Application

for a

Conditional Use Permit

for the

Olancha Water Development Project

Inyo County, California

December 1998

Submitted to:

Mr. Peter Chamberlin
Planning Director
Inyo County Planning Department
P.O. Drawer L
168 North Edwards
Independence, CA 93526

Prepared for:

Western Water Company
15028 7th Street, Suite 9
Victorville, CA 92392

Prepared by:

MHA Environmental Consulting, Inc.
520 South El Camino Real, Suite 800
San Mateo, California 94402

1: PROJECT DESCRIPTION

Project Overview

PROPOSED PROJECT

Western Water Company is proposing to construct and operate the Olancha Water Development Project in southern Inyo County, California. The proposed project includes:

1. Drilling and operating six to eight agricultural water supply wells
2. Constructing and operating approximately 34,500 feet of water-supply pipeline
3. Establishing a connection to the Los Angeles Aqueduct at Haiwee Reservoir in southern Inyo County
4. Supplying 6,000 to 8,000 acre-feet of water per year to the City of Los Angeles, Department of Water and Power (LADWP)

The proposed project would be constructed in two phases: Phase I includes the construction of six to eight wells and an associated pipeline to deliver groundwater to a connection with the Los Angeles Aqueduct to the south; Phase II involves the potential construction of a pipeline segment from the northernmost well to the northwest of the project lands to deliver water to the Los Angeles Department of Water and Power for irrigation of Owens Lake for dust control purposes. If LADWP chooses to apply water at Owens Lake in the future, the LADWP project would then be subject to future review. The proposed Phase II pipeline to Highway 190 is only included in the Olancha Water Development Project to address a potential future need as determined by LADWP.

The project may change based on comment and evaluation to be provided by the Inyo County Water Department and through the California Environmental Quality Act (CEQA) environmental review process.

The proposed project is designed to be a sustainable water transfer project. Lands purchased for the project will be used only to site groundwater wells and to lay pipeline; otherwise, the land will remain in existing uses. All dwellings and structures will remain intact and will be leased. Existing

land uses will be continued. Therefore, the project involves only the acreage needed for the wells and pipeline. The remaining land will not be altered by the project.

Project Goals

The proposed project is designed to minimize impacts to local groundwater wells, springs, seeps, and vegetation. A detailed impact monitoring and mitigation plan is included as part of the proposed project to ensure impacts do not exceed those estimated from groundwater modeling. Design, construction, and operation of the project would be consistent with the *Green Book for the Long Term Groundwater Management Plan for the Owens Valley and Inyo County*, and with the Inyo County Groundwater Ordinance.

The purpose of the proposed Olancha Water Development Project is to utilize unused groundwater from the region that is presently evaporated in the Owens Dry Lake playa. The general goal of the proposed project is to develop a water supply for transfer to the LADWP while maintaining and improving the environment and the economy of Inyo County. Specific goals of the project include:

1. Develop a water supply while protecting existing water uses in the project region
2. Protect the existing environment of the project area
3. Enhance the overall economy of Inyo County
4. Create local construction jobs
5. Create local operation and maintenance jobs

The water from the project would be supplied to the LADWP as an additional water supply for residential, municipal, industrial, commercial, and environmental use. The purpose of the project is also to provide additional water to the LADWP system to partially replace water that will be used in re-watering 60 miles of the Lower Owens River, rewatering of Owens Lake for dust mitigation, and other reductions in the LADWP water supply.

Location

The proposed project would be located in the southern portion of Inyo County, California, south of Owens Lake and Highway 190, and east of U.S. Highway 395 (U.S. 395) see Figure 4-1. The project facilities would be located on lands in Township 19 South, Range 37 East (see Figure 4-2 for property ownership in the area, with the pipeline connection to the Los Angeles Aqueduct located in Township 20 South, Range 37 East (see Figure 4-3 in Section 4 of this Conditional Use Permit Application).

Access to the project lands is via U.S. Highway 395 and various existing roads.

Detailed Project Description

PROJECT PROPERTY

The proposed project wells and pipeline would be located on lands purchased by Western Water. Western Water will purchase four properties, with accompanying water rights, in southern Inyo County:

1. Butterworth / Boy Scout Ranch,

2. Hampton/Brandsma property,
3. Van Skyock property, and
4. Stine property

These properties, totaling nine different parcels, are listed in detail in Table 5-1, and are graphically represented in Figure 4-2 (in Section 4 of this Conditional Use Permit Application). These lands total 1,832 acres.

Western Water proposes to drill six to eight wells on these properties for the proposed project. A pipeline connecting these wells to the Los Angeles Aqueduct would be built. The pipeline would be placed underground, so that existing agricultural or other uses of these properties would continue. The connection to the aqueduct would be on LADWP lands.

