilities would not be necessary. **No impact** would result.

3.16 Transportation and Traffic

XVI. TRANSPORTATION/TRAFFIC – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Discussion

a) **Less-than-Significant Impact.** During the construction phase of the Project, traffic would be generated by construction crews traveling to and from the Project site. Due to the size of the Project, a relatively small number of vehicles are expected during the construction phase. It is not anticipated that the Project would necessitate any lane or bike lane closures along Portola Parkway, which is designated as a six-lane major highway (City of Irvine 2012). During the operational phase of the Project, periodic maintenance of the facilities would not result in a noticeable change from existing traffic levels. Operation of the Project would require a weekly truck trip for sodium hypochlorite delivery and up to five round trip truck trips associated with IRWD's maintenance staff inspections. Further, there would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Therefore, the Proposed Project would not conflict with applicable plans, ordinances, or policies measuring effectiveness of the circulation systems. Impacts would be **less than significant**.

b) **Less-than-Significant Impact.** Short-term, limited construction-related traffic would not create a substantial impact on traffic volumes nor change traffic patterns in such a way as to affect the level of service or vehicle-to-congestion ratios on study area roadways. Long-term traffic associated with the operation and maintenance of the Project facilities would be very similar to existing traffic levels; therefore, a **less-than-significant impact** to the level of service on study area roadways would occur.

c) **No Impact.** The Project would not entail any use that would result in a change in air traffic patterns. Therefore, **no impact** would result.

d) **No Impact.** The Project does not include the development or redesign of any roadways that would impose a hazardous threat due to a design feature. See Section 3.8a for discussion related to potential significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. **No impact** would result.

e) **Less-than-Significant Impact.** Access to the Project site is provided by Portola Parkway. The Proposed Project would not conflict with the City's Emergency Management Plan. During short-term construction of the Proposed Project, construction activities would result in a slight increase in traffic due to construction worker commutes and equipment and materials deliveries. It is anticipated that about five construction workers would be on site at any given time. Additionally, delivery of construction materials and hauling of construction debris would necessitate very few truck trips based on the small size of the site and size of the proposed facilities. Operation of the Project

would require a weekly truck trip for sodium hypochlorite delivery and up to five round trip truck trips associated with IRWD's maintenance staff inspections. Further, there would also be two monthly truck trips related to periodic maintenance of the facility for 3 months of the year. Therefore, because of the small number of construction trips and the design volume of Portola Parkway to accommodate 32,000 average daily traffic (City of Irvine 2011) along Portola Parkway between Sand Canyon and Jeffrey Road, emergency access would remain adequate. Impacts are considered to be **less than significant**.

f) **Less-than-Significant Impact.** Access to the Project site would occur via Portola Parkway. According to Figure B-3, Public Transit, of the City's General Plan, Portola Parkway is designated as a Local Feeder Transit Corridor (City of Irvine 2012). No public transit stop is located within the vicinity of the Project site. As shown on Figure B-4, Trails Network, of the City's General Plan, Portola Parkway is also designated as a Class I (Off-Street) Trail. It is not anticipated that the Class I Trail on the north side of Portola Parkway would need to be closed during construction of the Proposed Project. However if a temporary closure were required, bicyclists would be able to utilize the Class II (on-street) bike lane on the south side of Portola Parkway. Pedestrians could also use the sidewalk on the south side of Portola Parkway during the approximately 4-month-long construction period. Therefore, given the temporary nature of potential impacts to these transportation facilities, impacts would be **less than significant**.

3.17 Utilities and Service Systems

XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion

a) **Less-than-Significant Impact.** The Project site is within the jurisdiction of the Santa Ana RWQCB.

The Proposed Project would not result in wastewater treatment demands. There are no restroom facilities proposed on site, and the only wastewater that would be generated would be from emergency use of the eyewash/shower station in the event of an accidental exposure to chemicals. In the event the eye/wash shower station is used, wastewater would be disposed of through a proposed 8-inch PVC storm drain that would ultimately connect to storm drain facilities parallel to Portola Parkway. The sodium hypochlorite disinfection system is housed in tanks surrounded by a containment curb. Should an accidental spill occur, the curb has been designed to contain the spill on site. Therefore, the sodium hypochlorite storage would not pose a threat to water quality or exceed requirements of the RWQCB. Therefore, impacts would be **less than significant**.

b) **No Impact.** IRWD acquired the Syphon Reservoir to expand system-wide seasonal storage of recycled water to better serve its recycled water customers. Future expansion of Syphon Reservoir would allow IRWD to store surplus recycled water produced at its existing treatment plants during periods of low recycled water demand (e.g., winter) and then use the surplus to help meet periods of high demand (e.g., summer). Additionally, water stored during cool or wet years, when recycled water demands are low, would be available for use during dry years (e.g., stored over a several year period as opposed to storage from one season to the next). As such, the Proposed Project would serve as a beneficial use to the IRWD's service area by providing recycled water during peak water demands. Furthermore, implementation of the Proposed Project would allow IRWD to minimize use of its imported water resources. Therefore, the Project is not anticipated to

result in the construction of new water or wastewater treatment facilities or expansion of existing facilities and in fact would help more efficiently utilize existing water and wastewater infrastructure and supplies in the Irvine area. **No impact** would result.

c) **Less-than-Significant Impact.** On-site drainage would be directed to a new 48-inch storm drain pipe (to be constructed by others off site) and an 8-inch PVC storm drain. These facilities would then connect to the existing stormwater system associated with Portola Parkway. Due to the extensive capacity of the existing Portola Parkway stormwater system coupled by the minimal drainage quantities assumed for the Project site due to its small size and minimal impervious surface, impacts to the existing stormwater system would not be significant.

If water is encountered during open trench construction, it would first be determined if it can be discharged to the storm drain under a permit from the RWQCB. Based on the results of the groundwater testing conducted (Appendix C), the water likely to be encountered during open trench construction does not exceed any water quality discharge requirements, and it would be discharged to the storm drain. The Project would comply with all NPDES dewatering requirements as regulated by the RWQCB. As such, construction of the facilities would not result in a significant environmental effect. Impacts are considered to be **less than significant**.

d) **No Impact.** The Project would not generate a demand for new water supplies; rather, it would provide storage of recycled water during periods of low recycled water demand (e.g., winter) and surplus to help meet periods of high demand (e.g., summer). The Project would construct facilities, including drainages and pipelines, that would convert the reservoir from an agricultural storage basin to a recycled water reservoir. The recycled water would be used for landscape irrigation, agricultural irrigation, commercial uses, and industrial uses to meet future recycled water demands for IRWD's service area. As such, the Proposed Project is not expected to generate any new or increased demand for water or expanded entitlements. **No impact** would result.

e) **Less-than-Significant Impact**. The Proposed Project would not result in wastewater treatment demands. There are no restroom facilities proposed on site, and the only wastewater that would be generated would be from emergency use of the eyewash/shower station in the event of an accidental exposure to chemicals. Impacts would be **less than significant.**

f) **Less-than-Significant Impact.** A small amount of solid waste may be generated by the construction of the access road, concrete pad, clearing of vegetation, installation of the pipes and drainages, and facilities on the Project site. Solid waste generated during construction activities would be transported to the Frank R. Bowerman Landfill ("Bee Canyon") Commercial Landfill. In compliance with applicable laws and regulations, IRWD would recycle as much of the waste generated during construction as possible. Therefore, the amount of construction-related waste generated by the Proposed Project and sent to a local landfill would be minimal. Operation and maintenance of the facilities would not result in the generation of any significant volumes of solid waste. Therefore, a **less-than-significant impact** would result.

g) **Less-than-Significant Impact.** Short-term construction would involve a small amount of grading in order to construct the pad for the disinfection facility. Solid waste generated during construction activities would be transported to the adjacent Frank R. Bowerman Landfill ("Bee Canyon") Commercial Landfill. The Proposed Project would comply with all federal, state, and local statutes and regulations regarding solid waste. In compliance with applicable laws and regulations, IRWD would recycle as much of the waste generated during construction as possible. Once operational, the Project would not generate solid waste. As such, impacts would be **less than significant**.

3.18 Mandatory Findings of Significance

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE - Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE - Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

a) **Less-Than-Significant with Mitigation Incorporated.** The Proposed Project would result in direct permanent impacts to 0.05 acre of disturbed coastal sage scrub habitat necessitating a take reduction from IRWD's allowance under the NCCP. Implementation of mitigation measure MM-BIO-1 through MM-BIO-9 would reduce potential impacts to less than significant. Due to the sensitivity of cultural resources in the Project area, the potential exists for the Project to impact cultural resources. However, implementation of MM-CR-1 through MM-CR-3 would reduce potential impacts to **less-than-significant** levels.

b) **No Impact.** There would be no significant cumulative impacts of the Proposed Project. The Project would increase the recycled water supply within the IRWD service area to meet planned growth, but would not be considered growth-inducing because it does not include expansion of the reservoir or other facilities. As stated in the Project objectives, the Proposed Project would increase IRWD's ability to store excess recycled water during periods when demand is low in the winter so the water can be used when demand increases in the summer. The Project would accommodate existing demand and limited planned growth within the area served by IRWD, but would not induct growth or serve as a catalyst to growth. Implementation of the Proposed Project would allow IRWD to meet existing recycled water demand. **Therefore, the Proposed Project would not have impacts that in combination with other projects would be cumulatively considerable.**

c) **Less-than-Significant Impact.** The Proposed Project would have the potential to result in environmental impacts, but none would have the potential to cause adverse effects on human beings. Based on the analysis of the above questions, it has been determined that there would be no significant direct or indirect effect on human beings. Impacts would be **less than significant.**

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FIGURE 3-1

View of Project Site from Portola Parkway

IRWD Syphon Reservoir Interim Facilities - MND

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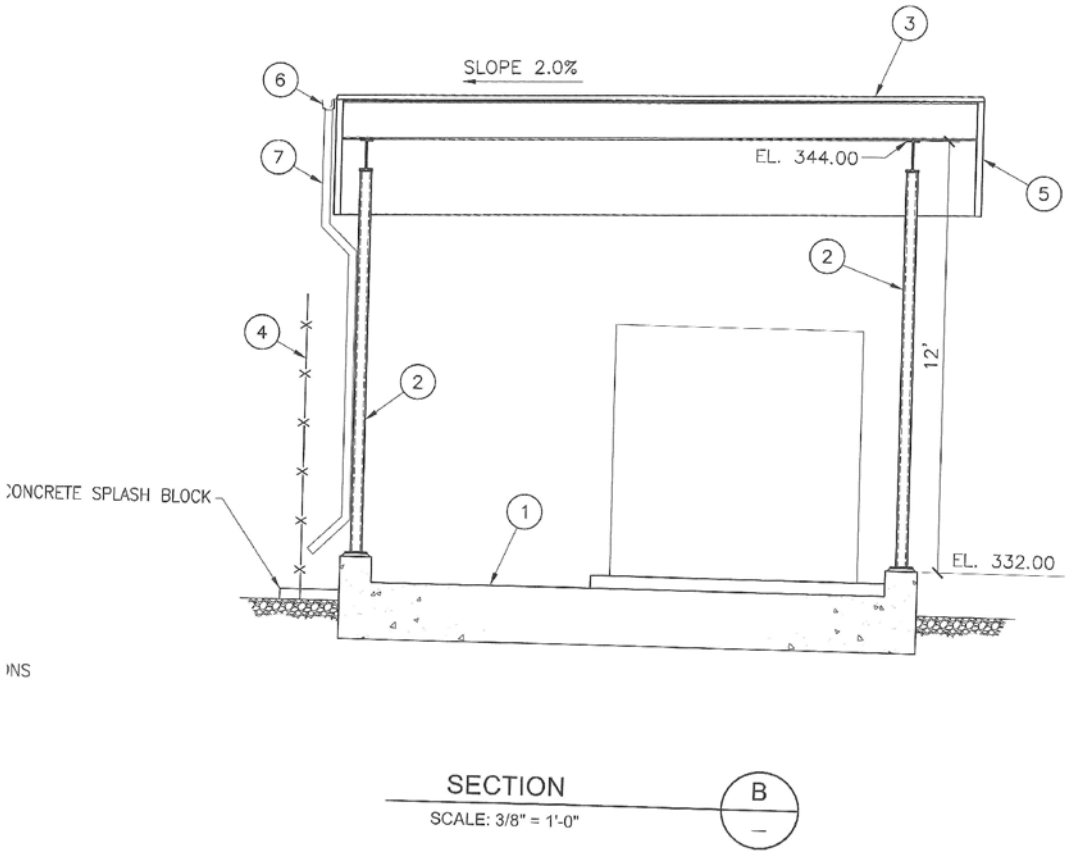

MATERIAL LIST

1. CONCRETE CONTAINMENT SLAB
2. CANOPY COLUMNS
3. CANOPY ROOF AND FRAMING
4. CHAINLINK FENCE WITH PRIVACY SCREEN
5. 24" FASCIA ALL FOUR SIDES
6. GUTTER
7. GUTTER DOWN SPOUT. SECURE TO CANOPY SUPPORTS. DISCHARGE 12" ABOVE GRADE TO SPLASH PAD

0 200 400 Feet

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FIGURE 3-2

Elevation of Proposed Canopy

IRWD Syphon Reservoir Interim Facilities - MND

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4.0 REFERENCES

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

California Department of Conservation. 2004. "Agricultural Preserves [map]."

California Department of Conservation. 2010. Farmland Mapping and Monitoring Program. Accessed on October 30, 2012. ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2010/.

California Natural Resources Agency. 2009a. *Notice of Public Hearings and Notice of Proposed Amendment of Regulations Implementing the California Environmental Quality Act*. Sacramento, California: California Natural Resources Agency. www.ceqamap.com/docs/CNRA_Notice_of_Proposed_Action.pdf

California Natural Resources Agency. 2009b. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97.* December 2009.

California Public Resources Code, Section 21000–21177. California Environmental Quality Act (CEQA), as amended.

Caltrans (California Department of Transportation). 2012. "Officially Designated State Scenic Highways." Accessed October 30, 2012. http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm.

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* January 2008.

City of Irvine. 1998. City of Irvine Municipal Code or Ordinance, Title 6 – Public Works, Division 8 – Pollution, Chapter 2, Noise. Adopted September 11.

City of Irvine. 2001. *Northern Sphere Area Draft Environmental Impact Report*. December 14, 2001.

City of Irvine. 2010. City of Irvine Zoning Map. March 15, 2010. Accessed on October 30, 2012. http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=13672.

City of Irvine. 2011. *Roadway Design for Portola Parkway and Lesser Facilities: Final Design Report*. Prepared by L.O.S. Design, LLC. June 1, 2011.

City of Irvine. 2012. *City of Irvine General Plan.* Supplement 8, July 2012.

County of Orange. 1996. *County of Orange Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP).* County of Orange Central & Coastal Subregion. Part I & II: NCCP/HCP; Part III: Joint Programmatic EIR/EIS, and Implementation Agreement.

County of Orange. 2011. *County of Orange General Plan*. Updated March 22, 2011.

DSOD (Division of the Safety of Dams). *Dams within Jurisdiction of the State of California.*

DTSC (Department of Toxic Substance Control). 2011. *EnviroStor* [online database]. Accessed June 7, 2011. http://www.envirostor.dtsc.ca.gov/public/.

Dudek. 2011. *IRWD Syphon Reservoir Habitat Assessment Summary Memorandum*. Prepared for Irvine Ranch Water District. February 23, 2011.

Dudek. 2012. *Biological Resources Technical Report for the Syphon Reservoir Interim Facilities Project, Orange County, California* . Draft. Prepared for Irvine Ranch Water District. November 2012.

GEI (GEI Consultants Inc.). 2012. *Draft Syphon Reservoir Expansion Engineering Feasibility Study*.

HWA (Harmsworth Associates) 2012. "Re: Syphon Reservoir Ditch Assessment." Letter report from P. Galvin (Harmsworth Associates) to J.A. Corey (Irvine Ranch Water District). December 5, 2012.

LSA Associates. 2009. *NCCP/HCP Reserve Boundary Minor Amendment*. November 2009. Prepared for The Irvine Company.

NPS (National Park Services). 2012. "National Register of Historic Places." Accessed October 29, 2012. http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome.

OPR (California Governor's Office of Planning and Research). 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review.* Technical Advisory. Sacramento, California: OPR. June 19, 2008.

Orange County Airport Land Use Commission. 2008. *Land Use Plan for John Wayne Airport. John Wayne Airport Impact Zones.* April 17, 2008. Accessed on November 5, 2012. http://www.ocair.com/Commissions/ALUC/Docs/JWA_AELUP-April-17-2008.pdf.

Orange County Fire Authority. 2012. *Fire Hazard Severity Zones*.

SCAQMD (South Coast Air Quality Management District). 2011. "SCAQMD Air Quality Significance Thresholds." Revised March 2011. Accessed October 30, 2012. http://www.aqmd.gov/CEQA/handbook/signthres.pdf.

Standard Specifications for Public Works Construction. 2012. "Greenbook." BNI Building News.

SVP (Society of Vertebrate Paleontology). 1995 *Conformable Impact Mitigation Guidelines Committee*. News Bulletin No. 163. January 1995.

UCMP (University of California Museum of Paleontology). 2012. Collections Database. Accessed November 2012. http://ucmpdb.berkeley.edu/.

URS. 2009. *Phase I Environmental Site Assessment Syphon Canyon Dam and Reservoir*. December 9, 2009.

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APPENDIX A

Air Quality Modeling Runs

IRWD Syphon Reservoir Interim Facilities Project - Construction

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	278	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Land Use - Project site is 6.39 acres

Construction Phase - Grading (Site Preparation, Demolition, Grading): 2/1/13-2/22/13; Trenching (Pipeline Installation): 2/23/13-3/6/13; Facilities Construction: 3/7/13-5-30/13.

Off-road Equipment - Grading: 2 Tractors/Loaders/Backhoes.

Off-road Equipment - Trenching: 1 Excavator; 1 Plate Compactor; 1 Tractor/Loader/Backhoe.

Off-road Equipment - Facilities Construction: 1 Off-Highway Truck; 1 Plate Compactor; 1 Tractor/Loader/Backhoe.

Trips and VMT - Grading: 8 worker trips/day; 2 vendor trips/day; 60 total haul truck trips. Trenching: 10 worker trips/day; 2 vendor trips/day. Facilities Construction: 10 worker trips/day; 2 vendor trips/day.

Grading - Total Acres Disturbed: 6.39 acres

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					
2013	2.97	22.20	11.78	0.03	1.97	1.14	2.67	0.02	1.14	1.15	0.00	3,202.67	0.00	0.26	0.00	3,208.20
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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					
2013	2.97	22.20	11.78	0.03	1.71	1.14	2.41	0.02	1.14	1.15	0.00	3,202.67	0.00	0.26	0.00	3,208.20
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2013

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					0.42	0.00	0.42	0.00	0.00	0.00						0.00
Off-Road	1.11	7.29	5.63	0.01		0.61	0.61		0.61	0.61		826.15		0.10		828.22
Total	**1.11**	**7.29**	**5.63**	**0.01**	**0.42**	**0.61**	**1.03**	**0.00**	**0.61**	**0.61**		**826.15**		**0.10**		**828.22**

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	0.19	2.00	1.22	0.00	1.41	0.08	1.48	0.01	0.08	0.09		303.69		0.01		303.89
Vendor	0.03	0.33	0.23	0.00	0.02	0.01	0.03	0.00	0.01	0.01		53.57		0.00		53.60
Worker	0.05	0.05	0.51	0.00	0.12	0.00	0.13	0.00	0.00	0.01		91.03		0.01		91.14
Total	**0.27**	**2.38**	**1.96**	**0.00**	**1.55**	**0.09**	**1.64**	**0.01**	**0.09**	**0.11**		**448.29**		**0.02**		**448.63**

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					0.17	0.00	0.17	0.00	0.00	0.00						0.00
Off-Road	1.11	7.29	5.63	0.01		0.61	0.61		0.61	0.61	0.00	826.15		0.10		828.22
Total	**1.11**	**7.29**	**5.63**	**0.01**	**0.17**	**0.61**	**0.78**	**0.00**	**0.61**	**0.61**	**0.00**	**826.15**		**0.10**		**828.22**

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	0.19	2.00	1.22	0.00	1.41	0.08	1.48	0.01	0.08	0.09		303.69		0.01		303.89
Vendor	0.03	0.33	0.23	0.00	0.02	0.01	0.03	0.00	0.01	0.01		53.57		0.00		53.60
Worker	0.05	0.05	0.51	0.00	0.12	0.00	0.13	0.00	0.00	0.01		91.03		0.01		91.14
Total	**0.27**	**2.38**	**1.96**	**0.00**	**1.55**	**0.09**	**1.64**	**0.01**	**0.09**	**0.11**		**448.29**		**0.02**		**448.63**

3.3 Trenching - 2013

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	1.90	13.48	9.50	0.02		0.90	0.90		0.90	0.90		1,553.05		0.17		1,556.65
Total	**1.90**	**13.48**	**9.50**	**0.02**		**0.90**	**0.90**		**0.90**	**0.90**		**1,553.05**		**0.17**		**1,556.65**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.33	0.23	0.00	0.04	0.01	0.05	0.00	0.01	0.01		53.57		0.00		53.60
Worker	0.06	0.07	0.63	0.00	0.30	0.00	0.31	0.01	0.00	0.01		113.78		0.01		113.92
Total	**0.09**	**0.40**	**0.86**	**0.00**	**0.34**	**0.01**	**0.36**	**0.01**	**0.01**	**0.02**		**167.35**		**0.01**		**167.52**

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	1.90	13.48	9.50	0.02		0.90	0.90		0.90	0.90	0.00	1,553.05		0.17		1,556.65
Total	**1.90**	**13.48**	**9.50**	**0.02**		**0.90**	**0.90**		**0.90**	**0.90**	**0.00**	**1,553.05**		**0.17**		**1,556.65**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.33	0.23	0.00	0.04	0.01	0.05	0.00	0.01	0.01		53.57		0.00		53.60
Worker	0.06	0.07	0.63	0.00	0.30	0.00	0.31	0.01	0.00	0.01		113.78		0.01		113.92
Total	**0.09**	**0.40**	**0.86**	**0.00**	**0.34**	**0.01**	**0.36**	**0.01**	**0.01**	**0.02**		**167.35**		**0.01**		**167.52**

3.4 Facilities Construction - 2013

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	2.88	21.81	10.92	0.03		1.13	1.13		1.13	1.13		3,035.31		0.26		3,040.67
Total	**2.88**	**21.81**	**10.92**	**0.03**		**1.13**	**1.13**		**1.13**	**1.13**		**3,035.31**		**0.26**		**3,040.67**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.33	0.23	0.00	0.02	0.01	0.03	0.00	0.01	0.01		53.57		0.00		53.60
Worker	0.06	0.07	0.63	0.00	0.15	0.00	0.16	0.01	0.00	0.01		113.78		0.01		113.92
Total	**0.09**	**0.40**	**0.86**	**0.00**	**0.17**	**0.01**	**0.19**	**0.01**	**0.01**	**0.02**		**167.35**		**0.01**		**167.52**

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	2.88	21.81	10.92	0.03		1.13	1.13		1.13	1.13	0.00	3,035.31		0.26		3,040.67
Total	**2.88**	**21.81**	**10.92**	**0.03**		**1.13**	**1.13**		**1.13**	**1.13**	**0.00**	**3,035.31**		**0.26**		**3,040.67**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.33	0.23	0.00	0.02	0.01	0.03	0.00	0.01	0.01		53.57		0.00		53.60
Worker	0.06	0.07	0.63	0.00	0.15	0.00	0.16	0.01	0.00	0.01		113.78		0.01		113.92
Total	**0.09**	**0.40**	**0.86**	**0.00**	**0.17**	**0.01**	**0.19**	**0.01**	**0.01**	**0.02**		**167.35**		**0.01**		**167.52**

IRWD Syphon Reservoir Interim Facilities Project - Construction

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	278	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Land Use - Project site is 6.39 acres

Construction Phase - Grading (Site Preparation, Demolition, Grading): 2/1/13-2/22/13; Trenching (Pipeline Installation): 2/23/13-3/6/13; Facilities Construction: 3/7/13-5-30/13.

