CEQA Initial Study
And Negative Declaration

Well 385R Pumping Test

September 2017

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Section 1
Project and Agency Information

1.1 PROJECT TITLE AND LEAD AGENCY

Project Title:	Well 385R Pumping Test
Lead Agency Name:	Los Angeles Department of Water & Power
Lead Agency Address:	111 North Hope Street, Room 1044 Los Angeles, California 90012
Contact Person:	Ms. Jane Hauptman
Contact Phone Number:	(213) 367-0968
Project Sponsor:	Same as Lead Agency

1.2 PROJECT BACKGROUND AND OBJECTIVES

The City of Los Angeles is a municipal corporation and charter city organized under the provisions of the California Constitution. The Los Angeles Department of Water and Power (LADWP) is a proprietary department of the City that supplies water and power to Los Angeles' inhabitants pursuant to the Los Angeles City Charter.

LADWP is the lead agency for the project under the California Environmental Quality Act (CEQA). As a data collection project, the categorical exemptions to CEQA were reviewed for applicability. The CEQA categorical exemption for information collection (Class 6; CEQA Guidelines §15306) consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. However, the location exception (CEQA Guidelines §15300.2) for Class 6 exemptions applies to projects that would ordinarily have insignificant impacts on the environment but that are located in a particularly sensitive environment where impacts may be significant. Since the project is located in the Five Bridges Mitigation Area, and is adjacent to the Fish Slough Area of Critical Environmental Concern (managed by the Bureau of Land Management, BLM), LADWP determined that preparation of an Initial Study (IS) would be appropriate for the project.

LADWP has prepared this Initial Study to address the impacts of conducting the Well 385R pumping test. Data from the pumping test will be used to calibrate the groundwater model for the Bishop/Laws wellfield, and to document that Wells 385R and 386R are functionally distinct from original Wells 385 and 386.

The IS has been prepared in accordance with CEQA, Public Resources Code Section 21000 et seq., and the State CEQA Guidelines, Title 14 California Code of Regulations (CCR) Section 15000 et seq. The IS serves to identify the site-specific impacts, evaluate their potential significance, and determine the appropriate document needed to comply with CEQA. For this

project, LADWP has determined, based on the information reviewed and contained herein, that the proposed pumping test would not have a significant impact on the environment. Based on this IS, a Negative Declaration (ND) is the appropriate CEQA document. Staff recommends that the City of Los Angeles Board of Water and Power Commissioners adopt this IS/ND for the proposed project.

1.2.1 Project Background

LADWP owns over 100 groundwater production wells in the Owens Valley, for in-valley water uses and for export to Los Angeles via the Los Angeles Aqueduct (LAA) 1 and LAA2. Two of these wells, W385 and W386, were installed in 1987 for the purposes of dewatering an adjacent gravel mining operation and for supplying water for enhancement/mitigation projects in the Owens Valley and for export to Los Angeles. The wells are 18 inches in diameter and 548 (W385) to 560 (W386) feet deep. When initially constructed, the wells were screened from approximately 50 to 550 feet, in both the shallow and deep aquifers. Initial pumping capacity was 10.1 cubic feet per second (cfs) for W385 and 6.2 cfs for W386.

Pumping from W385 and W386 in 1987-1988 lowered shallow groundwater levels which successfully dewatered the adjacent gravel mine but also contributed to the impact on approximately 300 acres of riparian and meadow vegetation in the Five Bridges Area. Therefore, operation of the wells was discontinued in 1988 and water has been periodically spread over the affected vegetation. In 1993, a series of shallow monitoring wells was installed in the Five Bridges Area. From November 1993 to January 1994, a 2-month pumping test of W385 and W386 was conducted, with both wells pumping at a combined rate of 16.3 cfs. Since pumping during the test affected groundwater levels on both sides of the Owens River, W385 and W386 remained off. Restoration efforts at the Five Bridges Area have been on-going since the early 1990s and include irrigation, weed treatment, grazing management, controlled burns, seeding banks and planting native species. Since 2000, water has been diverted from Diversion #2 of Bishop Creek Canal three times a year to promote vegetation recovery. A new Five Bridges Mitigation Plan was drafted in January 2017; the document is currently being finalized by LADWP and Inyo County. The plan uses a combination of flow and land management approaches to recover the mitigation area to native meadow and riparian communities, taking into consideration operational limitations and current environmental and climatic conditions.

In 2014, LADWP modified W385 and W386 by sealing the screened zone in the shallow aquifer. Casing liner was installed in each well and the annular space between the existing well screen and the new casing liner was filled with cement grout. The wells are now screened from 323-548 feet (W385R) and 367-550 feet (W386R). After the sealing was completed, a 24-hour pumping test was conducted. Based on this test, the pumping capacity of the wells was substantially reduced and effects on shallow groundwater levels were not observed. As modified, the wells are now hydrologically distinct from original W385 and W386; therefore, the wells are considered new wells by LADWP and have been renamed W385R and W386R.

A comparison of the original and modified wells is summarized below:

Original Wells 385 and 386	Modified Wells 385R and 386R
• Pumped water from both shallow and deep aquifers (approximately 50 to 550 feet bgs)	• Pumps water only from deep portion of aquifer (> 320 feet bgs)
• Combined pumping capacity of 16.3 cfs	• W385R pumping capacity of 2.8 cfs • W386R pumping capacity of 2.8 cfs

bgs – below ground surface

1.2.1.1 Previous Environmental Documentation

LADWP and Inyo County prepared the 1991 Final Environmental Impact Report on Water from the Owens Valley to Supply the Second Los Angeles Aqueduct, 1970 to 1990, 1990 Onward, Pursuant to a Long Term Groundwater Management Plan (1991 EIR). Implementation of restoration efforts in the Five Bridges Area is per the requirements of mitigation measure 10-12 described in the 1991 EIR. An Addendum to the 1991 EIR was prepared by LADWP in 2012 to modify four wells (including enhancement/mitigation wells 385 and 386) by sealing a portion of the screening of the wells so that groundwater extraction would be limited to the deep aquifer in the Laws Wellfield, rather than from both the shallow and deep aquifers.

Located in the Five Bridges Area, the proposed pumping test for W385R is a separate project and is the subject of this environmental review document. This environmental document further describes the process in which the new, sleeved well will undergo a pumping test to evaluate the potential for impacts to groundwater-dependent resources in the area. As a temporary data collection project, the pumping test of new W385R (which has fundamentally different functional characteristics from original W385) is not analogous to the original purpose of the well - long-term operation of the well for dewatering. Therefore, the proposed pumping test project does not require modification of Mitigation Measure 10-12 of the 1991 EIR. LADWP continues to implement the Five Bridges Mitigation Plan and is committed to meeting the goals of Mitigation Measure 10-12.

1.2.2 W385R Pumping Test Project Objective

The objective of the W385R pumping test is to collect data to assess the potential for impact on nearby resources, including the shallow aquifer and groundwater dependent resources, from sealing the upper portion of W385R, and to collect data to calibrate the groundwater model for the Bishop/Laws Wellfield. The calibrated model will then be able to simulate the longer term operation of W385R and forecast potential impacts of its operation. Results of the pumping test will also be used to document whether Wells 385R and 386R are functionally distinct from the operation of the original Wells 385 and 386.

1.3 PROJECT LOCATION AND ENVIRONMENTAL SETTING

W385R is located in the Five Bridges Area of Inyo County, California, in the northern portion of the Owens Valley (**Figure 1**). Access to the well location is via U.S. Highway (U.S.) 395. The well site is located on the Fish Slough 7.5 minute U. S. Geological Survey (USGS) quadrangle and the latitude/longitude of the approximate center of the area is 37.41837°N / -118.403184°W (North

American Datum 1983 UTM Zone 11N). The nearest development is Bishop, approximately 3 miles south of the well site.

W385R is located at the confluence of the Owens River and Fish Slough. Wetland and riparian vegetation exists in the Owens River flood plain in the project area, and upland plant communities are present in the areas of irrigated pasture. The Fish Slough ecosystem to the north is a BLM Area of Critical Environmental Concern. It is hypothesized that groundwater from beneath the Volcanic Tablelands and Tri Valley region discharges at Fish Slough and sustains this groundwater-dependent ecosystem (ICWD, 2016).

1.4 PROJECT DESCRIPTION

The proposed 2017/2018 pumping test would be conducted at W385R only. Once the results from the pumping test of W385R are available, a pumping test plan for W386R may be developed.

1.4.1 Construction

Modification of the wells W385R and W386R is already complete, therefore, no construction activities are required for the pumping test. A vertical turbine pump is already installed in W385R. No onsite construction personnel would be required and there would be no materials deliveries prior to or during the pumping test.

1.4.2 Pumping Test

A 2-month pumping test is proposed to collect data for evaluation of potential impacts of operating W385R on nearby resources. Approximately 2.8 cfs will be pumped continuously from W385R and discharged through the Fish Slough channel to the Owens River. Data from the pumping test will be used to develop groundwater level hydrographs. Hydrographs from the 1993/94 test and the 2017/18 test will be compared to assess the effect of operating W385R on groundwater levels. Data from the pumping test will also be used to calibrate the Bishop/Laws groundwater flow model before it is used to simulate long-term operation of W385R.

The pumping test is currently planned to begin in winter 2017. Testing is planned for the winter months to allow comparison with the 1993/94 data, and to reduce the potential influence of hydrologic variables such as irrigation to the Five Bridges Mitigation Area, significant changes to the stage of the Owens River, and seasonal fluctuations related to evapotranspiration.

To separate the effect of pumping from the effect of surface water diversions on shallow groundwater elevation, water will not be released from Diversion #2 of the Bishop Creek Canal to the Five Bridges Area during the pumping test. Operation of the McNally Canals is not anticipated to change during the 2-month pumping test.

1.4.3 Monitoring Plan

Groundwater and Surface Water Monitoring. A Monitoring Plan was developed in December 2016 to collect data during the 2-month pumping test. Groundwater levels will be monitored by LADWP and Inyo County Water Department (ICWD) in 27 nearby monitoring wells (18 north,

and 9 south of the Owens River) (**Figure 2**). The wells are a combination of shallow test wells (less than 40 feet deep) and deeper wells screened in the deeper aquifer. Most of the LADWP monitoring wells have been equipped with pressure transducers to record groundwater levels every 6 hours; groundwater level will be measured manually in others. ICWD will continue to monitor a private well northwest of W385R and four BLM wells in the Fish Slough area. Water levels in surface water features will also be monitored both north and south of W385R. Staff gages will be read daily on weekdays at eight locations on Fish Slough, Owens River, Bishop Canal, and a pond west of W385R.

After the pumping test is completed, data will be assessed by LADWP and Inyo County. If results indicate that W385R will not have a negative impact on nearby groundwater levels, additional testing or operations may be considered by the Technical Group.

Trigger Levels. In order to avoid potential impacts on groundwater dependent resources and/or nearby domestic wells, the following management steps will be implemented for the duration of the pumping test:

1. A trigger level in monitoring well T830 located south of Owens River and southwest of W385R will be set immediately preceding the pumping test at a value agreed upon by LADWP and ICWD technical staffs. This trigger will be based on a measurable deviation below the expected seasonal change in groundwater level at this well. For example, if groundwater level in T830 is 8 feet below ground surface (bgs) before the test and the normal winter decline is 1 foot, the trigger would be set at 10 feet bgs. For comparison, during the 1993/94 pumping test groundwater in T830 declined approximately 5 feet.

2. A trigger level in the private well located northwest of W385R will be set immediately preceding the pumping test at 10 feet below the pre-pump testing static water level. For example, if static groundwater level in this well is 15 feet bgs before the test, the trigger will be set at 25 feet bgs. Based on the well construction, pump depth, and dynamic drawdown caused by in-well pumping of the domestic well, a 10-foot drawdown trigger would be protective of well operability. For comparison, during the 1993/94 test the groundwater level in this well dropped approximately 12 feet without adversely affecting short-term well operability.

3. A trigger level at Fish Slough #2, the southern-most Fish Slough monitoring well (located southeast of BLM Springs), will be set using a similar method as T830. This trigger will be set immediately preceding the pumping test at a value agreed upon by LADWP and ICWD technical staffs. This trigger will be based on a measurable deviation below the expected seasonal change in groundwater level. For example if water level in FS#2 is 4 feet bgs before the test and the normal winter trend is upward, the trigger can be set at 5 feet bgs. Data do not exist for other Fish Slough area wells from the 1993/94 time period.

Vegetation Monitoring. Vegetation in the project area will be monitored at the peak of the growing season at six photo point locations. Photo records from April 2016 will be considered Baseline Conditions for the operation of W385R.

The two permanent vegetation transects (**Figure 3**), located south of the Owens River and within the Five Bridges vegetation parcel, are monitored annually to track species composition and percent cover in the mitigation area. These data will serve as an additional mechanism to track the effects of well operation on vegetation if such an impact can be isolated from other influences. If there appears to be a significant decline in vegetation in response to well activity, provisions outlined in the Green Book will be followed (Inyo County and City of Los Angeles, 1990). Additionally, approximately 30 transects are monitored within the mitigation area as part of the Green Book vegetation monitoring program.

Hydrographs. Groundwater level hydrographs during and after the pumping test in monitoring wells located within the Five Bridges Parcel will be analyzed to determine if the pumping test has lowered groundwater levels in the Five Bridges Parcel and therefore has the potential to influence groundwater dependent vegetation.

