

STATE OF CALIFORNIA  
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY  
STATE WATER RESOURCES CONTROL BOARD

**DIVISION OF WATER RIGHTS**

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In the Matter of Wastewater Petition WW0067

**Western Riverside County Regional Wastewater Authority**

**ORDER APPROVING CHANGE IN PLACE OF USE,  
PURPOSE OF USE, AND QUANTITY OF DISCHARGE**

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SOURCE: Prado Basin tributary to the Santa Ana River

COUNTY: Riverside

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**WHEREAS:**

1. The Western Riverside County Regional Wastewater Authority (Authority) owns and operates the Western Riverside County Regional Wastewater Treatment Plant (Plant). The Plant produces tertiary treated wastewater that is discharged to the Orange County Water District diversion canal (Canal) tributary to Prado Basin thence the Santa Ana River.
2. Currently, the Plant has a design capacity of 8 million gallons per day (mgd) and currently discharges treated wastewater to the Canal at an average rate of 6.5 mgd for a total annual amount of approximately 7,240 acre-feet per year (afy). The Authority is completing construction at the Plant to expand the design capacity to 14 mgd. The Plant currently receives wastewater from the Western Municipal Water District, the City of Norco, the Jurupa Community Services District, and the Home Gardens Sanitary District. The City of Corona will begin sending wastewater to the Plant when the expansion project is completed.
3. Water Code section 1211 requires the owner of any wastewater treatment plant to obtain approval from the State Water Resources Control Board (State Water Board) prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater, when changes in the discharge or use of treated wastewater result in decreasing the flow in any portion of a watercourse.
4. On December 27, 2012, the Authority filed Wastewater Change Petition WW0067 with the State Water Board, pursuant to Water Code section 1211. The petition seeks authorization for the Authority's Recycled Water Project (project) to cease the discharge of treated wastewater, to change the place of use for treated wastewater, and change the purpose of use for treated wastewater. The treated wastewater would be supplied to the Authority's member agencies, and non-Authority members near the Plant may also be served.
5. As described by the Authority, the goal of the project is to decrease the dependency of the Authority and its member agencies on imported water, increase water supply reliability and replace potable water currently used for purposes appropriate for recycled water.

6. For the purposes of this order, the State Water Board's Division of Water Rights (Division) considers the following information as the Authority's existing point of discharge, place of use, and purpose of use of treated wastewater:
  - a. The point of discharge is located at North 1,796,056 feet and East 6,681,655 feet by California Coordinate System 1983, Zone 5, being within SW  $\frac{1}{4}$  of NW  $\frac{1}{4}$  of projected Section 10, T3S, R7W, SBB&M.
  - b. There is no place of use.
  - c. There is no purpose of use.
7. The Authority has not previously submitted or obtained approval of a wastewater change petition pursuant to Water Code section 1211.
8. Wastewater treatment and surface water discharge activities by the Authority are currently authorized by the Santa Ana Regional Water Quality Control Board under Order No. R8-2015-0013 (National Pollutant Discharge Elimination System Permit No. CA8000316).
9. The Division issued a public notice of the petition on January 10, 2013. A joint protest was filed by the U.S. Fish and Wildlife Service (Service) and the California Department of Fish and Wildlife (CDFW). The protest primarily concerned the potential impacts of the petition on special status species, including southwestern willow flycatcher and least Bell's vireo. Individual protests were filed by Orange County Water District (OCWD) and the Santa Ana Watershed Association (SAWA). The Division rejected the SAWA protest. The OCWD protest was withdrawn.
10. On August 15, 2017 the Authority, the Service and the CDFW entered into the "Adaptive Management and Monitoring Program to Evaluate the Potential Effects of the Reduction of Treated Wastewater Discharged by the Western Riverside County Regional Wastewater Authority to Riparian Habitat Associated with the Orange County Water District Santa Ana River Diversion Canal" (Adaptive Management Program). The Adaptive Management Program (Attachment 1) provides an adaptive management approach that seeks to ensure that the Authority's proposed reduction in discharge will not have adverse downstream impacts.
11. By letter to the Division dated October 4, 2017, the Service and the CDFW informed the Division that they are in agreement with the Authority as to the terms of the Adaptive Management Program, and to the inclusion of the following additional terms in any order issued by the Division approving the petition as a condition to withdrawal of their protest:
  - a. *Western Riverside County Regional Wastewater Authority shall comply with and fulfill all requirements of the Adaptive Management Program dated August 15, 2017.*
  - b. *Subsequent modifications to the Adaptive Management Program which are submitted by Western Riverside County Regional Wastewater Authority, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife shall be subject to review and approval by the Deputy Director for Water Rights. Modifications to the Adaptive Management Program (other than temporary changes identified in Section VI.2 thereof) shall only be made after notice and opportunity for a hearing.*
  - c. *The State Water Board reserves jurisdiction in the public interest to modify the terms and conditions of this order, including imposition of requirements to alter project facilities or operations and to modify instream flow releases. Modifications to this order shall only be made after notice and opportunity for a hearing.*

12. By letter to the Division dated October 16, 2017, the Authority confirmed its agreement with the Adaptive Management Program and to the additional terms as a condition of protest withdrawal by the Service and the CDFW.
13. The State Water Board has determined that the petition for change of place of use, purpose of use, and quantity of discharge will not cause injury to any other lawful user of water.
14. Under the California Environmental Quality Act (CEQA), the Authority is the lead agency for preparation of environmental documentation for the proposed project. On November 14, 2012, the Authority certified the final Environmental Impact Report (EIR), adopted the CEQA Findings, and adopted the Mitigation Monitoring and Reporting Program (MMRP) for the proposed project (SCH No. 2012031084). On November 19, 2012, the Authority issued a Notice of Determination (NOD). The State Water Board is a CEQA responsible agency for purposes of considering whether to approve the petition that will allow the Authority to proceed with the proposed project. As a CEQA responsible agency, the State Water Board must consider the environmental documentation prepared by the lead agency and any other relevant evidence in the record, and must reach its own conclusions on whether and how to approve the project involved. (Cal. Code Regs., tit. 14, § 15096, subd. (a).)
15. The State Water Board has considered the final EIR in deciding whether to approve the petition. Changes and alterations have been required in and incorporated into the project which avoid or substantially lessen the significant environmental effects on environmental resources within the State Water Board's purview, as identified in the final EIR. (See Cal. Code Regs., tit. 14, §§ 15091, subd. (a)(1); 15096, subd. (h).) The State Water Board will issue an NOD within five days of the date of this order.
16. As a responsible agency, the State Water Board must mitigate or avoid to the extent feasible the identified significant impacts to resources within the State Water Board's purview. In addition, the State Water Board must balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project against its unavoidable environmental risks when determining whether to approve the project. (Cal. Code Regs., tit. 14, § 15093, subd. (a).) The significant impacts identified in the final EIR that may result from construction of the project and that fall within the State Water Board's purview are adverse impacts to sensitive species and habitats and adverse impacts to water quality.
17. The State Water Board prepared a MMRP which specifies implementation, monitoring, and reporting on the mitigation measures for the protection of resources within the State Water Board's purview (Attachment 2). Compliance with these measures is an enforceable term within this order. Adoption of mitigation measures described in the MMRP avoid or significantly minimize all of the significant impacts under the State Water Board's purview to a less than significant level.
18. In addition to any obligation the State Water Board may have under CEQA, the State Water Board has an independent obligation to consider the effect of the proposed change on public trust resources and to protect those resources where feasible. (*National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419 [189 Cal.Rptr. 346].) Staff evaluated potential effects to public trust resources in the December 12, 2017 memorandum titled Staff Evaluation of Potential Effect to Public Trust Resources Caused by Approval of WW0067 for reduction in discharge under the petition, including specific consideration of effects related to special-status plants or wildlife, instream flow, water quality and riparian habitat. Staff concluded that there will be no adverse effects to public trust resources are expected as a result of the change. The Deputy Director has reviewed staff's conclusions and recommendations, and concurs. With the inclusion of protest dismissal terms, standard terms and conditions, and mitigation measures evaluated in this order, the change will not cause an unreasonable effect to public trust resources and approval of the