Off-road Equipment - Grading: 2 Tractors/Loaders/Backhoes.

Off-road Equipment - Trenching: 1 Excavator; 1 Plate Compactor; 1 Tractor/Loader/Backhoe.

Off-road Equipment - Facilities Construction: 1 Off-Highway Truck; 1 Plate Compactor; 1 Tractor/Loader/Backhoe.

Trips and VMT - Grading: 8 worker trips/day; 2 vendor trips/day; 60 total haul truck trips. Trenching: 10 worker trips/day; 2 vendor trips/day. Facilities Construction: 10 worker trips/day; 2 vendor trips/day.

Grading - Total Acres Disturbed: 6.39 acres

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					
2013	2.96	22.18	11.79	0.03	1.97	1.14	2.67	0.02	1.14	1.15	0.00	3,210.90	0.00	0.26	0.00	3,216.44
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

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					
2013	2.96	22.18	11.79	0.03	1.71	1.14	2.41	0.02	1.14	1.15	0.00	3,210.90	0.00	0.26	0.00	3,216.44
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2013

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					0.42	0.00	0.42	0.00	0.00	0.00						0.00
Off-Road	1.11	7.29	5.63	0.01		0.61	0.61		0.61	0.61		826.15		0.10		828.22
Total	**1.11**	**7.29**	**5.63**	**0.01**	**0.42**	**0.61**	**1.03**	**0.00**	**0.61**	**0.61**		**826.15**		**0.10**		**828.22**

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	0.19	1.89	1.15	0.00	1.41	0.08	1.48	0.01	0.08	0.09		304.85		0.01		305.04
Vendor	0.03	0.31	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01		53.88		0.00		53.91
Worker	0.05	0.05	0.53	0.00	0.12	0.00	0.13	0.00	0.00	0.01		97.37		0.01		97.48
Total	**0.27**	**2.25**	**1.89**	**0.00**	**1.55**	**0.09**	**1.64**	**0.01**	**0.09**	**0.11**		**456.10**		**0.02**		**456.43**

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					0.17	0.00	0.17	0.00	0.00	0.00						0.00
Off-Road	1.11	7.29	5.63	0.01		0.61	0.61		0.61	0.61	0.00	826.15		0.10		828.22
Total	**1.11**	**7.29**	**5.63**	**0.01**	**0.17**	**0.61**	**0.78**	**0.00**	**0.61**	**0.61**	**0.00**	**826.15**		**0.10**		**828.22**

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	0.19	1.89	1.15	0.00	1.41	0.08	1.48	0.01	0.08	0.09		304.85		0.01		305.04
Vendor	0.03	0.31	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01		53.88		0.00		53.91
Worker	0.05	0.05	0.53	0.00	0.12	0.00	0.13	0.00	0.00	0.01		97.37		0.01		97.48
Total	**0.27**	**2.25**	**1.89**	**0.00**	**1.55**	**0.09**	**1.64**	**0.01**	**0.09**	**0.11**		**456.10**		**0.02**		**456.43**

3.3 Trenching - 2013

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	1.90	13.48	9.50	0.02		0.90	0.90		0.90	0.90		1,553.05		0.17		1,556.65
Total	**1.90**	**13.48**	**9.50**	**0.02**		**0.90**	**0.90**		**0.90**	**0.90**		**1,553.05**		**0.17**		**1,556.65**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.31	0.21	0.00	0.04	0.01	0.05	0.00	0.01	0.01		53.88		0.00		53.91
Worker	0.06	0.06	0.67	0.00	0.30	0.00	0.31	0.01	0.00	0.01		121.71		0.01		121.85
Total	**0.09**	**0.37**	**0.88**	**0.00**	**0.34**	**0.01**	**0.36**	**0.01**	**0.01**	**0.02**		**175.59**		**0.01**		**175.76**

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	1.90	13.48	9.50	0.02		0.90	0.90		0.90	0.90	0.00	1,553.05		0.17		1,556.65
Total	**1.90**	**13.48**	**9.50**	**0.02**		**0.90**	**0.90**		**0.90**	**0.90**	**0.00**	**1,553.05**		**0.17**		**1,556.65**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.31	0.21	0.00	0.04	0.01	0.05	0.00	0.01	0.01		53.88		0.00		53.91
Worker	0.06	0.06	0.67	0.00	0.30	0.00	0.31	0.01	0.00	0.01		121.71		0.01		121.85
Total	**0.09**	**0.37**	**0.88**	**0.00**	**0.34**	**0.01**	**0.36**	**0.01**	**0.01**	**0.02**		**175.59**		**0.01**		**175.76**

3.4 Facilities Construction - 2013

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	2.88	21.81	10.92	0.03		1.13	1.13		1.13	1.13		3,035.31		0.26		3,040.67
Total	**2.88**	**21.81**	**10.92**	**0.03**		**1.13**	**1.13**		**1.13**	**1.13**		**3,035.31**		**0.26**		**3,040.67**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.31	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01		53.88		0.00		53.91
Worker	0.06	0.06	0.67	0.00	0.15	0.00	0.16	0.01	0.00	0.01		121.71		0.01		121.85
Total	**0.09**	**0.37**	**0.88**	**0.00**	**0.17**	**0.01**	**0.19**	**0.01**	**0.01**	**0.02**		**175.59**		**0.01**		**175.76**

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	2.88	21.81	10.92	0.03		1.13	1.13		1.13	1.13	0.00	3,035.31		0.26		3,040.67
Total	**2.88**	**21.81**	**10.92**	**0.03**		**1.13**	**1.13**		**1.13**	**1.13**	**0.00**	**3,035.31**		**0.26**		**3,040.67**

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.31	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01		53.88		0.00		53.91
Worker	0.06	0.06	0.67	0.00	0.15	0.00	0.16	0.01	0.00	0.01		121.71		0.01		121.85
Total	**0.09**	**0.37**	**0.88**	**0.00**	**0.17**	**0.01**	**0.19**	**0.01**	**0.01**	**0.02**		**175.59**		**0.01**		**175.76**

IRWD Syphon Reservoir Interim Facilities Project - Operation

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	0	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Land Use - Operational - 1,000 gallon-tank truck to deliver chlorine to site, staff trips, maintenance truck trips

Operations - Chlorine Trucks: A 1,000- gallon tank truck would visit the site once per week to deliver chlorine.
Staff Visits and Maintenance Trucks: IRWD would visit the facility 5 times per week to check that all facilities/equipment are working properly, the site/facilities are secure, and to take note of any items requiring maintenance and 2 monthly truck trips related to periodic maintenance of the facility for 3 months of the year.

Trips and VMT - Chlorine Trucks - 52 trips per week (104 trips round trip); Sante Fe Springs to Project Site: 32 miles. Staff Visits and Maintenance Trips - 4 trips, 9 miles

2.0 Emissions Summary

2.1 Overall Operational (2014) (Maximum Daily Emission)

Unmitigated Operational

	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					
Mobile	0.05	0.31	0.40	0.00	3.93	0.01	3.95	0.00	0.01	0.02	0.00	95.99	0.00	0.00	0.00	96.07
Total	**0.05**	**0.31**	**0.40**	**0.00**	**3.93**	**0.01**	**3.95**	**0.00**	**0.01**	**0.02**	**0.00**	**95.99**	**0.00**	**0.00**	**0.00**	**96.07**

Mitigated Operational

	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					
Mobile	0.05	0.31	0.40	0.00	3.93	0.01	3.95	0.00	0.01	0.02	0.00	95.99	0.00	0.00	0.00	96.07
Total	**0.05**	**0.31**	**0.40**	**0.00**	**3.93**	**0.01**	**3.95**	**0.00**	**0.01**	**0.02**	**0.00**	**95.99**	**0.00**	**0.00**	**0.00**	**96.07**

3.0 Operation Detail

3.1 Chlorine Trucks - 2014

Unmitigated Mobile

	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	0.03	0.29	0.17	0.00	3.87	0.01	3.88	0.00	0.01	0.01		51.36		0.00		51.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.03**	**0.29**	**0.17**	**0.00**	**3.87**	**0.01**	**3.88**	**0.00**	**0.01**	**0.01**		**51.36**		**0.00**		**51.39**

Mitigated Mobile

	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	0.03	0.29	0.17	0.00	3.87	0.01	3.88	0.00	0.01	0.01		51.36		0.00		51.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.03**	**0.29**	**0.17**	**0.00**	**3.87**	**0.01**	**3.88**	**0.00**	**0.01**	**0.01**		**51.36**		**0.00**		**51.39**

3.2 Staff Visits and Maintenance Trucks - 2014

Unmitigated Mobile

	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.23	0.00	0.06	0.00	0.06	0.00	0.00	0.00		44.63		0.00		44.68
Total	**0.02**	**0.02**	**0.23**	**0.00**	**0.06**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**		**44.63**		**0.00**		**44.68**

Mitigated Mobile

	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.23	0.00	0.06	0.00	0.06	0.00	0.00	0.00		44.63		0.00		44.68
Total	**0.02**	**0.02**	**0.23**	**0.00**	**0.06**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**		**44.63**		**0.00**		**44.68**

IRWD Syphon Reservoir Interim Facilities Project - Operation

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	0	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Land Use - Operational - 1,000 gallon-tank truck to deliver chlorine to site, staff trips, maintenance truck trips

Operations - Chlorine Trucks: A 1,000- gallon tank truck would visit the site once per week to deliver chlorine.
Staff Visits and Maintenance Trucks: IRWD would visit the facility 5 times per week to check that all facilities/equipment are working properly, the site/facilities are secure, and to take note of any items requiring maintenance and 2 monthly truck trips related to periodic maintenance of the facility for 3 months of the year.

Trips and VMT - Chlorine Trucks - 52 trips per week (104 trips round trip); Sante Fe Springs to Project Site: 32 miles. Staff Visits and Maintenance Trips - 4 trips, 9 miles

2.0 Emissions Summary

2.1 Overall Operational (2014) (Maximum Daily Emission)

Unmitigated Operational

	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					
Mobile	0.05	0.29	0.41	0.00	3.93	0.01	3.95	0.00	0.01	0.02	0.00	99.23	0.00	0.00	0.00	99.31
Total	**0.05**	**0.29**	**0.41**	**0.00**	**3.93**	**0.01**	**3.95**	**0.00**	**0.01**	**0.02**	**0.00**	**99.23**	**0.00**	**0.00**	**0.00**	**99.31**

Mitigated Operational

	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					
Mobile	0.05	0.29	0.41	0.00	3.93	0.01	3.95	0.00	0.01	0.02	0.00	99.23	0.00	0.00	0.00	99.31
Total	**0.05**	**0.29**	**0.41**	**0.00**	**3.93**	**0.01**	**3.95**	**0.00**	**0.01**	**0.02**	**0.00**	**99.23**	**0.00**	**0.00**	**0.00**	**99.31**

3.0 Operation Detail

3.1 Chlorine Trucks - 2014

Unmitigated Mobile

	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	0.03	0.27	0.16	0.00	3.87	0.01	3.88	0.00	0.01	0.01		51.49		0.00		51.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.03**	**0.27**	**0.16**	**0.00**	**3.87**	**0.01**	**3.88**	**0.00**	**0.01**	**0.01**		**51.49**		**0.00**		**51.52**

Mitigated Mobile

	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	0.03	0.27	0.16	0.00	3.87	0.01	3.88	0.00	0.01	0.01		51.49		0.00		51.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.03**	**0.27**	**0.16**	**0.00**	**3.87**	**0.01**	**3.88**	**0.00**	**0.01**	**0.01**		**51.49**		**0.00**		**51.52**

3.2 Staff Visits and Maintenance Trucks - 2014

Unmitigated Mobile

	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.25	0.00	0.06	0.00	0.06	0.00	0.00	0.00		47.74		0.00		47.79
Total	**0.02**	**0.02**	**0.25**	**0.00**	**0.06**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**		**47.74**		**0.00**		**47.79**

Mitigated Mobile

	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.25	0.00	0.06	0.00	0.06	0.00	0.00	0.00		47.74		0.00		47.79
Total	**0.02**	**0.02**	**0.25**	**0.00**	**0.06**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**		**47.74**		**0.00**		**47.79**

IRWD Syphon Reservoir Interim Facilities Project - Construction

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	278	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Land Use - Project site is 6.39 acres

Construction Phase - Grading (Site Preparation, Demolition, Grading): 2/1/13-2/22/13; Trenching (Pipeline Installation): 2/23/13-3/6/13; Facilities Construction: 3/7/13-5-30/13.

Off-road Equipment - Grading: 2 Tractors/Loaders/Backhoes.

Off-road Equipment - Trenching: 1 Excavator; 1 Plate Compactor; 1 Tractor/Loader/Backhoe.

Off-road Equipment - Facilities Construction: 1 Off-Highway Truck; 1 Plate Compactor; 1 Tractor/Loader/Backhoe.

Trips and VMT - Grading: 8 worker trips/day; 2 vendor trips/day; 60 total haul truck trips. Trenching: 10 worker trips/day; 2 vendor trips/day. Facilities Construction: 10 worker trips/day; 2 vendor trips/day.

Grading - Total Acres Disturbed: 6.39 acres

2.0 Emissions Summary

2.1 Overall Construction

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	tons/yr										MT/yr					
2013	0.11	0.81	0.46	0.00	0.02	0.04	0.06	0.00	0.04	0.04	0.00	104.19	104.19	0.01	0.00	104.37
Total	**0.11**	**0.81**	**0.46**	**0.00**	**0.02**	**0.04**	**0.06**	**0.00**	**0.04**	**0.04**	**0.00**	**104.19**	**104.19**	**0.01**	**0.00**	**104.37**

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	tons/yr										MT/yr					
2013	0.11	0.81	0.46	0.00	0.02	0.04	0.06	0.00	0.04	0.04	0.00	104.19	104.19	0.01	0.00	104.37
Total	**0.11**	**0.81**	**0.46**	**0.00**	**0.02**	**0.04**	**0.06**	**0.00**	**0.04**	**0.04**	**0.00**	**104.19**	**104.19**	**0.01**	**0.00**	**104.37**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2013

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	tons/yr										MT/yr					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.06	0.05	0.00		0.00	0.00		0.00	0.00	0.00	5.99	5.99	0.00	0.00	6.01
Total	**0.01**	**0.06**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.99**	**5.99**	**0.00**	**0.00**	**6.01**

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	tons/yr										MT/yr					
Hauling	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	2.21	2.21	0.00	0.00	2.21
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.68	0.00	0.00	0.68
Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**3.28**	**3.28**	**0.00**	**0.00**	**3.28**

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	tons/yr										MT/yr					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.06	0.05	0.00		0.00	0.00		0.00	0.00	0.00	5.99	5.99	0.00	0.00	6.01
Total	**0.01**	**0.06**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.99**	**5.99**	**0.00**	**0.00**	**6.01**

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	tons/yr										MT/yr					
Hauling	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	2.21	2.21	0.00	0.00	2.21
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.00	0.00	0.39
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.68	0.00	0.00	0.68
Total	**0.00**	**0.01**	**0.01**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**3.28**	**3.28**	**0.00**	**0.00**	**3.28**

3.3 Trenching - 2013

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	tons/yr										MT/yr					
Off-Road	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00	0.00	5.63	5.63	0.00	0.00	5.65
Total	**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**5.63**	**5.63**	**0.00**	**0.00**	**5.65**

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	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00	0.20
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.42	0.00	0.00	0.42
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.62**	**0.62**	**0.00**	**0.00**	**0.62**

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	tons/yr										MT/yr					
Off-Road	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00	0.00	5.63	5.63	0.00	0.00	5.65
Total	**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**5.63**	**5.63**	**0.00**	**0.00**	**5.65**

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	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00	0.20
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.42	0.00	0.00	0.42
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.62**	**0.62**	**0.00**	**0.00**	**0.62**

3.4 Facilities Construction - 2013

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	tons/yr										MT/yr					
Off-Road	0.09	0.66	0.33	0.00		0.03	0.03		0.03	0.03	0.00	83.96	83.96	0.01	0.00	84.11
Total	**0.09**	**0.66**	**0.33**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**83.96**	**83.96**	**0.01**	**0.00**	**84.11**

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	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.49	0.00	0.00	1.49
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.22	3.22	0.00	0.00	3.22
Total	**0.00**	**0.01**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.71**	**4.71**	**0.00**	**0.00**	**4.71**

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	tons/yr										MT/yr					
Off-Road	0.09	0.66	0.33	0.00		0.03	0.03		0.03	0.03	0.00	83.96	83.96	0.01	0.00	84.11
Total	**0.09**	**0.66**	**0.33**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**83.96**	**83.96**	**0.01**	**0.00**	**84.11**

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	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.49	0.00	0.00	1.49
Worker	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.22	3.22	0.00	0.00	3.22
Total	**0.00**	**0.01**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.71**	**4.71**	**0.00**	**0.00**	**4.71**

IRWD Syphon Reservoir Interim Facilities Project - Operation

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	0	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Land Use - Operational - 1,000 gallon-tank truck to deliver chlorine to site, staff trips, maintenance truck trips

Operations - Chlorine Trucks: A 1,000- gallon tank truck would visit the site once per week to deliver chlorine.
Staff Visits and Maintenance Trucks: IRWD would visit the facility 5 times per week to check that all facilities/equipment are working properly, the site/facilities are secure, and to take note of any items requiring maintenance and 2 monthly truck trips related to periodic maintenance of the facility for 3 months of the year.

Trips and VMT - Chlorine Trucks - 52 trips per week (104 trips round trip); Sante Fe Springs to Project Site: 32 miles. Staff Visits and Maintenance Trips - 4 trips, 9 miles

2.0 Emissions Summary

2.1 Overall Operational (2014)

Unmitigated Operational

	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	tons/yr										MT/yr					
Mobile	0.01	0.04	0.05	0.00	0.46	0.00	0.46	0.00	0.00	0.00	0.00	11.49	11.49	0.00	0.00	11.50
Total	0.01	0.04	0.05	0.00	0.46	0.00	0.46	0.00	0.00	0.00	0.00	11.49	11.49	0.00	0.00	11.50

Mitigated Operational

	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	tons/yr										MT/yr					
Mobile	0.01	0.04	0.05	0.00	0.46	0.00	0.46	0.00	0.00	0.00	0.00	11.49	11.49	0.00	0.00	11.50
Total	**0.01**	**0.04**	**0.05**	**0.00**	0.46	**0.00**	0.46	**0.00**	**0.00**	**0.00**	**0.00**	**11.49**	**11.49**	**0.00**	**0.00**	**11.50**

3.0 Operation Detail

3.1 Chlorine Trucks - 2014

Unmitigated Mobile

	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	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.46	0.00	0.46	0.00	0.00	0.00	0.00	6.09	6.09	0.00	0.00	6.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.04**	**0.02**	**0.00**	**0.46**	**0.00**	**0.46**	**0.00**	**0.00**	**0.00**	**0.00**	**6.09**	**6.09**	**0.00**	**0.00**	**6.09**

Mitigated Mobile

	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	tons/yr										MT/yr					
Hauling	0.00	0.04	0.02	0.00	0.46	0.00	0.46	0.00	0.00	0.00	0.00	6.09	6.09	0.00	0.00	6.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.04**	**0.02**	**0.00**	**0.46**	**0.00**	**0.46**	**0.00**	**0.00**	**0.00**	**0.00**	**6.09**	**6.09**	**0.00**	**0.00**	**6.09**

3.2 Staff Visits and Maintenance Trucks - 2014

Unmitigated Mobile

	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	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.40	5.40	0.00	0.00	5.41
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.40**	**5.40**	**0.00**	**0.00**	**5.41**

Mitigated Mobile

	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	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.40	5.40	0.00	0.00	5.41
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.40**	**5.40**	**0.00**	**0.00**	**5.41**

APPENDIX B

Biological Technical Report

DRAFT

Biological Resources Technical Report for the Syphon Reservoir Interim Facilities Project, Orange County, California

Prepared for:

Irvine Ranch Water District
Water Resources and Administration
15600 Sand Canyon Avenue
Contact: Ms. Jo Ann Corey

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Thomas Liddicoat

DECEMBER 2012

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1.0 INTRODUCTION

The proposed Syphon Reservoir Interim Facilities Project (Proposed Project or Project) consists of the construction of interim facilities to convert the existing Syphon Reservoir from an irrigation water storage facility to seasonal storage facility for recycled water. These interim facilities include the construction/installation of an access road, pipelines, electrical lines, transformers, drains, a manhole, and an operations facility. The Project is located immediately east of Portola Parkway and north of Toll Road 133, within Irvine Ranch Water District (IRWD) service boundary in the northern hills of the City of Irvine, Orange County, California. The Project is on the U.S. Geological Survey 7.5-minute El Toro Quadrangle in Section 29, Township 5 South, Range 8 West; 33°42'33.08" north latitude and 117°43'53.35" west longitude.