1.5 APPLICABLE PLANS AND POLICIES

In 1982, the Inyo/Los Angeles Standing Committee and Technical Group were created through a 1982 Memorandum of Understanding between the City and the County. In 1991, LADWP and Inyo County entered into the "Agreement between the County of Inyo and the City of Los Angeles and Its Department of Water and Power on a Long-Term Groundwater Management Plan for Owens Valley and Inyo County" (Water Agreement). The Water Agreement establishes the continued existence of the two committees to represent the parties in implementing the Water Agreement.

Los Angeles Standing Committee representatives include (at least):

- One member of the Los Angeles City Council
- The Administrative Officer of the City of Los Angeles
- Two members of the Board of Water and Power Commissioners
- Three staff members

Inyo County Standing Committee representatives include (at least):

- Two members of the Inyo County Board of Supervisors
- Two Inyo County Water Commissioners
- County Administrator
- County Counsel
- Director of the Water Department

Regardless of the number of representatives in attendance at a Standing Committee meeting or Technical Group meeting, Inyo County has one vote and Los Angeles has one vote. Operation of W385R is subject to the Water Agreement and implementation of the proposed W385R pumping test and monitoring plan are subject to review by the Technical Group.

1.6 PROJECT NOTIFICATIONS

LADWP will continue ongoing coordination with the Inyo County Water Department, the California Department of Fish and Wildlife, and the Lahontan Regional Water Quality Control Board for the W385R pumping test.

1.7 CALIFORNIA NATIVE AMERICAN TRIBAL CONSULTATION

Two California Native American Tribes have requested consultation pursuant to Public Resources Code section 21080.3.1 and consultation has been initiated with LADWP. Consultation included a discussion of the level of environmental review and potential adverse impacts to tribal cultural resources. Confidentiality has been maintained pursuant to Public Resources Code 21092.3(c). See Section 2.3.17 below for additional discussion.

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W385R and W386R Wells

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TITLE:

Figure 1.
Vicinity Map

PROJECT:
Well 385R Project

REFERENCE(S):
Coordinate System: NAD 1983 UTM Zone 11N

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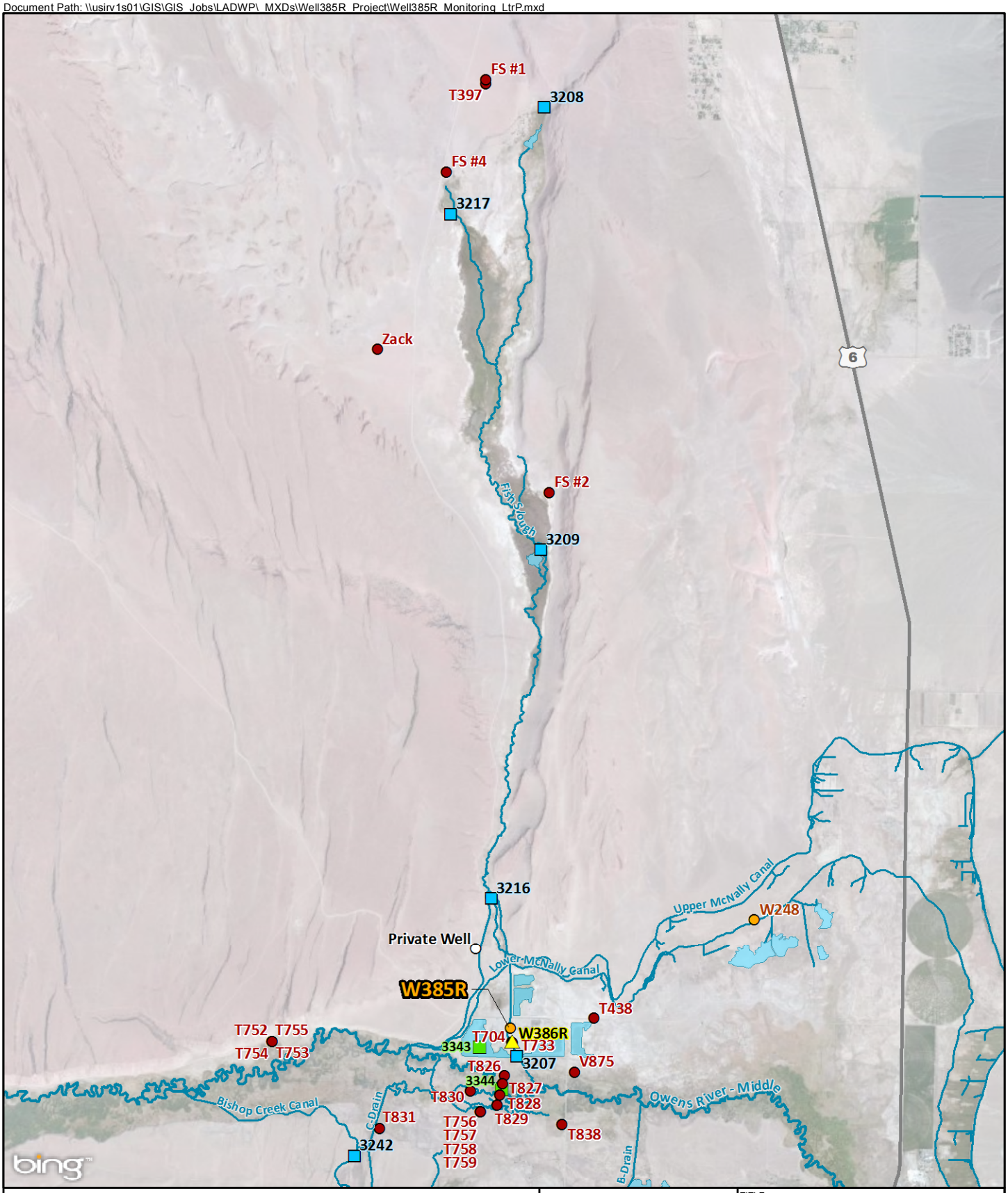

TITLE:

Figure 2.
Monitoring Locations near W385R

PROJECT:
Well 385R Project

REFERENCE(S):
Coordinate System: NAD 1983 UTM Zone 11NUnits: Meter

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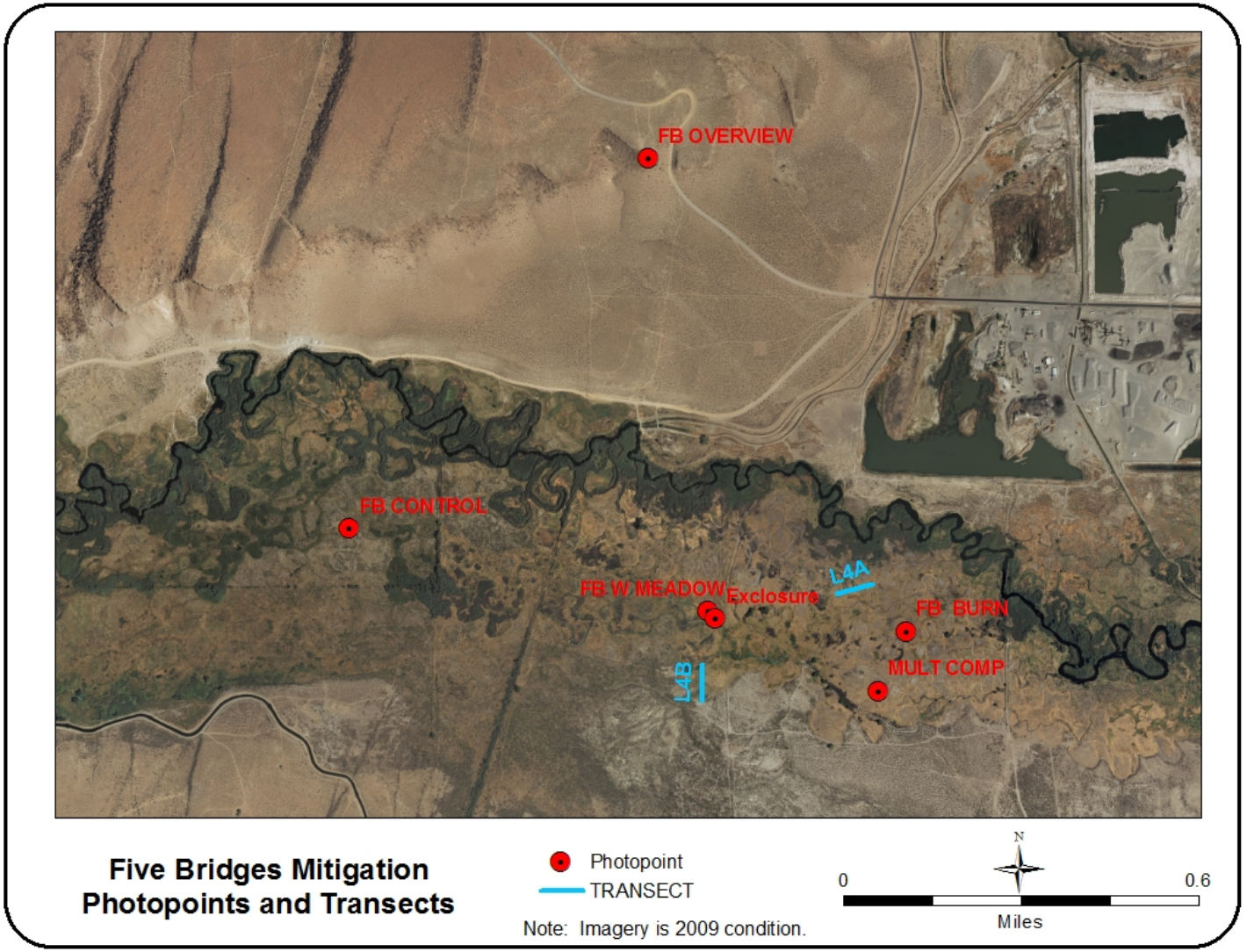
Figure 3
Five Bridges Monitoring Locations



Section 2
Environmental Analysis

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

2.2 AGENCY DETERMINATION

On the basis of this initial evaluation:

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

☐ I find that although the 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 applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

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

Signature: Charles C. Holloway Title: Manager, Environmental Planning

Printed Name: Charles C. Holloway Date: 9/18/2017

2.3 ENVIRONMENTAL CHECKLIST

2.3.1 Aesthetics

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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) and c) **No Impact.** Located at the confluence of the Owens River and Fish Slough, W385R is located within land leased to Granite Construction Co., north of the Five Bridges Mitigation Area. Views of the site are of the nearby gravel mining operation, roadways, irrigated pasture and the Owens River. No construction is required for the pumping test, therefore, no visual impacts related to construction equipment and earthwork would occur. Water from the pumping test would flow to the Owens River via Fish Slough; there would be no adverse visual impacts related to water releases. Since a substantial lowering of groundwater levels is not predicted for the W385R pumping test, any potential drawdown will be fully recovered prior to the growing season (see Section 2.3.9) and triggers will be enacted to monitor groundwater levels, significant impacts to groundwater dependent vegetation during the 2-month winter test would not result. Therefore, there would be no impacts on the visual quality of vegetation in the project area.

b) **No Impact.** Scenic roadways are designated by BLM, Inyo National Forest, Caltrans, and the Federal Highway Administration. Highway 395 is an officially designated State Scenic Highway from Independence to north of Tinemaha Reservoir (postmiles 76.5 to 96.9) (Caltrans, 2008). Highway 395 is eligible for designation in the portions north and south of that segment (Caltrans, 2008). The project site is north of Highway 395 in the eligible but not designated portion of the roadway. Since there is no construction disturbance associated with the project, the project would have no impact on visual resources near a State scenic highway.

d) **No Impact.** The proposed project does not include temporary or permanent installation of new sources of lighting. Therefore, the project would have no impact on day or nighttime views of the project area.

2.3.2 Agricultural and Forest Resources

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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.** The Farmland Mapping and Monitoring Program (FMMP) does not include Inyo County; therefore the proposed project would have no impact on conversion of FMMP designated Farmland (California Department of Conservation, 2017).

b) **No Impact.** Existing zoning by Inyo County of the project site is OS-40 (Open Space, 40-acre lot minimum) with a land use designation of NR (Natural Resources) (Inyo County, 2017). Since Inyo County does not offer a Williamson Act program (California Department of Conservation, 2017), the proposed project would have no impact on agricultural zoning or Williamson Act contracts.

c) and d) **No Impact.** The project site is not zoned as forested land and the proposed project would not result in conversion of forest land to non-forest use. Public Resources Code Section 12220 (g) defines "Forest land" as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Removal of trees is not proposed. Therefore, the proposed project would have no impact on forest lands.

e) **Less than Significant Impact.** The Grazing Management Plan for the Reinhackle Ranch Grazing Lease (5,947 acres, RLI-492) that includes the Five Bridges Mitigation Area was adopted as part of LADWP's Owens Valley Land Management Plan (OVLMP) in 2010. This plan allows for winter/spring grazing across the lease from November 1 to June 1 annually. Specifically with regard to the Five Bridges Mitigation Area, cows can graze the North Restricted, South Restricted, and North Five Bridges Fields using a three-pasture double rest rotation. As a result, each of these fields will be grazed only once every third year. The Multiple Completion Meadow Pasture will continue to be excluded from all livestock grazing until ongoing restoration activities are completed.

The W385R pumping test would not convert any agricultural (grazing) lands to other land uses. Under the pumping test project, water will not be released from Diversion #2 of the Bishop Creek Canal to the Five Bridges Area during the 2-month period. However, water would be spread in accordance with the mitigation plan in the Five Bridges Area. Therefore, the impact on grazing operations in the project area would be less than significant.