Agreements have been negotiated with the owners of three other properties– the LADWP property to the south of the project lands, the Hunter Ranch, and the Mead property, also described in Table 5-1 and Figure 4-2– allow the pipeline to cross these lands. While these agreements have not been finalized, these properties are presently part of the project. In addition, the pipeline would connect to the Los Angeles Aqueduct on LADWP property to the south. The Hunter and Mead properties total 220 acres. The LADWP property includes 180 acres.

GROUNDWATER WELLS

Groundwater Pumping Facilities

The proposed project will involve the construction and operation of six to eight new groundwater wells, depending on the capacity of each well. The project may also use existing agricultural water wells to re-establish crops and ground cover for dust control if necessary.

Nominally, well yields of 1,000 gallons per minute (gpm) with a specific capacity greater than 20 gpm/foot are expected. The exact location of the wells will depend on the radius of influence of each well. Hydrological studies are being refined. Preliminary data indicate that the radius of influence is expected to vary between 1,000 and 2,000 feet. Well locations are shown on Figure 4-3.

Preliminary groundwater aquifer and existing well information can be found in Section 3 of this CUP application. Figure 4-5 also shows many of the existing wells in the project area. Efforts are ongoing to locate all wells.

Table 1-1: Parcel Designations and Property Descriptions

Property Name	Parcel	Assessor's Parcel #/ Address	Description	Acreage (appr.)	Zoning	General Plan
Butterworth / Boy Scout Ranch	Parcel A Parcel B	033-110-12A 800 Cactus Flat Rd Olancha, CA 033-110-19 Various Cactus Flat Road addresses[a]	* SE1/4 of the NE1/4 and the SW1/4 of the NE1/4 of Sec 33, T19S, R37E, MDBM, Inyo County, CA * NE1/4 of the SW1/4 and the W1/2 of the SE1/4 of Sec 28; and the NW1/4 of the NE1/4 of Sec 33, all in T19S, R37E, MDB&M, Inyo County, CA	160 80	OS-40	Park / Recreational / Natural Resources
Hampton / Brandsma	Parcel C Parcel D Parcel E Parcel F	033-460-08 No address 033-500-07 No address 033-060-14 No address 033-500-06 No address	* SE1/4 of SE1/4 of Sec 17 and E1/2 of NE1/4 of Sec 20, all in T19S, R37E, MDB&M, Inyo County, CA, and * SW1/4 of SE1/4 of Sec 17, T19S, R37E, MDB&M, Inyo County, CA[b] * SE1/4 of NW1/4 of Sec 17; SW1/4 of NE1/4 of Sec 17; NW1/4 of SE1/4 of Sec 17; NE1/4 of SW1/4 of Sec 17, T19S, R37E, MDB&M, Inyo County, CA * All of Sec 16, T19S, R37E, MDB&M, Inyo County, CA[c] * N1/2 of NE1/4, SE1/4 of NE1/4, NE1/4 of SE1/4 of Sec 17, T19S, R37E, MDB&M, Inyo County, CA [c]	152 160 640 160	OS-40	Park / Recreational / Natural Resources
Van Skyock	Parcel G	033-060-19 1120 E. Fall Rd Olancha, CA	NW1/4 of Sec 21,T19S, R37E, MDB&M, Inyo County CA	160	OS-40	Park / Recreational / Natural Resources
Stine	Parcel H Parcel I	033-060-20 No address 033-060-21 No address	NE1/4 of Sec 21, T19S, R37E, MDB&M, Inyo County, CA[e] SW1/4 of Sec 21, T19S, R37E, MDB&M, Inyo County, CA[e]	160 160	OS-40	Park / Recreational / Natural Resources

Hunter Ranch[f]	Parcel J	033-110-08 No address		160	OS-40	Park / Recreational / Natural Resources
Mead Property[f]	Parcel K	033-500-05 033-500-04 511 Highway 190 Olancha, CA	No address	40 19.25	OS-40	Park / Recreational / Natural Resources
LADWP	Parcel L	033-110-20 033-210-20	No Address	140 80	OS-40	Park / Recreational / Natural Resources

See Section 4 for project maps.

Notes to Table 1-1:

[a] 1430, 1436, 1438, 1440, 1450, 1490, 1492, 1550, 1580, Olancha, CA

[b] Except: Commencing at southwest corner of said southwest quarter of the southeast quarter and running thence north along the westerly line of said southwest quarter of the southeast quarter 600 feet; thence east and parallel to the southerly line of said southwest quarter of the southeast quarter 560 feet; thence south and parallel to the westerly line of said southwest quarter of the southeast quarter 600 feet; thence west along the southerly line of said southwest quarter of the southeast quarter of 560 feet to the point of beginning.