project is not contrary to the State Water Board's public trust responsibilities.

19. The State Water Board has a Policy for Water Quality Control for Recycled Water (Recycled Water Policy), originally adopted on February 3, 2009 and amended on January 22, 2013. The purpose of the Recycled Water Policy is to increase the use of recycled water from municipal wastewater sources, and one of the goals for California, as stipulated in the Recycled Water Policy, is to increase the use of recycled water over 2002 levels by at least one million acre-feet per year by 2020, and by at least two million acre-feet per year by 2030. The Authority's project, as proposed in the petition, is consistent with the purpose of the Recycled Water Policy, and will help California meet the goals of the Recycled Water Policy.
20. Pursuant to Resolution 2012-0029, the State Water Board has delegated the authority to administer the State Water Board's water rights program to the Deputy Director for Water Rights, and the Deputy Director for Water Rights has redelegated the authority.

### **ORDER**

#### **NOW, THEREFORE, IT IS ORDERED THAT:**

1. The point of discharge is unchanged.
2. The request to change the place of use is approved. The place of use for treated wastewater produced by the Authority is within the service areas of member agencies as shown on map dated July 19, 2017, filed with the State Water Board.
3. The request to change the purpose of use is approved. The purpose of use for treated wastewater produced by the Authority is Municipal.
4. The quantity of discharge of treated wastewater from the Plant to the Canal may be reduced by an average rate of up to 6.5 mgd, for a total reduction of 7,240 afy, from January 1 to December 31 of each year.
5. The Authority shall comply with and fulfill all requirements of the Adaptive Management Program dated August 15, 2017 on file with the State Water Board. Subsequent modifications to the Adaptive Management Program which are submitted by the Authority, the Service, and the CDFW shall be subject to review and approval by the Deputy Director for Water Rights. Modifications to the Adaptive Management Program (other than temporary changes identified in Section VI.2 thereof) shall only be made after notice and opportunity for a hearing.
6. The Authority shall obtain all necessary federal (including Clean Water Act section 404), state, and local agency permits and approvals required by other agencies prior to construction and operation of the project. Copies of such permits and approvals shall be forwarded to the Deputy Director for Water Rights.
7. The Authority is responsible for compliance with any applicable waste discharge or water recycling requirements issued by the Regional Water Board or the State Water Board.
8. The Authority shall comply with the mitigation terms pertaining to Biological Resources and Hydrology and Water Quality specified in the final EIR (see Attachment 2).
9. The Authority shall comply with the terms of the Western Riverside Species Habitat Conservation Plan dated June 22, 2004.

10. The State Water Board reserves jurisdiction in the public interest to modify the terms and conditions of this order, including imposition of requirements to alter project facilities or operations and to modify instream flow releases. Modifications to this order shall only be made after notice and opportunity for a hearing.

STATE WATER RESOURCES CONTROL BOARD

ORIGINAL SIGNED BY:  
AMANDA MONTGOMERY, FOR

*Erik Ekdahl, Deputy Director  
Division of Water Rights*

Dated: FEB 05 2018

**ADAPTIVE MANAGEMENT AND MONITORING PROGRAM**

**TO**

**EVALUATE THE POTENTIAL EFFECTS OF  
REDUCTION OF TREATED WASTEWATER  
DISCHARGED BY  
WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER  
AUTHORITY (WRCRWA)**

**TO**

**RIPARIAN HABITAT ASSOCIATED WITH THE  
ORANGE COUNTY WATER DISTRICT (OCWD)  
SANTA ANA RIVER DIVERSION CANAL**

**PREPARED IN COORDINATION WITH**

**THE UNITED STATES FISH AND WILDLIFE SERVICE**

**AND**

**THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**

**August 15, 2017**

**Prepared for:**

**WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER AUTHORITY**

**Prepared by:**

**Glenn Lukos Associates  
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## EXHIBITS

1. Regional Map
2. Vicinity
3. Monitoring Locations

## I. RESPONSIBLE PARTIES

Applicant:	Western Riverside County Regional Wastewater Authority Rod LeMond Administrator 14205 Meridian Parkway Riverside, CA 92518
Biological Consultant:	Glenn Lukos Associates, Inc. Contact: Tony Bomkamp 29 Orchard Lake Forest, California 92630-8300 Telephone: (949) 837-0404
USFWS Representative	Kai Palenscar, Ph. D. Biologist (Endangered Species) U.S. Fish and Wildlife Service - Palm Springs Office 777 E. Tahquitz Canyon Way, Suite 208 Palm Springs, California 92262 760-322-2070 x 408
CDFW Representative	Joanna Gibson, Senior Environmental Scientist (Specialist) California Department of Fish and Wildlife Inland Deserts Region 3602 Inland Empire Blvd., Suite C-220 Ontario, California 91764 (909) 987-7449

## II. PROGRAM PHASES

The Program encompasses two phases. Phase One involves the collection of baseline data and will last a minimum of twelve (12) months, Phase Two will involve five (5) years of post-discharge reduction monitoring. The program phases will occur on the following schedule:

1. Phase One – Baseline monitoring. Monitoring, as described in this Program, will be implemented during the entirety of Phase One. Phase One will have a duration of no less than 12 months. Vegetation Monitoring began in July, 2016, however, monitoring will not be deemed to have begun for the purposes of this Program until all wells are installed. Baseline monitoring will last a total of twelve (12) months.
2. Phase Two – Discharge from the WRCRWA Treatment Plant can be reduced to 0 cfs. Monitoring, as described in this Program, will be implemented for a period of 5 years from the date that discharge reductions begin.