2.3.3 Air Quality

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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:

The Owens Valley is located within the jurisdiction of the Great Basin Unified Air Pollution Control District (GBUAPCD). The valley has been designated by the State and EPA as a non-attainment area for the state and federal 24-hour average PM_{10} standards. Wind-blown dust from the dry bed of Owens Lake is the primary cause of the PM_{10} violations. With the exception of PM_{10}, air quality is considered excellent and the area has been designated as attainment or unclassified for all other ambient air quality standards. Large industrial sources of air pollutants are absent from the Owens Valley. The major sources of criteria pollutants, other than wind-blown dust, are woodstoves, fireplaces, vehicle tailpipe emissions, fugitive dust from travel on unpaved roads, prescribed burning, and gravel mining.

a) **No Impact.** The relevant air quality plan for the project area is the Final 2016 Owens Valley PM_{10} Planning Area Demonstration of Attainment SIP (GBUAPCD, 2016). The focus of this planning document is implementation of dust control measures at Owens Lake, the major particulate matter source in the Valley. The SIP demonstrates how the National Ambient Air Quality Standards (NAAQS) will be attained. Since a 2-month pumping test of W385R would not require any construction or ground disturbance, the project would not generate dust or air pollutants from construction activity. Additionally, since draw-down of the shallow groundwater aquifer is not anticipated to be significant during this 2-month winter test period (see Section 2.3.9), impacts related to groundwater level reductions on surface soil moisture and dust generation are not predicted. Therefore, the project would have no impact on the relevant air quality plan.

b) and c) **No Impact.** The GBUAPCD has not established specific quantitative thresholds of significance for air emissions for CEQA analyses. However, projects that violate the NAAQS for PM_{10} are deemed unacceptable (GBUAPCD, 2008). Since no construction is required to

conduct the pumping test, no emissions from construction equipment or vehicles would be emitted. Additionally, since draw-down of the shallow groundwater aquifer is not anticipated to be significant during this 2-month winter test period (see Section 2.3.9), impacts related to groundwater level reductions on surface soil moisture and dust generation are not predicted. The project would have no impact on air quality.

d) **No Impact.** Sensitive receptors include schools, day-care facilities, nursing homes, and residences. Since there will be no construction necessary for the pumping test, no sensitive receptors would be impacted by diesel fumes associated with construction equipment. The project would have no impact on sensitive receptors.

e) **No Impact.** Since there will be no construction necessary for the pumping test, no odors from construction equipment would be generated. The project would have no impacts on odors.

2.3.4 Biological Resources

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 Wildlife 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, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
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 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:

Five Bridges Mitigation Plan. W385R is located within the Five Bridges Mitigation Area. The goal of the Mitigation Plan (LADWP, 2017) for this area is to recover the vegetation that was lost due to pumping of W385 and W386 from 1987 through 1989. This involves restoring a complex of riparian, meadow, and upland plant communities with similar species composition and cover as had existed prior to impact. Vegetation impacts in portions of the original Mitigation Area persist to date and the Mitigation Plan seeks to successfully mitigate the areas of the site that remain below their pre-pumping state.

The Mitigation Plan incorporates pumping, irrigation cycles, and land management practices. In general, pumping will be managed so as not to cause a significant decline in groundwater levels; flows will be managed to provide a reliable water supply to the Mitigation Area, to maintain appropriate groundwater levels throughout the growing season for groundwater-dependent grass species that presently exist, and to promote recruitment of native species in low cover areas; and

LADWP will use grazing, recreation, and weed management approaches to help achieve the mitigation goals. The W385R pumping test will be conducted in the winter months and is designed not to influence vegetation during the growing season.

Since early 2000, LADWP has been diverting water from Diversion #2 of Bishop Creek Canal three times a year to promote vegetation recovery in the Five Bridges Area. Since this water diversion has shown an effect on groundwater levels in the Five Bridges Area south of the Owens River, water will not be released from Diversion #2 into the Five Bridges Area during the 2 months of the pumping test of W385R. Without the diversion, the effect of pumping W385R can be separated from the impact of surface water diversions on shallow groundwater elevation. However, water diversions to the area will still be conducted three times in 2018 to promote the vegetation recovery in the Five Bridges Area.

Vegetation Monitoring. Vegetation monitoring in the vicinity of W385R will be conducted in compliance with the 2016 Five Bridges Monitoring Plan (LADWP, 2017), including annual photo point monitoring at six locations and two permanent vegetation monitoring transects at the peak of the growing season. Photo records from April 2016 will be considered Baseline Conditions for the operation of W385R.

The two permanent vegetation transects are monitored annually to track species composition and percent cover in the mitigation area. L4A and L4B are both located in alkali meadows; Transect L4A in the Multiple Completion Meadow, L4B in the West Meadow (**Figure 3**). The percent native perennial vegetation cover and composition varies from year to year in response to irrigation timing, duration, and area of delivery, as well as precipitation. Cover goals (60 percent cover) have been met six times since 1989 at both of the permanent transect sites. Composition goals (4 perennial species) have been met in most years. Vegetation cover has declined at both of these sites in recent years due to successive dry years, pepperweed invasion and subsequent weed treatment, off-road vehicle ground disturbance, and unintentional livestock entry. In 2017, conditions had improved from recent years; L4A had 41.6 percent cover containing two native perennial species, and L4B had 74 percent cover with six native perennial species. Vegetation monitoring data are collected annually and will serve as an additional mechanism to track the effects of the well operation on vegetation (if the impact, if any, can be isolated from other influences).

a) **Less than Significant Impact.** Based on previous surveys, two special status species are known to occur in the project area. The Owens Valley checkerbloom (*Sidalcea covillei*) has been identified in the South Restricted field of the Five Bridges Area. Additionally, LADWP and Inyo County have monitored a rare plant trend plot for Owens Valley checkerbloom annually since 1993. It has shown an overall downward trend throughout the mitigation period, with a sharper decline since 2009. It is possible that the rare plant population was affected by herbicide treatment that year and has not recovered (LADWP, 2017). Checkerbloom requires water early in the growing season when irrigation water has typically not been provided. Under the proposed project, water will not be spread on the Five Bridges Mitigation Area during the pumping test, but since this would be during winter, impacts to checkerbloom during the growing season would not occur. It is anticipated that water would still be spread in the

Mitigation Area three times in 2018. Since construction is not required for the W385R pumping test, there would be no direct disturbance to checkerbloom.

Southwestern Willow Flycatchers (*Empidonax traillii extimus*) were detected during the breeding season in riparian areas along the Owens River in 1993 and 1999 (LADWP, 2010). The current status of this flycatcher on the lease is unknown. The pumping test would result in release of 2.8 cfs for 2 months to the Owens River via Fish Slough. Winter release of these flows would not have an adverse effect on riparian vegetation on these waterways and would therefore have a less than significant impact on riparian obligate birds, including flycatcher. Groundwater monitoring would occur during the testing period, and pumping would be suspended if triggers are reached (see Section 2.3.9). Overall, the proposed data collection project would have a less than significant impact on sensitive plant or animal species.

b) and c) **Less than Significant Impact**. A key issue related to groundwater withdrawals for the pumping test at W385R is:

- Reductions in groundwater levels in the shallow aquifer that would reduce soil moisture at the ground surface such that vegetation in the Five Bridges Mitigation Area would be substantially impacted

An analysis of groundwater impacts from the proposed pumping test was conducting using the existing Bishop-Laws groundwater model (MWH, 2010). As noted in Section 2.3.9, the proposed 2-month, 2.8 cfs pumping test from the deep aquifer would result in a modeled groundwater drawdown of 0.76 to 1.41 feet. The model predicts drawdown during the 2017/18 pumping test will be from 9 to 26 percent of the drawdown observed in 1993/94. Groundwater levels are expected to largely recover to pre-testing conditions prior to the growing season (April, 2018) based on previous testing results and predictive modeling (see Section 2.3.9).

Groundwater pumping that substantially reduces groundwater levels has the potential to reduce surface soil moisture levels in the root zone, and therefore vegetation. The W385R pumping test will not cause a substantial drop in shallow groundwater levels due to a reduced pumping rate and groundwater level triggers, and therefore significant impacts to vegetation are not anticipated. Substantial recovery of the anticipated drawdown is expected prior to the start of the growing season. With monitoring of groundwater levels and vegetation conditions, the impact on vegetation from groundwater withdrawals would be less than significant.

Since no construction is required for the pumping test, impacts on adjacent waterways would be limited to changes in flow conditions. Water pumped from W385R during the pumping test will flow via Fish Slough to the Owens River. Riparian and wetland communities are present in the project area, but the area does not contain any seeps or springs. An additional discharge of 2.8 cfs for 2 months during the winter would not adversely impact wetland and riparian vegetation communities. The impact of the project on riparian habitat, wetlands, or other sensitive natural communities would be less than significant.

d) **No Impact.** Since no construction is required for the W385R pumping test, and since no fencing or other barriers are proposed, the project would have no impacts related to wildlife corridors.

e) **No Impact.** No tree ordinances apply to the project area and no trees would be removed for the pumping test. The Inyo County General Plan Goals and Policies document (2001) includes two goals for biological resources issues: Maintain and enhance biological diversity and healthy ecosystems throughout the County, and provide a balanced approach to resource protection and recreation use of the natural environment (Goals BIO-1 and BIO-2). Since substantial drawdown of the shallow groundwater and resultant surface vegetation impacts from the 2-month winter pumping test are not expected to occur (see Section 2.3.9), the project would not conflict with these goals. The project would have no impact on local policies or ordinances protecting biological resources.

f) **Less Than Significant Impact.** LADWP has prepared a Habitat Conservation Plan (HCP) for LADWP-owned lands in Inyo and Mono Counties, and is implementing Conservation Actions designed to reduce the take of Covered Species (LADWP, 2015b). Covered Activities under the HCP include: ongoing water gathering, water distribution, power production, and power transmission activities, and other land uses including habitat enhancements for Covered Species, livestock grazing, agriculture, recreation, fire and weed management, and road maintenance and closures. The Covered Species are: Owens Pupfish (*Cyprinodon radiosus*), Owens Tui Chub (*Siphateles bicolor snyderi*), Owens/Long Valley Speckled Dace (*Rhinichthys osculus* ssp.), Bell's Vireo (*Vireo bellii*), Willow Flycatcher (*Empidonax trallii*) Yellow-billed Cuckoo (*Coccyzus americanus*), and Greater Sage-grouse, bi-state population (*Centrocercus urophasianus*).

Adverse impacts to wetland and riparian habitat would not occur from winter release of 2.8 cfs to the Owens River via Fish Slough. Therefore, the 2-month pumping test would not adversely impact riparian-obligate species covered by the HCP. Since surface vegetation impacts from the 2-month winter pumping test are not predicted (see Section 2.3.9), the project would not impact Greater Sage-grouse. The project would be implemented in a manner consistent with the HCP's Conservation Actions, and would therefore have a less than significant impact on conservation planning.

2.3.5 Cultural Resources

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 dedicated cemeteries?	☐	☐	☐	☒

Discussion:

a) and b) **No Impact.** Although historic, archaeologic and paleontological resources are known for the Owens Valley, the proposed pumping test would not require any construction or ground disturbance. As under existing conditions, monitoring of groundwater levels, surface water and vegetation would be conducted. These monitoring activities would require driving on existing roadways and walking across vegetated areas, the same as is currently conducted. Therefore, since no site disturbance is proposed, the project would have no impact on historical or archaeological resources.

c) **No Impact.** A fossil locality search was previously conducted (2010), using the Berkeley Natural History Museum (BNHM) online database, which includes data from the University of California, Museum of Paleontology (UCMP, 2010). The database search identified 733 fossil localities within Inyo County. They include 19 specimens from the Precambrian, 281 from the Cambrian, 146 from the Ordovician, 35 from the Silurian, 106 from the Carboniferous, 80 from the Permian, 35 from the Tertiary, 7 from the Quaternary, 14 of unknown age and 10 disputed fossils. However, since excavation of potentially paleontologically sensitive soils is not required for the pumping test, the proposed project would have no impact on paleontological resources.

d) **No Impact.** Since earthwork or other site disturbance is not required for the pumping test, the project would have no impact on human remains. However, anytime LADWP personnel encountered human remains in the course of facility operations, the Inyo County Coroner would be contacted, the area of the find would be protected, and provisions of State CEQA Guidelines Section 15064.5 would be followed.

2.3.6 Geology and Soils

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 wastewater disposal systems, where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion:

The project area is located in eastern California, near the town of Bishop in the Owens Valley. The Owens Valley of eastern California is a deep north-south trending basin, lying between the Sierra Nevada to the west and the White-Inyo Mountains to the east. The Owens Valley was formed as a fault block basin with the valley floor dropped down relative to the mountain blocks on either side.

The Owens Valley is the westernmost basin in a geologic province known as the Basin and Range, a region of fault-bounded, closed basins separated by parallel mountain ranges stretching from central Utah to the Sierra Nevada and encompassing all of the state of Nevada. Geological formations in the project areas are of Cenozoic age, chiefly Quaternary. The sediments in the Owens Valley contain mostly Quaternary alluvial fan, basin-fill, fluvial, and volcanic deposits.

The soils in the area are generally known as the Bishop series, whose type section is located approximately 1 mile north and 1-1/2 miles west of Bishop. The Bishop series consists of deep,

poorly drained soils that formed in alluvium from mixed rocks. The Bishop soils are on floodplains and alluvial fans and have slopes of 0 to 2 percent (USDA, 2017).

In the immediate area of W385R, the original lithologic log for the well (constructed in 1987) notes medium to coarse sand from the surface to a depth of 90 feet. The lithologic log for adjacent well W386 also notes boulders, coarse sand and gravel to a depth of 110 feet. These coarse deposits are the source materials for gravel pits which surround these two wells.