[c] Except: All oil, oil shale, coal, phosphate, sodium, gold, silver, and all other mineral deposits, contained in said land, and further reserving to the state of California, and persons authorized by the state, the right to drill for and extract such deposits of oil and gas, or gas, and to prospect for, mine and remove such deposits of other minerals from said land and to occupy and use so much of the surface of said land as may be required therefor as reserved to the state of California in patent recorded in Book 102, page 517 of Official Records of said Inyo County.

[d] Except: All oil, oil shale, coal, phosphate, sodium, gold, silver, and all other mineral deposits, contained in said land, and further reserving to the state of California and persons authorized by the state, the right to drill for and extract such deposits of oil and gas, or gas, and to prospect for, mine and remove such deposits of other minerals from said land and to occupy and use so much of the surface of said land as may be required therefor as reserved to the state of California, in patent recorded in Book 115, page 610, Official Records of said County.

[e] As designated on Preliminary Title Report to this property.

[f] Hunter and Mead properties will not be purchased by Western Water. The properties will be part of the project and the pipeline will cross these properties.

Well sites will include the well, deep well turbine pump and motor pump control valve, isolation valves, and a flow meter. Electrical facilities will include transformers, electrical meter service, motor control center, and area lighting.

Table 1-2 indicates the project groundwater extraction wells, the zones(s) they will tap and their proposed order of construction.

Table 1-2: Project Well Zones and Order of Development

Well No.	Zone	Order of Development
WW-1	Upper to Middle	3
WW-2	Upper to Middle	2
WW-3	Middle	1
WW-4	Middle to Lower	4
WW-5	Middle to Lower	5
WW-6	Middle to Lower	6
WW-7	Middle to Lower	7
WW-8	Middle to Lower	8

SOURCE: Psomas and Associates

Pumps

Pumping equipment will be deep well multiple stage turbine pumps. Motors will be about 100 horsepower and be served by 460 volt electric power.

Referring to Figures 4-3 and 4-4, a single pipe manifold will connect all wells to the Los Angeles Aqueduct. An approximately 24-inch pipeline will be required.

Some of the pumps in the northern portion of the project area may have small wooden structures built over them to house the pumps and protects them from wind and dust . The structure dimensions will be approximately 20 x 20 feet and x 12 feet high.

Well Construction

Each of the proposed six to eight wells will be constructed on a 40 x 60 feet well site. The total permanent surface disturbance around each wellhead may be up to 40 x 60 feet (0.44 acres for 8 wells).

Groundwater extraction wells will be drilled with reverse rotary equipment and will be a gravel pack construction in accordance with State water well drilling and construction guidelines. Depending on the target zone, well depths will vary. Drilled diameters will vary between 18 and 24 inches.

Each well will be logged with a complete suite of techniques to help define regional lithology. Well logging results will aid in the determination of the design of the well casing and screens.

Blank casings will be of steel and water-bearing formations will be screened with spiral wound steel screen or slotted steel casing. Pump columns will vary between 10 and 16 inches in diameter, depending on projected yields. Gravel pack will be placed between the bore hole and casing, and a sanitary seal will be installed near the surface.

Well drilling will last for 2 to 4 weeks for each well, depending on drilling difficulties. The well drilling operation will occur 24 hours per day until each well is completed. Two wells may be drilled at one time, depending on the availability of drilling equipment.

All wells and pipeline construction are expected to be completed within 6 months of project approval.

Operation Plan

Over the life of the proposed project there are a number of possible modes to operate the project. In general, the primary operational guideline will be to first operate the project in a manner that minimizes impacts on:

- Existing wells,
- Nearby springs and vegetation, and
- The long-term yield of the groundwater resource.

Secondly, the objective will be to achieve anticipated yields from the groundwater resource so that capital investment will be recouped over the economic life of the project. Numerous hypothetical operation and pumping scenarios were mathematically simulated. These ranged from constant pumping of select wells to seasonal pumping of select wells.

Initially, wells would be pumped for 12 weeks followed by one week of shutdown (of all project wells) for monitoring static water levels. During this one week shutdown period, routine maintenance would be performed. The static water levels would be monitored at the end of this period to determine regional static water levels. Each year would involve four such cycles. Therefore, maximum pumping would be for 11 months. This proposed schedule may be adjusted based on water level monitoring results.

Other operation modes and optimization of operations may require further data collection as the project develops and further mathematical modeling and environmental analysis are conducted.

Monitoring

It is Western Water's specific intent to avoid or mitigate any significant adverse impacts should they occur, to groundwater quantity or quality. To this end, an extensive impact monitoring and mitigation program is proposed (see Section 6 of the Conditional Use Permit Application for a preliminary draft of this plan).