### III. LOCATION AND TIMING OF MONITORING

The goal of this Program is to determine whether the reduction in wastewater discharge from the Treatment Plant is causing a reduction in riparian habitat fitness or extent downstream of the Treatment Plant discharge location; specifically, within the reach between the WRCRWA Treatment Plant and the OCWD treatment wetlands, and riparian habitat west of the Treatment Plant discharge location and north of the Canal in the vicinity of the Oxbow. As noted above, invasion of Prado Basin by the PSHB has resulted in substantial die-back and die-off of willows, which in turn has severely limited the potential for meaningful vegetation monitoring, wherein mature willows are the primary tool for the monitoring. In order to assess potential impacts, monitoring will be conducted as follows:

- Monitoring of surface flows within five reaches in the Canal.
- Monitoring of groundwater levels adjacent to the Canal, and within riparian habitat west of the Treatment Plant and north of the Canal.
- Monitoring of the vegetation within and adjacent to the Canal.
- Monitoring of water depths and extent of the Oxbow near the southwestern willow flycatcher (SWFL) location downstream of the WRCRWA outfall.
- Quantification of SWFL and least Bell's vireo (LBVI) nest locations/territories downstream of the Treatment Plant discharge and north of the Canal. Note: this data will be sourced from OCWD.

Monitoring will be completed during all phases of this Program.

For the purposes of this Program, seasons correspond to the Northern Hemisphere:

Spring - March 1 through May 31

Summer – June 1 through August 31

Fall – September 1 through November 30

Winter – December 1 to February 28 (or 29 during a leap year)

Furthermore, the mid-point date of each season is used when referencing “early” or “late” within a season. For example, early summer refers to June 1 through July 15 and late summer refers to July 16 through August 31.

#### A. Monitoring of Surface Flows within the Canal

Surface flows along the Canal will be monitored three times annually: 1. during spring or early summer, 2. late summer, and 3. fall. Monitoring during Phase One will establish the current baseline conditions within the Canal prior to the reduction of treated wastewater. Exhibit 3 depicts the locations of the stream gaging locations, which will be placed at five locations (described in more detail below):

- Immediately downstream of the OCWD diversion from the SA River to the diversion canal;

- Immediately upstream of the Treatment Plant discharge point;
- Immediately downstream of the Treatment Plant discharge point;
- Approximately midway between the Treatment Plant discharge point and the OCWD Treatment Wetlands; and
- Immediately upstream of the point where the Canal discharges to the OCWD treatment wetlands.

### **1. Immediately Downstream of the OCWD Diversion**

Stream Gaging Station 1 will be located immediately downstream of the OCWD diversion from the SA River to the Canal. The purpose of this station will be to measure the stream flow at the diversion in order to measure flows at the point where they enter the Canal.

### **2. Immediately Upstream of the Treatment Plant Discharge Point**

Stream Gaging Station 2 will be located immediately upstream of the point where the Treatment Plant discharges to the Canal. The purpose of this station will be to measure the change in stream flow from the OCWD diversion to the Treatment Plant discharge, to calculate potential changes in flow due to losses to groundwater and evapotranspiration.

### **3. Immediately Downstream of the Treatment Plant Discharge Point**

Stream Gaging Station 3 will be located immediately downstream of the point where the Treatment Plant discharges to the Canal. The purpose of this station will be to measure stream flow at the Treatment Plant discharge point, which equals the combination of flows reaching the point of the Treatment Plant discharge point plus the Treatment Plant discharge.

### **4. Approximately Midway Between the Treatment Plant Discharge Point and the OCWD Treatment Wetlands**

Stream Gaging Station 4 will be located approximately midway between the Treatment Plant and the OCWD Treatment Wetlands. The purpose of this station will be to measure the change in stream flow from the Treatment Plant discharge point to the midway point (between the Treatment Plant and the OCWD treatment wetlands) to measure changes in flow due to losses to groundwater and evapotranspiration.

### **5. Immediately Upstream of the OCWD Treatment Wetlands**

Stream Gaging Station 5 will be located immediately upstream of the OCWD treatment wetlands. The purpose of this station will be to measure the change in stream flow from the Treatment Plant discharge point to the OCWD treatment wetlands to measure changes in flow due to losses to groundwater and evapotranspiration.

**B. Monitoring of Groundwater Levels Adjacent to the Canal**

Groundwater monitoring wells will be located at 9 locations including 8 in proximity to the Canal, and one additional well adjacent to the Oxbow that has supported one to two occurrences of the SWFL during recent years (though not in 2016). The locations for the wells are depicted on Exhibit 3. The wells will be programmed to measure water depth every 15 minutes. The wells in proximity to the Canal have been located to measure potential changes in groundwater depths at differing distances from the Canal. If the Canal is contributing substantially to the groundwater in proximity to the Canal, then drops in groundwater elevations should be observed as distance of the wells from the Canal increases. These measurements, combined with the surface flow data and knowledge of the riparian vegetation community composition and average root depth, will provide important information regarding the sources of hydrology that support the riparian habitat within and adjacent to the Canal. In addition to the 9 wells to be installed, OCWD has three additional wells in the vicinity of the canal that will provide additional data.

**C. Monitoring of the Vegetation within and adjacent to the Canal**

In addition to monitoring of surface flows within the Canal and monitoring of groundwater levels, vegetation within the Canal as well as in selected areas of riparian habitat will be monitored. Within the Canal, monitoring will be conducted twice annually: 1. in early summer when vegetation is emerging and 2. in late summer or early fall, when the emergent vegetation is at its greatest extent.

Prior to identification of the PSHB in Prado Basin, it was expected that areas of adjacent riparian habitat would also be monitored twice annually: 1. in late spring or early summer when the growth of willows and cottonwoods are at their peak and 2. in late summer or early fall when drought effects would be most pronounced. However, due to the rapid die-back and die-off of the willow riparian habitat within Prado Basin, it was determined by the USFWS and CDFW (collectively, the Agencies) that this approach would not be useful. An alternative approach discussed during the January 19, 2017 site visit with the Agencies was the use of willow recruits beginning in the spring of 2017. As such, a monitoring visit will be conducted in April 2017 to evaluate willow recruitment within the vegetation quadrats and to modify the quadrat locations as determined in coordination with the Agencies.