The Proposed Project is located on portions of two separately owned properties, the IRWD Syphon Reservoir property and the Crean property (Crean). Both properties are located within the Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for the County of Orange Central Coastal Subregion, adopted in 1996. The Syphon Reservoir IRWD property was previously surveyed by Dudek in 2011 to assess a variety of biological resources (Dudek 2011). A recent biological survey of the Proposed Project study area was conducted by Dudek in October 2012 to verify biological resources documented from the 2011 surveys and inventory the existing resources present. Harmsworth Associates (HWA) conducted an evaluation of a drainage feature within the Project area in November 2012 (HWA 2012). The purpose of this biological resources technical report is to provide a description of the on-site vegetation, jurisdictional resources, and potential for plant and animal species recognized as sensitive by local, state, or federal wildlife agencies and/or environmental organizations. This report describes the biological character of the Project site, provides an analysis of direct and indirect impacts based on the Proposed Project design, analyzes the biological significance of the site with respect to regional resource planning, and discusses mitigation measures that will reduce any significant impacts to a level below significant. This report conforms with the Central Coastal Subregion NCCP/HCP (County 1996).

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2.0 PROJECT SETTING

2.1 Project Location

The Project is located near the eastern limits of the City of Irvine, Orange County, California, as depicted on Figure 1. Specifically, the Project is located directly south of the Syphon Reservoir between the south face of the dam and Portola Parkway. As shown on Figure 2, the study area is located on the U.S. Geological Survey 7.5-minute El Toro quadrangle, Township 5 South, Range 8 West, in Section 29. The central point of the study area is at longitude 117°43'53.35" west and latitude 33°42'33.08" north.

2.2 Soils

According to U.S. Department of Agriculture and Natural Resources Conservation Service (USDA and NRCS 2012), there are three soil types found in the study area: Metz loamy sand, Soper gravelly loam 30%–50% slopes, and Sorrento loam 0%–2% slopes.

Metz loamy sand consists of very deep, excessively drained soils that formed from alluvial, sedimentary rocks. Metz soils are found on floodplains and alluvial fan and consist mostly of sandy loam. Soper gravelly loam soils are well-drained soils found along hills and side slopes. Soper gravelly loam soils are derived from residuum weathered from sandstone and consist of loam, gravelly clay loam, and weathered bedrock. Sorrento loams are well-drained soils found along alluvial fans at the toe of slopes. Sorrento loam soils are formed in alluvium derived from sedimentary rock and consist of loam, silty clay loam, and stratified loamy fine sand to silt loam. Of these soils, Soper and Sorrento soils would likely have a higher potential for rare plants due to the potential for clay lenses, which are known to support several endemic species.

2.3 Terrain

The study area currently supports native vegetation communities, disturbed areas, and the Syphon Reservoir. On-site elevations range from approximately 360 feet above mean sea level near the edges of the reservoir to approximately 450 feet above mean sea level on the hilltops. The study area burned in October 2007 as part of the Santiago Fire and is currently in a post-fire succession.

2.4 Land Uses

2.4.1 On-Site Land Uses

The northeastern portion of the study area is located within the 265-acre IRWD Syphon Reservoir property. The IRWD property currently supports a functioning reservoir, dam, access roads, and existing reservoir facilities related to reservoir operations.

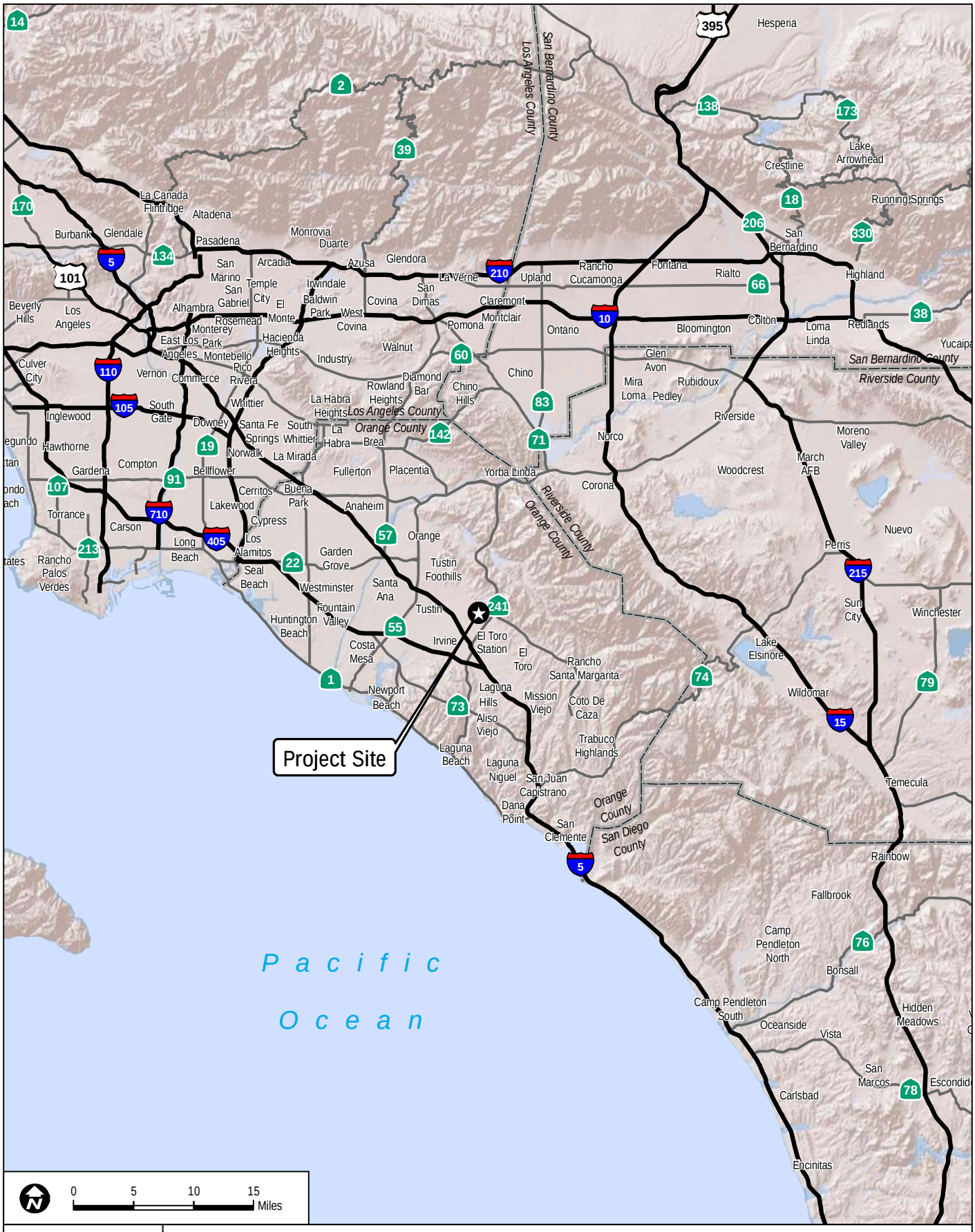
The southern portion of the study area is located within the Crean property. The Crean property currently supports vacant land bounded between the IRWD property and Portola Parkway.

2.4.2 Surrounding Land Uses

Surrounding land uses include the 265-acre IRWD Syphon Reservoir property to the north and east and residential properties to the northwest, south, and southwest.

2.5 Hydrology

The Project site is located in the Santa Ana River Watershed within the Lower Santa Ana River (HA 801.10). More specifically, it is located within the East Coastal Plain Hydrologic Subarea (HSA 801.11) of the watershed (Figure 3). The Project site is located approximately 5 miles east of San Diego Creek, which eventually flows into Newport Bay in the City of Newport Beach, California (RWQCB 1986).



DUDEK

SOURCE: IRWD 2009

FIGURE 1
Regional Map

7036-04

IRWD Syphon Reservoir Interim Facilities - Biological Technical Report

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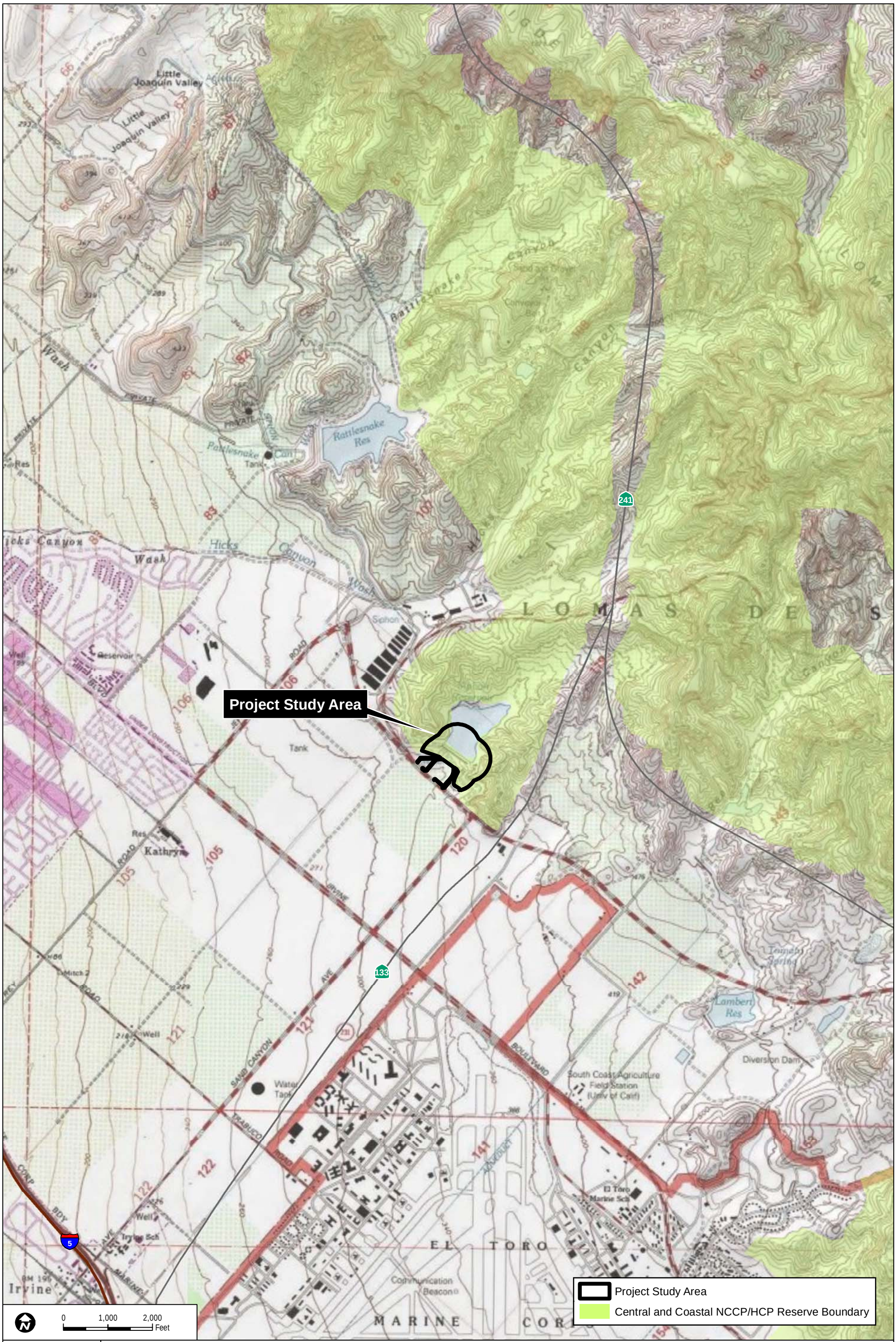

DUDEK

SOURCE: IRWD 2009

FIGURE 2

Vicinity Map

7036-04

IRWD Syphon Reservoir Interim Facilities - Biological Technical Report

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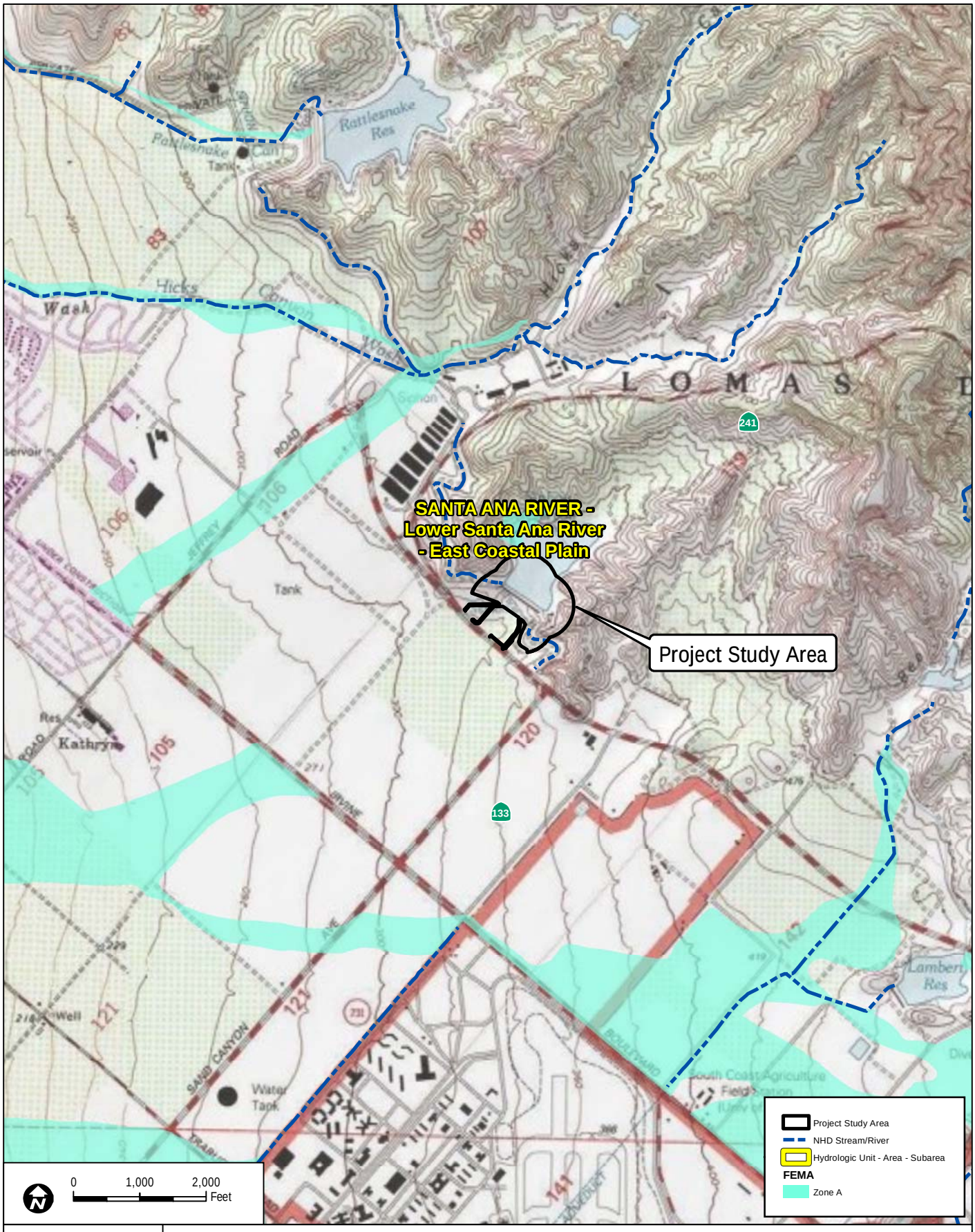

DUDEK

7036-04

SOURCES: USGS 7.5 Minute Series El Toro Quadrangle
Federal Emergency Managment Agency (FEMA)
USGS National Hydrography Dataset

FIGURE 3
Hydrologic Setting

IRWD Syphon Reservoir Interim Facilities - Biological Technical Report

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3.0 METHODS

Data regarding biological resources present in the study area were obtained through a review of pertinent literature and field reconnaissance; both are described in detail below.

3.1 Literature Review

Prior to conducting the field investigation, a review of the existing biological resources and species within the vicinity of the study area was conducted using the California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDB) (CDFG 2011, 2012a–d), the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants* (CNPS 2012), and U.S. Fish and Wildlife Service (USFWS) critical habitat data (2012).

In terms of regional preserve planning efforts, the Project site is located within the Central Coastal Subregion NCCP/HCP; and this document was consulted to ensure consistency with local conservation efforts, goals, and policies (County 1996). A Minor Amendment to the NCCP/HCP was approved for the Crean property in 2009, removing that property from the NCCP/HCP Reserve. Documentation of biological resources present on the property at that time is provided in report prepared by LSA Associates Inc. (LSA 2009).

General information regarding wildlife species present in the region was obtained from Hamilton and Willick (1996) for birds, Hall (1981) and Ingles (1965) for mammals, Stebbins (2003) for reptiles and amphibians, and Emmel and Emmel (1973) for butterflies. General information regarding vegetation communities and plant species was obtained from Gray and Bramlet (1992), Holland (1986), and Oberbauer et al. (2008). The hydrologic setting of the site was evaluated utilizing a federal waters database and is presented on Figure 3 (FEMA 2012).

3.2 Field Reconnaissance

Dudek biologist Thomas Liddicoat conducted a biological reconnaissance survey of the study area that incorporated vegetation communities and land cover mapping, a formal jurisdictional delineation, and an evaluation of potential for special-status species to occur on site in October 2012. The Project survey study area was defined as the proposed interim facilities site plan and a 500-foot buffer surround facilities on IRWD property and an approximate 20-foot buffer surrounding facilities proposed on the Crean property. The survey was performed under favorable conditions to detect most plant and animal species present and was conducted on foot to ensure 100% visual coverall of the site, as described in Table 1.

Table 1
Survey Conditions

Date	Hours	Personnel	Conditions
10/24/12	0930–1145	Thomas Liddicoat	64°F–80°F; 75%–10% cloud cover; 0 mile per hour wind

In addition, HWA biologist Paul Galvin conducted an evaluation of a drainage feature on the Crean property on November 30, 2012 (HWA 2012).

3.2.1 Resource Mapping

Mapping of the existing site conditions, biological resources, and jurisdictional areas present was performed directly in the field onto a 100-foot-scale (1 inch = 100 feet) aerial photograph-based field map with an overlay of the Project study area. Native plant community classifications used in this report follow the Habitat Classification System for Orange County (Gray and Bramlet 1992). Areas on site that supported less than 20% native plant species cover were mapped as disturbed, and areas that supported at least 20% native plant species but fewer than 50% native cover were mapped as a disturbed native vegetation community (e.g., disturbed coastal sage scrub).

A Global Positioning System (GPS) unit was used where necessary to record the biological resources of site. All areas identified as being potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), and CDFG was also verified and mapped directly in the field. Following completion of the field work, Dudek Geographic Information System (GIS) Specialist Mark McGinnis digitized the mapped findings using ArcGIS and calculated coverage acreages using ArcCAD.

3.2.2 Flora

All plant species encountered during the field survey were identified and recorded directly into a field notebook. Those species that could not be identified immediately were brought into the laboratory for further investigation. A compiled list of plant species observed on site is presented in Appendix A.

Latin and common names for plant species with a California Rare Plant Rank (CRPR) (formerly CNPS list) follow the CNPS online *Inventory of Rare and Endangered Plants* (CNPS 2012). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2012).

3.2.3 Fauna

All wildlife species detected during the field survey by sight, calls, tracks, scat, or other signs were recorded directly into a field notebook. Binoculars (8.5x42 magnification) were used to aid in the identification of observed wildlife. In addition to species actually detected, expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area. A cumulative list of wildlife species observed within the study area is presented in Appendix B.

Scientific and common names of animals follow Crother (2008) for reptiles and amphibians, American Ornithologists' Union (AOU) (2012) for birds, Wilson and Reeder (2005) for mammals, North American Butterfly Association (NABA) (2001) for butterflies, and Moyle (2002) for fish.

3.2.4 Special-Status and/or Regulated Resources

Special-status biological resources are defined as follows: (1) species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened population sizes; (2) species and habitat types recognized by local and regional resource agencies as sensitive; (3) habitat areas or plant communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; and (4) wildlife corridors and habitat linkages. Regulated biological resources may or may not be considered special-status, but they meet jurisdictional determination criteria under any of several local, state, and/or federal laws. Such resources may be species locations, habitat, or topographic features such as drainage courses.

3.2.5 Jurisdictional Wetlands Delineation

A formal delineation of jurisdictional "waters of the United States," including wetlands, under the regulation of the ACOE, CDFG, and RWQCB was conducted for the IRWD property.

The delineation was performed in accordance with the methods prescribed in the 1987 *Corps of Engineers Wetland Delineation Manual* (ACOE 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (*Version 2.0*) (ACOE 2008).Pursuant to the federal Clean Water Act, ACOE- and RWQCB-jurisdictional areas include those supporting all three wetlands criteria described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. Areas regulated by the RWQCB are generally coincident with the ACOE, but they can also include isolated features that have evidence of surface water inundation pursuant to the state Porter-Cologne Act. These areas generally support at least one of the three ACOE wetlands indicators but are considered isolated through the lack of surface water hydrology/connectivity downstream. The extent of CDFG regulated

areas typically include areas supporting a predominance of hydrophytic vegetation (i.e., 50% cover or greater) where associated with a stream channel.

To assist in the determination of jurisdictional areas on the IRWD property, data was collected at one sampling point. Hydrology, vegetation, and soils were assessed and sampling data was collected on an approved ACOE form (Appendix C). The Project site was evaluated for evidence of an ordinary high water mark, surface water, saturation, wetland vegetation, and nexus to a navigable water. The extent of any identified jurisdictional areas was determined by mapping the areas with similar vegetation and topography to the sampled locations. Any jurisdictional features were verified and recorded directly in the field using a GPS unit. Subsequent to the fieldwork, any collected GPS data was transferred to topographic base, and a GIS coverage was created.