In March 1998, Western Water started an on-going water level monitoring program in and around the project area. Water levels in 20 wells have been monitored monthly, and will be included in the project monitoring plan. Agricultural pumping quantities have likewise been recorded. During March and April 1998, aquifer pump tests were performed on the Hunter Ranch irrigation production well and on one of the Butterworth/Boy Scout Ranch wells (Well No. 4). The aquifer pump tests were used to develop groundwater aquifer parameters, which were then used in the development of a groundwater model.

Five or more dedicated monitoring wells may be drilled and monitored to ensure that no impacts to local wells occur. Additionally, existing domestic and other wells may be used for monitoring where permission to make water level measurements can be obtained. The well construction will be similar to that described above. Surface disturbance may be up to 40 x 60 feet at each well.

Additional details regarding the proposed monitoring can be found in Section 6 of the Conditional Use Permit Application.

Well Pump Power Supply

The estimated electricity requirement for the well pumps is 5,476,000 kilowatt hour (KWH)/year to pump 8,000 acre-feet per year, or 684 KWH per acre-foot of water produced.

An LADWP powerline supplying several existing wells in the area, as well as several abandoned wells will supply power for the project. It is expected that the existing line has sufficient capacity to provide the necessary power. This power line will require an extension of approximately 9,500 feet. The construction corridor would be approximately 50 feet wide. Estimated surface disturbance is 10.9 acres. Figure 4-1 shows power line extensions necessary for operation of the wells.

The following equipment would be used during construction of the power line extension:

1. Large trenching machine
2. Motor grader

3. Backhoe
4. Small crane
5. Well drilling rig
6. Well development engine rig,
7. Miscellaneous trucks and equipment

PIPELINE

Water from the wells would be transferred to the LADWP through a subsurface pipeline. There would be approximately 27,500 feet of 24-inch diameter pipeline, (including 8,500 feet that would be used for Phase II, see below), 2,500 feet of 12-inch diameter pipeline, and 4,500 feet of 10-inch diameter pipeline. The pipeline would be buried with 3 feet of cover.

The pipeline will transport water from the wells to the Los Angeles Aqueduct at a point north of Haiwee Reservoir (see Figure 4-3) or Highway 190.

The LADWP is currently studying methods for controlling dust on Owens Lake. LADWP has indicated that they may consider, in the future, extending the Western Water pipeline to allow water to be directed to Owens Lake. This extension would constitute Phase II of the project. The Phase II pipeline construction would include 8,500 feet of 24-inch pipeline. Any future proposal would be made by LADWP; LADWP would then prepare an environmental analysis addressing the impacts of the action if it is proposed in the future. [See the letter from LADWP at the in Attachment A to this Project Description.]

Location

The proposed pipeline would be located on Western Water lands, Hunter Ranch lands, the Mead Property, Cactus Flats Road (an Inyo County road), and LADWP lands . The pipeline will follow existing dirt farm roads where possible. The pipeline route is shown on Figure 4-4.

Pipeline Construction

The pipeline construction corridor would be approximately 50 feet wide and 34,500 feet long. The total pipeline surface disturbance would be approximately 39.6 acres. The laydown areas for project construction would be located within the pipeline corridor.

The pipeline would be placed in an excavated trench. The trench will be excavated so that the spoils are laid on one side and the pipe on the other. The amount of trench open at one time will be the approximate amount of trench which can be excavated and backfilled in the same day. The portions of the trench excavated in one day will be backfilled on the same day prior to completing work for the day. All trenching work would comply with Occupational Safety and Health Administration (OSHA) requirements.

A small crane will be used to lower the sections of pipe into the trench. The pipe will be laid in sections with O-ring seals between the section. Concrete or mechanical joints will be installed at corners to keep the sections of pipe from moving away from one another.

Valves and air vents will be installed. Air vents will allow air to be expelled or let into the pipeline to prevent the pipe from collapsing during shutdown or developing air locks during operation. Isolation valves will allow sections of the pipeline to be isolated for repairs and maintenance.

DRAINAGE PLAN

All facility locations will be restored to existing grade after completion of construction. The areas will be graded so as to drain to existing natural drainages and will not disturb existing drainage.

SANITARY FACILITIES

Temporary sanitary facilities will be provided for project construction workers. The facilities would be trucked to the project site. Existing sanitary facilities will be used during project operations.

CONSTRUCTION MATERIALS

Gravel and concrete for project facilities will be purchased from local sources.

LAYDOWN/STAGING AREAS

As described above, all laydown or staging areas would be within the 50 foot pipeline corridor.

PROJECT TRAFFIC

Project traffic will consist of construction vehicles, cars, and pick-up trucks. All project traffic will use existing paved or dirt roads to access the construction area. Dirt roads that will be used are shown in Figure 4-3.

DUST CONTROL PLAN

Project activities will be conducted to minimize dust emission. During grading or earthmoving, the disturbed areas will be watered to minimize fugitive dust. Water will be supplied by hired water trucks or from existing wells. Vegetation will be reestablished after construction where disturbed areas are not used for roads or wells.