**D. Monitoring of the Oxbow near SWFL Locations**

As depicted on Exhibit 3, a monitoring well will be located immediately north of the Oxbow in proximity to the SWFL locations. In addition, a surface water gaging location will be placed in the Oxbow as depicted on Exhibit 3. The surface water measurements in conjunction with the adjacent groundwater monitoring well will inform the relationship between surface and groundwater within the immediate vicinity of the Canal and the SWFL locations. Surface water monitoring will be conducted in the Oxbow that will include measurements of depth and extent (i.e., wetted perimeter). Because significant habitat growth occurring in the area could limit the ability to measure the boundary, WRCRWA will make best efforts to determine the perimeter of the Oxbow pond and monitor the perimeter over time. These data will be correlated with well data from Wells 3 and 4 as well as the isotope tracer data (if such data is collected) to determine

whether water from the canal reaches the Oxbow via groundwater movement. Surface water data collection at the Oxbow will be conducted in conjunction with the stream flow data collection.

Oxbow measurements will be part of the baseline assessment to show changes in pond depth, water elevation and pond size (area). These baseline measurements will be used to determine the appropriate water elevation that WRCRWA will be required to maintain, as agreed to by the Agencies.

At its discretion, WRCRWA may conduct a tracer study to document the connectivity between surface water discharges from the Treatment Plant and the SA River Distributary. WRCRWA will coordinate with the Agencies on the design of the study prior to implementation. If the study demonstrates to the satisfaction of the Agencies that discharges from the Treatment Plant does not contribute to water levels in the SA River Distributary, WRCRWA may terminate its monitoring under this Program and the Agencies will recommend that the State Water Resources Control Board (SWRCB) find, based on the record, that WRCRWA's monitoring obligation under the Order has been completed.

#### **E. Quantification of SWFL and LBVI Nesting/Territory Locations**

WRCRWA will contact OCWD and request annual SWFL and LBVI nesting/territory location data, for the area north of the Canal and west of the Treatment Plant discharge location. Data will correspond to the same time period as data collected under this Program.

### **IV. MONITORING METHODS**

Methods for monitoring of surface flow, groundwater elevation, and vegetation are set forth below and include collection of baseline data and data following reductions in discharge of the treated wastewater from the Treatment Plant.

#### **A. Stream Gaging**

The stream gaging locations are depicted on Exhibit 3. Stream gaging will be conducted in accordance with the velocity-area method using standard stream gaging techniques as described below because there are no weirs for flumes in the subject reaches to provide stream flow measurements. Measurements will be conducted three times annually: 1. in spring or early summer, 2. late summer, and 3. in fall, prior to start of the rainfall season, to avoid periods of excessive runoff generated by large storm runoff. Phase One data will be collected at least once in spring or early summer, at least once in late summer, and at least once in fall prior to reductions in the wastewater discharge. Monitoring data for Phase Two will be collected following the same schedule as Phase One. Multiple replicates will be taken consistent with site conditions. Exhibit 3 depicts the five stream gaging locations along the Canal. Data will be collected on dates that allow for a broad, evenly spaced picture of conditions in the vicinity of the Canal.

Stream discharge, or the volume of water flowing in a stream over a set interval of time, can be determined with the equation:

$$Q = AV$$

Where, Q is discharge (volume/unit time-e.g. m<sup>3</sup>/second, also called cumecs), A is the cross-sectional area of the stream (e.g. m<sup>2</sup>), and V is the average velocity (e.g. m/s).

Stream water velocity is most often measured using a current meter. Current meters typically consist of a propeller or a horizontal wheel with small, cone-shaped cups attached to it which fill with water and turn the wheel when placed in flowing water. The number of rotations of the propeller or wheel-cup mechanism corresponds with the velocity of the water flowing in the stream. Water flowing within a stream is subject to friction from both the stream bed and the air above the stream. Thus, when taking water velocity measurements, it is conventional to measure flow at 0.6 times the total depth, which typically represents the average flow velocity in the stream. This is achieved by attaching the current meter to a height-calibrated rod. The rod can also be used to measure stream stage height.

Velocity also varies within the cross-section of a stream, where stream banks are associated with greater friction, and hence slower moving water. Thus, it is necessary to take velocity measurements along representative cross-sections of the stream at each of the five locations shown on Exhibit 3. Since stream channels are rarely straight, it is helpful to measure velocity across an "average" reach of the stream (e.g. average width and depth) with a single channel, a relatively flat stream bed with little vegetation and rocks, and few back-eddies that hinder current meter movement.

Using the velocity-area method, discharge is measured by integrating the area and velocity of each representative point across the stream; that is, at each location along the stream, the stream is divided into representative sections based on local topography, discharge, etc. By multiplying the cross-sectional area (width of section x stage height) by the velocity, one can calculate the discharge for that section of stream. The discharge from each section can be added to determine the total discharge of water from the stream.<sup>1</sup> Three replicates will be taken at each sampling point for each location.

Discharge data collected for each of the stream gaging locations will also facilitate the calculation of water loss or gain through the Canal bed in each of the five reaches, which may be correlated with adjacent groundwater levels.

It is important to note that given the regular shape of the Canal, limited depth and lack of boulders and large woody debris allows for accurate measurements, the growth of dense vegetation along the canal banks, especially after extended periods without scouring flows that remove vegetation can reduce the accuracy of the measurements.

## **B. Groundwater Data Collection**

The locations of groundwater monitoring wells are depicted on Exhibit 3. It is recommended that these new wells will be fitted with pressure transducers that record water levels once every 15 minutes and data from the wells will be downloaded on a monthly basis. Phase One groundwater data will be collected for a minimum of 12 months and will incorporate data provided by OCWD from existing wells. Baseline dry weather monitoring will be completed prior to implementing the reduction in wastewater discharge. Phase Two will follow the same

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<sup>5</sup> Adapted from: [http://serc.carleton.edu/microbelife/research\\_methods/environ\\_sampling/streamgage.html](http://serc.carleton.edu/microbelife/research_methods/environ_sampling/streamgage.html)

groundwater data collection schedule as Phase One. Wells will be installed using a small drill rig and will have minimal impacts.

Groundwater monitoring data for the Program will be collected at each of the 9 wells using pressure transducers that record water levels once every 15 minutes. Data will be collected monthly and downloaded for analysis and incorporation into annual reports. This network of 9 monitoring wells will provide data for the Program that will be correlated with the vegetation and surface flow data collected as part of the Program. Elevations of wells will be recorded by survey allowing normalization of groundwater depths among the wells. In addition to the 9 wells, data from the three OCWD wells will be included in the data analysis.

### C. Vegetation Monitoring

A rapid assessment approach incorporating the relevé method of sampling vegetation that was developed in Europe and standardized by the Swiss ecologist Josias Braun-Blanquet, will be used to characterize the vegetation within the Canal and adjacent riparian areas. The approach will follow, to the extent practicable, the guidelines established by the California Native Plant Society (CNPS) within the *California Native Plant Society Relevé Protocol: CNPS Vegetation Committee*<sup>2</sup> attached as Appendix A. Sampling of the vegetation in the Canal will occur within a 25-meter-wide belt transect, centered on each of the surface water measure locations depicted on Exhibit 3. Riparian habitat will be monitored within areas covering 25 x 25 meters within extant riparian habitat depicted on Exhibit 3. Permanent locations will be selected at the locations noted above during collection of baseline data (before reduction of wastewater discharge is implemented) and will be selected in accordance with the methods set forth by the CNPS, which states:

*When sampling a vegetation stand, the main point to remember is to select a sample that, in as many ways possible, is representative of that stand. This means that you are not randomly selecting a plot; on the contrary, you are actively using your own best judgment to find a representative example of the stand.*<sup>3</sup>

In addition to vegetation data collection, photo locations will be established for each of the Canal and riparian habitat monitoring sites.