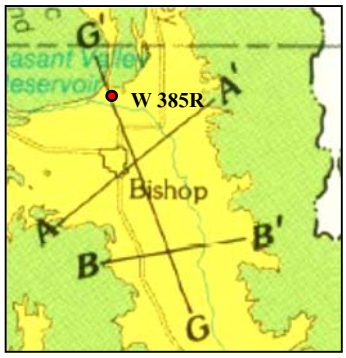


Figure 4. Location of Hollett's Geologic Section G-G' Relative to W385R

Hollett and others (1991) conducted extensive studies of the geology of the Owens Valley; cross section (G-G') from their work intersects the approximate location of W385R and depicts deeper sediments in the area. The location of this geologic section relative to W385R is shown in **Figure 4**, excerpted from Hollett's Plate 1. Hollett's geologic cross section depicts the Bishop Tuff, a volcanic deposit exposed north of W385R, and underlying unconsolidated deposits in the vicinity of W385R (**Figure 5**). The unconsolidated deposits are believed to be up to 4,000 feet deep in the Bishop area.

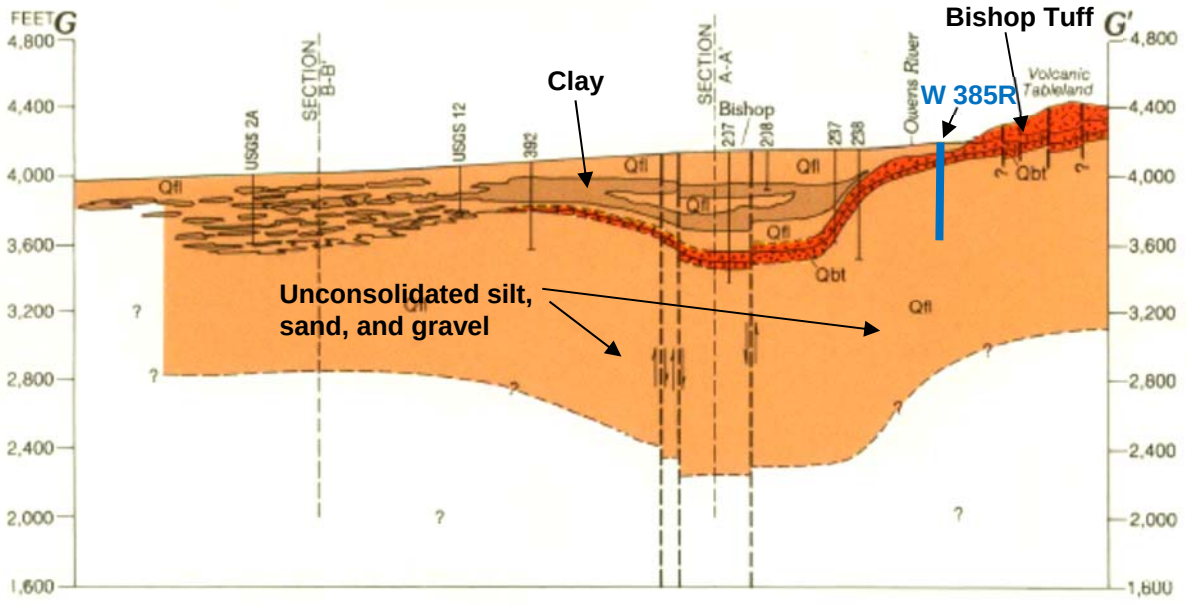


Figure 5. Hollett's Geologic Section G-G' Showing the Location of W385R

a) **No Impact**. Although the project area is located in an active tectonic zone, no construction is required for the project, and therefore no new structures would be exposed to potential adverse effects of seismic activity. Pumping of W385R has no potential to cause landslides and since shallow groundwater would not be increased, the project would not increase the potential for liquefaction. Therefore, the proposed pumping test would have no impacts related to geology.

b) **No Impact.** No construction is required for the project, and therefore there would be no redistribution of soils or loss of topsoil. Water from the pumping test will be conveyed through the existing Fish Slough channel to the Owens River, therefore there would be no soil erosion from overland flow.

c) **No Impact.** Soils within the project area have a slope of 0 to 5 percent and are stable soils. W385 was pumped at much higher rates and durations in the past, without causing landslides, lateral spreading, subsidence, liquefaction, or collapse. Therefore, there would be no project-related impacts related to unstable soils from pumping of W385R.

d) **No Impact.** Habitable structures will not be built as part of the proposed project. The soils mapped in the area of W385R have low concentrations of clay. Therefore, there would be no project-related impacts from expansive soils.

e) **No Impact.** Sanitation facilities are not present or proposed for the project site. There would be no impact on soils related to wastewater disposal.

2.3.7 Greenhouse Gas Emissions

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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: Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Examples of GHGs created and emitted primarily through human activities include fluorinated gases (hydrofluorocarbons and perfluorocarbons) and sulfur hexafluoride. Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO_2, which has a value of one. For example, CH_4 has a global warming potential of 21, which means that it has a global warming effect 21 times greater than CO_2 on an equal-mass basis. Total GHG emissions from a source are often reported as a CO_2 equivalent (CO_2e). The CO_2e is calculated by multiplying the emission of each GHG by its global warming potential and adding the results together to produce a single, combined emission rate representing all GHGs. On a national scale, federal agencies are addressing emissions of GHGs by reductions mandated in federal laws and Executive Orders. Several states have promulgated laws as a means to reduce statewide levels of GHG emissions. In particular, the California Global Warming Solutions Act of 2006 directs the State of California to reduce statewide GHG emissions to 1990 levels by the year 2020.

Assembly Bill (AB) 32, California Global Warming Solutions Act of 2006, was signed into law on September 27, 2006. AB 32 requires CARB, in coordination with State agencies as well as members of the private and academic communities, to adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program. Under the provisions of the bill, by 2020, statewide greenhouse gas emissions would be limited to the equivalent emission levels in 1990. On December 12, 2008, CARB adopted its Climate Change Scoping Plan pursuant to AB 32 (CARB, 2008). The Scoping Plan was re-approved by CARB on August 24, 2011. The scoping plan indicates how these emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms and other actions.

The potential effects of proposed GHG emissions are by nature global, and have cumulative impacts. As individual sources, project GHG emissions are not large enough to have an appreciable

effect on climate change. Therefore, the impact of proposed GHG emissions on climate change is discussed in the context of cumulative impacts.

As a power utility, the majority of LADWP's GHG emissions results from power generation. Other GHG emissions are a result of vehicle and equipment use for construction and operation of LADWP facilities. To reduce Department-wide GHG emissions, LADWP has instituted various programs including: increasing the use of renewable energy by 33 percent by 2020, early divestiture of coal generation, repowering existing natural gas power plants, adopting an aggressive energy efficiency program, and use of electric fleet vehicles.

a) **Less than Significant Impact.** Electric power would be used for pumping for the duration of the 2-month test. Since the Owens Valley is an area with substantially renewable energy resources, pollutants including GHGs generated to power the project would be minor and less than significant.

b) **No Impact.** The project would result in discharge of 2.8 cfs to the Owens River for 2 months. This discharge would not interfere with hydropower generation along the Owens River and would therefore have no impact on greenhouse gas policies and regulations.

2.3.8 Hazards and Hazardous Materials

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 which 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?	☐	☐	☐	☒
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 the 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: Hazardous materials are not currently used or stored on the project site.

a) and b) **No Impact.** Operation of the pumping test would require the routine use of personnel vehicles for groundwater, surface water and vegetation monitoring. This use would be the same as existing conditions and would not pose a substantial risk of release of hazardous materials. Therefore, the project would have no impact on hazardous materials use, transport or storage.

Water discharged to Fish Slough from the project would be during the winter months and would increase the velocity of flows in the conveyance. Therefore, the project would have no impact related to the creation of standing water and increases in mosquito breeding habitat. There would be no project-related impacts on vectors.

c) **No Impact.** There are no schools within ¼ mile of W385R, and the project does require an increase in the use of fuels or other hazardous materials. Therefore, the project would have no impact on schools from hazardous materials use, transport or storage.

d) **No Impact.** Section 65962.5 of the California Government Code requires the California Environmental Protection Agency (CalEPA) to update a list of known hazardous materials sites, which is also called the "Cortese List." The sites on the Cortese List are designated by the State Water Resources Control Board, the Integrated Waste Management Board, and the Department of Toxic Substances Control.

Based on a search of hazardous waste and substances sites listed in the Department of Toxic Substances Control (DTSC) "EnviroStor" database; a search of leaking underground storage tank (LUST) sites listed in the State Water Resources Control Board (SWRCB) "GeoTracker" database; and a search of solid waste disposal sites identified by the SWRCB with waste constituents above hazardous waste levels outside the waste management unit, there were no sites listed on or adjacent to the project site. Therefore, the project would have no impact related to hazardous waste sites.

e) and f) **No Impact.** Seven public access airports and six private airstrips are located throughout Inyo County (Inyo County, 2001). The Bishop Airport is closest to the project site; it is located approximately 3 miles to the southeast. However, the project does not propose new tall structures and the project area is not located sufficiently near either a private airstrip or public airport to pose a safety risk. Therefore, there would be no project-related impacts on airport safety.

g) **No Impact.** Since no construction is required for the pumping test, and no roadway closures or modifications are proposed, the project would have no impact on emergency access and evacuation routes.

h) **No Impact.** W385R is an existing well. The project does not include construction of any new structures that could be subject to wildland fires. Therefore, there would be no project-related impacts related to wildland fires.

2.3.9 Hydrology and Water Quality

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☒	☐
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) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

The project is a 2-month aquifer test, pumping only from the deep zone of the modified former W385 production well to evaluate and describe the hydrologic characteristics of new well W385R. Data generated by the pumping test will be used to determine the efficacy of the 2014 well modifications, discern additional hydrologic characteristics of the subsurface, and to calibrate the Bishop/Laws groundwater flow model.

W385R is located in an area of shallow groundwater (generally less than 10 feet). Based on the work of Hollett (1991) and the well drillers report for wells W385 and W386, aquifer materials in which the well is constructed consist of very coarse, permeable sediments in a shallow zone which is approximately 100 feet thick, and deeper medium to coarse sand and gravel mixtures continuing on to a depth of over 500 feet. The shallow and deep materials are separated by finer materials containing silt and volcanic sediments which are approximately 200 feet thick.

Evaluation of the potential impacts from the proposed pumping test of W385R is based on the following information:

1. Pumping tests conducted from November of 1993 to January of 1994 when both W385 and adjacent well W386 were pumped for a period of 64 days. W386 is located approximately 560 feet south of W385 and had a screened interval nearly identical to that of W385.
2. Modifications to the screened interval of W385 conducted in 2014.
3. 24-hour pumping test of the W385R conducted in 2014.

Starting in November of 1993, a 64-day pumping test was conducted by pumping both W385 and W386 at a combined rate of 16.3 cfs. Because the original (unmodified) wells are in close proximity with each other (530 feet), and are essentially designed in the same manner, the results of this test are similar to that which would be expected when pumping one of the wells at a rate of 16.3 cfs. In 1993, W385 had a screened interval of 40 to 550 feet below ground level (fbgl), while W386 had a screened interval of 50 to 550 fbgl. Groundwater elevation change as a result of this pumping (termed "drawdown") was carefully measured in several observation wells (**Figure 6**) during the 1993/94 testing.

In an effort to reduce the drawdown resulting from pumping of W385, LADWP modified the design of this well in 2014 by sealing the upper portion of the screened interval to a depth of 323 feet. Thus, the former screened interval of 40 to 323 feet (or 283 feet of the upper screen) was sealed. Subsequent short-term testing indicated that the modification reduced the well's capacity from 10.1 cfs to 2.8 cfs, a reduction of 72 percent (LADWP, 2015a).

After W385 was modified, a 24-hour pumping test was conducted at a rate of 2.8 cfs while monitoring shallow monitoring wells in the vicinity of the well. During this short-term test, no drawdown was observed in shallow groundwater at monitoring wells T829, T826, T704, or T438 (LADWP, 2015a).

The current project involves pumping the new, modified well W385R at the reduced rate of 2.8 cfs for the same period of time (2 months), and at the same time of year (winter), as the previous pumping test on both W385 and W386 in 1993/94. The drawdown effects during the proposed test are expected to be much lower than the 1993/94 testing for two primary reasons:

1. The pumping rate will be reduced from 16.3 cfs, to 2.8 cfs. The proposed pumping rate is approximately one sixth of the pumping rate in 1993/94. So, even without any modifications to the screened interval, the drawdown would be only 1/6 of what was observed during 1992/93 pumping test.

2. Pumping from the new modified W385R will be from the deeper aquifer zone only, and will not involve pumping from the shallow aquifer.

Relative to the 1993/94 pumping test, drawdown in the shallow aquifer is expected to be substantially reduced since the proposed pumping will be from the deeper aquifer only. The sealing of W385 in the shallow zone conducted in 2014 and the semi-confining layers between the shallow aquifer and the deeper production zone will reduce drawdown. Even without a confining layer, drawdown would be reduced in the shallow zone when pumping from the deep zone (only) due to the substantially higher horizontal hydraulic conductivity (K_h) compared to the vertical hydraulic conductivity (K_v) typical of fluvial sediments. This concept is shown schematically in **Figure 6**.