LANDSCAPING

Areas disturbed for the well sites (40 x 60 feet) will not be revegetated. The disturbed portions of the pipeline corridor that are not in farm roads or project access roads will be replanted with the removed crop or native grasses.

RECLAMATION

The expected life of the project is 30 years. At the completion of the project, all surface facilities would be removed. Wells would be capped and abandoned according to County and State requirements in place at the time of reclamation. Materials would be recycled where possible.

EFFECTS TO STRUCTURES

No existing structures will be damaged or demolished in the construction or operation of proposed project.

WORK FORCE

The proposed project will use an estimated 20 to 40 construction workers. During operation it is proposed to have one permanent, and from 1 to 3 part-time employees.

MITIGATION MEASURES INCLUDED IN PROJECT

The proposed project has been designed to reduce or avoid significant adverse impacts. The following mitigation measures have been included in the proposed project:

1. The area would be regraded after construction of the proposed project.
2. A dust control plan will be implemented. The plan will include watering to mitigate increases in dust associated with construction of the proposed project.
3. A revegetation plan would be implemented in the portions of the pipeline corridors not used for roadway.
4. A Preliminary Draft Management, Monitoring, and Mitigation Plan is included in Section 6.

Current and Future Land Uses

The terms of agreement for each of the parcels provide that currently farmed lands will continue to be in cultivation as agricultural lands. Western Water or the property owner may, however, choose to change the type of crop in cultivation. The agreement for the future use of the property extends for 30 years, which is the term of the Olancha Water Project. Table 1-3 identifies the current and future uses of the project properties over the life of the project. Figure 4-7 shows current land uses of the properties.

Existing structures on the properties and their approximate ages are also listed on Figure 4-8.

Table 1-3: Current and Future Land Uses

Property	**Current Use**	**Future Use**

Parcel A	Agriculture	Agriculture
Parcel B	Agriculture	Agriculture
Parcel C	Open Space / Rangeland	Open Space / Rangeland
Parcel D	Open Space / Rangeland	Open Space / Rangeland
Parcel E	Open Space / Rangeland	Open Space / Rangeland
Parcel F	Open Space / Rangeland	Open Space / Rangeland
Parcel G	Open Space / Rangeland	Open Space / Rangeland
Parcel H	Open Space / Rangeland	Open Space / Rangeland
Parcel I	Open Space / Rangeland	Open Space / Rangeland
Parcel J	Agriculture	Agriculture
Parcel K	Rangeland / Grazing	Open Space / Rangeland

Source: Western Water Company

Future land use may include continuation of irrigated agriculture. The lands not cultivated may be made available as range for grazing.

The proposed project would not preclude other types of uses on the properties in the future, subject to appropriate county review. The use of the project lands may not change until the value of the land for other uses exceeds the value of the current uses. If additional or alternate uses become financially viable, future uses could co-exist with the water transfer land use (wells and pipelines).

Required Permits

The proposed project will require several permits. The permits are listed below:

1. Conditional Use Permit from the Inyo County Planning Department
2. Inyo County Water Well Permit
3. Inyo County Building Permit
4. Inyo County Road Encroachment Permit
5. State of California, Department of Water Resources Well Permit
6. Modification to LADWP's Department of Health Services (DOHS) Water Supply Permit

The Great Basin United Air Pollution Control District (GBUAPCD) has indicated that the project will not require a permit from the GBUAPCD.

2: ENVIRONMENTAL INFORMATION

CEQA Appendix H Environmental Information Form
Environmental Setting and Impact Information

2.A Environmental Information Form (CEQA Appendix H)

Date Filed: 12/21/98

General Information

1. Name and address of developer or project sponsor:

Western Water Company
15028 7th Street, Suite 9, Victorville, California 92392
Telephone: (760) 245-1933
Fax: (760) 245-2283

2. Address of project:

Southern Owens Valley, in Inyo County, California. Project lands are located south of Owens Dry Lake, east of U.S. Highway 395, and north of Haiwee Reservoir.

Assessor's Block and Lot Number: See Table 2A-1.

3. Name, address, and telephone number of person to be contacted:

Concerning this project:

Jim Tatum
Western Water
15028 7th Street, Suite 9
Victorville, CA 92392
Telephone: (760) 245-1933
Fax: (760) 245-2283

Concerning this application:

Laurie McClenahan
MHA Environmental Consulting, Inc.
520 South El Camino Real, Suite 800
San Mateo, CA 94402
Telephone: (650) 373-1200
Fax: (650) 373-1211

4. Indicate number of the permit application for the project to which this form pertains:

Inyo County Conditional Use Permit Application #_____.