As noted above, vegetation within the Canal will be monitored twice annually: 1. in early summer, when vegetation is emerging and, 2. late summer or early fall, when the emergent vegetation is at its greatest extent. Areas of adjacent riparian habitat will also be monitored twice annually: 1. in late spring or early summer and, 2. in late summer or early fall when drought effects would be most pronounced. Phase One data will be collected in early summer and in late summer or early fall (in the Canal); and in late spring or early summer, and in late summer and early fall (for riparian habitat) prior to the reduction in wastewater. Phase Two data collection will follow the same schedule as Phase One, with each monitoring event occurring within 30-days of the date when monitoring occurred in Phase One.

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<sup>6</sup> California Native Plant Society. *Native Plant Society Relevé Protocol: CNPS Vegetation Committee*, October 20, 2000 (Revised 8/23/2007), 18 pages.

<sup>7</sup> Ibid, p.2

Declines in riparian habitat fitness and extent may be detected via: yellowing of leaves and/or leaf drop during the growing season; changes in plant community composition, distribution and abundance; and type conversion of habitat. Vegetation monitoring will include all vegetation strata, including the herbaceous layer. Individual cottonwood and willow saplings will be tagged and followed to demonstrate whether recruitment is occurring.

Vegetation monitoring data shall be analyzed and presented in annual reports as follows:

1. Percent herbaceous v percent woody cover.
2. Dominant vegetation layer.
3. Dominant vegetation type.
4. Percent coverage within each stratum.

**D. Monitoring of the Oxbow**

Measurement of surface water, at the Staff Gauge location, depicted on Exhibit 3, within the Oxbow will be collected monthly during retrieval of groundwater data. Baseline monitoring will be conducted prior to the implementation of reductions in wastewater discharge. Baseline data will be collected during summer 2016, and spring and summer 2017 at a minimum.

These baseline data will be used to determine a water elevation that WRCRWA will be required to maintain in the Oxbow. The minimum surface water elevation of the Oxbow pond will be measured throughout the Phase One baseline monitoring period and will be used to determine this water elevation in conjunction with the Agencies. Following completion of Phase One, WRCRWA will meet with the Agencies to review the surface elevation data and set the minimum required level. The minimum required surface water elevation of the Oxbow will be clearly indicated in the Final Phase One Baseline Data Report.

Baseline data will also be collected on the pond area (by placing stakes around perimeter of pond) and depth (with staff gauge). Because significant habitat growth occurring in the area could limit the ability to measure the boundary, WRCRWA will make best effort to determine the perimeter of the Oxbow pond. The Oxbow pond measurements will be incorporated into the 5-year monitoring plan.

**E. SWFL and LBVI Data**

OCWD conducts annual surveys for SWFL and LBVI within Prado Basin that includes the area downstream of the Treatment Plant discharge and north of the Canal. WRCRWA will request copies of SWFL and LBVI nesting/territory locations for this area for inclusion in the annual reports.

**V. REPORTING**

**A. Phase One Report**

Prior to implementing the reduction in wastewater discharge, a Draft Phase One Baseline Data Report will be submitted to the SWRCB and the Agencies that includes the results of stream

gaging within the diversion canal, groundwater levels, vegetation data, and elevation and extent of surface water within the Oxbow. Following submittal of the Draft Phase One Baseline Data Report, WRRCWA and the Agencies (collectively, the Parties) will meet and discuss the data and findings. The Parties will have 30 days after the meeting to submit comments on the Draft Phase One Baseline Data Report. The Final Phase One Baseline Data Report will be submitted to the SWRCB and the Agencies at the end of the year, on or before December 31.

## **B. Phase Two Reporting**

### **Annual Reporting**

During Phase Two, following submittal of the Final Phase One Baseline Data Report, reporting will include detailed annual reports.

#### **1. Annual Monitoring Reports and Impact Assessment**

At the end of each year, on or before December 31, an annual report will be submitted to the SWRCB and the Agencies. Each report will include an analysis of the data collected throughout the year, including trends in habitat and how the trends are influenced by the surface and ground water conditions. The report will include a discussion of riparian habitat composition and average root depth (from literature) for each riparian species.

These reports will also include the following:

- A list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year.
- A vicinity map indicating location of the monitoring locations.
- A site map identifying transect locations, photo station locations, etc. as appropriate.
- A map depicting stake placement around the perimeter of the Oxbow (installed during baseline data collection) and the current wetted perimeter of the Oxbow.
- A map of LBVI and SWFL nesting/territory locations for the area north of the Canal and west of the Treatment Plant discharge location, collected during the same year as the monitoring data (data will be sourced from OCWD).
- Copies of all monitoring photographs.
- Copies of all completed field data sheets.
- Copies of all raw data in digital format.

## **VI. PROGRAM ASSESSMENT AND PHASE PROGRESSION**

### **1. Phase One**

Within 45 days of submission of the Draft Phase One Baseline Data Report the Parties will meet and discuss the data and findings. A site visit will be facilitated if necessary. The Parties will review the report to ensure it contains all Phase One data collection elements described in this



Program. The meeting will also facilitate review of data collection methods and analysis, which will prove important if modification of data collection methodology or analysis is necessary.

## **2. Phase Two**

Within 45 days of submission (on or before February 14) of each annual Phase Two Report, the Parties will meet and discuss the data and findings. A site visit will be facilitated if necessary. The Parties will review the report to ensure it contains all Phase Two data collection elements described in this Program. The Parties will review and discuss the analysis. If the data demonstrates that WRCRWA's reduction in discharge is contributing to an adverse impact to riparian habitat and/or sensitive species downstream of the Treatment Plant, WRCRWA will meet and confer with the Agencies to determine the appropriate volume of water to discharge to the Canal. If WRCRWA and the Agencies cannot agree on the appropriate volume of water to discharge to the Canal, the Deputy Director, SWRCB Division of Water Rights will make that determination, in the interim period, pending notice and opportunity for hearing before the SWRCB.

## **3. Impacts requiring meet and confer and potential mitigation during Phase Two**

WRCRWA will meet and confer with the Agencies to determine the appropriate volume of water to discharge to the Canal upon the occurrence of any of the following conditions:

- There is no new recruitment of native woody species including willow and cottonwood trees within the survey area.
- Groundwater levels in each monitoring well in the survey area fall by amounts greater than the annual fluctuation of the average for each well.