An evaluation of jurisdiction of a drainage feature on the Crean property was performed by HWA based on a site visit conducted on November 30, 2012 (HWA 2012). The methods and results are summarized in a report attached as Appendix D.

4.0 RESULTS

The quantification of biological resources described herein pertain to the Project site (i.e., proposed facilities on the IRWD property and associated pipeline easements on the Crean property), totaling approximately 1.83 acres, and do not include the entire 500-foot and 20-foot survey buffers evaluated during the reconnaissance survey. The 500-foot buffer on the IRWD property is included on Project maps to provide context as to the type of adjacent biological resources present only. Representative photographs of the study area are included as Appendix E.

4.1 Botany – Plant Communities

Based on species composition and general physiognomy, three vegetation communities and two land cover types identified within the Project site (on site): annual grassland, coastal sage scrub, disturbed mulefat scrub, disturbed areas, and developed areas. The communities and land covers mapped on site are described below, their acreages are presented in Table 2, and their spatial distributions are shown in Figure 4.

Table 2
Acreage of Vegetation Communities and Land Cover Types

Vegetation Community/Land Cover Type	Code[1]	Acres		Total
		IRWD Property	*Crean Property*	
Upland				
Annual Grassland (AGL)	4.1	0.04	0.62	0.66
Coastal Sage Scrub[2] (NA-VDTCSS)	2.3	0.05	0.20	0.25
Developed Areas (DEV)	15.6	0.21	0.57	0.78
Disturbed Areas (DIS)	16.1	0.08	—	0.08
Wetland				
Disturbed Mulefat Scrub (dMFS)	7.3	0.04	0.02	0.06
	Total	0.42	1.41	1.83

[1]Vegetation Code is from vegetation described in Gray and Bramlet 1992.
[2]Includes the disturbed form (i.e., dNA-VDTCSS).

4.1.1 Annual Grassland (4.1)

According to Gray and Bramlet (1992), annual grassland (AGL) is typically dominated by the following annual grass species: *Bromus, Avena, Vulpia,* and *Hordeum.* Other common forbs include *Amsinckia*, *Cryptantha*, *Erodium*, *Brassica*, and *Centaurea*. Annual grassland on site is dominated mustard (*Brassica*) species and star-thistle (*Centaurea solstitialis*), but the area also

supports foxtail brome (*Bromus madritensis*), fennel (*Foeniculum vulgare*), laurel sumac (*Malosma laurina*), blue elderberry (*Sambucus mexicanus*), castor bean (*Ricinus communis*), and telegraph weed (*Heterotheca grandiflora*).

Annual grassland occupies a total of 0.66 acre on site (0.04 acre IRWD property, 0.62 acre Crean property). Within the Project site, this community has a high component of non-native invasive forbs (primarily mustard), which is likely the result of prior disturbance. Such a disturbance history is consistent with the site location between Portola Parkway and Syphon Reservoir and is consistent with previously mapping that classified this areas as disturbed or barren (LSA 2009). Annual grasslands may provide foraging habitat for many raptor species.

4.1.2 Coastal Sage Scrub (2.3)

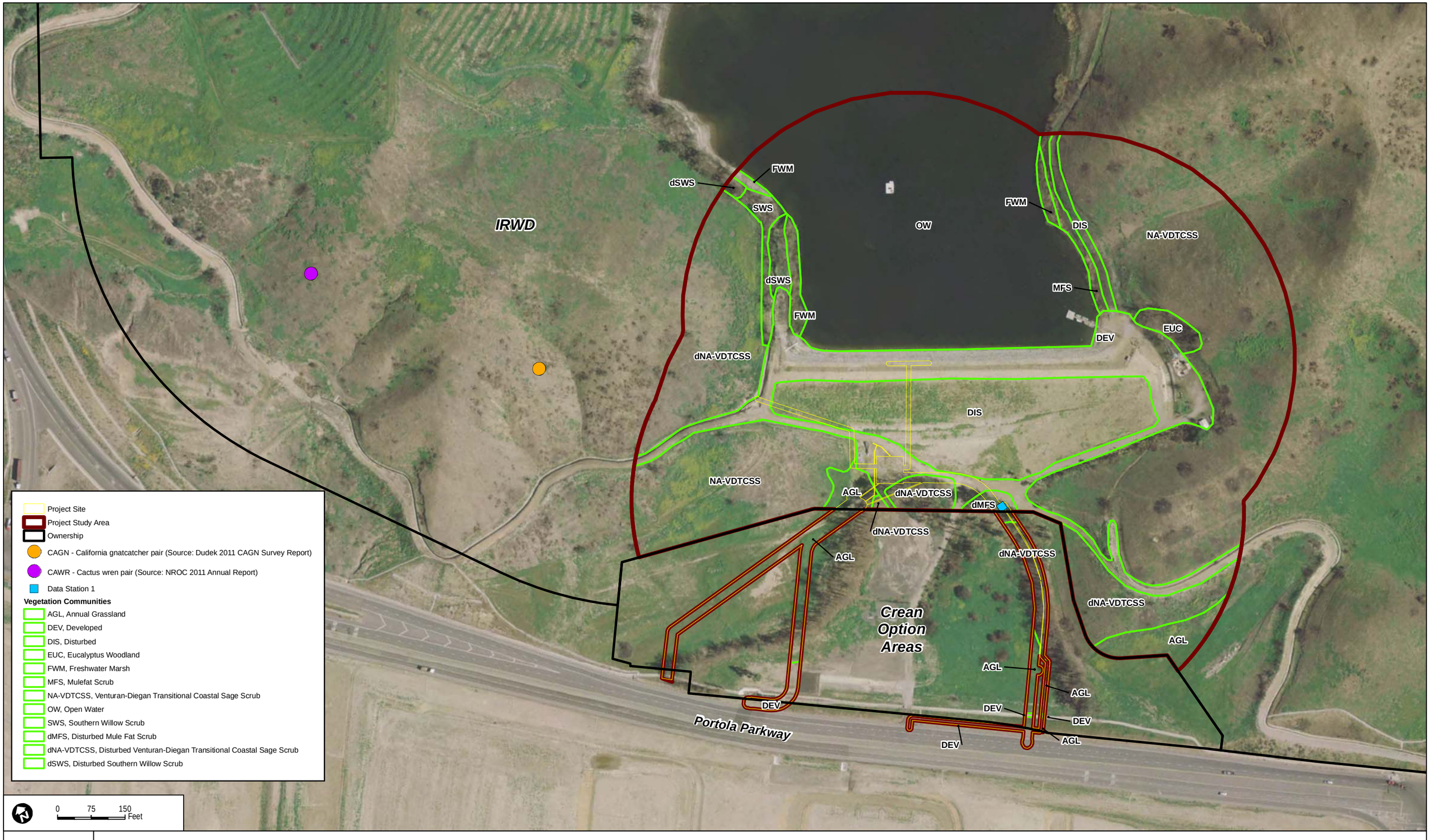
According to Gray and Bramlet (1992), Venturan-Diegan transitional coastal sage scrub (NA-VDTCSS) vegetation consists of low-stature, mesophyllous, drought-deciduous species. Venturan-Diegan coastal sage scrub is considered a transitional association that contains elements of two recognized geographical associations of sage, Venturan and Diegan.

Within the Project site, the coastal sage scrub is dominated by coastal sagebrush (*Artemisia Californica*), laurel sumac (*Malosma laurina*), spreading goldendbush (*Isocoma menziesii*), bush sunflower (*Encelia Californica*), and deerweed (*Lotus scoparius*). Other species within the coastal sage community on site include wreath plant (*Stephanomeria virgata*), ladies' tobacco (*Pseudognaphalium californicum*), mulefat (*Baccharis salicifolia*), mustard species, star thistle, and eucalyptus saplings (*Eucalyptus globulus*). The coastal sage scrub (including the disturbed form) on site occupies approximately 0.25 acre (0.05 acre IRWD property, 0.20 acre Crean property).

4.1.3 Mulefat Scrub (7.3)

Mulefat scrub (MFS) is dominated by dense stands of mulefat with other occurring species, including willow (*Salix* spp.). This community generally has little to no understory, but some areas contain coastal sagebrush, Ambrosia species, castor bean, and other perennial herbs.

This community is disturbed on site (approximately 25% native species cover) and supports mulefat, Mexican fan palm, (*Washingtonia robusta*), wreath plant, coyote bush (*Baccharis pilularis*), pulicaria (*Pulicaria paludosa*), horseweed (*Conyza canadensis*), and foxtail brome grass. There is a total of 0.06 acre of disturbed mulefat on the Project site (0.04 acre IRWD property, 0.02 acre Crean property).



DUDEK

7036-04

SOURCE: IRWD 2009; URS October 2012

FIGURE 4

Biological Resources

IRWD Syphon Reservoir Interim Facilities - Biological Technical Report

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4.1.4 Developed (15.6)

According to Gray and Bramlet (1992), the areas on site are classified as "other disturbed areas," which on site specifically refers to the existing gravel areas, gravel access roads, and the cemented areas associated with Portola Parkway. These developed areas (DEV) are predominantly unvegetated on site and occupy a majority of the Project site, totaling 0.78 acre (0.21 acre IRWD property, 0.57 acre Crean property).

4.1.5 Disturbed Habitat (16.0)

Disturbed habitat (DIS) refers to areas that lack vegetation but still retain a pervious surface. The disturbed habitat on site is classified by Gray and Bramlet as "cleared or graded," which on site specifically refers to the south face of the dam. This area is routinely maintained by IRWD and cleared free of vegetation to maintain the stability of the dam. The area is primarily bare ground and supports the following sparse annual non-native species: mustard, star-thistle, castor bean, horseweed, wreath plant, and telegraph weed. Disturbed habitat occupies 0.08 acre on site (0.08 acre IRWD property, 0.0 acre Crean property).

4.2 Zoology – Wildlife Diversity

4.2.1 General Wildlife

The Project site supports habitat for a limited number of common upland and wetland wildlife species. The annual grassland that occupies most of the site provides limited habitat value due to the lack of plant species and structural diversity, low cover and foraging value, the small site size, and the isolation of the Project site. The riparian vegetation supports some wildlife species, but the overall diversity of species on site is low due to surrounding development, limited native habitat, and the highly disturbed nature of the site. Eighteen species of wildlife were observed during the surveys and are discussed further below (Appendix B).

4.2.2 Birds

Sixteen species of birds were observed during surveys. Typical species observed on site include Anna's hummingbird (*Calypte anna*) and mourning dove (*Zenaida macroura*). One red-tailed hawk (*Buteo jamaicensis*) was observed flying over the site.

4.2.3 Reptiles and Amphibians

One reptile species was observed on site, common side-blotched lizard (*Uta stansburiana*). Some species that were not observed but are likely to occur include common species such as the western fence lizard (*Sceloporus occidentalis*) and gopher snake (*Pituophis melanoleucus*).

4.2.4 Mammals

Two mammal species were detected, California ground squirrel (*Otospermophilus beecheyi*) and coyote (*Canis latrans*). Small mammal burrows likely made by ground squirrels were also observed on site. Other common fauna species that were not observed but are likely to occur on site include common raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginica*). Common small rodent species such as woodrats (*Neotoma* spp.), pocket mice (*Chaetodipus* spp.), or deer mice (*Peromyscus* spp.) are also likely to occur on the Project site.

4.2.5 Invertebrates

No invertebrates were recorded during the field survey.

4.3 Special-Status/Regulated Resources

Endangered, rare, or threatened species, as defined in Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), are referred to as "special-status species" in this report and include the following: (1) endangered or threatened species recognized in the context of the California Endangered Species Act and the federal Endangered Species Act; (2) plant species with a CRPR (Lists 1 through 4) (CDFG 2012c; CNPS 2012); (3) California Species of Special Concern (SSC) and Watch (WL) species, as designated by CDFG (2011); (4) mammals and birds that are fully protected (FP) species, as described in California Fish and Game Code, Sections 4700 and 3511; (5) Birds of Conservation Concern (BCC), as designated by the USFWS (2012); and (6) plant and wildlife species that are "covered" under the Central Coastal Subregion NCCP/HCP (County 1996).

4.3.1 Special-Status Plant Species

No special-status plant species were observed on site during the 2012 survey. A records search of CNPS and CNDDB was utilized to develop a list of special-status plant species that may have potential to occur on site due to the presence of suitable habitat (taking into consideration vegetation communities, soils, elevation, and geographic range). A list of these special-status species (i.e., federally, state, or locally listed species), their suitable habitat conditions (life form,

blooming period, etc.), and their potential to occur on site based on the findings of the field investigations are presented in Table 3. Species considered special-status (i.e., covered) under the NCCP/HCP, including conditionally covered species under the NCCP/HCP, are also included in Table 3. None of the species presented in Table 3 were detected on site during the field surveys.

As presented in Table 3, there are no special-status plant species that are determined to have a moderate or high potential to occur on site. The disturbed character of the Project site and proximity to developed areas and existing facility roads limit the potential for special-status plants. No special-status plants are expected to occur on the Project site, and focused rare plant surveys are not considered necessary to adequately determine potential impacts to special-status plant species.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Abronia villosa var. *aurita*	Chaparral sand-verbena	None/ None/ None	1B.1	Chaparral, coastal scrub, desert dunes; sandy/ annual herb/ January - September/ 260-5300 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Allium munzii	Munz's onion	FE/ ST/ None	1B.1	Chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland/ perennial bulbiferous herb/ March-May/ 974-3500 ft.	Low potential to occur. Site is outside the species' recorded elevation range. Recorded within the region.
Aphanisma blitoides	Aphanisma	None/ None/ None	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub; annual herb/ March- June/ <1000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Asplenium vespertinum	Western spleenwort	None/ None/ None	4.2	Chaparral, cismontane woodland, coastal scrub; rocky/ /February-June/ 600-3300 ft.	Low potential to occur. Limited suitable habitat is present on site. Site is outside the species' recorded elevation range. Recorded within the region.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Astragalus brauntonii	Braunton's milk-vetch	FE/ None/ None	1B.1	Chaparral, Coastal scrub, Valley and foothill grassland/recent burns or disturbed areas, usually sandstone with carbonate layers/ perennial herb/ January-August/ 10-2100 ft.	Low potential to occur. Site has been burned recently (2007) and is disturbed but lacks appropriate soils. Recorded within the region.
Atriplex coulteri	Coulter's saltbush	None/ None/ None	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/ perennial herb/ March-October/ 10-1500 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Atriplex pacifica	South Coast saltscale	None/ None/ None	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub, playas/ annual herb/ March-October/ < 500 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Atriplex parishii	Parish's brittlescale	None/ None/ None	1B.1	Chenopod scrub, Playas, Vernal pools/alkaline/April-October/ 30-600 ft.	No potential to occur. No suitable habitat is present on site and species is thought to be extirpated. Recorded within the region.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/ None/ None	1B.2	Coastal bluff scrub, coastal scrub; alkaline/ annual herb/ April-October/ 30-650 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Baccharis malibuensis	Malibu baccharis	None/ None/ None	1B.1	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/ perennial deciduous shrub/ August/ 490-1000 ft.	Site is outside the species' recorded elevation range. Recorded within the region.
Brodiaea filifolia	Thread-leaved brodiaea	FT/ SE/ None	1B.1	Chaparral (openings) cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/ bulbiferous herb/ March-June/ 400-2800 ft.	Low potential to occur. No suitable habitat is present and site is slightly outside the species' recorded elevation range. Recorded within the vicinity.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Calandrinia breweri	Brewer's calandrinia	None/ None/ None	4.2	Chaparral, coastal scrub; sandy or loamy, disturbed sites and burns/ annual herb/ March-June/ 30-4000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Calochortus catalinae	Catalina mariposa lily	None/ None/ Covered	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/ bulbiferous herb/ March-June/ 50 – 2300 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Calochortus plummerae	Plummer's mariposa lily	None/None/ None	1B.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/granitic, rocky/ May-July/ 330-5600 ft.	Low potential to occur. Limited suitable habitat and soils not present on site. Recorded within the region.
Calochortus weedii var. *intermedius*	intermediate mariposa lily	None/None/Covered	1B.2	Chaparral, Coastal scrub, Valley and foothill grassland/rocky, calcareous/ May-July/ 340-2800 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Camissonia lewisii	Lewis's evening primrose	None/ None/ None	3	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay/ annual herb/ March-May (June)/ <1000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Cercocarpus minutiflorus	Small-flowered mountain mahogany	None/ None/ Covered	CBR	Chaparral (coastal area)/ shrub/ March-May	Low potential to occur. Limited suitable habitat is present on site. Included due to coverage under the NCCP/HCP.
Centromadia (=*Hemizonia*) *parryi* spp. *australis*	Southern tarplant	None/ None/ None	1B.1	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/ annual herb/ May-November/ < 400 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Centromadia pungens ssp. *laevis*	Smooth tarplant	None/ None/ None	1B.1	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/ annual herb/ April-September/ <1580 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/ None/ None	1B.1	Coastal bluff scrub, coastal dunes/ annual herb/ January -August/ 10-330 ft.	Low potential to occur. No suitable habitat is present on site. Recorded within the region.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/ SE/ None	1B.1	Coastal scrub(sandy) / annual herb/ April-July/ 500-4000 ft.	Low potential to occur. Limited suitable habitat is present on site. Site is outside the species' recorded elevation range and last observed in Orange County in 1902. Recorded within the region.
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	None/ None/ None	1B.2	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland; often clay/ annual herb/ April-July/ 100-5000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Chorizanthe xanti var. *leucotheca*	White-bracted spineflower	None/ None/ None	1B.2	Coastal scrub, Mojavean desert scrub, pinyon and juniper woodland/ annual herb/ April-June/ 980-3900 ft.	Low potential to occur. Limited suitable habitat is present on site. Site is outside the species' recorded elevation range. Recorded within the region.
Cistanthe maritima	Seaside cistanthe	None/ None/ None	4.2	Coastal bluff scrub, coastal scrub, valley and foothill grassland/ annual herb/ Feb-Aug/ 16-980 ft.	Low potential to occur. No suitable habitat is present on site. Recorded within the region.
Clinopodium chandleri	San Miguel savory	None/ None/ None	1B.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland/ perennial shrub/ March-July/ 390-3500 ft.	Low potential to occur. No suitable habitat is present and site is slightly outside the species' recorded elevation range Recorded within the region.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Comarostaphylis diversifolia ssp. *diversifolia*	Summer-holly	None/ None/ None	1B.2	Chaparral, cismontane woodland/ evergreen shrub/ April-June/100-1800 ft.	Low potential to occur. Limited suitable habitat is present on site. Evergreen species would have been observed during surveys. Recorded within the region.
Deinandra paniculata	Paniculate tarplant	None/ None/ None	4.2	Coastal scrub, valley and foothill grassland, vernal pools; usually vernally mesic/ annual herb/ April-November/ 80-3100 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Dichondra occidentalis	Western dichondra	None/ None/ Covered	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/ rhizomatous herb/ March-May/ 160-1650 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Dodecahema leptoceras	slender-horned spineflower	FE/ SE/ None	1B.1	Chaparral, Cismontane woodland, Coastal scrub(alluvial fan)/sandy/ April-June/ 660-2500 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	None/ None/ Covered	1B.1	Coastal bluff scrub, chaparral coastal scrub and valley and foothill grassland/ perennial herb/ April-June/ 16-1480 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Dudleya cymosa ssp. ovatifolia	Santa Monica dudleya	FT/ None/ Covered	1B.2	Chaparral, Coastal scrub/volcanic or sedimentary, rocky/ March-June/ 500-5500 ft.	Low potential to occur. Limited suitable habitat is present and site is outside the species' recorded elevation range. Recorded within the region.
Dudleya multicaulis	Many-stemmed dudleya	None/ None/ None	1B.2	Chaparral, coastal scrub, valley and foothill grassland; often clay/ perennial herb/ April-July/ 50-2600 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Dudleya stolonifera	Laguna Beach dudleya	FT/ ST/ Covered	1B.1	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/rocky/ May-July/ 30-850 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Dudleya viscida	Sticky dudleya	None/ None/ None	1B.2	Coastal bluff scrub, chaparral, coastal scrub; rocky/ perennial herb/ May-June/ 30-1800 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	FE/ SE/ None	1B.1	Chaparral, Coastal scrub(alluvial fan)/sandy or gravelly/ perennial herb/ May-September/ 300-2000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Euphorbia misera	Cliff spurge	None/ None/ Covered	2.2	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/ shrub/ December-August/ 30-1650 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Harpagonella palmeri	Palmer's grapplinghook	None/ None/ Covered	4.2	Chaparral, coastal scrub, valley and foothill grassland; clay/ annual herb/ March-May/ 60-3100 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/ None/ None	1A	Coastal salt marsh, wetland-riparian/ August-October/ 30-5500 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Hesperocyparis forbesii	Tecate cypress	None/ None/ Covered	1B.1	Closed-cone coniferous forest, Chaparral/clay, gabbroic or metavolcanic/ 260-4900 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Hordeum intercedens	vernal barley	None/ None/ None	3.2	Coastal dunes, Coastal scrub, Valley and foothill grassland(saline flats and depressions), Vernal pools/ March-June/ 15-3300 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Horkelia cuneata ssp. puberula	Mesa horkelia	None/ None/ None	1B.1	Chaparral(maritime), Cismontane woodland, Coastal scrub/sandy or gravelly/ February-July/ 200-2600 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Imperata brevifolia	California satintail	None/ None/ None	2.1	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps(often alkali), Riparian scrub/mesic/ September-May/ 0-4000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	None/ None/ None	1B.2	Chaparral, coastal scrub (sandy, often disturbed areas)/ shrub/ April-November/ 30-450 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/ None/ None	1B.1	Saltwater marsh and swamps, playas, vernal pools/ annual herb/ February-June/ <4000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Lepechinia cardiophylla	Heart-leaved pitcher sage	None/ None/ Covered	1B.2	Chaparral, cismontane woodland, closed-cone coniferous forest; perennial shrub/ April-June/ 1700-4500 ft.	Low potential to occur. Limited suitable habitat is present and site is outside the species' recorded elevation range. Recorded within the region.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/ None/ None	1B.2	Chaparral, coastal scrub/ annual herb/ January-July/ < 2900 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Lilium humboldtii ssp. *ocellatum*	Ocellated Humbolt lily	None/ None/ None	4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland/openings/ perennial bulbiferous herb/ March-July(Aug)/ 100-5910 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Malacothrix saxatilis var. saxatilis	cliff malacothrix	None/ None/ None	4.2	Coastal bluff scrub, Coastal scrub/ perennial rhizomatous herb/ March-September/ 10-675 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Mimulus clevelandii	Cleveland's bush monkeyflower	None/ None/ None	4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest/gabbroic, often in disturbed areas, openings, rocky/ perennial rhizomatous herb/ April-June/ 2675-6250 ft.	Low potential to occur. Limited suitable habitat is present on site and site is outside the species' recorded elevation range. Recorded within the region.
Mimulus diffusus	Palomar monkeyflower	None/ None/ None	4.3	Chaparral, Lower montane coniferous forest/sandy or gravelly/ annual herb/ April-June/ 4000-6000 ft.	Low potential to occur. Limited suitable habitat is present on site and site is outside the species' recorded elevation range. Recorded within the region.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Monardella hypoleuca ssp. *lanata*	Felt-leaved monardella	None/ None/ None	1B.2	Chaparral, cismontane woodland/ rhizomatous herb/ June-August/ 1000-3600 ft.	Low potential to occur. Limited suitable habitat is present on site. Site is outside the species' recorded elevation range Recorded within the region.
Monardella macrantha ssp. *hallii*	Hall's monardella	None/ None/ None	1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/ June-October/ 2400-7200 ft.	Low potential to occur. Limited suitable habitat is present on site. Site is outside the species' recorded elevation range Recorded within the region.
Nama stenocarpum	Mud nama	None/ None/ None	2.2	Marshes and swamps, lake margins, riverbanks/ annual-perennial herb/ January-July/ 15-1650 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Navarretia prostrata	Prostrate navarretia	None/ None/ None	1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; annual herb/ April-July/ 50-3970 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Nolina cismontana	Chaparral nolina	None/ None/ None	1B.2	Chaparral, coastal scrub; sandstone or gabbro/ evergreen shrub/ May-July/ 460-4200 ft.	Low potential to occur. Limited suitable habitat is present on site. Evergreen shrub would have been observed during surveys. Recorded within the vicinity.
Penstemon californicus	California beardtongue	None/ None/ None	1B.2	Chaparral, lower montane coniferous forest, pinyon and juniper woodland (sandy)/ perennial herb/ May-August/ 3800-7545 ft.	Low potential to occur. Limited suitable habitat is present on site. Site is outside the species' recorded elevation range Recorded within the region.
Pentachaeta aurea ssp. allenii	Allen's pentachaeta	None/ None/ None	1B.1	Coastal scrub(openings), Valley and foothill grassland/ March-June/ 250-1700 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.
Phacelia keckii	Santiago Peak phacelia	None/ None/ None	1B.3	Closed-cone coniferous forest, Chaparral/ May-June/ 1800-5300 ft.	Low potential to occur. Limited suitable habitat is present on site. Site is outside the species' recorded elevation range Recorded within the region.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Phacelia ramosissima var. *austrolitoralis*	south coast branching phacelia	None/ None/ None	3.2	Chaparral, Coastal dunes, Coastal scrub, Marshes and swamps(coastal salt)/sandy, sometimes rocky/ March-August/ 15-1000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Pickeringia montana var. *tomentosa*	woolly chaparral-pea	None/ None/ None	4.3	Chaparral/gabbroic, granitic, clay/ evergreen shrub/ May-August/ <5580 ft.	Low potential to occur. Limited suitable habitat is present on site. Evergreen shrub would have been observed during surveys. Recorded within the region.
Piperia leptopetala	narrow-petaled rein orchid	None/ None/ None	4.3	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest/ perennial herb/ May-July/ 1250-7300 ft.	Low potential to occur. Limited suitable habitat is present and site is outside the species' recorded elevation range. Recorded within the region.
Polygala cornuta var. *fishiae*	Fish's milkwort	None/ None/ None	4.3	Chaparral, Cismontane woodland, Riparian woodland/ perennial deciduous shrub/ May-August/ 330-3610 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/ None/ None	2.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/sandy, gravelly/ July-August/ 0-6900 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Quercus dumosa	Nuttall's scrub oak	None/ None/ Covered	1B.1	Chaparral, coastal scrub, closed-cone coniferous forest; sandy, clay loam/ evergreen shrub/ February-April/ 50-1300 ft.	Low potential to occur. Limited suitable habitat is present on site. Evergreen shrub would have been observed during surveys. Recorded within the region.
Romneya coulteri	Coulter's matilija poppy	None/ None/ Covered	4.2	Chaparral, Coastal scrub/often in burns/ perennial rhizomatous herb/ March-July/ 70-3940 ft.	Absent. Tall perennial species would have been observed. Recorded within the region.
Senecio aphanactis	chaparral ragwort	None/ None/ None	2.2	Chaparral, Cismontane woodland, Coastal scrub/sometimes alkaline/ January-April/ 50-2600 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the vicinity.