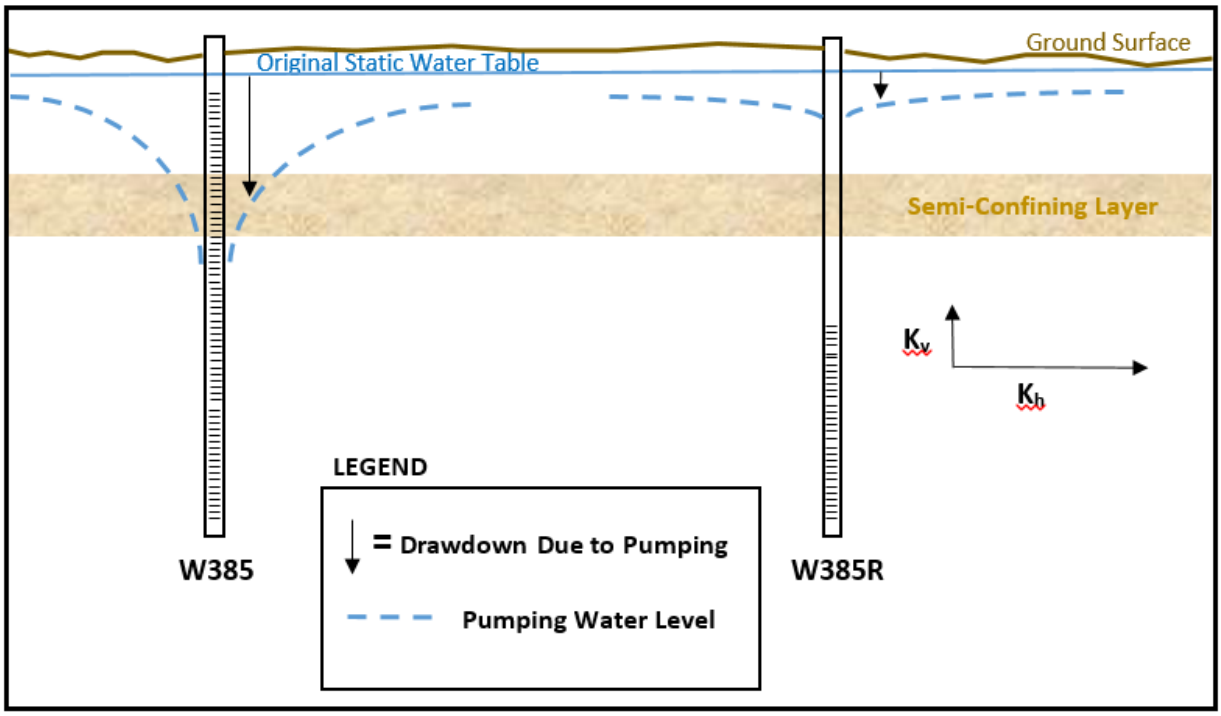


Figure 6. Reduction in Expected Drawdown in the Shallow Aquifer From Pumping W385R in 2017/18 in Comparison to Pumping W385 in 1993/94 Due to the Presence of Semi-Confining Layers and/or the Difference Between Horizontal and Vertical Hydraulic Conductivity

The expected drawdown as a result of a reduced pumping rate expected in the proposed testing in 2017/18 as compared with the 1993/94 testing is relatively easy to estimate. Fundamental aquifer test theory derived from the work of Theis (1935) indicates that drawdown observed as a result of transient pumping for a given time period is proportional to the pumping rate. Thus, the expected drawdown due to the proposed 2017/18 pumping test, even assuming no well modification and no change between shallower and deeper portion of the aquifer, is expected to be reduced by a factor of approximately 6 (16.3/2.8 is equal to 5.8) due to the reduced pumping rate. To confirm this assumption, computer modeling of the proposed pumping test using the updated Bishop MODFLOW groundwater model (2012) was conducted. The maximum measured drawdown from the end of the 1993/94 64-day pumping test and maximum simulated drawdown from the proposed

2017/18 pumping test are summarized in **Table 1**. For most observation wells, drawdown from the proposed 2017/18 pumping test is modeled to be less than one sixth of the drawdown observed in 1993/94. Groundwater levels are expected to largely recover to pre-testing conditions prior to the growing season (April 2018) based on previous testing results and predictive modeling.

Table 1
Observed Drawdown from Pumping W385/386 in 1993/94 Compared with Modeled Drawdown from Pumping W385R (proposed 2017/18 Pumping Test)

Observation Well	Depth Below Ground Surface	Distance From W385R	1993/94 Maximum Observed Drawdown at Combined W385/386 Pumping Rate of 16.3 cfs	2017/18 Estimated Drawdown at Pumping Rate of 2.8 cfs from Deeper Zones Only*
	(all units in feet)			
T704	32	570	16.47	1.41
T825	27	1,410	10.38	1.22
T826	17	1,880	7.89	1.09
T827	16	2,220	8.42	0.98**
T828	15	2,680	3.76	0.98**
T830	14	2920	5.20	0.91
T829	17	3090	4.35	0.80
T756	45	3560	6.36	0.76

* Simulated groundwater drawdown using the updated Bishop MODFLOW Model (2012), where the modified W385R screen spans over model layer 2 and 3 and the simulated pumping time is two (2) months.

** T827 and T828 are located in the same model cell, thus the same amount of drawdown is predicted.

The 2017/18 pumping test is proposed in order to evaluate aquifer parameters and document the effects of long-term pumping of W385R. Documenting the hydraulic parameters of the shallow zone (only), the deeper zone (only), and the intermediate partially confining layer of less permeable material will assist with quantifying drawdown from pumping W385R.

In 2015, LADWP worked cooperatively with the Inyo County Water Department to develop a testing plan for W385R which will provide the data necessary to evaluate the long-term effects of pumping W385R. The testing plan is attached to this document as **Appendix A** (LADWP, 2016). The plan includes provisions for early warning of potentially significant adverse hydrologic effects, or "triggers" which would cause the testing to cease.

The following triggers will apply during the pumping test:

1. A trigger level in monitoring well T830 will be set immediately preceding the pumping test at a value agreed upon by LADWP and ICWD technical staffs. This trigger will be based on a measurable deviation below the expected seasonal change in groundwater level at this well. For example, if groundwater level in T830 is 8 feet bgs before the test and the

normal winter decline is 1 foot, the trigger would be set at 10 feet bgs. For comparison, during the 1993/94 pumping test groundwater in T830 declined approximately 5 feet.

2. A trigger level in the private well located northwest of W385R will be set immediately preceding the pumping test at 10 feet below the pre-pump testing static water level. For example, if static groundwater level in this well is 15 feet bgs before the test, the trigger will be set at 25 feet bgs. Based on the well construction, pump depth, and dynamic drawdown caused by in-well pumping of the domestic well, a 10-foot drawdown trigger would be protective of well operability. For comparison, during the 1993/94 test the groundwater level in this well dropped approximately 12 feet without adversely affecting short-term well operability.

3. A trigger level at Fish Slough #2, the southern-most Fish Slough monitoring well (located southeast of BLM Springs), will be set using similar method as T830. This trigger will be set immediately preceding the pumping test at a value agreed upon by LADWP and ICWD technical staffs. This trigger will be based on a measurable deviation below the expected seasonal change in groundwater level. For example if water level in FS#2 is 4 feet bgs before the test and the normal winter trend is upward, the trigger can be set at 5 feet bgs. Data does not exist for other Fish Slough area wells from the 1993/94 time period.

In addition to hydrologic monitoring, LADWP will also monitor vegetation through photo point monitoring and two permanent vegetation-transects.

a) and f) **Less than Significant Impact.** Beneficial uses and water quality objectives are specified in the Water Quality Control Plan for the Lahontan Region (Basin Plan) prepared by the Lahontan Regional Water Quality Control Board (Regional Board, 2005). Relevant to the project site, beneficial uses designated for Fish Slough are municipal and domestic supply; agricultural supply; groundwater recharge; water contact recreation; noncontact water recreation; commercial and sportfishing; warm freshwater habitat; cold freshwater habitat; wildlife habitat; preservation of biological habitats of special significance; rare, threatened, or endangered species; and spawning, reproduction, and development. Waterbody-specific numeric objectives for the protection of beneficial uses are designated for certain water bodies in the Owens Hydrologic Unit, but not for Fish Slough.

Since the well is already in place, no construction is required for the pumping test. When the test is initiated, minor sediments may be initially present in the discharge water. If present, these sediments would increase the turbidity of the discharge water for a few minutes. The impact on water quality, if these sediments are present in the discharged water, would be temporary and less than significant.

b) **Less Than Significant Impact.** Groundwater pumping in the Owens Valley by LADWP is managed according to the 1991 *Agreement between the County of Inyo and the City of Los Angeles and Its Department of Water and Power on a Long Term Groundwater Management Plan for the Owens Valley* (Agreement). The goal of the Agreement is to manage water resources within Inyo County to avoid certain described decreases and changes in vegetation and to cause no significant effect on the environment which cannot

be acceptably mitigated while providing a reliable supply of water for export to Los Angeles and for use in Inyo County. In 1991, an Environmental Impact Report (1991 EIR) prepared pursuant to CEQA was certified for the Agreement (State Clearinghouse Number 89080705). W385 is one of the wells identified in the 1991 EIR as an existing well, with a pumping capacity of 10.1 cfs.

Key potential issues related to groundwater withdrawals for the pumping test at W385R are:

- Reductions in groundwater levels that restricted the use of existing private wells in the vicinity of W385R
- Reductions in groundwater levels in the shallow aquifer that would reduce soil moisture at the ground surface such that vegetation in the Five Bridges Mitigation Area was substantially impacted
- Reductions in groundwater levels at the Fish Slough area and the potential impact to habitat

Private Wells. The closest existing private well to W385R is 160-foot deep and located 3,400 feet northwest of W385R. The pumping rate of this well was not adversely affected by the 1993/94 testing of W385/W386 at 16.3 cfs. Since the proposed pumping test would be 2.8 cfs, or 1/6 of the 1993/94 pumping test rate, no impact on private wells is expected. However, monitoring associated with the pumping test will be conducted during the 2 months of the test. A trigger level has been set at 10 feet below the pre-pump testing static water level. If groundwater levels drop below this trigger, the pumping test will be suspended. With implementation of the monitoring program, impacts on groundwater level lowering that could impact private well water supply would be less than significant.

Impacts on Vegetation. An analysis of groundwater impacts from the proposed pumping test was conducting using the existing Bishop-Laws groundwater model (MWH, 2010). As noted in Table 1 above, the proposed 2-month, 2.8 cfs pumping test from the deep aquifer only would result in a modeled groundwater drawdown of 0.76 to 1.41 feet. The model predicts drawdown during the 2017/18 pumping test will be from 9 to 26 percent of the drawdown observed in 1993/94. Groundwater levels are expected to recover to pre-testing conditions prior to the growing season (April 2018) based on previous testing results and predictive modeling.

Since early 2000, LADWP has been diverting water from Diversion #2 of Bishop Creek Canal three times a year to promote vegetation recovery in the Five Bridges Area. Since this water diversion has shown a clear effect on groundwater levels in the Five Bridges Area south of the Owens River, water will not be released from Diversion #2 into the Five Bridges Area during the 2 months of the pumping test of W385R. Without the diversion, the effect of pumping W385R can be separated from the impact of surface water diversions on shallow groundwater elevation. However, water diversions to the area will still be conducted three times in 2018 to promote the vegetation recovery in the Five Bridges Area.

Vegetation monitoring in the vicinity of W385R will be conducted in compliance with the 2016 Five Bridges Mitigation Plan (LADWP, 2017). Monitoring includes: vegetation cover and species composition in parcel FSL125 (L4A) and FSL130-FSL054 (L4B) with point frame transects (**Figure 3**). Approximately 30 line point transects are also monitored within the mitigation area as part of the Green Book vegetation monitoring program (parcels FSL053, FSL125, FSL126, FSL124, and FSL054). Photopoints associated with these transects are used to qualitatively verify reported cover data. Additional photopoints include exclosures in the west meadow and points in the multiple completion meadow that document the post-fire response after wildfire in 2000. LADWP will continue to conduct annual photo point monitoring and measure cover with point frame at Laws 4A and Laws 4B during the peak of the growing season.

If groundwater pumping substantially lowers groundwater levels, it will have the potential to reduce surface soil moisture levels in the root zone, and therefore vegetation. However, for the W385R pumping test, a substantial drop in groundwater levels is not predicted, and therefore significant impacts to vegetation are not anticipated. With monitoring of groundwater levels and vegetation conditions during the 2-month pumping test, the impact on vegetation from groundwater withdrawals would be less than significant.

c) **Less than Significant Impact.** Discharge from the testing will be routed to the southern portion of the existing Fish Slough channel. A flow hydrograph for Fish Slough from 1930 to current is presented in the W385R Monitoring Plan (LADWP, 2016, Appendix A) and indicates that flows have ranged up to 13 cfs. With existing flows of approximately 4 cfs, the addition of 2.8 cfs during the 2-month pumping test can be accommodated by the Fish Slough channel. Therefore, the pumping test would temporarily increase the volume of flow in Fish Slough but would not alter the course of the channel or the drainage area, or substantially increase erosion or siltation in the channel. The impact on Fish Slough and the Owens River would be less than significant.

d) **Less Than Significant Impact.** The project does not involve an alteration of an existing drainage pattern of the site or area. A temporary increase in surface flow in Fish Slough is expected, but would not result in flooding on- or off-site because the flow would remain in the existing channel.

e) **No Impact.** Since the well is already in place, no construction is required prior to conducting the pumping test. Flows from the pumping test would be discharged to Fish Slough and stormwater flows in the project vicinity would be conveyed as under existing conditions. The pumping test would not require any chemical use and would not introduce any other stormwater pollutants. Therefore, the pumping test would have no impact on stormwater runoff or drainage.

g) h) and i) **No Impact.** The proposed pumping test does not including the placement of housing or structures that will impede flows within the flood plain, or create levees or dams. Flows from the pumping test will be routed to an existing channel with adequate capacity to carry the flows to the Owens River. No levees or dams are present at the project site and

no off-site levees or dams would be modified as part of the pumping test. The project would have no impact on housing or structures in a 100-year flood hazard area.

j) **No Impact.** Due to the distance to large surface water features from the well site, seiche and tsunami are not relevant for the proposed project. Mudflows are not known for the project area and the pumping test would not create conditions that would cause mudflows, nor include housing or structures that would be impacted by mudflows. Flows from the pumping test would be discharged to an existing channel, Fish Slough, with adequate capacity to carry the flows to the Owens River. The pumping test would have no impact on seiche, tsunami or mudflows.