## **4. Meet and Confer**

After meeting and conferring with the Agencies as required by subsections 2 and 3 of Section VI, WRCRWA shall advise the Deputy Director, SWRCB Division of Water Rights of the volume of water the Parties have determined is appropriate to discharge to the Canal and of any additional measures WRCRWA undertakes to restore riparian habitat or groundwater levels.

## **VII. MITIGATION**

WRCRWA will monitor the Oxbow throughout the entirety of this Program. If surface water elevations in the Oxbow fall below the minimum level established in the Final Phase One Baseline Data Report at any time during the monitoring period, WRCRWA will provide direct flow to the Oxbow to maintain the minimum surface elevation.

If the monitoring data demonstrate that the reduction in Treatment Plant discharge is causing adverse impacts to riparian habitat within and adjacent to the Canal, or impacts to sensitive wildlife species downstream of the Treatment Plant, WRCRWA will discharge treated wastewater from the Treatment Plant at a volume mutually agreed to between the Agencies and WRCRWA. During periods where OCWD is unable to divert surface flows from the Santa Ana River into the diversion Canal because of flood damage or other naturally occurring

phenomenon, WRCRWA will discharge 1 mgd into the Canal. If monitoring finds no adverse impacts to habitat near the Oxbow, no additional flow will be required by WRCRWA to supply to the Canal during periods of non-river diversion.

Maintaining surface water elevation in the Oxbow and returning flows to the Canal shall be the only mitigation that will be required for project impacts unless otherwise agreed to in writing by WRCRWA, the State Water Resources Control Board and the Agencies.

## **VIII. COMPLETION OF PROGRAM**

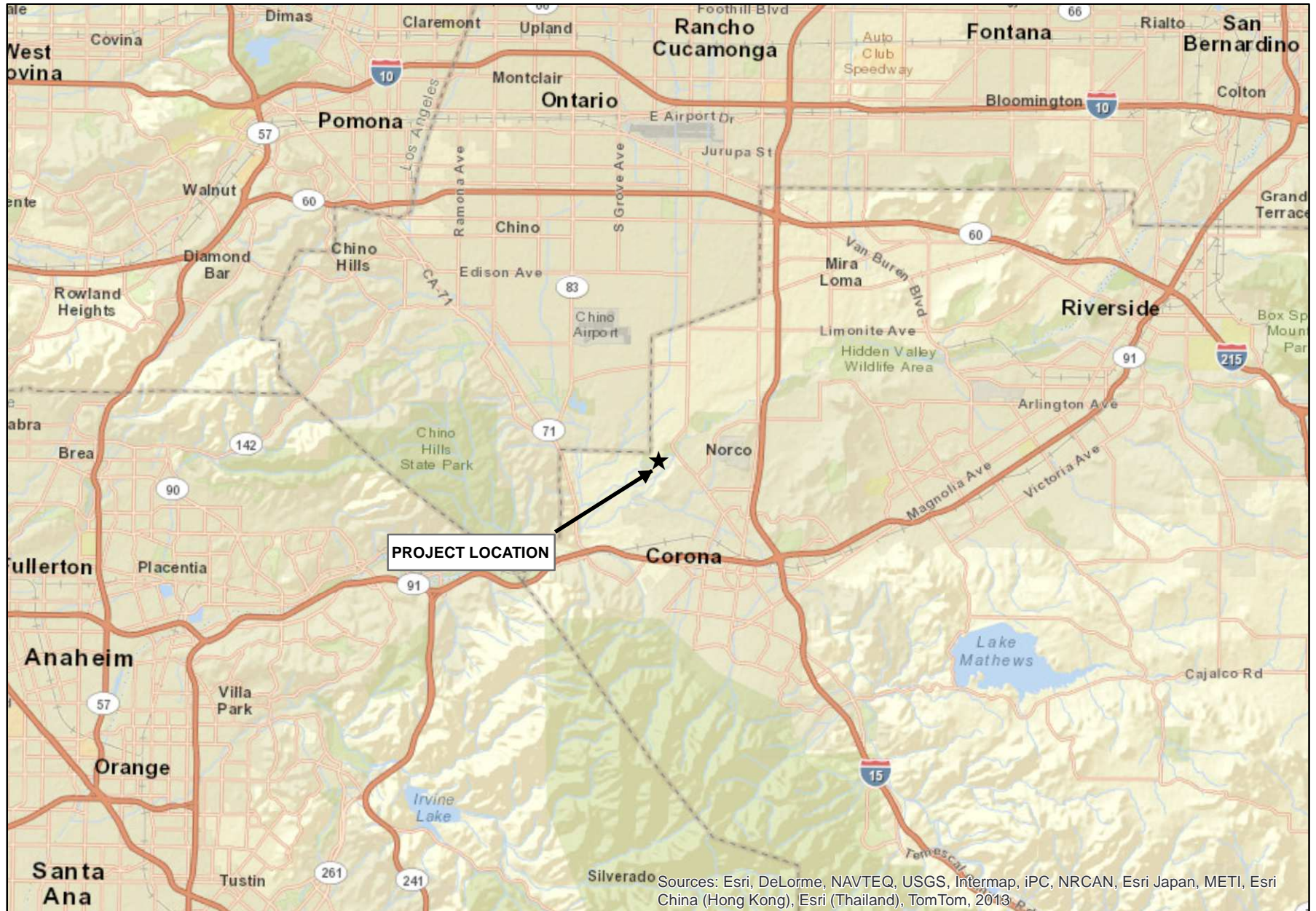
No later than 90 days after the completion of Phase Two, WRCRWA shall compile and submit to the Agencies (in digital format) a Draft Final Report. The submission shall include all information/data listed in Section V, subsection B (1), and shall include a comparison of data collected during the Phase One baseline monitoring period and all annual monitoring years associated with Phase Two. The Draft Final Report shall discuss trends, and shall include an analysis across all monitoring years. The Draft Final Report shall also include a list/discussion of action summaries/adjustments required following meet and confer with the Agencies, as described in Section VI above (where applicable). WRCRWA shall submit the Draft Final Report to the Agencies for review and comment before submitting a final version to the SWRCB. The Agencies will have 30 days to review and comment on the Draft Final Report before the final version is submitted to the SWRCB.

At the end of Phase Two as described in Section VI above, the Agencies will recommend that the SWRCB find, based on the record, that WRCRWA's monitoring obligation under the Order has been completed, unless the Program and the Final Report show that the reduction in waste water discharge has had a demonstrated negative effect on the emergent vegetation within the Canal, the adjacent riparian habitat, and/or the water surface elevations in the Oxbow.