Table 3
Special-Status Plant Species and Potential to Occur in the Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	CRPR	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range	Status On Site or Potential to Occur [1, 2]
Sidalcea neomexicana	salt spring checkerbloom	None/ None/ None	2.2	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas/alkaline, mesic/ March-June/ 50-5000 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Suaeda esteroa	Estuary seablite	None/ None/ None	1B.2	Coastal salt marshes and swamps/ perennial herb/ May-October (Jan)/ < 20 ft.	Low potential. Site is outside the species' recorded elevation range and no suitable habitat on site. Recorded within the region.
Symphyotrichum defoliatum	San Bernardino aster	None/ None/ None	1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland(vernally mesic)/near ditches, streams, springs/ July-November/ 6-6700 ft.	Low potential to occur. Limited suitable habitat is present on site. Recorded within the region.
Tetracoccus dioicus	Parry's tetracoccus	None/ None/ None	1B.2	Chaparral, coastal scrub/ deciduous shrub/ April-May/ 550-3300 ft.	Low potential to occur. Shrub would have been observed during surveys. Site is outside the species' recorded elevation range Recorded within the region.
Verbesina dissita	big-leaved crownbeard	FT/ ST/ None	1B.1	Chaparral(maritime), Coastal scrub/ April-June/ 150-670 ft.	Low potential to occur. Known from only four occurrences in southern Laguna Beach. Recorded within the region.

The federal and state status of species is based on the Special Plants List (September 2010), California Department of Fish and Game.

Federal Designations:
FE: Federally-listed as endangered

FT: Federally-listed as threatened
FC: Federal Candidate

State Designations:
SE: State-listed as endangered
ST: State-listed as threatened

CRPR:
CBR: Considered but Rejected

NCCP Designations:
Covered: Central-Coastal NCCP/NCP (includes target species, covered species, and conditionally covered species)

Notes:
[1]Vicinity = El Toro 7.5 minute quadrangle
[2]Region = Nine, 7.5 minute quadrangles including and surrounding El Toro.

4.3.2 Special-Status Wildlife Species

Two special status wildlife species were detected on the Project site during the survey, the federally listed threatened California gnatcatcher (*Polioptila californica*) (gnatcatcher) and the NCCP/HCP covered coyote. Both species were observed within the coastal sage (i.e., NA-VDTCSS and dNA-VDTCSS) on site. Focused surveys for gnatcatcher were conducted by Dudek in 2011 and concluded that the IRWD Syphon Reservoir property supports multiple breeding pairs of gnatcatcher (Dudek 2011). The gnatcatcher pair nearest the Project site recorded in the 2011 survey report is presented on Figure 4 of this report. Also presented on Figure 4 is a special-status species location for coastal cactus wren (*Campylorhynchus brunneicapillus*) that was recorded by the Nature Reserve of Orange County (NROC) during the annual NCCP/HCP biological surveys (NROC 2011). Cactus wren has a low potential to occur within the Project site because there are no suitable cactus thickets on site.

A CNDDB records search was performed to develop a list of special-status wildlife species that may have potential to occur on site based to the presence of suitable habitat, elevation, and geographic range. A list of special-status species (i.e., federally, state, or locally listed species), their favorable habitat conditions, and their potential to occur on site based on the results of the field investigations are presented in Table 4. Species considered special-status (i.e., covered) under the NCCP/HCP, including conditionally covered species, are also included in Table 4.

As presented in Table 4, 13 additional special-status wildlife species are determined to have a moderate potential to occur on site. These wildlife species include the following: burrowing owl (*Athene cunicularia*), California horned lark (*Eremophila alpestris*), Cooper's hawk (*Accipiter cooperii*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), red-shouldered hawk (*Buteo lineatus*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), white-tailed kite (*Elanus leucurus*), coast horned lizard (*Phrynosoma blainvillei*), coastal western whiptail (*Aspidoscelis tigris stejnegeri*), orange throated whiptail (*Aspidoscelis hyperythra*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*). Due to limited suitable habitat and small size of the Project site, these species have a moderate to high potential to forage on site, but the potential for nesting is either low or moderate. Bird species that have a moderate potential to nest on site include California horned lark and Southern California rufous-crowned sparrow, while the potential for nesting raptors is low to not anticipated, except for burrowing owl, which has a moderate potential to nest on site. Only one special-status wildlife species, California gnatcatcher, was observed on site during the survey. The 2011 focused survey for this species found very limited nesting activities within this Project area, presumably due to the low-quality habitat and proximity to dam operations activities. No raptor nests were detected on site during the reconnaissance survey. Due to limited potential of special-status animals occurring on site and the small Project size (i.e., less than 2 acres), no focused wildlife surveys are needed to adequately determine potential impacts to special-status wildlife species.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Amphibians				
Aneides lugubris	Arboreal salamander	None/ None/ Covered	Oak and sycamore woodland and forest; moist habitats under rocks and woody debris	Not expected. No suitable habitat on site. Species is not recorded in the region, but covered under the NCCP.
Anaxyrus [=Bufo] californicus	Arroyo toad	FE/ SSC/ Covered	Stream channels for breeding (typically 3rd order); adjacent stream terraces and uplands for foraging and wintering.	Not expected. No suitable stream habitat on site. Species is recorded within the vicinity [1].
Batrachoseps nigriventris	Black-bellied slender salamander	None/ None/ Covered	Moist canyon woodland and forest and chaparral; moist habitats under rocks, logs and bark	Not expected. Lack of suitable habitat on site. Species is not recorded in the region, but covered under the NCCP.
Lithobates pipiens	Northern leopard frog	FS/ SSC/ None	In or near quiet, permanent and semi-permanent water in many habitats, <7,000 feet	Not expected. No suitable habitat present on site. Site is outside the known range for this species; however, the species is recorded in the region.
Spea [=Scaphiopus] hammondi	Western spadefoot	BLM / SSC/ Covered	Most common in grasslands, coastal sage scrub near rain pools or vernal pools; riparian habitats	Not expected. No streams on site. Species is recorded within the vicinity.
Taricha torosa	Coast Range newt	None/SSC/ None	Chaparral, wetlands and grasslands	Low potential. Grasslands on site not ideal and are open and dominated with annual invasive species. Species is recorded in the region.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Reptiles				
Aspidoscelis hyperythra	Orange-throated whiptail	None/ SSC/ Covered	Coastal sage scrub, chaparral, grassland, juniper and oak woodland	Moderate potential. Suitable habitat on site. Species is recorded within the site vicinity.
Aspidoscelis tigris stejnegeri	Coastal western whiptail	None/ None/ Covered	Coastal sage scrub, chaparral	Moderate potential. Suitable habitat on site. Species is recorded within the site vicinity.
Charina [=*Lichanura*] *trivirgata*	Rosy boa	FS/ None/ Covered	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	Not expected. Lack of suitable habitat on site; no rocky areas on site. Species is recorded in the region.
Crotalus ruber ruber	Northern red-diamond rattlesnake	None/ SSC/ Covered	Variety of scrub habitats where there is heavy brush, large rocks, or boulders	Low potential. Limited suitable habitat on site. Species is recorded within the vicinity.
Diadophis punctatus modestus	San Bernardino ringneck snake	FS/ None/ Covered	Open, relatively rocky areas in woodland, chaparral and grassland, often in somewhat moist microhabitats near intermittent streams.	Not expected. Lack of suitable habitat on site. Species is not recorded within the region.
Emys [=*Clemmys*] *marmorata pallida*	Southwestern pond turtle	FS, BLM/ SSC/ None	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter	Not expected. Lack of suitable aquatic habitat on site, and limited suitable upland nesting habitat is present on site. Species is recorded in the vicinity.
Lampropeltis zonata (pulchra)	California mountain kingsnake (San Diego population)	FS/ SSC/ None	Valley foothill, riparian and wet meadows, conifer, mixed and montane chaparral	Not expected. Lack of suitable habitat on site. Species is recorded in the region.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Phrynosoma blainvillei	Coast horned lizard	BLM, FS/ SSC/ Covered	Coastal sage scrub, annual grassland, chaparral, oak and riparian woodland, coniferous forest	Moderate potential. Suitable grassland and coastal sage scrub present. Species is recorded within the vicinity.
Plestiodon skiltonianus interparietalis	Coronado Island skink	BLM/ SSC/ Covered	Grassland, woodlands, conifer forests, chaparral; rocky areas near streams with substantial vegetation.	Not expected. Lack of suitable habitat on site. Species is not recorded in the region, but is covered under the NCCP.
Salvadora hexalepis virgultea	Coast patch-nosed snake	None/ SSC/ None	Chaparral, washes, sandy flats, rocky areas	Not expected. Lack of suitable habitat on site. Species is recorded within the vicinity.
Thamnophis hammondii	Two-striped garter snake	BLM, FS/ SSC/ None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected. No suitable aquatic habitat on site. Species is recorded within the vicinity.
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	BLM/ WL/ None	Riparian and oak woodlands, montane canyons	Moderate potential. Grasslands on site may provide suitable foraging habitat; however, no suitable nesting habitat on site. Species is recorded within the vicinity.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Accipiter striatus (nesting)	Sharp-shinned hawk	None/ WL/ Covered	Nests in woodlands and forages over dense chaparral and scrublands	Not expected. Species occurs in the region only as a winter visitor. No suitable nest or forage habitat on site. Species is not recorded in the region, but is covered under the NCCP.
Agelaius tricolor (nesting colony)	Tricolored blackbird	BCC, BLM/ SSC/ None	Nests near fresh water, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture	Not expected. Lack of suitable habitat on site. Species is recorded in the region.
Aimophila ruficeps canescens	Southern California rufous-crowned	None / WL/ Covered	Grass-covered hillsides, coastal sage scrub, chaparral with boulders and outcrops	High potential. Suitable habitat on site. Species is recorded within the vicinity.
Ammodramus savannarum (nesting)	Grasshopper sparrow	None/ SSC/ None	Open grassland and prairie, especially native grassland with a mix of grasses and forbs	Low potential. Grassland habitat on site is dominated by invasive species. Species is recorded within the vicinity.
Aquila chrysaetos (nesting and nonbreeding/wintering)	Golden eagle	BCC/ CDF, WL, P/ Covered	Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannas, open coniferous forest	Low potential. Limited suitable foraging habitat on site; no suitable nesting habitat on site. Species is recorded in the region.
Ardea herodias (nesting colony)	Great blue heron	None/ CDF/ None	Variety of habitats, but primarily wetlands; lakes, rivers, marshes, mudflats, estuaries, saltmarsh, riparian habitats.	Low potential. Limited suitable habitat on site. Species is recorded in the region.
Asio otus (nesting)	Long-eared owl	None/ SSC/ None	Riparian, live oak thickets, other dense stands of trees, edges of coniferous forest	Not expected. Lack of suitable habitat on site. Species is recorded in the region.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Athene cunicularia (burrow sites and some wintering sites)	Burrowing owl	BLM, BCC/ SSC/ None	Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas	Moderate potential. Suitable habitat on site. Species is recorded within the vicinity.
Buteo lagopus	Rough-legged hawk	None/ None/ Covered	Winter forages in wet meadows, grasslands, and riparian edges.	Low potential. Species only occurs in region as a winter visitor; species does not nest in California. Some suitable winter foraging habitat present. Species is not recorded in the region, but is covered under the NCCP.
Buteo lineatus	Red-shouldered hawk	None/ None/ Covered	Nests and forages in woodland and riparian habitats.	Moderate Low potential. Limited suitable foraging habitat on site; but no suitable nesting habitat. Species is not recorded in the region, but is covered under the NCCP.
Buteo regalis (wintering)	Ferruginous hawk	BCC/ WL/ None	Winter forages in open, dry country, grasslands, open fields, agriculture	Moderate potential. Species only occurs in region as a winter visitor; species does not nest in California. Limited suitable foraging habitat on site. Species is recorded within the vicinity.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Campylorhynchus brunneicapillus sandiegensis (San Diego & Orange Counties only)	Coastal cactus wren	BCC, FS/ SSC/ Covered	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub	Low potential. Although species is recorded by NROC approximately 500 feet west of the site, the proposed impact area lacks suitable cactus or succulent scrub habitat.. Species is recorded within the vicinity.
Circus cyaneus (nesting)	Northern harrier	None/ SSC/ Covered	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub	High potential. Suitable foraging habitat on site. Not expected to nest on site as site is outside of the recorded breeding range of this species in southern California. Species is recorded in the region.
Coccyzus americanus occidentalis (nesting)	Western yellow-billed cuckoo	FC, BCC, FS/ SE/ None	Dense, wide riparian woodlands and forest with well-developed understories	Not expected. No suitable habitat on site. Species is recorded in the region.
Elanus leucurus (nesting)	White-tailed kite	None/ P/ None	Open grasslands, savannah-like habitats, agriculture, wetlands, oak woodlands, riparian	High potential. Suitable foraging habitat on site. Not expected to nest on site as no suitable breeding habitat present. Species is recorded in the region.
Empidonax traillii extimus (nesting)	Southwestern willow flycatcher	FE/ SE/ Covered	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk	Not expected. No suitable nesting habitat on site. Species is recorded in the region.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Eremophila alpestris actia	California horned lark	None/ WL/ None	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields	Moderate potential. Some suitable habitat on site. Species is recorded within the site vicinity.
Falco peregrinus (nesting)	Peregrine falcon	BCC (FD)/ P (SD)/ Covered	Nests on cliffs, banks, and human-made structures generally near wetlands, lakes, rivers, or other water bodies. Winter forages near coastlines and inland water bodies.	Low potential. No nest habitat on site but may forage near Syphon Reservoir, particularly during winter months. Species is not recorded in the region, but is covered under the NCCP.
Falco mexicanus (nesting)	Prairie falcon	BCC/ WL/ Covered	Grasslands, savannas, rangeland, agricultural fields, and desert scrub; requires sheltered cliff faces for shelter and nesting	Moderate potential. Suitable foraging habitat on site; no suitable nesting habitat. Species is not recorded in the region, but is covered under the NCCP and was detected in the study area during the 2011 California gnatcatcher survey conducted in 2011 by Dudek.
Icteria virens (nesting)	Yellow-breasted chat	None / SSC/ None	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	Not expected. Lack of suitable habitat on site. Riparian vegetation on site is disturbed and primarily supports non-native vegetation. Species is recorded within the vicinity.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Laterallus jamaicensis coturniculus	California black rail	BCC/ ST, P/ None	Saline, brackish, and fresh emergent wetlands	Not expected. No suitable habitat on site. Species is recorded in the region.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/ SE/ None	Saltmarsh, pickleweed habitats near coastal water bodies.	Not expected. No suitable habitat on site. Species is recorded in the region.
Polioptila californica californica	Coastal California gnatcatcher	FT/ SSC/ Covered	Coastal sage scrub, coastal sage scrub-chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer	High potential. Observed on site during the survey. Suitable habitat on site. Species is also recorded in the vicinity.
Rallus longirostris levipes	Light-footed clapper rail	FE/ SE, P/ None	Coastal saltmarsh	Not expected. No suitable habitat on site. Species is recorded in the region.
Sternula [=*Sterna*] *antillarum browni* (nesting colony)	California least tern	FE/ SE, P/ None	Coastal waters, estuaries, large bays and harbors, mudflats; nests on sandy beaches	Not expected. No suitable habitat on site. Species is recorded in the region.
Vireo bellii pusillus (nesting)	Least Bell's vireo	FE/ SE/ Covered	Nests in southern willow scrub with dense cover within 1-2 meters of the ground; habitat includes willows, cottonwoods, baccharis, wild blackberry or mesquite on desert areas	Not expected. Riparian vegetation on site is disturbed, limited, and primarily supports non-native vegetation. Species is recorded within the vicinity.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Mammals				
Antrozous pallidus	Pallid bat	BLM, FS/ SSC/ None	Rocky outcrops, cliffs, and crevices with access to open habitats for foraging	Low potential. No suitable habitat for roosting, but may forage over the site.
Canis latrans	Coyote	None/ None/ Covered	All habitats where it finds food, including residential settings	High potential. Detected on site. Evidence (scat, tracks) of coyote observed during survey. Species is not recorded in the region, but is covered under the NCCP.
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	None/ SSC/ None	Coastal sage scrub, grassland, sage scrub-grassland ecotones, sparse chaparral; rocky substrates, loams and sandy loams	Moderate potential. Suitable habitat on site. Species is recorded in the region.
Choeronycteris mexicana	Mexican long-tongued bat	None/ SSC/ None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings.	Not expected. No suitable vegetation or roosting structures/microhabitat and habitat on site not typical of foraging habitat for this species.
Dipodomys stephensi	Stephens' kangaroo rat	FE/ ST/ None	Open habitat, grassland, sparse coastal sage scrub, sandy loam and loamy soils with low clay content; gentle slopes (<30%)	Not expected. Site is outside the recorded range for this species. Species is recorded in the region.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Eumops perotis californicus	Western mastiff bat	BLM/ SSC/ None	Roosts in small colonies in cracks and small holes, seeming to prefer man-made structures	Low potential. No suitable roosting structures/ microhabitat, but may forage over the site. Species is recorded within the site vicinity.
Lasiurus blossevillii	Western red bat	FS/ SSC/ None	Prefers edges or habitat mosaics with access to trees for roosting and open areas for feeding.	Low potential. No suitable roosting structures/ microhabitat, but may forage over the site. Species is recorded in the region.
Lasiurus xanthinus	Western yellow bat	None/SSC/ None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland.	Not expected. No suitable roosting or foraging habitat on site. Species is recorded in the region.
Myotis yumanensis	Yuma myotis	BLM/ None/ None	Closely tied to open water which is used for foraging; open forests and woodlands are optimal habitat	Low potential. No suitable habitat, but may forage over the site. Species is recorded in the region.
Neotoma lepida intermedia	San Diego desert woodrat	None/ SSC/ Covered	Coastal sage scrub, chaparral, pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth	Low potential. Limited suitable habitat on site. Species is recorded within the site vicinity.
Nyctinomops femorosaccus	Pocketed free-tailed bat	None/ SSC/ None	Rocky desert areas with high cliffs or rock outcrops	Not expected. No suitable roosting or foraging habitat on site. Species is recorded in the region.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Nyctinomops macrotis	Big free-tailed bat	None/ SSC/ None	Rugged, rocky canyons	Not expected. No suitable roosting or foraging habitat on site. Species is recorded in the region.
Perognathus longimembris pacificus	Pacific pocket mouse	FE/ SSC/ Covered	Grassland, coastal sage scrub with sandy soils; along immediate coast	Not expected. Suitable habitat on site; however, site is not within the recorded range of the species. Species is recorded within the region [2].
Sorex ornatus salicornicus	Southern California saltmarsh shrew	None/ SSC/ None	Coastal salt marshes and wetland habitat	Not expected. No suitable habitat on site. Species is recorded in the region.
Taxidea taxus	American badger	None/ SSC/ None	Dry, open treeless areas, grasslands, coastal sage scrub	Low potential. Limited suitable habitat on site. Species is recorded in the region.
Urocyon cinereoargenteus	Gray fox	None/ None/ Covered	Dense coastal scrub and chaparral, woodland and riparian	Not expected. Lack of suitable habitat on site. Species is not recorded in the region, but is covered under the NCCP.
Invertebrates				
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/ None/ Covered	Small, shallow vernal pools, occasionally ditches and road ruts	Not expected. No vernal pools or depressions were observed during the survey. Species is recorded in the region.
Danaus plexippus	Monarch butterfly	None/ None/ None	Overwinters in eucalyptus groves	Not expected. Lack of suitable habitat on site. Species is recorded in the region.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Euphydryas editha quino	Quino checkerspot butterfly	FE/ None/ Covered	Patchy shrub or small tree landscapes; scrublands	Not expected. Species considered to be extirpated from Orange County. Species is historically recorded in the region and the species is conditionally covered under the NCCP.
Streptocephalus woottoni	Riverside fairy shrimp	FE/ None/ Covered	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids	Not expected. No vernal pools or depressions were observed during the survey. Species is recorded in the vicinity.
Tryonia imitator	Mimic tryonia (=California brackishwater snail)	None/ None/ None	Coastal lagoons, estuaries and salt marshes	Not expected. No suitable habitat on site. Species is recorded in the region.
Fish				
Catostomus santaanae	Santa Ana sucker	FT/ SSC/ None	Small, shallow, cool, clear streams less than 7 meters in width and a few centimeters to more than a meter in depth; substrates are generally coarse gravel, rubble and boulder	Not expected. No suitable habitat on site. Species is recorded in the region.
Eucyclogobius newberryi	Tidewater goby	FE/ SSC/ None	Low-salinity waters in coastal wetlands	Not expected. No suitable habitat on site. Species is recorded in the region.
Gila orcutti	Arroyo chub	FS/ SSC/ None	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths > 40 centimeters; substrates of sand or mud	Not expected. No suitable habitat on site. Species is recorded in the region.