2.3.10 Land Use and Planning

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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.** W385R is located on LADWP-owned land in an area zoned for open space (40 acre minimum) and with a General Plan designation of Natural Resources (Inyo County, GIS Data accessed 2017). The closest community is Bishop, located approximately 3 miles to the south. Structures near the well site are related to gravel mining operations. Since the pumping test would not require any construction activity, there would be no project-related impacts on established communities.

b) **No Impact.** Well 385R was installed in 1987 and modified in 2014. This water infrastructure is consistent with existing open space zoning and land use (grazing and natural resources) of the project site. The Conservation/Open Space Element of the Inyo County General Plan (2001) includes Policy REC-1.2 Recreational Opportunities on Federal, State, and LADWP Lands: Encourage the continued management of existing recreational areas and open space, and appropriate expansion of new recreational opportunities on federal, state, and LADWP lands. Since the pumping test would not require any construction activity, or modification of the project parcel, there would be no additional restrictions to public access to the parcel over existing conditions. The project would therefore have no impacts on land use planning.

c) **Less than Significant Impact.** Please see Section 2.3.4 Biological Resources, item f.

2.3.11 Mineral Resources

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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) and b) **No Impact.** The Five Bridges Aggregate Plant operated by Granite Construction is located adjacent to W385R. One of the original purposes of W385 and W386 was to dewater the gravel mining operation. Since operation of W385R during the pumping test would not adversely affect the mining operation, and since the project does not require any construction that would require the use of mineral resources, the project would have no impact on mineral resources.

2.3.12 Noise

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
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: Per the Public Safety Element of the Inyo County General Plan (2001), the normally acceptable noise level for residential properties ranges up to 60 Ldn and conditionally acceptable noise level ranges up to 70 Ldn. The term "Ldn" refers to the average sound exposure over a 24-hour period. Ldn values are calculated from hourly Leq values, with the Leq values for the nighttime period (10:00 p.m. to 7:00 a.m.) increased by 10 dB to reflect their greater disturbance potential.

a) b) c) and d) **Less Than Significant Impact.** The closest noise receptor to W385R is the Granite Construction gravel mining operation. Since no construction is required for the pumping test, no noise or groundborne vibration from construction equipment or vehicles would be generated. During the pumping test, the existing vertical turbine installed in W385R may potentially be audible at the ground surface; however, the noise level would be substantially below Inyo County thresholds and substantially less than existing mining operations. The impact of the project on noise would less than significant.

e) and f) **No Impact.** Seven public access airports and six private airstrips are located throughout Inyo County (Inyo County, 2001). The Bishop Airport is closest to the project site; it is located approximately 3 miles to the southeast. Therefore, the project would not be located sufficiently near either a private airstrip or public airport to expose people residing or working in the area to excessive noise levels. There would be no project-related impacts on noise near an airport/airstrip.

2.3.13 Population and Housing

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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) b), c) **No Impact.** No additional water delivery infrastructure is proposed that could potentially influence population growth. The project does not include demolition or construction of homes or businesses. Since no construction is required for the pumping test, no construction workers would require housing. The number of personnel required for monitoring groundwater, surface water and vegetation during the test would be the same as existing conditions. Therefore, the project would have no impact on population growth or housing.

2.3.14 Public Services

	Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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:				
	i) Fire protection?	☐	☐	☐	☒
	ii) Police protection?	☐	☐	☐	☒
	iii) Schools?	☐	☐	☐	☒
	iv) Parks?	☐	☐	☐	☒
	v) Other public facilities?	☐	☐	☐	☒

Discussion:

i) – v) **No Impact.** No additional water delivery infrastructure is proposed that could potentially influence population growth. Therefore, the project would not create the need for new or expanded public services. Since no construction is required for the pumping test, no construction workers would require public services. There are no fire stations, police stations or schools in the immediate vicinity of W385R. Therefore, the project would have no impacts on public services.

2.3.15 Recreation

	Issues and Supporting Information Sources	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 Five Bridges Mitigation Area is not currently accessible to the public; gates at both the western and eastern entrances are locked and are only accessible to LADWP personnel and the ranch lessee. Since no construction is required to implement the pumping test, the operation of the W385R for 2 months would have no impact on recreational use of the project vicinity.

b) **No Impact.** The project does not include the construction of recreational facilities or generate population growth that would require the construction or expansion of recreational facilities. Therefore, there would be no impact on recreational facilities.

2.3.16 Transportation and Traffic

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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) and b) **No Impact.** Since no construction is required for the pumping test, no construction equipment, delivery trucks or construction workers' vehicles would travel to the site. LADWP personnel would travel to the project area to conduct groundwater level measurements, surface water flow measurements and to collect vegetation monitoring data. Since these activities are on-going, the project would have no impact on the level of service of area roadways nor would the project conflict with any congestion management planning.

c) **No Impact.** The project site is located approximately 3 miles north of the Bishop Airport. The project does not include tall structures that would alter air traffic patterns. Therefore, the project would have no impact on air traffic safety.

d) and e) **No Impact.** Access to the project site is from Route 6 to Five Bridges Road from the south, Chalk Bluff Road from the west, or Casa Diablo or Fish Slough Road from the north. The major highway in the project area is U.S. 395. The W385R location is currently accessed

via exiting local roadways. No modifications to the roadways are required or planned. Therefore, the project would have no impact related to new roadways or roadway hazards.

f) **No Impact.** The project would not include housing, employment, or roadway improvements relevant to alternative transportation measures. Therefore, there would be no project-related impacts on alternative transportation.

2.3.17 Tribal Cultural Resources

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe	☐	☐	☐	☒

Discussion: Consultation with Native American organizations and individuals was conducted to satisfy the requirements of Assembly Bill (AB) 52. Consultation with the Native American Heritage Commission (NAHC) began on June 1, 2017 to request information about sacred or traditional cultural properties that may be located within the project site. A search of the Sacred Lands file housed at the NAHC, dated June 9, 2017, did not result in the identification of traditional cultural places within or surrounding the project area. The NAHC also provided a list of 10 local groups and individuals to contact for further information regarding their knowledge of cultural resources within and near the project site. On June 19, 2017, letters were mailed to these 10 groups and individuals, as well as 3 additional Native American contacts, to request information regarding local knowledge about cultural resources, traditional gathering areas, or sacred lands in or near the project site. As of September 2017, two responses have been received, and consultation has initiated with these groups.

a) i) and ii). **No Impact.** The proposed pumping test would not require any construction or ground disturbance. As under existing conditions, monitoring of groundwater levels, surface water and vegetation would be conducted. These monitoring activities would require driving on existing roadways and walking across vegetated areas, the same as is currently conducted. Therefore, since traditional cultural places are not identified for the project area, and since no site disturbance is proposed, the project would have no impact on CRHR-listed or eligible resources, or on resources significant to a California Native American tribe.

2.3.18 Utilities and Service Systems

Issues and Supporting Information Sources	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 stormwater 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?	☐	☐	☐	☒
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 statues and regulations related to solid waste?	☐	☐	☐	☒

Discussion:

a) thru g) **No Impact.** Water pumped from W385R during the pumping test will be discharged via Fish Slough to the Owens River. At Station 3207, the capacity of Fish Slough is over 12 cfs. Since the flow rate in November would be approximately 4 cfs, the conveyance has sufficient capacity to accommodate the 2.8 cfs associated with the pumping test. LADWP currently pumps groundwater for use in the Owens Valley and for delivery to Los Angeles. There are no water quality issues related to the discharge associated with the pumping test.

No additional water delivery infrastructure is proposed and the pumping test will not influence population growth. Since no construction is required for the pumping test, no construction workers would require utilities or service systems. Similarly, since there is no construction required, no construction debris or other materials would require landfill disposal. The project would have no impact on utilities or service systems.

2.3.19 Mandatory Findings of Significance

	Issues and Supporting Information Sources	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 the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	☐	☐	☐	☒
c)	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, effects of other current projects, and the effects of probable future projects.)?	☐	☐	☒	☐
d)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion:

a) **Less Than Significant Impact.** No construction is required for the pumping test of W385R. Therefore, temporary impacts related to construction on biological and cultural resources would not occur. Pumping of W385R for two months in the winter is not predicted to adversely affect groundwater-dependent vegetation. Discharge of an additional 2.8 cfs to the Owens River via Fish Slough would provide additional flows for the associated wetlands and riparian habitats. The impact on biological resources would be less than significant.

b) **No Impact**. The goal of the project is to collect data on groundwater levels during withdrawals of water from the deep aquifer from W385R. The data collected will aid in impact assessment for future operation of W385R, and provide data for update of the existing groundwater model. The data would be used for the long-term benefit of managing water resources in the Owens Valley. There are no short-term goals related to the project that would be disadvantageous to this long-term goal.

c) **Less Than Significant Impact.** Groundwater withdrawals from W385R would be cumulative with other on-going LADWP groundwater pumping, and the groundwater pumping of others. The proposed data collection project would be limited to 2 months in the winter. The testing program is not predicted to adversely affect shallow groundwater levels or groundwater-dependent vegetation. The information gathered would be used to update the Bishop/Laws groundwater model and to assess cumulative groundwater impacts with other groundwater withdrawals. The cumulative impact of the 2-month test would be less than significant.

d) **No Impact.** The goal of the project is collect data on groundwater levels during withdrawals of water from the deep aquifer from W385R. Data collected would contribute to the long-term management of water resources in the Owens Valley – a beneficial impact on human beings. Since construction is not required for the pumping test, temporary construction-related impacts on humans would not occur.

Section 3
References, Abbreviations and Report Preparation

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3.2 ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
bgs	below ground surface
BLM	(United States) Bureau of Land Management
BNHM	Berkeley Natural History Museum
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CNDDB	California Natural Diversity Database
CRHR	California Register of Historic Resources
DTSC	Department of Toxic Substances Control
DWR	(California) Department of Water Resources
EIR	Environmental Impact Report
EPA	(United States) Environmental Protection Agency
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
fbgl	Feet below ground level
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
GBUAPCD	Great Basin Unified Air Pollution Control District
GHG	greenhouse gas
GLO	(United States) General Land Office
HCP	Habitat Conservation Plan
ICWD	Inyo County Water Department
IS	Initial Study
K_h	Hydraulic conductivity horizontal
K_v	Hydraulic conductivity vertical
LAA	Los Angeles Aqueduct
LADWP	(City of) Los Angeles Department of Water and Power

NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
ND	Negative Declaration
NR	Natural Resources
NRHP	National Register of Historic Places
OVLMP	Owens Valley Land Management Plan
PM	particulate matter
PM_{10}	particulate matter 10 microns or less in diameter
SIP	State Implementation Plan
SWRCB	State Water Resources Control Board
UCMP	University of California, Museum of Paleontology
USGS	United States Geological Survey

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Appendix A
Pumping Test of W385R in the Laws Wellfield
Monitoring Plan (December 2016)

Pumping Test of W385R in the Laws Wellfield

Monitoring Plan (December 2016)

Purpose:

The purpose of this document is to describe a monitoring plan for a pumping test of the modified production well W385R in the Laws Wellfield (Figure 1). Well W385R is the new designation of the existing well W385 that was modified and now has different hydraulic characteristics and significantly lower pumping capacity than its original design. The modification to Well W385 sealed the screened portion of the wells within the shallow aquifer (50-323 feet) to minimize potential impacts on the groundwater dependent vegetation. The hypothesis underlying this test is that by sealing the upper part of the well screen, pumping effects on the shallow aquifer and groundwater dependent resources will be reduced or eliminated. A sixty-day test was conducted on wells W385 and W386 in 1993-1994, and the test proposed here will provide data to compare with the prior test so that the effect of the modifications made to the well can be evaluated.

Because of the concerns expressed regarding potential impacts on nearby resources, LADWP is now treating modified well W385R and nearby W386R as new wells. LADWP is planning to conduct a two-month pumping test to collect necessary data for evaluating potential impacts of operating this well on nearby resources. The goal of this monitoring program is to assist in determining any potential long-term effects of pumping this well on nearby resources.

Setting:

A brief overview of the hydrogeology of the W385R/Five Bridges project area follows. The W385R/Five Bridges project area is located in the northern portion of the Owens Valley in the immediate vicinity of the confluence of the Owens River and Fish Slough.

In general, ground and surface water, originating from the Sierra, flows northeast from the Bishop Creek alluvial fan to the Owens River. Additional surface and groundwater flow enters the project area from the west along the Owen River. The Volcanic Tablelands and Fish Slough are located north of the project area and provide surface flow, and potentially groundwater flow, to the Five Bridges area. There are a series of north-south striking faults running north from Bishop through the project area into the Volcanic Tablelands. In other locations in the Owens Valley, faults generally interrupt groundwater flow across (perpendicular to) the axis of their strike while preferentially allowing flow along (parallel to) their strike. The north-south striking Fish Slough fault lies in the immediate vicinity of the project area.