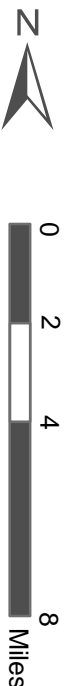
## **IX. EXTENSION REQUESTS**

In the event a party will not meet a deadline set out in this Program, the party will notify the Deputy Director, SWRCB Division of Water Rights, no less than seven days prior to the deadline and will submit a request for extension to the Deputy Director showing good cause for why the extension should be granted.

Source: ESRI World Street Map



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013



**WESTERN RIVERSIDE COUNTY  
REGIONAL WASTEWATER AUTHORITY**

Regional Map

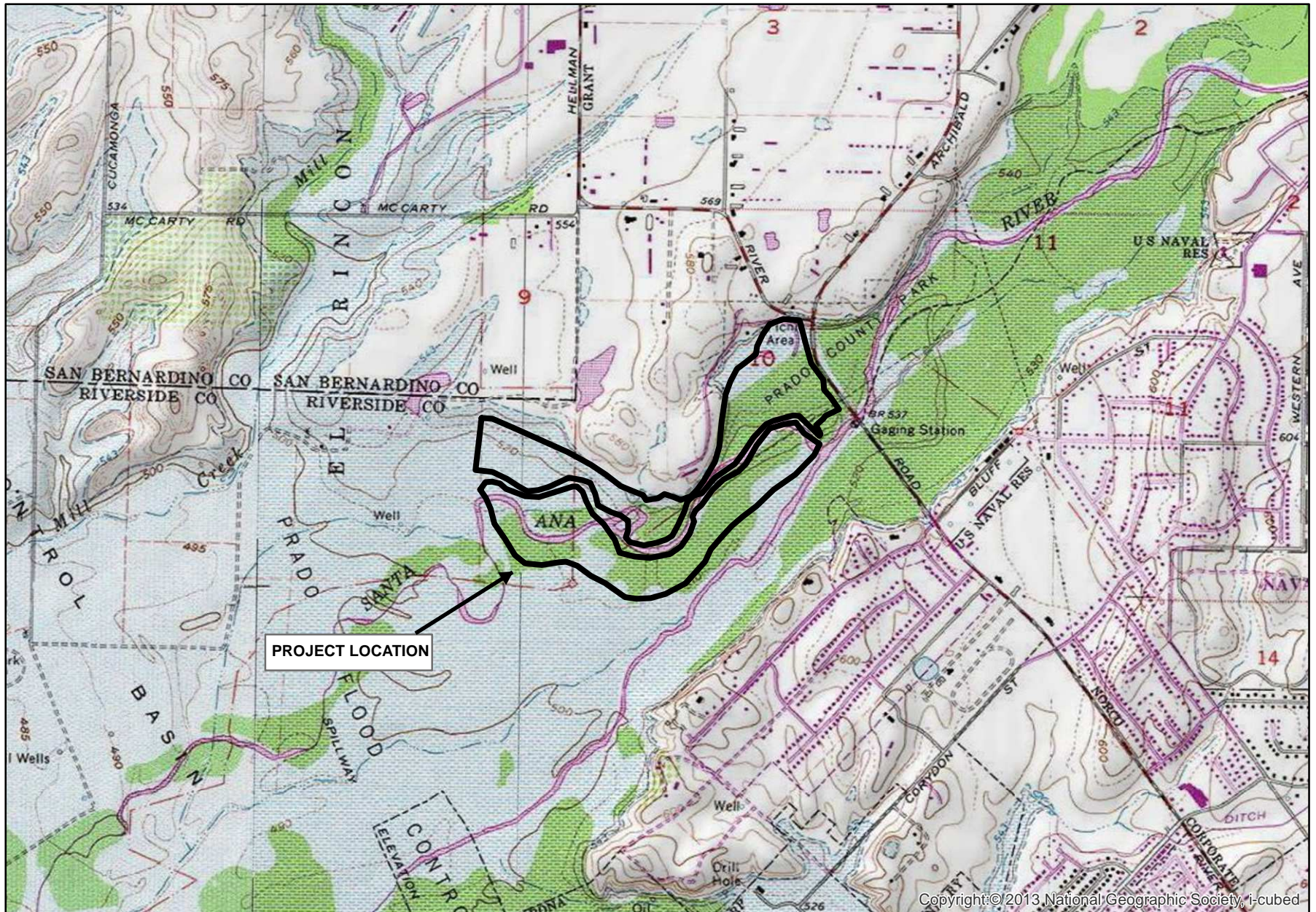
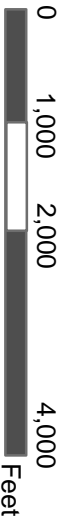
**GLENN LUKOS ASSOCIATES**