Table 4
Special-Status Wildlife Species And To Potential To Occur In The Project Area

Scientific Name	Common Name	Status Federal/ State/NCCP	Primary Habitat Associations	Status on Site or Potential to Occur [1,2]
Rhinichthys osculus ssp. *3*	Santa Ana speckled dace	FS/ SSC/ None	Aquatic, south coast flowing waters	Not expected. No suitable habitat on site. Species is recorded in the vicinity[1].

The federal and state status of species primarily is based on the Special Animals List (January 2011), California Department of Fish and Game.

Federal Designations:

BCC	Fish and Wildlife Service: Birds of Conservation Concern
FC	Candidate for federal listing as threatened or endangered
(FD)	Federally-delisted
FE	Federally-listed Endangered
FS	Forest Service Sensitive Species
FT	Federally-listed as Threatened

State Designations:

CDF	California Department of Forestry and Fire Protection Sensitive Species
SSC	California Species of Special Concern
P	California Department of Fish and Game Protected and Fully Protected Species
SC	Candidate for state listing as threatened or endangered
(SD)	State-delisted
SE	State-listed as Endangered
ST	State-listed as Threatened
WL	California Department of Fish and Game Watch List

NCCP Designations:

Covered: Central-Coastal NCCP/NCP (includes target species, covered species, and conditionally covered species)

Notes:

[1]Vicinity = El Toro 7.5 minute quadrangle

[2]Region = Nine, 7.5 minute quadrangles including and surrounding El Toro.

4.3.3 Special-Status Habitats/Regulated Resources

Special-status habitats are those that are considered to support unique vegetation communities, special-status plant and/or wildlife species, or function as corridors for wildlife movement. Unique vegetation communities include habitats found only in the Southern California region, a local representative of a species not generally found in Orange County, or are outstanding examples of CDFG special-status plant communities. Regulated biological resources may or may not be considered special-status, but are regulated under local, state, and/or federal laws. Special-status habitats under the NCCP/HCP (i.e., "Covered Habitats") are regulated by CDFG and USFWS pursuant to the NCCP/HCP. The CDFG and the USFWS have determined that further protection of certain habitats within the NCCP/HCP comparable to the protection provided for coastal sage scrub habitat are necessary and these certain "covered habitats" include coast live oak, Tecate cypress forest, cliff and rock, and chaparral within the Coastal Subarea only. None of these additional NCCP/HCP covered habitats occur on the Project site. The coastal sage scrub (i.e., NA-VDTCSS, including the disturbed form) vegetation is considered special-status and is regulated by CDFG and USFWS pursuant to the NCCP/HCP. Annual grassland and disturbed mulefat scrub are the only other plant communities identified in the study area. Annual grassland is composed primarily of non-native species, and given the small size and urban location of the study area, the annual grassland in this situation is not likely to support special-status species and is therefore not considered a special-status habitat. Disturbed mulefat scrub occurs as a small patch of habitat that does not support typical wetland features, including drainage patterns that would indicate that there is a regular source of hydrology to sustain the habitat in this area. This habitat was not noted in LSA's 2009 survey of the property, and it is likely that the disturbed mulefat scrub is a temporary feature established as a result of temporary drainage associated with dam operations and maintenance activities. This small patch of habitat is not sufficient in size to support special-status species and is not a unique native vegetation community and therefore is not considered a special-status habitat.

4.3.4 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Wildlife corridors contribute to population viability by ensuring continual exchange of genes between populations, and by providing access to adjacent habitat and routes for recolonization after local extirpation or ecological catastrophes (e.g., fires).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as stepping stones for dispersal.

The Project site is partially on lands included in the NCCP/HCP Reserve (i.e., IRWD property); however, the Project site does not likely function as a wildlife corridor due to the surrounding development (Figure 5). Adjacent to the Project site, the larger IRWD Syphon Reservoir property, particularly around the reservoir itself, is more likely to serve as a potential movement corridor and linkage connecting with NCCP/HCP Reserve lands to the north and northeast.

4.3.5 Jurisdictional Wetlands and Waters of the United States

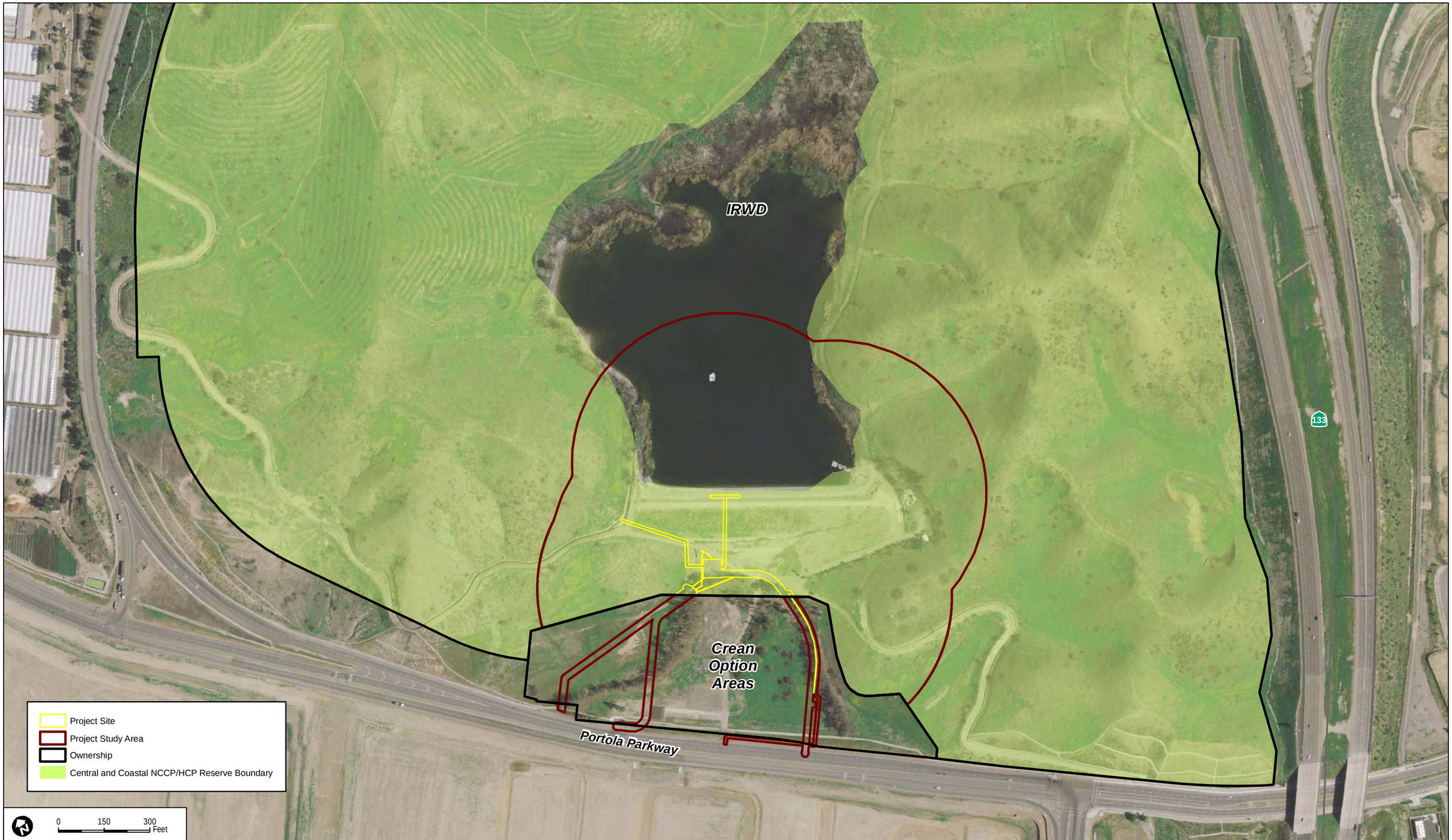
Results of the formal jurisdictional delineation concluded that there are no areas on site subject to jurisdiction by the ACOE, RWQCB, and CDFG. Two features were evaluated for potential jurisdiction: a manufactured, concrete channel adjacent to Portola Parkway on the edge of the study area was evaluated by HWA and disturbed mulefat scrub vegetation on the IRWD property was evaluated by Dudek.

HWA determined that the concrete channel adjacent to Portola Parkway is not subject to ACOE, RWQCB, and CDFG jurisdiction for the following reasons: the channel was artificially created in an upland area; there was no natural drainage feature, creek, or other jurisdictional feature in the area prior to creation of the channel; there are no jurisdictional features currently in the area; the channel is devoid of soil or vegetation; and the channel does not connect with any upstream jurisdictional features, although the channel does connect with the storm system downstream via an underground culvert (HWA 2012).

Hydrology and vegetation were examined throughout the Project site and one data station pit was dug, within the disturbed mulefat scrub, to analyze the specific soil characteristics/conditions. A formal wetland determination data form was recorded, the results are summarized in Table 5, and the form is attached to this report as Appendix C.

Table 5
Data Station Point Summary

Data Station	Wetland Determination Field Indicators			Stream Association	Determination	Jurisdiction
	Vegetation	*Hydric Soils*	*Hydrology*			
1	No	No	No	No	Non-jurisdictional	None



DUDEK

7036-04

SOURCE: IRWD 2009; Central Coastal NCCP 1997

FIGURE 5

Central and Coastal NCCP/HCP Reserve Boundary

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DUDEK

7036-04

SOURCE: IRWD 2009; URS October 2012; Central Coastal NCCP 1997

FIGURE 6

Project Impacts

IRWD Syphon Reservoir Interim Facilities - Biological Technical Report

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The disturbed mulefat area was examined as a potential jurisdictional wetland. However, the area supports none of the required three parameters and there is no streambed associated with the area; therefore, it is not considered jurisdictional. The mulefat that predominates this area is likely the result of intermittent runoff from access roads located upslope and reservoir maintenance activities that may have provided temporary drainage sufficient to allow for germination of mulefat but not sufficient enough to develop required wetland parameters.

No jurisdictional features occur within the Project area.

4.4 Regional Resource Planning Context

The municipalities of Orange County collaborated in producing the Central Coastal Subregion NCCP/HCP (1996). This NCCP/HCP is implemented through the County of Orange Environmental Management Agency, which manages impacts to covered species and habitats. The NCCP/HCP was prepared pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act of 1973, as well as an NCCP under the NCCP Act of 2001. The NCCP/HCP allows the participating landowners to authorize "take" of plant and wildlife species identified within the plan area. The USFWS and CDFG have authority to regulate the take of a set of covered species and habitat. Under the NCCP/HCP, the USFWS and CDFG have granted take authorizations for covered species to the local landowners, including the County and IRWD, for otherwise lawful actions, such as public and private development that may incidentally take species or their habitat outside of the designated Reserve, in exchange for the assembly and management of a coordinated NCCP/HCP Reserve. The NCCP/HCP acknowledges that existing facilities, such as Syphon Reservoir, occur within the Reserve and may require upgrades, such as proposed under this Project. Hence, the NCCP/HCP provides for a list of allowable uses within the Reserve and criteria by which such allowable improvement may be made without significantly affecting the conservation value of the Reserve.

The Project site is included in the NCCP/HCP; specifically, the IRWD property incorporated in the Project site (i.e., 0.42 acre) is within the NCCP/HCP Reserve, and the portion of the Project site on the Crean property (i.e., 1.41 acres) is located outside the NCCP/HCP Reserve. The Crean property was removed from the NCCP/HCP Reserve as documented in the NCCP/HCP Reserve Boundary Minor Amendment Siphon Reservoir Spillway (LSA 2009).

The Project site is not within proposed or designated federal critical habitat for any species. The study area is approximately 2.6 miles from critical habitat for California gnatcatcher (USFWS 2012). The Project site is outside of the coastal zone boundary.

5.0 PROJECT IMPACTS

This section addresses direct and indirect impacts to biological resources that may result from implementation of the Proposed Project.

Direct impacts include both the permanent loss of on-site habitat and the plant and wildlife species that it contains and the temporary loss of on-site habitat.

All biological resources within the direct permanent impact area are considered 100% lost. Direct impacts were quantified by overlaying the proposed footprint of various permanent facilities onto the biological resources map of the Project study area. Direct impacts associated with the Proposed Project are only located in the IRWD property and include the following facilities: a pressure manhole, an access road, an electrical transformer, and an operations facility. No direct permanent impacts are proposed on the Crean property.

Other facilities associated with the Project would result in only temporary impacts to biological resources. These facilities require the removal of vegetation, trenching of pipeline alignments, and backfilling such that preconstruction contours will largely be restored. The proposed facilities that would result in temporary impacts include the proposed storm drain, several water lines, and electrical conduit. All impacts on the Crean property are considered temporary, as are a portion of the impacts that would occur on the IRWD property.

It should be noted that aeration tubes included as part of the Project would not result in any impacts to biological resources since these will be installed within the reservoir inundation area and will be below the water surface. Since these tubes will not affect the extent of open water, there are no impacts associated with this Project component.

Indirect Impacts refer to off-site and on-site effects that are either short-term impacts (i.e., not permanent) due to the Project construction or long-term (i.e., permanent) due to the design of the Project and the effects it may have to adjacent resources. For this Project, it is assumed that the potential indirect impacts resulting from Project implementation may include dust, noise, and general human presence that may temporarily disrupt species and habitat vitality and construction-related soil erosion and runoff. With respect to these latter factors, however, all Project grading will be subject to the typical restrictions (e.g., best management practices) and requirements that address erosion and runoff. Furthermore, the Project is located in an area that already receives construction traffic as part of operations and maintenance of the Syphon Reservoir, and the Proposed Project is not considered a substantial change from existing conditions with regard to potential indirect impacts such as dust and general human presence.

5.1 Direct Impacts

5.1.1 Vegetation Communities/Land Covers

The Proposed Project will result in approximately 1.83 acres of direct impacts (0.42 acre on the IRWD property and 1.41 acres on the Crean property) (Figure 6). Direct impacts as a result of the Project are summarized by vegetation/land cover type, impact type, and property ownership in Table 6.

Table 6
Direct Impacts to Vegetation Communities and Land Covers

Vegetation Community or Land Cover Type	Jurisdictional/ Regulated	Impact Acreages (linear foot)			Total
		IRWD property		*Crean Property*[1]	
		Permanent	*Temporary*	*Temporary*	
Uplands					
Coastal Sage Scrub (NA-VDTCSS)[2]	Yes; NCCP/HCP	0.04	0.01	0.20	0.25
Annual Grassland (AGL)	No	0.00	0.04	0.62	0.66
Disturbed Mule Fat Scrub (dMFS)	No	0.02	0.02	0.02	0.05
Disturbed (DIS)	No	0.04	0.04	0.00	0.08
Developed (DEV)	No	0.15	0.06	0.57	0.77
Grand Total		0.25	0.17	1.41	1.83

[1]No Direct Permanent Impacts proposed on the Crean property.
[2]Includes the disturbed form (dNA-VDTCSS).

5.1.2 Special-Status Plant Species

No special-status plants were detected during the reconnaissance survey and none are known to occur on site. No special-status plants species were identified to have at least moderate potential to occur given the habitat suitability of the Project site; therefore, direct impacts to special-status plants are not expected.

5.1.3 Special-Status Wildlife Species

Two special-status wildlife species, California gnatcatcher (federally listed threatened, state-listed species of special concern, NCCP/HCP covered target species) and coyote (NCCP/HCP covered), were detected during the field survey, and a number of special-status species have a moderate to high potential to occur on site (Figure 4). There is a moderate potential for raptor species to forage on site, including Cooper's hawk (state watch species, NCCP/HCP not covered), northern harrier (state species of special concern, NCCP/HCP covered), red-shouldered

hawk (NCCP/HCP covered), prairie falcon (federal bird of conservation concern, state watch species, NCCP/HCP conditionally covered), ferruginous hawk (state watch species, NCCP/HCP not covered), and white-tailed kite (state fully protected species, NCCP/HCP not covered), but the potential for raptor breeding on site is low potential to not expected; thus, no direct impacts would occur to the breeding of these species.

Other wildlife species with a potential to occur on site include California horned lark (state-listed watch species, NCCP/HCP not covered), Southern California rufous-crowned sparrow (state watch species, NCCP/HCP covered), orange-throated whiptail (state-species of special concern, NCCP/HCP covered), coastal western whiptail (NCCP/HCP covered), and coast horned lizard (state species of special concern, NCCP/HCP covered). All of these species primarily associate with riparian, grassland, or coastal sage scrub habitats. Direct permanent impacts could occur to these species if they are present within the Project site. The northwestern San Diego pocket mouse (state species of special concern, NCCP/HCP not covered) is primarily a nocturnal species and may not have been detected during the reconnaissance survey. This rodent species is a state species of special concern, not NCCP/HCP covered, and has a moderate potential to occur on site. Direct permanent impacts could occur through direct mortality and loss of habitat if this species is present on site.

5.1.4 Habitat Linkages/Wildlife Corridors

The IRWD Syphon Reservoir property (included in the NCCP/HCP Reserve) serves as a biological resource area and most likely provides wildlife habitats associated with the reservoir and the undeveloped NCCP/HCP reserve lands to the north and northeast. The Project site itself is partially located within the NCCP/HCP Reserve area (i.e., IRWD property); however, this portion does not function as a movement corridor and is not expected to aid in the movement of wildlife species because of its close proximity to other disturbed and developed sites. Thus, implementation of the Proposed Project would not alter wildlife movement.

5.2 Indirect Impacts

5.2.1 Vegetation Communities/Special-Status Plants

For the Proposed Project, it is assumed that the potential short-term indirect impacts resulting from construction activities may include dust, noise, general human presence, and construction-related soil erosion and runoff. Potential long-term indirect impacts to biological resources may also occur as a result of the Proposed Project through the alteration of drainage patterns/runoff conditions and introduction of non-native species.

There are native vegetation communities adjacent to the Project site. Implementation of typical construction best management practices are expected to substantially control adverse edge effects during and following construction. Drainage from the Project site is directed toward Portola Parkway and is not expected to affect native habitat areas, which are all located upslope from the Project site. As stated in Section 5.0, the Project site is already subject to operations and maintenance vehicular traffic with associated dust and human presence. Therefore, short- and long-term indirect impacts to off-site vegetation communities and potential special-status species are not anticipated to be appreciably greater than current conditions.