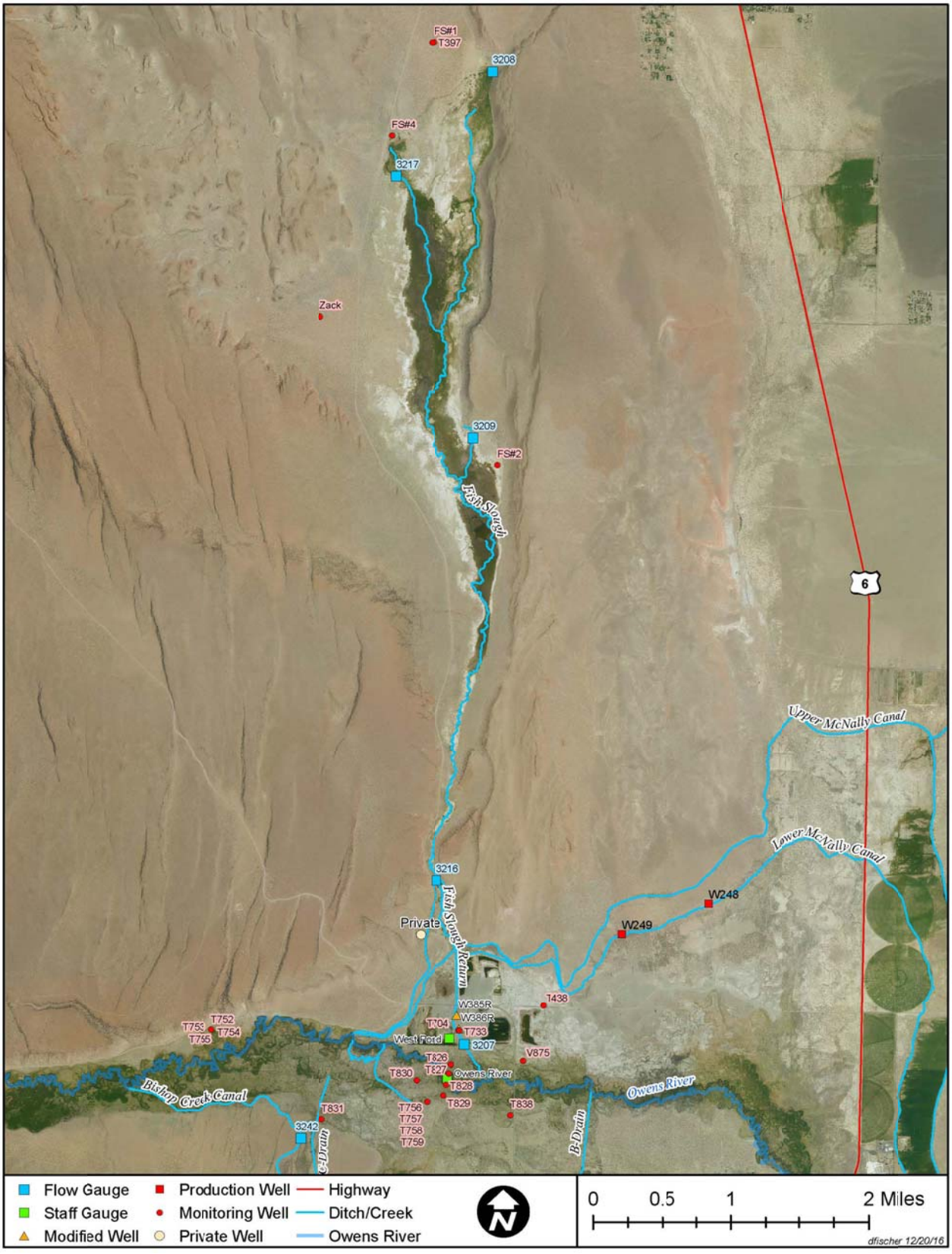

Figure 1 – Map of Monitoring Locations near Production Wells W385R

Flows in the Owens River are related to seasonal runoff and are largely controlled by LADWP operations. Surface and groundwater flow exits the project area to the east or southeast. Additional factors affecting groundwater levels include water diverted from the Bishop Creek Canal (west to south of the project) for irrigation, pumping on the Bishop Cone (notably LADWP production well W410 located approximately 1.5 mile south of the project area), evapotranspiration which peaks spring through fall, and precipitation which falls primarily fall through spring. Groundwater levels in the vicinity of the project are generally shallow (less than 15 feet below ground surface).

The subsurface layers in the vicinity of W385R, from shallow to deep, consist generally of poorly to moderately consolidated alluvial and fluvial sand and gravel deposits related to the Owens River flood plain; the buried Bishop Tuff related to the formation of the Volcanic Tablelands; and sands, silts and clays related to older fluvial and lacustrine deposits. The Bishop tuff and or clay layers at depth related to older lacustrine deposits can create confining or semi-confining layers which separate the recent alluvial and fluvial deposits ("shallow aquifer") from the older buried sediments ("deep aquifer").

Wetland and phreatophytic vegetation exists in the Owens River flood plain in the project area as does irrigated pasture. The Fish Slough ecosystem to the north is an Area of Critical Environmental Concern. It is hypothesized that groundwater from beneath the Volcanic Tablelands and Tri Valley region discharges at Fish Slough and sustains this groundwater-dependent ecosystem.

A three-dimensional finite-difference MODFLOW groundwater model was developed by MWH Americas Consulting Co in 2006 for the Bishop-Laws area, including the W385R area. This model was updated and calibrated with transient data in 2011. Data collected from this two-month operational test on W385R can be used to updated and recalibrate the Bishop/Laws groundwater flow model before using it to simulate long-term operation of this well.

Extensive USGS studies, DWR and University of California research, and LADWP data collection exists in the project area and can be found on the Inyo County Water Department's website www.inyowater.org or on LADWP's www.ladwp.com webpage.

Background:

Wells W385 and W386 were drilled in March 1987 and screened from approximately 50 to 550 feet. Their purpose was to supply or provide make-up water for enhancement/mitigation projects in Owens Valley and to dewater nearby gravel deposits to facilitate gravel mining. As originally designed, these wells were screened in both shallow and deep aquifers. Pumping from wells W385 and W386 occurred between 1987 and 1989, groundwater levels in the surrounding shallow aquifer were lowered, and as a result, approximately 300 acres of groundwater-dependent

vegetation south of the Owens River, known as the Five Bridges Area, was impacted partially by operation of these wells. Therefore, LADWP stopped operating these wells.

Following signing of the Inyo County/ Los Angeles Water Agreement and in order to more accurately quantify the potential impacts of W385 and W386, in 1993 a series of shallow monitoring wells were installed in the Five Bridges area. Then, LADWP and Inyo County Water Department conducted a two-month pumping test of W385 and W386 from November 1993 to January 1994. Both wells were pumped simultaneously with a combined pumping rate of 16.5 cfs. Water levels were monitored in monitoring wells located on the north and south sides of Owens River. As shown in Figure 2, pumping W385 and W386 affected groundwater levels in all monitoring wells on either side of Owens River. The two wells, therefore, remained off with data collection continuing at the shallow monitoring wells to date.

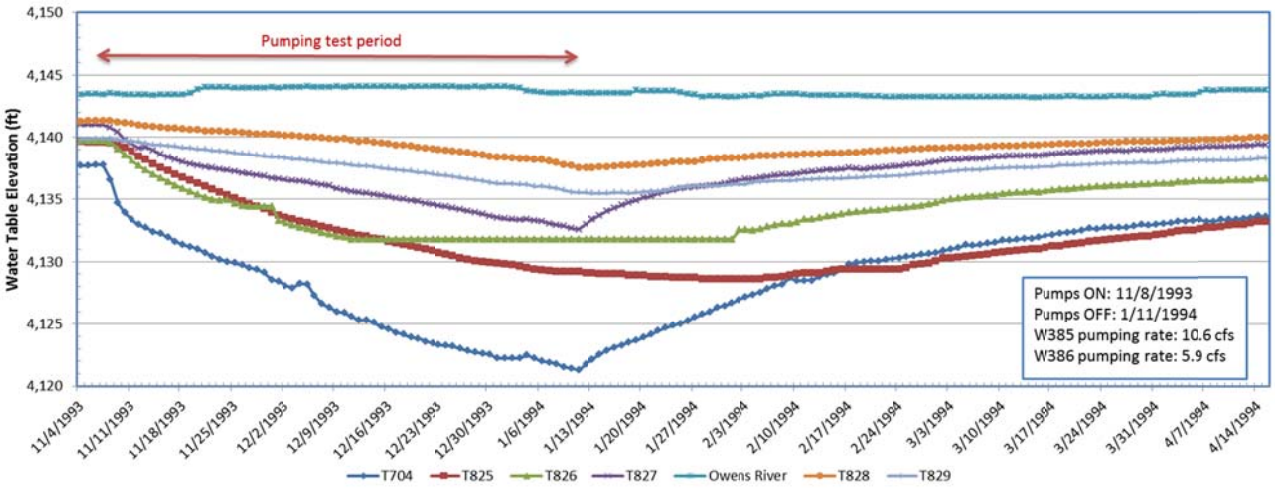

Figure 2. Result of Pumping Test of W385 and W386 in 1993-94 (Locations are shown in Figure 1)

LADWP modified W385 and W386 in 2013 (see Appendix A, *Owens Valley Well Modification Project*, January 2015) by pumping cement grout into the upper screened sections and sealing both wells to depths greater than 300 feet. After sealing the shallow portion of the screen, a 24-hour pumping test was conducted at each of these wells. This resulted in a substantial reduction in the pumping capacity of these wells (from 10.1 cfs to 2.8 cfs in W385 and from 6.2 cfs to 2.8 cfs in W386). Hydrographs of water levels in monitoring wells showing response to 24-hour pumping tests are presented in Figure 3. Groundwater monitoring during the 24-hour pumping tests did not show any effect of pumping on the groundwater levels in the shallow aquifer, either north or south of Owens River. Therefore, LADWP started the process of activating well W385R .

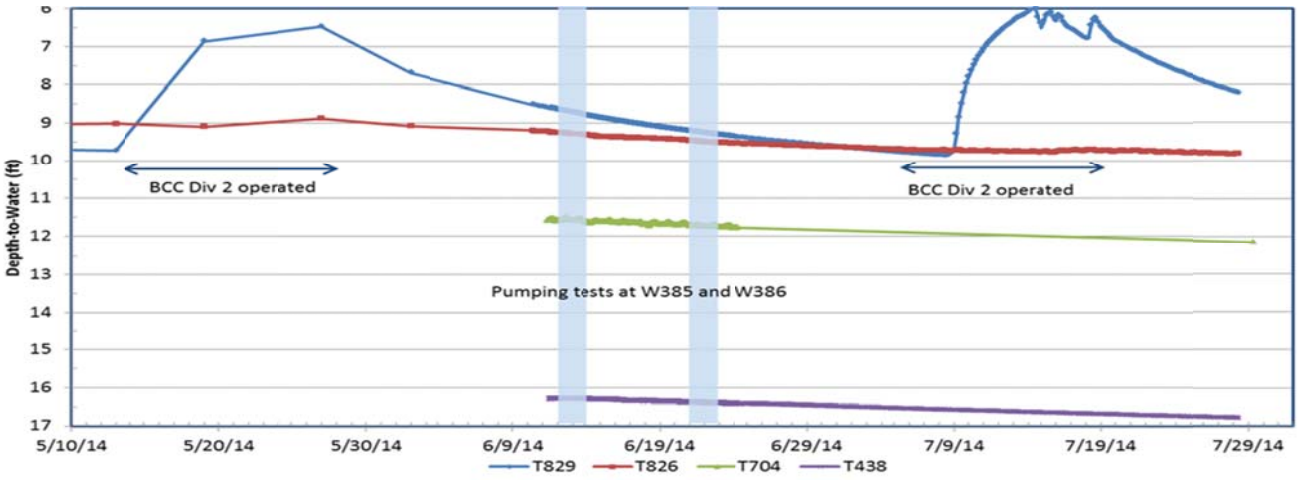

Figure 3 – 24-hour Aquifer Pumping Test of Wells W385R and W386R in 2014
(Locations are shown in Figure 1)

Following expressed concerns by the community regarding potential effects of pumping the modified wells, LADWP decided to treat these modified wells as new wells and to follow the process of activating new wells as outlined in the Water Agreement. While the new wells are located at the same locations as W385 and W386, characteristics of these wells have significantly changed because:

- Original wells W385 and W386 pumped from both shallow and deep aquifers while the modified wells W385R and W386R pumps water that is drawn only from the deep portion of the aquifer.
- The pumping capacity of the modified well W385R is only 2.8 cfs, compared with combined pumping capacity of the original wells W385 and W386 of 16.5 (an 83% reduction of the overall pumping capacity)
- Wells W385 and W386 were pumped simultaneously in 1980s while W385R and W386R would pump simultaneously if evaluation and modeling shows that combined pumping would not have significant impacts on nearby groundwater-dependent resources.

To evaluate potential impacts of operating W385R, LADWP is planning to conduct a two-month pumping test and to monitor groundwater levels in select nearby monitoring wells and surface water features both north and south of W385R. This pumping test will be similar to the two-month pumping test that was conducted on W385 and W386 in 1993-94, only with a significantly reduced pumping capacity and possible isolation of the pumped zone from the shallow zone by confining layers. Comparison of groundwater level hydrographs from the two tests should provide a good indication of the expected effect of operating W385R on groundwater levels and consequently the nearby resources. Data from this pumping test will also be used to recalibrate the Bishop/Laws groundwater flow model before using it to simulate long-term operation of this well.