5. List and describe any other related permits and other public approvals required for this project, including those required by city, regional, state and federal agencies:

1. An Inyo County Groundwater Monitoring Well Construction permit will be required for the installation of the six to eight groundwater extraction wells proposed for the project.
2. Inyo County Road Encroachment Permit (Cactus Flats Road)
3. Inyo County Building Permit
4. Inyo County Grading Permit
5. Electrical Permits
6. Review under the California Environmental Quality Act

Table 2A-1: Parcel Designations and Property Descriptions

Property Name	Parcel	Assessor's Parcel # / Address	Description	Acreage (appr.)	Zoning	General Plan
Butterworth / Boy Scout Ranch	Parcel A Parcel B	033-110-12A 800 Cactus Flat Rd Olancha, CA 033-110-19 Various Cactus Flat Road addresses[a]	* SE1 / 4 of the NE1 / 4 and the SW1 / 4 of the NE1 / 4 of Sec 33, T19S, R37E, MDBM, Inyo County, CA * NE1 / 4 of the SW1 / 4 and the W1 / 2 of the SE1 / 4 of Sec 28; and the NW1 / 4 of the NE1 / 4 of Sec 33, all in T19S, R37E, MDB&M, Inyo County, CA	160 80	OS-40	Park / Recreational / Natural Resources
Hampton / Brandsma	Parcel C Parcel D Parcel E Parcel F	033-460-08 No address 033-500-07 No address 033-060-14 No address 033-500-06 No address	* SE1 / 4 of SE1 / 4 of Sec 17 and E1 / 2 of NE1 / 4 of Sec 20, all in T19S, R37E, MDB&M, Inyo County, CA, and * SW1 / 4 of SE1 / 4 of Sec 17, T19S, R37E, MDB&M, Inyo County, A[b] * SE1 / 4 of NW1 / 4 of Sec 17; SW1 / 4 of NE1 / 4 of Sec 17; NW1 / 4 of SE1 / 4 of Sec 17; NE1 / 4 of SW1 / 4 of Sec 17, T19S, R37E, MDB&M, Inyo County, CA * All of Sec 16, T19S, R37E, MDB&M, Inyo County, CA[c] * N1 / 2 of NE1 / 4, SE1 / 4 of NE1 / 4, NE1 / 4 of SE1 / 4 of Sec 17, T19S, R37E, MDB&M, Inyo County, CA [c]	152 160 640 160	OS-40	Park / Recreational / Natural Resources
Van Skyock	Parcel G	033-060-19 1120 E. Fall Rd Olancha, CA	NW1 / 4 of Sec 21,T19S, R37E, MDB&M, Inyo County CA	160	OS-40	Park / Recreational / Natural Resources
Stine	Parcel H Parcel I	033-060-20 No address 033-060-21 No address	NE1 / 4 of Sec 21, T19S, R37E, MDB&M, Inyo County, CA[e] SW1 / 4 of Sec 21, T19S, R37E, MDB&M, Inyo County, CA[e]	160 160	OS-40	Park / Recreational / Natural Resources

		No address				
Hunter Ranch[f]	Parcel J	033-110-08 No address		160	OS-40	Park / Recreational / Natural Resources
Mead Property[f]	Parcel K	033-500-05 033-500-04 511 Highway 190 Olancha, CA	No address	40 19.25	OS-40	Park / Recreational / Natural Resources
LADWP	Parcel L	033-110-20 033-210-20	No Address	140 80	OS-40	Park / Recreational / Natural Resources

See Section 4 for project maps.

Notes to Table 2A-1:

[a] 1430, 1436, 1438, 1440, 1450, 1490, 1492, 1550, 1580, Olancha, CA

[b] Except: Commencing at southwest corner of said southwest quarter of the southeast quarter and running thence north along the westerly line of said southwest quarter of the southeast quarter 600 feet; thence east and parallel to the southerly line of said southwest quarter of the southeast quarter 560 feet; thence south and parallel to the westerly line of said southwest quarter of the southeast quarter 600 feet; thence west along the southerly line of said southwest quarter of the southeast quarter of 560 feet to the point of beginning.

[c] Except: All oil, oil shale, coal, phosphate, sodium, gold, silver, and all other mineral deposits, contained in said land, and further reserving to the state of California, and persons authorized by the state, the right to drill for and extract such deposits of oil and gas, or gas, and to prospect for, mine and remove such deposits of other minerals from said land and to occupy and use so much of the surface of said land as may be required therefor as reserved to the state of California in patent recorded in Book 102, page 517 of Official Records of said Inyo County.

[d] Except: All oil, oil shale, coal, phosphate, sodium, gold, silver, and all other mineral deposits, contained in said land, and further reserving to the state of California and persons authorized by the state, the right to drill for and extract such deposits of oil and gas, or gas, and to prospect for, mine and remove such deposits of other minerals from said land and to occupy and use so much of the surface of said land as may be required therefor as reserved to the state of California, in patent recorded in Book 115, page 610, Official Records of said County.