5.2.2 Special-Status Wildlife

Most of the indirect impacts to vegetation communities and special-status plants cited above can also affect special-status wildlife. In addition, wildlife may be indirectly affected in the short-term and long-term by noise and lighting, which can disrupt normal activities and subject wildlife to higher predation risks. Also, adverse edge effects can cause degradation of habitat quality through the invasion of pest species. Breeding birds can be significantly affected by short-term construction-related noise, which can result in the disruption of foraging, nesting, and reproductive activities.

Some of the areas adjacent to the Project site support suitable vegetation for bird nesting. For example, the eucalyptus trees and grassland may support nesting habitat for raptors and the coastal sage habitat adjacent to the Project site may support nesting special-status bird species (California gnatcatcher and coastal cactus wren). Indirect impacts from construction-related noise may occur to wildlife if construction occurs during the breeding season (i.e., February 15 through July 15 for most bird species, per the NCCP/HCP; and January 1 through July 15 for raptors).

5.2.3 Habitat Linkages/Movement Corridors

Because the Project site does not function as a potential wildlife corridor and the adjacent IRWD Syphon Reservoir property functions as a biological resource area in the NCCP/HCP reserve rather than a wildlife corridor, there are no anticipated indirect impacts to wildlife movement or corridors associated with implementation of the Proposed Project.

5.3 Impacts to Regional Resource Planning

The portion of the Proposed Project within the IRWD property is within the NCCP/HCP Reserve and therefore requires consistency with the allowable uses in the Reserve as defined by the NCCP/HCP. Section 5.3 of the NCCP/HCP defines the permitted uses within the NCCP/HCP Reserve. These permitted uses include “activities related to the provision and operation of necessary public…infrastructure facilities identified in” other portions of the NCCP/HCP and Implementation

Agreement (County 1996). Syphon Reservoir is clearly included as an existing facility within the NCCP/HCP Reserve (including Figure 27 of the NCCP/HCP) and the Proposed Project consists of minor alterations to existing facilities to provide necessary public services (i.e., recycled water).

Section 5.9 of the NCCP/HCP further defines the Infrastructure Policies of the NCCP/HCP Reserve, including specific reference to water lines, reservoir, and associated facilities (e.g., pump stations, pressure control facilities, and access roads). The section provides specific siting criteria and avoidance and minimization measures for the design of these facilities. These criteria indicate that "to the extent feasible, siting of new infrastructure within the Reserve System should minimize impacts to CSS [coastal sage scrub], other habitat, and 'Target Species.'" The Proposed Project is largely located on existing disturbed areas, and impacts to native habitat are limited to marginal areas adjacent to existing disturbed roads/pads.

The NCCP/HCP Implementing Agreement allows for take to occur within the Reserve by Participating Landowners related to construction of infrastructure included as a permitted use within the Reserve without processing of a Minor or Major Amendment to the NCCP/HCP. The Implementing Agreement requires that the Participating Landowner proposing infrastructure within the NCCP/HCP Reserve develop these facilities consistent with Section 5.9 of the NCCP/HCP and "confer with USFWS and CDFG regarding the effects of final facility location in order to minimize impacts to Identified Species and Covered Habitats" (County 1996). The loss of coastal sage scrub associated with construction of the facilities will constitute an authorized take under the NCCP/HCP and will require a deduction from the In-Reserve credits held by IRWD. No Minor or Major Amendment to the NCCP/HCP is required for this Project. This determination will be provided to the NROC who will be responsible for coordinating review by the USFWS and CDFG, if necessary.

The portion of the Proposed Project located within the Crean property is located outside of the NCCP/HCP Reserve and has been planned for development since approval of the Minor Amendment for that property. The Minor Amendment provides additional Reserve acreage over and above the value of the habitat on the Crean property, and therefore the habitat values on the Crean property are already mitigated and replaced and no additional mitigation related to NCCP/HCP covered species and habitat should be required.

6.0 SIGNIFICANT IMPACTS

6.1 Explanation of Findings of Significance

Impacts to sensitive habitats, special-status plants, and special-status wildlife species must be quantified and analyzed to determine whether such impacts are significant under CEQA. CEQA Guidelines Section 15064(b) states that an ironclad definition of "significant" effect is not possible because the significance of an activity may vary with the setting. Appendix G of the CEQA Guidelines, however, does provide "examples of consequences which may be deemed to be a significant effect on the environment" (14 CCR 15064[e]). These effects include substantial effects on rare or endangered species of animal or plant, or the habitat of the species. CEQA Guidelines Section 15065(a) is also helpful in defining whether a project may have "a significant effect on the environment." Under that section, a proposed project may have a significant effect on the environment if the project has the potential to: (1) substantially degrade the quality of the environment; (2) substantially reduce the habitat of a fish or wildlife species; (3) cause a fish or wildlife population to drop below self-sustaining levels; (4) threaten to eliminate a plant or animal community; (5) reduce the number or restrict the range of a rare or endangered plant or animal; or (6) eliminate important examples of the major period of California history or prehistory.

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a level below significant.

6.2 Vegetation Communities

The Project site supports one vegetation community that is considered special-status, coastal sage scrub. Annual grassland and disturbed mulefat scrub are not covered habitats under the NCCP/HCP and are not considered special-status communities as discussed in Section 4.3.3. Thus, impacts to coastal sage scrub are considered significant but impacts to annual grassland and disturbed mulefat scrub are not significant.

As stated in Section 5.2.1, there are no expected short- or long-term indirect impacts to vegetation communities or jurisdictional waters of the United States, and therefore no significant impacts would occur.

6.3 Special-Status Plant Species

As stated in Section 5.1.2 and 5.2.1, there are no expected direct or short- or long-term indirect impacts to special-status plants; therefore, no significant impacts would occur.

6.4 Special-Status Wildlife Species

In determining significance, the significance threshold applied to wildlife is whether the project would have a substantial adverse effect on the special-status species. Potential direct impacts to the 15 special-status wildlife species, including the 8 NCCP/HCP covered species (i.e., northern harrier, red-shouldered hawk, prairie falcon, southern California rufous-crowned sparrow, coyote, coast horned lizard, orange-throated whiptail, and coastal western whiptail), are considered less than significant, as outlined below.

Impacts to the riparian species (red-shouldered hawk and Cooper's hawk) and their habitat are considered less than significant due to the disturbed character of riparian habitat (i.e., disturbed mulefat scrub) on site that would be impacted and the amount of habitat available in the Project vicinity. The loss of riparian habitat would not appreciably affect these species and is not considered significant.

Impacts to the grassland species (northern harrier, burrowing owl, prairie falcon, ferruginous hawk, California horned lark, orange-throated whiptail) and their habitat are considered less than significant because of the limited habitat on site and the larger amount of habitat available in the Project vicinity.

Impacts to California gnatcatcher and its habitat are considered significant. However, because of the small amount of disturbed habitat impacted by the Project and the larger non-disturbed habitat available in the Project vicinity, it is unlikely that the species is breeding on site. If construction activities occur during the gnatcatcher breeding season (February 15 through July 15), direct and indirect impacts to nesting are considered significant if nesting is detected within 500 feet of construction.

Impacts to resident breeding birds, migratory birds, and raptors are considered significant. If construction activities occur during combined bird breeding season (January through September), direct and indirect impacts to nesting sensitive raptors and species addressed under the Migratory Bird Treaty Act are considered potentially significant if nesting on site or if nesting is within 300 feet of construction for resident/migratory birds and within 500 feet of construction for raptors or other special-status bird species.

Impacts to small mammals and reptiles on site are not significant because the number of individuals of these species likely to be lost (i.e., direct mortality) is insubstantial and would not appreciably affect the species in the region.

6.5 Habitat Linkages/Wildlife Corridors

Implementation of the Proposed Project is not expected to preclude the use of on-site and adjacent habitat by wildlife or hinder its suitability to permit wildlife movement. Therefore, there would be no significant impacts to habitat linkages or wildlife corridors within the Project site.

6.6 Regional Resource Planning

As discussed in Section 5.3, the Proposed Project is consistent with the NCCP/HCP and would not result in any significant impacts to regional biological resource conservation planning.

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7.0 MITIGATION

7.1 Vegetation Communities

Permanent impacts to coastal sage scrub (NA-VDTCSS) on site, including the disturbed form, are considered significant and require mitigation. Table 7 lists the significant impacts to vegetation communities and the proposed mitigation per the NCCP/HCP (County 1996).

Table 7
Mitigation for Significant Impacts to Vegetation Communities

Vegetation Community	Mitigation Ratio[1]	Impact Acreage		Mitigation Acreage Required
		Permanent Impact (IRWD Property)	Temporary Impact (IRWD Property)	
Uplands				
Coastal sage scrub[2] (NA-VDTCSS)	1:1	0.04	0.01	0.05

[1]Mitigation Ratio established by NCCP/HCP Guidelines (County 1996).
[2]Includes disturbed form (dNA-VDTCSS).

Mitigation for impacts presented in Table 7 is proposed in the form of deduction of IRWD's existing take allowance for habitats occurring with the Reserve for permanent impacts and restoration through application of a native hydroseed mix for temporary impacts. IRWD will continue to manage the Syphon Reservoir property consistent with ongoing management activities conducted for the NCCP/HCP in coordination with NROC. Such management will ensure that temporary impacts are successfully mitigated.

7.2 Special-Status Wildlife

If construction activity is to take place during the combined bird breeding season (i.e., January through September), a one-time biological survey for nesting bird species must be conducted within the proposed impact area within 72 hours prior to construction. This survey is necessary to assure avoidance of impacts to nesting raptors and/or birds protected by the federal Migratory Bird Treaty Act. If any active nests are detected, the area will be flagged and mapped on the Project construction plans, along with a buffer established by a qualified biologist (typically a 500-foot buffer for raptors, a 300-foot buffer for other special-status birds, or an appropriate buffer established by the Project biologist for other nesting birds), and it will be avoided until the nesting cycle is complete, or unsuccessful, or otherwise recommended by a qualified biologist.

Furthermore, minimization and mitigation measures described in Section 7.5.3 of the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the NCCP/HCP shall be implemented

to reduce potentially significant indirect impacts to coastal sage scrub habitat located in the Reserve. The pertinent sections of these measures include the following (County 1996):

1. To the maximum extent practicable, no grading of coastal sage scrub habitat that is occupied by nesting gnatcatchers will occur during the breeding season (February 15 through July 15).
2. Prior to the commencement of grading operations…all areas of coastal sage scrub habitat to be avoided…shall be identified with temporary fencing or other markers clearly visible to construction personnel. Additionally, prior to the commencement of grading operations…a survey will be conducted to locate gnatcatchers and cactus wrens within 100 feet of the outer extent of projected soil disturbance activities and the locations of any such species shall be clearly marked and identified on the construction/grading plans.
3. A qualified monitoring biologist will be on site during any clearing of coastal sage scrub. IRWD will advise USFWS/CDFG at least seven calendar days prior to the clearing of any habitat occupied by Identified Species to allow USFWS/CDFG to work with the monitoring biologist in connection with bird flushing/capturing activities.
4. Following the completion of initial grading, all areas of coastal sage scrub habitat to be avoided by construction equipment and personnel will be marked with temporary fencing other appropriate markers clearly visible to construction personnel.
5. Preconstruction meetings involving the monitoring biologist, construction supervisors, and equipment operators will be conducted and documented to ensure maximum practicable adherence to these measures.
6. Coastal sage scrub located within the likely dust drift radius of construction areas shall be periodically sprayed with water to reduce accumulated dust on the leaves as necessary and recommended by the monitoring biologist.

With implementation of these mitigation measures, all significant impacts to biological resources would be reduced to below a level of significance due to mitigation provided through the IRWD take deduction (which represents IRWD's participation in conserving lands under the NCCP/HCP), restoration of temporary coastal sage scrub impacts to preconstruction conditions, and avoidance and minimization of bird breeding habitat and adverse effects on adjacent Reserve habitats.

8.0 ACKNOWLEDGMENTS

This report was prepared by Dudek biologists Danielle Mullen and Thomas Liddicoat. Vipul Joshi and Anita Hayworth, PhD, provided review. Graphics were provided by Mark McGinnis; Hannah Westwood provided word processing.

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9.0 REFERENCES

ACOE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual.* Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. Accessed October 2012. http://www.fedcenter.gov/Bookmarks/index.cfm?id=6403&pge_id=1606.

ACOE. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* ERDC/EL TR-08-28. September 2008. Accessed October 2012. http://www.usace.army.mil/CECW/Documents/cecwo/reg/trel08-28.pdf.

AOU (American Ornithologists' Union). 2012. "Check-List of North American Birds: List of the 2,078 Bird Species Known From the AOU Check-list Area." Accessed October 2012. http://www.aou.org/checklist/north/full.php.

CDFG (California Department of Fish and Game). 2011. *Special Animals List*. California Natural Diversity Database. CDFG, Biogeographic Data Branch. January 2011. Accessed October 2012. http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf.

CDFG. 2012a. California Natural Diversity Database (CNDDB) *RareFind*. Version 3.1.0. Accessed September 2012.

CDFG. 2012b. *Special Vascular Plants, Bryophytes, and Lichens List*. California Natural Diversity Database. CDFG, Biogeographic Data Branch. January 2012. Accessed April 2012. http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

CDFG. 2012c. *State and Federally Listed Endangered and Threatened, and Rare Plants of California.* Biannual publication, mimeo. October 2012.

CDFG. 2012d. *Natural Communities – Background Information*. Vegetation Classification and Mapping Program. September 2010. Accessed April 2012. http://www.dfg.ca.gov/biogeodata/vegcamp/natural_comm_background.asp.

County (County of Orange). 1996. *County of Orange Natural Community Conservation Plan & Habitat Conservation Plan (NCCP/HCP)*. County of Orange Central & Coastal Subregion. Part I & II: NCCP/HCP; Part III: Joint Programmatic EIR/EIS, and Implementation Agreement.

CNPS (California Native Plant Society). 2012. *Inventory of Rare and Endangered Plants*. Online edition. Version 8-01a. Sacramento, California: CNPS. Accessed September 2012. http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi.

Crother, B.I., ed. 2008. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding.* 6th ed. Society for the Study of Amphibians and Reptiles. January 2008. Accessed December 14, 2010. http://ssarherps.org/pdf/HC_37_6thEd.pdf.

Dudek. 2011. *California Gnatcatcher Presence/Absence Focused Survey Report for the Syphon Reservoir Study Area, Orange County, California.* July 2011.

Emmel, T.C., and J.F. Emmel. 1973. *The Butterflies of Southern California*. Science Series 26:1–148. Los Angeles, California: Natural History Museum of Los Angeles County.

FEMA (Federal Emergency Management Agency). 2012. GIS hydrologic mapping data.

Gray, John, and David Bramlet. 1992. *Habitat Classification System, Natural Resources Geographic Information System (GIS) Project.* Prepared for the County of Orange Environmental Management Agency.

Hall, E.R. 1981. *The Mammals of North America*. Vol. 1, 324–326. 2nd ed. New York, New York: John Wiley and Sons.

Hamilton, R.A., and D.R. Willick. 1996. *The Birds of Orange County California, Status and Distribution*. Irvine, California: Sea & Sage Press. Sea & Sage Audubon Society.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Nongame-Heritage Program, California Department of Fish and Game. October 1986.

HWA (Harmsworth Associates). 2012. "Re: Syphon Reservoir Ditch Assessment." Letter report from P. Galvin (Harmsworth Associates) to J.A. Corey (Irvine Ranch Water District). December 5, 2012.

Ingles, L.G. 1965. *Mammals of the Pacific States: California, Oregon, and Washington*. Stanford, California: Stanford University Press.

Jepson Flora Project. 2012. *Jepson eFlora*. Berkeley, California: University of California. Accessed May 2, 2012. http://ucjeps.berkeley.edu/cgi-bin/get_JM_name_data.pl.

LSA (LSA Associates Inc.). 2009. *NCCP/HCP Reserve Boundary Minor Amendment Siphon Reservoir Spillway, City of Irvine, Orange County, California.* November 2009.

Moyle, P.B. 2002. *Inland Fishes of California: Revised and Expanded.* Berkeley, California: University of California Press. May 2002.

NABA (North American Butterfly Association). 2001. *Checklist of North American Butterflies Occurring North of Mexico*. *North American Butterfly Association (NABA) Checklist & English Names of North American Butterflies*, edited by B. Cassie, J. Glassberg, A. Swengel, and G. Tudor. Accessed May 2012. http://www.naba.org/pubs/enames2.html.

NROC (Natural Reserve of Orange County). 2011. *County of Orange Central Coastal NCCP/HCP 2011 Annual Report*. Accessed October 2012. http://www.naturereserveoc.org/NROC2011ANNUALREPORT.pdf

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County.* March 2008. Accessed October 2012. http://www.sdcanyonlands.org/canyon-groups/canyon-group-resources/canyon-enhancement-guide/189-canyon-enhancement-planning-guide-materials.

RWQCB (Regional Water Quality Control Board). 1986. *Water Quality Control Santa Ana River Basin (8).* Accessed October 2012. http://www.waterboards.ca.gov/rwqcb8/water_issues/programs/basin_plan/index.shtml

Stebbins, R.C. 2003. "Coast Horned Lizard." In *Western Reptiles and Amphibians*, 300–301. 3rd ed. Peterson Field Guide. New York, New York: Houghton Mifflin Company.

USDA and NRCS (U.S. Department of Agriculture and Natural Resources Conservation Service). 2012. "Official Soil Series Descriptions." Accessed October 2012. http://soils.usda.gov/technical/classification/osd/index.html.

USFWS (U.S. Fish and Wildlife Service). 2012. "Critical Habitat and Occurrence Data" [map]. Accessed October 2012. http://www.fws.gov/data.

Wilson, D.E., and D.M. Reeder, eds. 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference*, 3rd ed. (MSW3 database). Accessed April 27, 2012. http://www.bucknell.edu/msw3/.

APPENDIX A

Plant Species Observed

APPENDIX A
Wildlife Species Observed

PLANT SPECIES

ANGIOSPERMS (DICOTS)

***ADOXACEAE*—MUSKROOT FAMILY**

Sambucus nigra ssp. caerulea—blue elderberry

***ANACARDIACEAE*—SUMAC FAMILY**

Malosma laurina—laurel sumac

***APIACEAE*—CARROT FAMILY**

* *Foeniculum vulgare*—sweet fennel

***ASTERACEAE*—SUNFLOWER FAMILY**

Artemisia californica—California sagebrush
Baccharis pilularis—coyotebrush
Baccharis salicifolia—mulefat, seep-willow, water-wally
Baccharis sarothroides—desertbroom
* *Centaurea melitensis*—tocalote
* Centaurea solstitialis—yellow star-thistle
Encelia californica—California brittlebrush
Ericameria fasciculata—Eastwood's goldenbush
Erigeron canadensis—Canadian horseweed
Heterotheca grandiflora—telegraph weed
Isocoma menziesii ssp. *menziesii*—spreading goldenbush
Pseudognaphalium californicum—ladies' tobacco
* *Pulicaria paludosa*—Spanish false fleabane
Stephanomeria sp.—wirelettuce

***BRASSICACEAE*—MUSTARD FAMILY**

* *Brassica nigra*—black mustard
* *Hirschfeldia incana*—short-pod mustard

***CACTACEAE*—CACTUS FAMILY**

Opuntia littoralis—coastal pricklypear

***CHENOPODIACEA*—GOOSEFOOT FAMILY**

* *Atriplex semibaccata*—Australian saltbush
* *Salsola australis*—Russian thistle

***EUPHORBIACEAE*—SPURGE FAMILY**

* *Ricinus communis*—castorbean

***FABACEAE*—LEGUME FAMILY**

Acmispon glaber—common deerweed

***MYRTACEAE*—MYRTLE FAMILY**

Eucalyptus sp.—eucalyptus

***SALICACEAE*—WILLOW FAMILY**

Salix gooddingii—Goodding's willow

***SOLANACEAE*—NIGHTSHADE FAMILY**

* *Nicotiana glauca*—tree tobacco

ANGIOSPERMS (MONOCOTS)

***ARECACEAE*—PALM FAMILY**

* *Washingtonia robusta*—Washington fan palm

***POACEAE*—GRASS FAMILY**

* *Bromus madritensis*—foxtail chess

* Signifies introduced (non-native) species

APPENDIX B

Wildlife Species Observed

APPENDIX B
Wildlife Species Observed

WILDLIFE SPECIES—VERTEBRATES

BIRDS

***ACCIPITRIDAE*—HAWKS, KITES, EAGLES, AND ALLIES**

Buteo jamaicensis—red-tailed hawk

***CATHARTIDAE*—NEW WORLD VULTURES**

Cathartes aura—turkey vulture

***CORVIDAE*—CROWS AND JAYS**

Corvus corax—common raven

***COLUMBIDAE*—PIGEONS AND DOVES**

Zenaida macroura—mourning dove

***TROCHILIDAE*—HUMMINGBIRDS**

Calypte anna—Anna's hummingbird

***AEGITHALIDAE*—LONG-TAILED TITS AND BUSHTITS**

Psaltriparus minimus—bushtit

***TROGLODYTIDAE*—WRENS**

Thryomanes bewickii—Bewick's wren

***MIMIDAE*—MOCKINGBIRDS AND THRASHERS**

Mimus polyglottos—northern mockingbird

***PARULIDAE*—WOOD-WARBLERS**

Dendroica coronata—yellow-rumped warbler

***POLIOPTILIDAE*—GNATCATCHERS AND GNATWRENS**

Polioptila californica—California gnatcatcher

***EMBERIZIDAE*—EMBERIZIDS**

Melospiza melodia—song sparrow

Melozone crissalis—California towhee

***TYRANNIDAE*—TYRANT FLYCATCHERS**

Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus vociferans—Cassin's kingbird

***FRINGILLIDAE*—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES**

Carpodacus mexicanus—house finch

MAMMALS

***CANIDAE*—WOLVES & FOXES**

Canis latrans—Coyote

***LEPORIDAE*—HARES AND RABBITS**

Sylvilagus bachmani—brush rabbit

* signifies introduced (non-native) species

APPENDIX C

Wetland Determination Data Form

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: IRWD Syphon Reservoir Interim Facilities | City/County: Irvine/Orange | Sampling Date: 10/24/12

Applicant/Owner: Irvine Ranch Water District (IRWD) | State: CA | Sampling Point: 1

Investigator(s): Thomas Liddicoat | Section, Township, Range: Section 29, Township 5S, Range 8W

Landform (hillslope, terrace, etc.): none | Local relief (concave, convex, none): none | Slope (%):

Subregion (LRR): C - Mediterranean California | Lat: 33°42'30.49"N | Long: 117° 43'54.40"W | Datum:

Soil Map Unit Name: Sorrento Loam, 0-2% slopes | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Data Station is within mapped disturbed mule fat scrub vegetation.
This area is considered non-jurisdictional.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Washingtonia sp.*	2	Yes	Not Listed
2. *Eucalyptus sp.*	2	Yes	Not Listed
3.			
4.			
Total Cover:	4 %		
Sapling/Shrub Stratum			
1. *Malosma laurina*	5	Yes	Not Listed
2. *Baccharis salicifolia*	10	Yes	FACW*
3. *Baccharis pilularis*	2		Not Listed
4. *Washingtonia sp.*	3		Not Listed
5. *Artemisia californica*	2		Not Listed
Total Cover:	22 %		
Herb Stratum			
1. *Heterotheca grandiflora*	5	Yes	Not Listed
2. *Conyza conadensis*	5	Yes	FAC
3. *Bromus madritensis*	2		Not Listed
4. *Brassica sp.*	10	Yes	Not Listed
5. *Centaurea sp.*	2		Not Listed
6.			
7.			
8.			
Total Cover:	24 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 80 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28.6 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	5	x 3 =	15
FACU species		x 4 =	0
UPL species	35	x 5 =	175
Column Totals:	50 (A)		210 (B)

Prevalence Index = B/A = 4.20

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10 YR 3/2	100%					clay loam	fill dirt? very rocky, hard to dig

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: No redox features, organic materials, stratification. Very difficult to hand dig pit; very rocky.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches): _____

Water Table Present? Yes ○ No ◉ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches): _____

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No signs of hydrology.