This monitoring plan includes mainly hydrologic monitoring but will also include monitoring vegetation through photo point monitoring and existing permanent vegetation transects.

Hydrologic Monitoring

The proposed two-month pumping test of W385R is planned for winter to be most comparable with the 1993/4 test conducted from November to January. Also during the winter months, other hydrologic variables such as irrigation to Five Bridges, significant changes in stage to the Owens River, and/or seasonal changes related to evapotranspiration, are less of a factor.

The main tool in determining potential effects of pumping W385R will be through hydrologic monitoring including both surface and groundwater north and south of the Owens River. Table 1 shows a list of wells that have historically been and currently are being monitored. These wells are a combination of shallow test wells (less than 40 feet deep) and deeper wells screened in the deeper aquifer. These wells will continue to be monitored both during and after the two-month test with increased frequency. Figure 1 shows the location of the monitoring wells.

All LADWP wells will be monitored by LADWP. The Inyo County Water Department (ICWD) can spot check the water levels in these wells. Majorities of the LADWP monitoring wells listed in Table 1 have been equipped with pressure transducers to record groundwater levels every 6 hours; all wells will have manual depth-to-water reads measured as per the schedule that follows. Background data is being collected and data collected during the pumping test will be downloaded on day 3, 7, 14, 21, 28, 42, and 60 after the start of pumping. After quality assurance and quality control on this data has been completed, they will be transmitted to ICWD. The ICWD has contacted the owner of the private well located northwest of well W385R, is currently monitoring groundwater level in this private well, and will continue to collect groundwater data during and after the pumping test. In addition, ICWD is currently monitoring four BLM monitoring wells in the Fish Slough area (Fish Slough #1, 2, 4 and Zack Well). ICWD will share data collected from these wells with LADWP.

Table 1. Monitoring wells to be monitored during the two-month pumping test of W385R (Locations are shown in Figure 1)

Monitoring Well	Depth (ft)	Distance from W385 (ft)	Direction from W385	Location relative to Owens River
T438	37	3,330	NE	N. of River
T704	32	570	S	N. of River
T733	674	585	S	N. of River
T752	680	9,422	W	N. of River
T753	100	9,422	W	N. of River
T754	210	9,422	W	N. of River
T755	490	9,422	W	N. of River
T756	45	3,560	SW	S. of River
T757	310	3,560	SW	S. of River
T758	575	3,560	SW	S. of River
T759	210	3,560	SW	S. of River
T826	17	1,880	S	N. of River
T827	16	2,220	S	N. of River
T828	15	2,680	S	S. of River
T829	17	3,090	S	S. of River
T830	14	2,920	SW	S. of River
T831	10	6,490	SW	S. of River
T838	37	4,310	SE	S. of River
V875	21	3,080	SE	N. of River
W248	602	10,592	NE	N. of River
W386R	560	530	S	N. of River
Private Well	160	3,400	N	N. of River
FS#1	61	7.1 miles	N	N. of River
FS#2	46	4.0 miles	N	N. of River
FS#4	8	6.4 miles	N	N. of River
Zack	257	5.2 miles	N	N. of River
T397	180	7.1 miles	N	N. of River

Besides groundwater level monitoring, it is also desirable to monitor surface water features near W385R. This is to measure and separate the effect of changes in the stage of surface water features from the effect of groundwater pumping on groundwater levels in the shallow aquifer. Table 2 list all surface water features that will be monitored as part of data gathering for the two-month pumping test. Discharge in the Owens River is controlled by releases from Pleasant Valley Reservoir, five miles to the west, and releases during the winter are typically in the 200-300 cfs range. Any decreases in the river flow due to capture by the pumping well would be too small to measure. LADWP personnel has installed a staff gauge along a transect connecting T827 and T828 to monitor water level in the Owens River. Water level in the pond located west of W385R will also be monitored using a staff gauge installed in the pond. Both staff gauges will be read daily during weekdays and will be included in the monitoring data provided to ICWD.

Table 2. Surface water monitoring during the two-month pumping test
(Locations are shown in Figure 1)

Station	Name	Notes
3208	FISH SLOUGH SPRINGS BELOW POND #1	Northern most station at Fish Slough
3209	FISH SLOUGH SPRINGS AT B.L.M. SPRING	Fish Slough near FS#2
3216	FISH SLOUGH AT L.A. STATION #2	Fish Slough at Upper McNally Canal
3217	Fish Slough Spring below Ponds 2 and 3	Fish Slough Spring south of T397
3207	FISH SLOUGH AT OWENS RIVER	Fish Slough at Owens River
3242	BISHOP CK CANAL DIV. TO 5 BRIDGES #2	Diversion No.2 off Bishop Creek
	Owens River Staff Gauge	North shore of Owens River
3343	West Pont Staff Gauge	pond west of W385R

Since early 2000, LADWP has been diverting water from Diversion #2 of Bishop Creek Canal three times a year to promote vegetation recovery in the Five Bridges Area. Operation of this diversion has shown to affect groundwater level in the Five Bridges Area south of the Owens River (see T829 data in Figure 2). Therefore, LADWP will not release water from Diversion #2 into the Five Bridges Area during the pumping test of W385R. This should help separate the effect of pumping from that of surface water operation on shallow groundwater elevation.

Fish Slough to the north of well W385R is another surface water feature in the vicinity of these wells. Given the concerns expressed regarding the potential effect of pumping from well W385R, A number of features in the Fish Slough area will be monitored before, during, and after the completion of the 2-month pumping test. These monitoring locations are shown in Figure 1 and tables 1 and 2. Figure 4 shows flow measurements in the four existing flumes in Fish Slough area. All these flow measurements show some seasonal effect and long-term declining flow, which could be the effect of the increased groundwater pumping in Tri-Valley area located northeast of Fish Slough. LADWP will also continue to monitor the Fish Slough Springs at BLM Springs weir (ID: 3209), Fish Slough Springs below Ponds #2 and #3 (ID: 3217), and the Fish Slough Springs below Pond #1 at flume (ID: 3208).

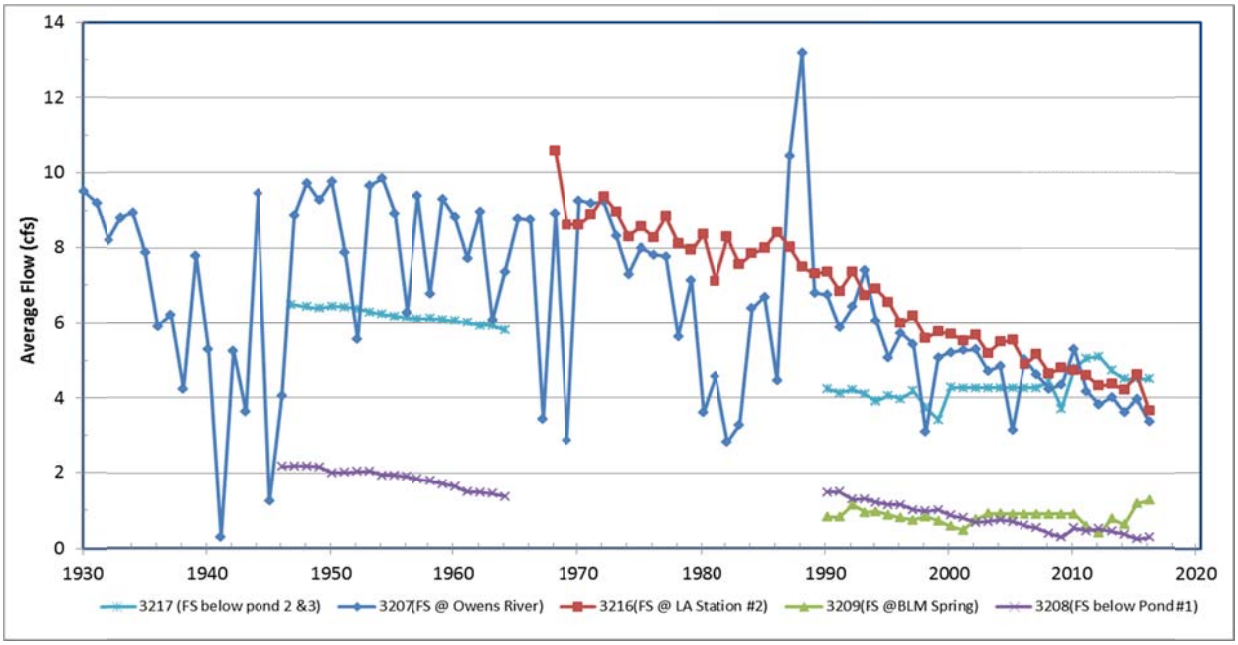

Figure 4. Hydrograph of flow monitoring in Fish Slough Areas. (Locations shown in Figure 1)

Operation of McNally canals affects groundwater levels in the vicinity of the canals. Therefore, LADWP will not operate McNally canals during the two-month pumping test of W385R to determine its potential effect on groundwater levels in the shallow aquifer, especially north of Owens River. Groundwater produced from W385R will be conveyed through the existing Fish Slough channel to the Owens River and should not affect nearby shallow groundwater levels.

Surface water flow measurements will be made either in average daily flow (cubic feet per second) or total daily volume (acre-feet) released.

After the two-month pumping test is completed, results will be tabulated and compared to the 1993/94 test. Flow and groundwater monitoring will continue on their pre-test schedules. If pumping test results and groundwater modeling indicate that W385R will not have a negative

effect on nearby groundwater levels, additional testing or operations may be considered by the Technical Group.

Trigger levels

In order to avoid any potential negative effects of pumping W385R on groundwater dependent vegetation and /or nearby domestic wells, for the duration of the pumping test, the following management steps will be implemented:

1. A trigger level in monitoring well T830 will be set immediately preceding the pumping test at a value agreed upon by LADWP and ICWD technical staffs. This trigger will be based on a measurable deviation below the expected seasonal change in groundwater level at this well. For example, if groundwater level in T830 is 8 feet below ground surface (bgs) before the test and the normal winter decline is 1 foot, the trigger would be set at 10 feet bgs. For comparison, during the 1993/94 pumping test groundwater in T830 declined approximately 5 feet.
2. A trigger level in the private well located northwest of W385R will be set immediately preceding the pumping test at 10 feet below the pre-pump testing static water level. For example, if static groundwater level in this well is 15 feet bgs before the test, the trigger will be set at 25 feet bgs. Based on the well construction, pump depth, and dynamic drawdown caused by in-well pumping of the domestic well, a 10 foot drawdown trigger would be protective of well operability. For comparison, during the 1993-94 test the groundwater level in this well dropped approximately 12 feet without adversely affecting short-term well operability.
3. A trigger level at Fish Slough #2, the southern-most Fish Slough monitoring well (located southeast of BLM Springs), will be set using similar method as T830. This trigger will be set immediately preceding the pumping test at a value agreed upon by LADWP and ICWD technical staffs. This trigger will be based on a measurable deviation below the expected seasonal change in groundwater level. For example if water level in FS#2 is 4 feet bgs before the test and the normal winter trend is upward, the trigger can be set at 5 feet bgs. Data does not exist for other Fish Slough area wells from the 1993-94 time period.

Utilizing the trigger levels for the management of pumping W385R as stated above in items 1-3 will be limited only to the two month pumping test period. This work plan is neither an endorsement nor a limitation on the use of trigger levels for future testing and management of pumping from W385R.

Vegetation Monitoring

While hydrologic monitoring will be the primary mechanism for detecting potential change associated with pumping test of W385R, LADWP will also monitor vegetation through photo point monitoring and two permanent vegetation-transects linked to monitoring site Laws 4.

Photo point locations were previously established following the initial vegetation impacts to the Five Bridges Area and new photos are captured annually at the peak of the growing season as part of LADWP's mitigation monitoring. These photo point locations are Control, Overview, West Meadow, Exclosure, Multiple Completion Meadow, and Burn, and are shown in Figure 4 relative to the location of W385R and W386R. There is a considerable photo dataset showing a range of conditions over the past 18 years at these locations, as some of these points were established as early as 1988.

For the purposes of tracking potential vegetation impacts in response to the pumping test of W385R, LADWP will conduct photo point monitoring at 4 of the 6 Five Bridges Photo Points monthly during the growing season (April –September). These 4 locations are Overview, West Meadow, Multiple Completion, and Burn; it is unnecessary to conduct the monthly monitoring at the Control and Exclosure sites and these points will continue to be monitored at the peak of the growing season as in past years. Although there are significant photo records at each of these sites for many years, current conditions were documented in April 2016 as Baseline Conditions prior to operating well W385R. These photos are provided in Appendix B. LADWP will conduct the monthly photo point monitoring for the duration of initial testing period per Section VI of the Water Agreement.

The two permanent vegetation transects associated with Laws 4 are monitored annually to track species composition and percent cover in the mitigation area. L4A and L4B are both located in alkali meadows; Transect L4A in the Multiple Completion Meadow, L4B in the West Meadow. At Transect L4A in 2014, live perennial cover was 8.7% composed of 5 native species. Perennial cover at Transect L4B in 2014 was 34.1% composed of 6 native species. Vegetation cover has declined at both of these sites in recent years due to successive dry years, pepperweed invasion and subsequent weed treatment, all occurring prior to this initial operation of W385R. However, this data is collected annually and will serve as an additional mechanism to track the effects of the well operation on vegetation if such an impact can be isolated from other influences. If there appears to be a significant decline in vegetation in response to well activity, provisions outlined in the Green Book will be followed.

Figure 5 – Photo Point and Vegetation Monitoring Sites for Pumping test of Well W385R