[e] As designated on Preliminary Title Report to this property.

[f] Hunter and Mead properties will not be purchased by Western Water. The properties will be part of the project and the pipeline will cross these properties.

6. Existing zoning district:

OS-40: Open Space, with 40-acre minimum parcel size

7. Proposed use of site (Project for which form is filed):

The proposed project involves the withdrawal and transfer of surplus groundwater from the region that is presently evaporated in the Owens Lake Playa. This groundwater would be diverted as an additional water supply for the City of Los Angeles Department of Water and Power, providing an estimated 6,000 to 8,000 acre-feet/year.

Project Description

8. Site size:

1,832-acre project site area; approximately 50.5 acres of temporary surface disturbance during construction; approximately 19,200 square feet (0.44 acres) of development throughout operation of the project.

9. Square footage: Not Applicable

10. Number of floors of construction: Not applicable

11. Amount of off-street parking provided: Not applicable

12. Attach plans. Please see the following Figures in Section 4 of this application:
    4-1 Project Site, Well Sites, and Pipeline Locations
    4-2 Power Line Extensions
    4-3 Facilities Access Roads
    4-4 Aqueduct Connection

13. Proposed scheduling:

Project construction will take place for approximately 6 months; following that, project implementation (groundwater withdrawal and transfer) will take place for approximately 11 months per year over the 30 year life of the project.

14. Associated project:

There are no other projects currently associated with the Western Water Olancha Water Development Project. Phase II of the project involves extending the Western Water pipeline to Highway 190. LADWP is considering options for dust control on Owens Lake. If water application is the chosen method of control, LADWP may connect to the Western Water pipeline to obtain water for use in reducing dust on Owens Lake.

15. Anticipated incremental development:

The proposed project will include a 6-month construction period prior to the operation phases. No incremental development is anticipated in conjunction with this project.

16. If residential, include the number of units, schedule of unit sizes, range of sale prices or rents, and type of household size expected:

The project does not include residential development.

17. If commercial, indicate the type, whether neighborhood, city or regionally oriented, square footage of sales area, and loading facilities:

The project does not include commercial development.

18. If industrial, indicate type, estimated employment per shift, and loading facilities:

The project does not include industrial development. Water is considered an agricultural product. Well drilling and production is consistent with agricultural land use.

The project will provide employment for between 20 and 40 employees during construction. During operation, the project will provide one full-time and between one and three part-time jobs.

19. If institutional, indicate the major function, estimated employment per shift, estimated occupancy, loading facilities. and community benefits to be derived from the project:

The project does not include institutional development.

20. If the project involves a variance, conditional use or rezoning application, state this and indicate clearly why the application is required.

This project requires a Conditional Use Permit pursuant to the terms of the Inyo County Groundwater Ordinance No. 1004 (amendment to Chapter 18.77 of the Inyo County Code to regulate the transfer or transport of water from groundwater basins located wholly or partially within Inyo County). The project is located in an area zoned OS-40. This zone allows the proposed use, provided that a conditional use permit is obtained.

Are the following items applicable to the project or its effects? Discuss below all items checked yes (attach additional sheets as necessary).

	Yes	No
21. Changes in existing features of any bays, tidelands, beaches, hills, or substantial alteration of ground contours.	☐	☒

There are no bays, tidelands, beaches, or hills near the proposed location of the Western Water Company Olancha Water Development Project that would be affected by the development. Construction and operation of the wells and the water transmission pipeline will occur away from the sand dune area, thereby avoiding any impact.

The project site is relatively flat, although areas do contain broken topography. The project will result in a temporary, minor alteration of ground contours during construction of the pipeline along the length of the trench; any excavation will be returned to grade after construction is

complete. At present, it is proposed that a portion of the pipeline trench will be excavated, the pipeline will be inserted, and then the section will be back filled.

	Yes	No
Operation of water wells and water transfer through the underground pipeline would not affect existing features or ground contours. The proposed water withdrawal project is not expected to induce significant ground subsidence [because the conditions under which subsidence would occur are not present at the proposed project dewatering area]. The proposed Monitoring and Mitigation Program includes monitoring for subsidence and mitigation to avoid significant changes in ground elevation. For further information on these issues, refer to the Geology and Soils, and the Hydrology discussions in the following Environmental Setting and Impact Information section.		
22. Changes in scenic views or vistas from existing residential areas or public lands or roads.	☒	☐

Land use in and around the proposed location of the project is generally for agricultural and open space purposes, rather than residential. The area is already traversed by roadways, farm roads, fence lines, canals, and power transmission lines. Much of the area has been disturbed for agricultural purposes. Numerous wells and other small outbuildings already exist in the area. The area also contains windbreaks consisting of trees and diverse topography which obscures views of many portions of the site from Highway 190 and Highway 395.