APPENDIX D

Drainage Ditch Assessment

HARMSWORTH ASSOCIATES
Environmental Consultants

December 5, 2012

Ms. Jo Ann Corey
Irvine Ranch Water District
3512 Michelson Drive
Irvine, California 92612.

Re: Syphon Reservoir Ditch Assessment

Dear Ms. Corey,

As requested, Harmsworth Associates (HWA) conducted an assessment of a concrete channel (the Portola Drainage Channel) at Syphon Reservoir to determine its jurisdictional status. The Irvine Ranch Water District (IRWD) is conducting environmental reviews for the Syphon Reservoir Interim Facilities Project and a jurisdictional assessment of the concrete ditch is required as part of the environmental review.

Paul Galvin of HWA conducted the site assessment at Syphon Reservoir on November 30, 2012. Mr. Galvin met Jo Ann Corey and Chris Kessler of IRWD onsite to review the concrete channel. The objective of the assessment was to determine if the concrete channel (the Portola Drainage Channel) is subject to the jurisdiction of the US Army Corps of Engineers (Corps) 404 program, the California Regional Water Quality Control Board (CRWQCB) 401 program and the California Department of Fish and Game (CDFG) 1600 program.

The Portola Drainage Channel was installed as part of the original Portola Parkway alignment work and its function is to direct flows from the road offsite. The channel runs along the north side of Portola Parkway (Figures 1 and 2) and collects water from the road and other concrete v-ditches located on cut slopes on the northeast and northwest of Portola Parkway. The channel crosses under Portola Parkway via an underground culvert directly south of Syphon Reservoir. The concrete channel does not connect with Syphon Reservoir and does not connect with any natural drainage features, creeks or wetlands.

The concrete channel is approximately 6 feet wide with steeps sides and is devoid of vegetation (Photographs 1-4). The channel has no soil (other than some deposited sand) and no vegetation but does convey storm water. The channel does not connect with any natural drainage features, any creeks, wetlands or any jurisdictional areas. All water comes from the road run-off, the feeder v-ditches and surface flow from the immediate vicinity of the channel.

29 Vacaville, Irvine, California 92602 – (714) 389-9527 – Cell (714) 287-4986 – pgalvin9@cox.net

The Portola Drainage Channel was artificially created in an upland to remove storm flows from the road. Prior to the creation of the channel there was no natural drainage features, creeks or other jurisdictional features in this or adjacent areas. There are no natural drainage features in this area, as evidenced from field surveys, site photographs, aerial photographs and the topographic map of the area.

The Portola Drainage Ditch is not subject to the Corps, RWQCB or CDFG jurisdiction since;

1. The concrete channel was artificially created in an upland,
2. Prior to the creation of the channel there was no natural drainage features, creeks or other jurisdictional features in this area,
3. There are currently no natural drainage features, creeks or other jurisdictional features in the area,
4. The channel is concrete and devoid of soil or vegetation,
5. The channel does not connect upstream with any jurisdictional features; downstream it does connect with the storm system via an underground culvert.

In summary, the Portola Drainage Ditch is a non-jurisdictional concrete channel that does connect with the storm system via an underground culvert.

Therefore, no Corps, RWQCB or CDFG permits are required. Standard BMPs should be implemented to prevent any sediment or pollutants going downstream to the storm system via the underground culvert.

If you need additional information please contact me at (714) 389-9527.

Yours sincerely,
Harmsworth Associates

Paul Galvin, M.S.
Vice President

29 Vacaville, Irvine, California 92602 – (714) 389-9527 – Cell (714) 287-4986 – pgalvin9@cox.net

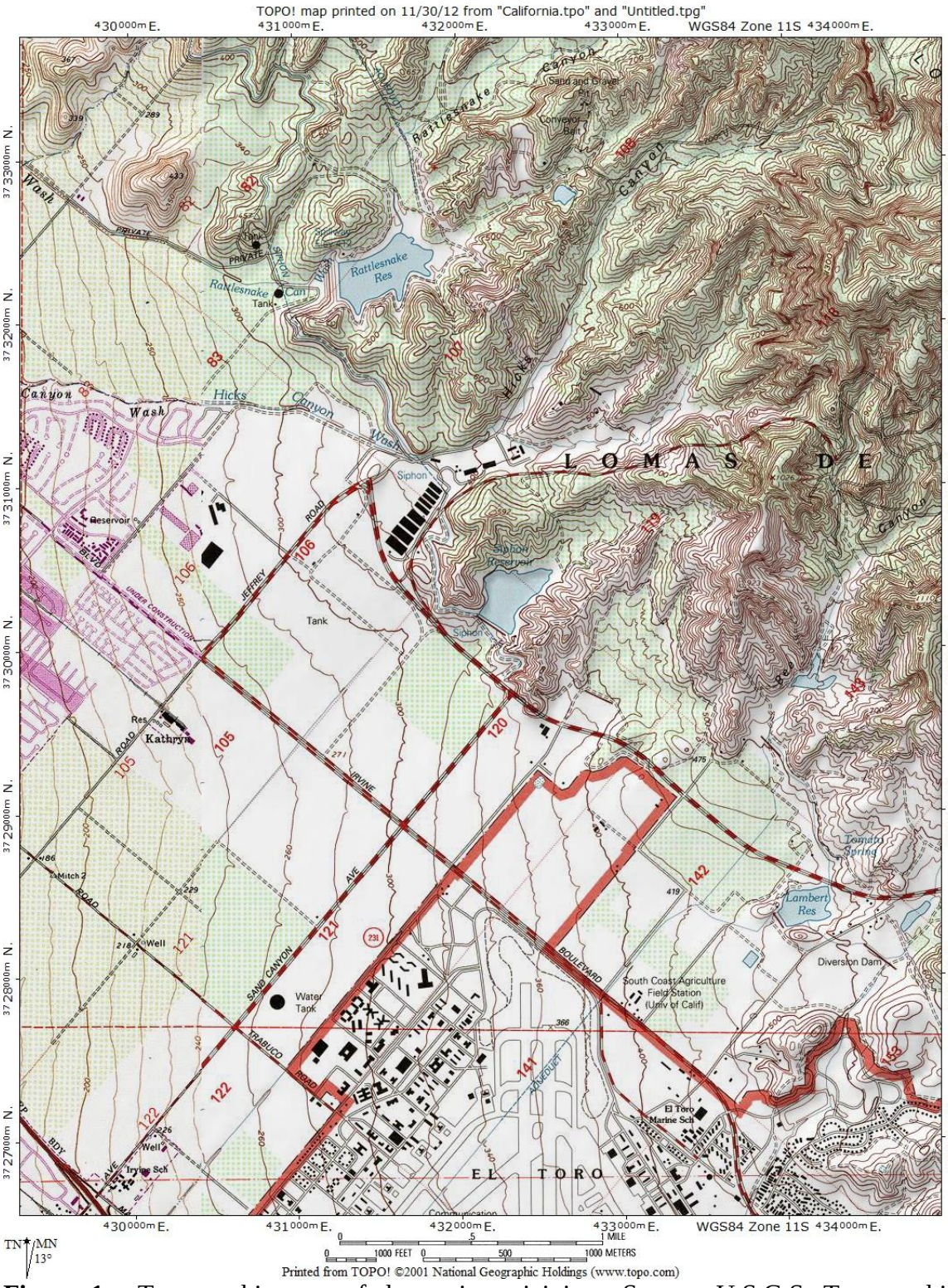

Figure 1: Topographic map of the project vicinity. Source: U.S.G.S. Topographic Series.

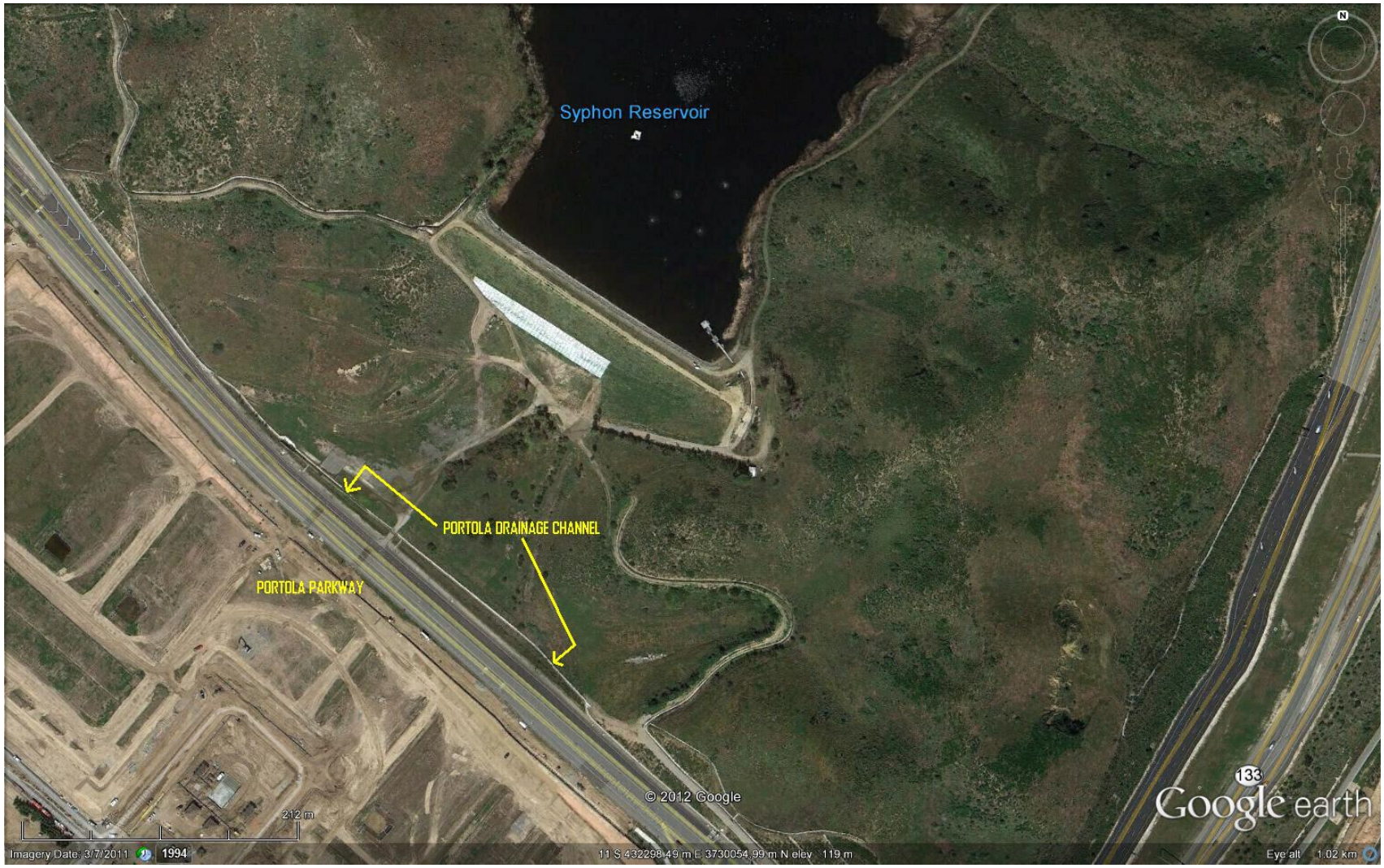

Figure 2: Aerial photograph of the project site. Source: Google Earth, Inc.

Photograph 1: Portola Drainage Channel, looking east.

Photograph 2: Portola Drainage Channel, looking west.

Photograph 3: Portola Drainage Channel, looking east at Portola Parkway culvert crossing.

Photograph 4: Portola Drainage Channel, at Portola Parkway culvert crossing.

APPENDIX E

Project Site Photographs

APPENDIX E
Project Site Photographs

Exhibit A – Photograph is facing northwest and represents the project site (dam face is in the foreground)

Exhibit B – Photograph is facing west and represents the project site (dam face is in the foreground)

Exhibit C – Photograph is facing southwest and represents the project site (dam face is in the foreground)

Exhibit D – Photograph is facing east and represents the project site (dam face background)

Exhibit E – Photograph is facing south and shows the concrete drainage structure adjacent to Portola Parkway

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APPENDIX C

Groundwater Sampling Results

IRVINE RANCH WATER DISTRICT

Water Quality Laboratory

Michelson Water Reclamation Plant
3512 Michelson Drive
Irvine, CA 92612-1799
(949) 453-5800

DEPARTMENT	ANALYSIS CODE	METHOD REFERENCE	ANALYTE	RESULT	UNITS	DLR	MDL	Analysis Date
AD22569	**Syphon Manhole**							
	10/11/2012 12:00:00 PM		By: SOTO, F.					
METALS	AG_ICP	EPA 200.8	Silver ICP		ug/L	0.22		10/24/2012
	AL_ICP	EPA 200.8	Aluminum ICP		ug/L	1.3		10/24/2012
	AS_ICP	EPA 200.8	Arsenic ICP		ug/L	0.6		10/24/2012
	BA_ICP	EPA 200.8	Barium ICP		ug/L	0.5		10/24/2012
	BE_ICP	EPA 200.8	Beryllium ICP		ug/l	0.17		10/24/2012
	BORON_ICP	EPA 200.8	Boron ICP		ug/l	0.65		10/24/2012
	CD_ICP	EPA 200.8	Cadmium ICP		ug/l	0.044		10/24/2012
	CO_ICP	EPA 200.8	Cobalt ICP		ug/L	0.078		10/24/2012
	CR_ICP	EPA 200.8	Chromium ICP		ug/L	0.067		10/24/2012
	CU_ICP	EPA 200.8	Copper ICP		ug/L	0.029		10/24/2012
	FE_ICP	EPA 200.8	Iron ICP	196	ug/L	5.0		10/15/2013
	HG2457	EPA 245.7	Mercury - CVF		ug/L	0.0046		10/23/2012
	MN_ICP	EPA 200.8	Manganese ICP		ug/L	0.018		10/24/2012
	MO_ICP	EPA 200.8	Molybdenum ICP		ug/L	0.071		10/24/2012
	NI_ICP	EPA 200.8	Nickel ICP		ug/L	0.065		10/24/2012
	PB_ICP	EPA 200.8	Lead ICP		ug/l	0.011		10/24/2012
	SB_ICP	EPA 200.8	Antimony ICP		ug/L	0.048		10/24/2012
	SE_ICP	EPA 200.8	Selenium ICP	0.985	ug/l	0.060		10/24/2012
	TL_ICP	EPA 200.8	Thallium ICP		ug/L	0.020		10/24/2012
	V_ICP	EPA 200.8	Vanadium ICPMS		ug/L	0.12		10/24/2012
	ZN_ICP	EPA 200.8	Zinc ICP		ug/L	0.012		10/24/2012
ORGANICS	$624	EPA 624/8260	1,1,1-Trichloroethane	<0.31	ug/L	0.31		10/12/2012
	$624	EPA 624/8260	1,1,2,2-Tetrachloroethane	<0.18	ug/L	0.18		10/12/2012
	$624	EPA 624/8260	1,1,2-Trichloroethane	<0.16	ug/L	0.16		10/12/2012
	$624	EPA 624/8260	1,1-Dichloroethane	<0.35	ug/L	0.35		10/12/2012
	$624	EPA 624/8260	1,1-Dichloroethene	<0.22	ug/L	0.22		10/12/2012
	$624	EPA 624/8260	1,2-Dichlorobenzene	Trace	ug/L	0.22		10/12/2012
	$624	EPA 624/8260	1,2-Dichloroethane	<0.16	ug/L	0.16		10/12/2012
	$624	EPA 624/8260	1,2-Dichloropropane	Trace	ug/L	0.16		10/12/2012
	$624	EPA 624/8260	1,3-Dichlorobenzene	Trace	ug/L	0.11		10/12/2012
	$624	EPA 624/8260	1,4-Dichlorobenzene	Trace	ug/L	0.16		10/12/2012
	$624	EPA 624/8260	2-Chloroethyl vinyl ether	<1.0	ug/L	1.0		10/12/2012
	$624	EPA 624/8260	2-Hexanone	<0.35	ug/L	0.35		10/12/2012
	$624	EPA 624/8260	4-Methyl-2-pentanone	<0.50	ug/L	0.50		10/12/2012
	$624	EPA 624/8260	Acetone	Trace	ug/L	4.2		10/12/2012
	$624	EPA 624/8260	Acrolein	<1.4	ug/L	1.4		10/12/2012
	$624	EPA 624/8260	Acrylonitrile	<0.56	ug/L	0.56		10/12/2012
	$624	EPA 624/8260	Benzene	Trace	ug/L	0.24		10/12/2012

IRVINE RANCH WATER DISTRICT

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DEPARTMENT	ANALYSIS CODE	METHOD REFERENCE	ANALYTE	RESULT	UNITS	DLR	MDL	Analysis Date
ORGANICS	$624	EPA 624/8260	Bromodichloromethane	<0.12	ug/L	0.12		10/12/2012
	$624	EPA 624/8260	Bromoform	<0.094	ug/L	0.094		10/12/2012
	$624	EPA 624/8260	Bromomethane	<0.28	ug/L	0.28		10/12/2012
	$624	EPA 624/8260	Carbon disulfide	Trace	ug/L	0.57		10/12/2012
	$624	EPA 624/8260	Carbon tetrachloride	<0.22	ug/L	0.22		10/12/2012
	$624	EPA 624/8260	Chlorobenzene	<0.14	ug/L	0.14		10/12/2012
	$624	EPA 624/8260	Chloroethane	Trace	ug/L	0.31		10/12/2012
	$624	EPA 624/8260	Chloroform	Trace	ug/L	0.16		10/12/2012
	$624	EPA 624/8260	Chloromethane	Trace	ug/L	0.31		10/12/2012
	$624	EPA 624/8260	cis-1,2-Dichloroethene	<0.21	ug/L	0.21		10/12/2012
	$624	EPA 624/8260	cis-1,3-Dichloropropene	<0.14	ug/L	0.14		10/12/2012
	$624	EPA 624/8260	Dibromochloromethane	<0.20	ug/L	0.20		10/12/2012
	$624	EPA 624/8260	Dichlorodifluoromethane	<0.20	ug/L	0.20		10/12/2012
	$624	EPA 624/8260	Ethylbenzene	Trace	ug/L	0.19		10/12/2012
	$624	EPA 624/8260	m,p-Xylene	Trace	ug/L	0.35		10/12/2012
	$624	EPA 624/8260	Methyl ethyl ketone	Trace	ug/L	1.6		10/12/2012
	$624	EPA 624/8260	Methylene chloride	<0.87	ug/L	0.87		10/12/2012
	$624	EPA 624/8260	o-Xylene	Trace	ug/L	0.16		10/12/2012
	$624	EPA 624/8260	Styrene	<0.091	ug/L	0.091		10/12/2012
	$624	EPA 624/8260	Tetrachloroethene	Trace	ug/L	0.19		10/12/2012
	$624	EPA 624/8260	Tetrahydrofuran	<0.72	ug/L	0.72		10/12/2012
	$624	EPA 624/8260	Toluene	Trace	ug/L	0.19		10/12/2012
	$624	EPA 624/8260	trans-1,2-Dichloroethene	<0.21	ug/L	0.21		10/12/2012
	$624	EPA 624/8260	trans-1,3-Dichloropropene	<0.16	ug/L	0.16		10/12/2012
	$624	EPA 624/8260	Trichloroethylene	<0.17	ug/L	0.17		10/12/2012
	$624	EPA 624/8260	Trichlorofluoromethane	<0.17	ug/L	0.17		10/12/2012
	$624	EPA 624/8260	Vinyl acetate	<0.79	ug/L	0.79		10/12/2012
	$624	EPA 624/8260	Vinyl chloride	<0.16	ug/L	0.16		10/12/2012
WETCHEM	CL	EPA 300.0	Chloride		mg/L	0.25		10/19/2012
	NO23DA	EPA 353.2	Nitrate/Nitrite as N - Discrete Analyzer		mg-N/L	0.025		10/12/2012
	NO2DA	EPA 353.2	Nitrite as N - Discrete Analyzer		mg-N/L	0.0012		10/12/2012
	NO3_FI	EPA 353.2	Nitrate as N - Calculated		mg-N/L	0.025		10/12/2012
	SO4	EPA 300.0	Sulfate		mg/L	0.36		10/19/2012
	TDSUSGS	USGS I-1750-85	Total Dissolved (Filterable) Solids		mg/L	1.0		10/17/2012

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REPORT COMMENTS

Report Prepared By:

Date Prepared: 11/8/2012