Exhibit 1



Adapted from USGS Corona North, CA quadrangle



**WESTERN RIVERSIDE COUNTY  
REGIONAL WASTEWATER AUTHORITY**

Vicinity Map

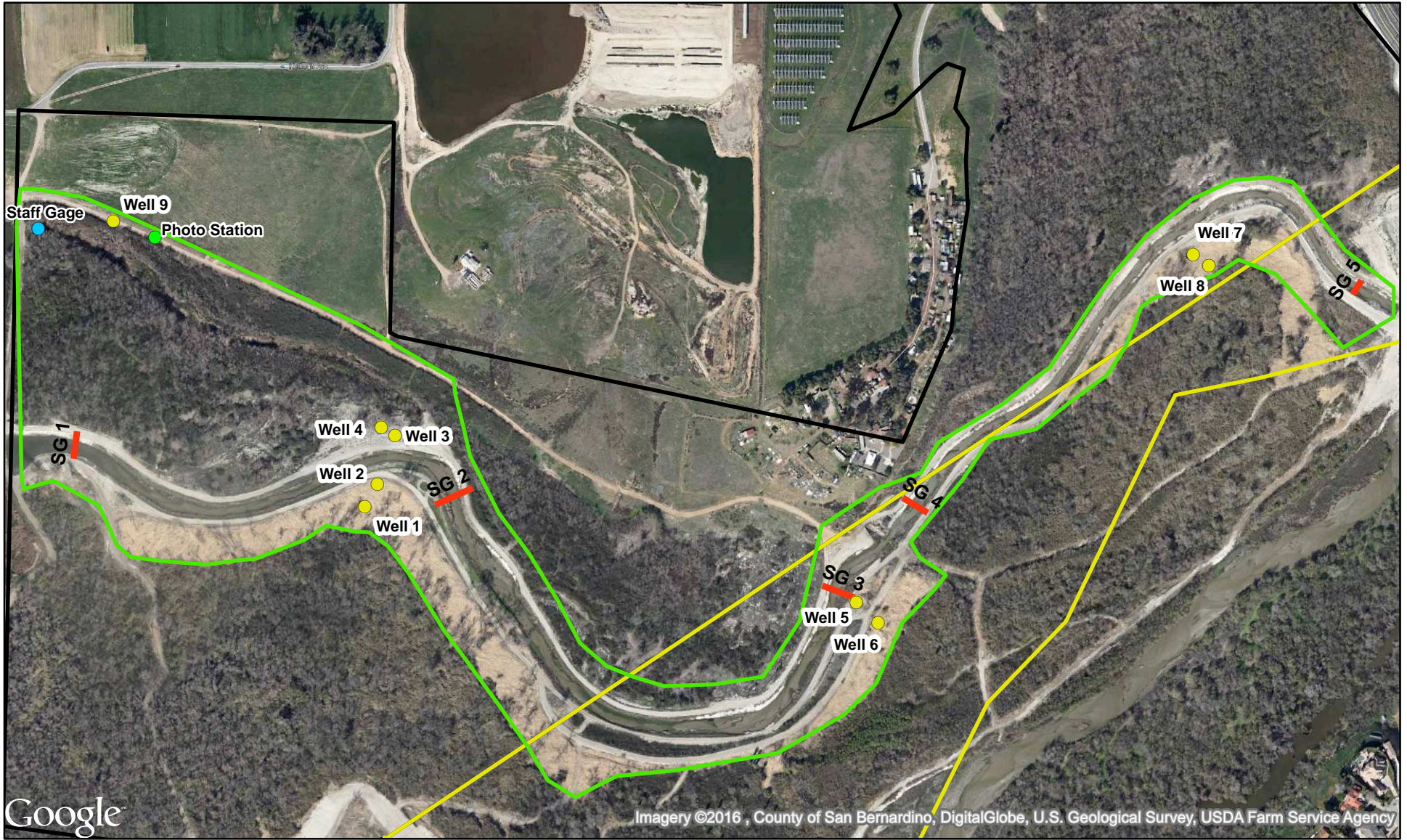
**GLENN LUKOS ASSOCIATES**



Exhibit 2

Copyright © 2013 National Geographic Society, i-cubed

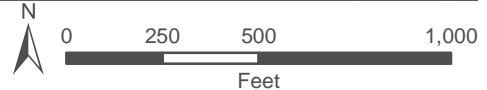




Google

Imagery ©2016 County of San Bernardino, DigitalGlobe, U.S. Geological Survey, USDA Farm Service Agency

- Well Location
- Staff Gage
- Photo Station
- ▬ Stream Gaging Location (SG - #)
- OCWD
- US Department of Defense
- Study Area



**WESTERN RIVERSIDE COUNTY  
REGIONAL WASTEWATER AUTHORITY**  
Well and Stream Gaging Location Map

**GLENN LUKOS ASSOCIATES**



Exhibit 3

Mitigation Measure	Implementation	Timing	Monitoring/ Enforcement
<b>Biological Resources</b>			
<p>The Western Riverside County Regional Wastewater Authority (Authority) will complete the following prior to any ground disturbing activity:</p> <ul style="list-style-type: none"> <li>• Complete a habitat assessment of the proposed infrastructure project site.</li> <li>• Should nesting birds be discovered during the required habitat assessments at individual infrastructure project sites and If ground-disturbing activities are scheduled within the avian nesting season (February 15 - August 31), the construction agent(s) should conduct a preconstruction clearance survey for nesting birds within 10 days prior to any ground disturbing activities to ensure that no nesting birds, including least Bell’s Vireo and burrowing owls, will be disturbed during construction. The biologist conducting the clearance survey should document a negative survey with a brief letter report indicating that no impacts to active bird nests will occur. If an active bird nest is discovered during the 10-day preconstruction clearance survey, construction activities should not occur within a 300-foot buffer around the active nest. For raptor species, this buffer should be expanded to 500-feet. It is recommended that a biological monitor be present to delineate the boundaries of the buffer area and to monitor the active nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the young have fledged and left the nest, normal construction activities could occur.</li> <li>• If breeding burrowing owls are detected on site, the construction agent(s) should coordinate with the County of Riverside Environmental Programs Department (EPD) to determine if occupied habitat will need to be avoided, or if the owls can be relocated from the site. If the relocation of owls is approved, the construction agent(s) will prepare a plan of relocation (passive or active) to be approved by EPD and the responsible wildlife agencies (i.e., USFWS and CDFG). If approved, relocation will be conducted outside of the breeding season. If non-breeding owls are identified on site, including wintering owls, the construction agent(s) will notify EPD, and will relocate the owls following a protocol to be approved by EPD and the wildlife agencies.</li> </ul>	Authority	Prior to Construction	Division of Water Rights

Mitigation Measure	Implementation	Timing	Monitoring/ Enforcement
<p><b>Hydrology and Water Quality</b></p>			
<p>The Authority will require contractors to implement a program of best management practices (BMP's) and best available technologies to reduce potential impacts to water quality that may result from construction activities. As part of this process, multiple BMP's should be implemented to provide effective erosion and sediment control. These BMP's should be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. BMP's to be implemented as part of this mitigation measure should include, but not be limited to, the following:</p> <ul style="list-style-type: none"> <li>• Temporary erosion control measures such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other groundcover shall be employed for disturbed areas.</li> <li>• Storm drain inlets on the site and in downstream offsite areas shall be protected from sediment with the use of BMP's acceptable to the construction agent(s), local jurisdictions and the California Regional Water Quality Control Board, Santa Ana Region.</li> <li>• Dirt and debris shall be swept from paved streets in the construction zone on a regular basis, particularly before predicted rainfall events.</li> <li>• No disturbed surfaces shall be left without erosion control measures in place between October 15 and April 15. The construction agent(s) shall file a Notice of Intent with the Regional Board and require the preparation of a pollution prevention plan prior to commencement of construction. The construction agent(s) shall routinely inspect the construction site to verify that the BMP's specified in the pollution prevention plan are properly installed and maintained. The construction agent(s) shall immediately notify the contractor if there were a noncompliance issue and require immediate compliance.</li> </ul>	<p>Authority</p>	<p>During Construction</p>	<p>Division of Water Rights</p>



Mitigation Measure	Implementation	Timing	Monitoring/ Enforcement
<ul style="list-style-type: none"> <li>Controls on construction site dewatering shall be implemented. If possible, water generated as part of construction dewatering shall be discharged onsite such that there would be no discharge to surface waters. If discharge to surface waters were unavoidable, the construction agent(s) shall obtain coverage under the NPDES General Dewatering Permit prior to commencement of construction. The provisions of this permit are sufficiently protective of water quality to ensure that impacts to surface waters would remain below significance thresholds. During dewatering activities, all permit conditions shall be followed. The construction agent(s) shall routinely inspect the construction site to verify that the measures specified in the permit are properly implemented. The construction agent(s) shall immediately notify the contractor if there were a noncompliance issue and require immediate compliance.</li> </ul>	<p>Authority</p>	<p>During Construction</p>	<p>Division of Water Rights</p>