Some areas of pipeline construction would potentially be visible from Highways 190 and 395 during the construction phase of the project. After construction and restoration of the area to grade, portions of the project site may be visible from U.S. Highway 395 and U.S. Highway 190 and surrounding public lands, particularly lands at higher elevations. Vistas from high elevations are far away from the project site and so disturbed portions of the site will be difficult to see from these areas. Also, areas of the site have been previously disturbed, therefore reducing the prominence of the project's visual changes during and after construction. Over time, the pipeline corridor disturbance would be barely visible, and would not change existing views or vistas.

The well heads could be visible from various locations during operation of the project. Also, the 20 x 20 foot, 12-foot high structures that will house some of the well heads would be visible from some locations during operation of the project. The well heads and the housing structures, however, are relatively small and would not change scenic views or vistas in the area.

	Yes	No

Views from existing residences on site may be affected slightly during project construction. Views would not be changed following construction.

For further information on these issues, refer to the Aesthetics /Visual Resources discussion in the following Environmental Setting and Impact Information section.

23. Change in pattern, scale, or character of general area of project. ☐ ☒

The general area of the project includes lands that are primarily agricultural, and public open space. Construction would include installation of an approximately 6.5 subsurface water transmission pipeline. Project construction and operation would not result in the introduction of an incongruous element into the area, and would therefore not result in a change in the pattern, scale, or character of the general area of the project.

24. Significant amounts of solid waste or litter. ☐ ☒

No significant amounts of solid waste or litter will result from project construction or operation. Waste from project construction crews would be collected and removed to the local landfill.

25. Change in dust, ash, smoke, fumes or odors in vicinity. ☒ ☐

A temporary increase in dust potentially would result from the six month construction phase of the proposed wells and pipeline. To mitigate this effect, as part of both the pipeline construction and operation phases of the project, the project proponent will implement a dust control plan, including watering. A revegetation plan will also be implemented for the pipeline corridor where the pipeline is not constructed within a farm or public road to reduce dust from construction disturbance.

26. Change in ocean, bay, lake, stream or groundwater quality or quantity, or alteration of existing drainage patterns. ☒ ☐

There are no oceans, bays, lakes, or streams on the proposed project lands that would be affected by the development. Owens Dry Lake is located three miles north of the proposed project area. Withdrawal of groundwater for the proposed project would not change the quality or quantity of water in Owens Lake.

There is a slight potential for changing flow directions of groundwater of lower quality.

Yes **No**

Groundwater quality in the area is not expected to be adversely affected, based on preliminary hydrologic modeling. Groundwater quantity, however, would be affected by the development, but would be monitored on a regular basis to ensure that sufficient groundwater aquifer recharge takes place, and that there are no significant effects to groundwater quality. A monitoring plan has been submitted to the County and will be developed further in consultation with the County Water Department.

There will be no alteration to existing drainage patterns during construction of the pipeline would be temporary; the area would be restored to grade following pipeline construction. Therefore, the project will not alter existing drainage patterns.

For further information, refer to the Hydrology discussion in the following Environmental Setting and Impact Information section.

27. Substantial change in existing noise or vibration levels in the vicinity. ☐ ☒

During well and pipeline construction, noise and vibration levels in the vicinity would temporarily increase. This increase likely would not be significant due to its short duration, and because there are few sensitive receptors that would be exposed to the noise.
During operation of the project, well motors will generate monumental increases in noise; few sensitive receptors will be subject to this noise increase.

28. Site on filled land or on slope of 10 percent or more. ☐ ☒

The project site would not be located on filled land, nor would it be located in areas with slopes of greater than 5% grade.

29. Use or disposal of potentially hazardous materials, such as toxic substances flammables, or explosives. ☐ ☒

The project and project construction will not result in the unusual use or disposal of potentially hazardous materials, such as toxic substances, flammables, or explosives.

A minimal amount of diesel fuel, gasoline, and oil, would be used to fuel vehicles for project construction. Use of these materials would be in accordance with existing laws for use, transport, and disposal.

Yes **No**

30. Substantial change in demand for municipal services (police, fire, water, sewage, etc.). ☐ ☒

The project and project construction will not result in a substantial change in demand for municipal services such as police, fire, water, sewage, electricity, natural gas, libraries, health services, or other services.

Construction will take place for approximately six months, and it is not anticipated that local municipal services will be adversely affected. Water used during construction will be supplied by groundwater wells located on the site, and will not draw on municipal supplies. On-site sewage services for construction workers will be supplied by temporary toilets. Site fire safety and security will also be augmented by the proponent's selected construction contractor.

For further information, refer to the Public Services and Utilities discussion in the following Environmental Setting and Impact Information section.

31. Substantially increase fossil fuel consumption (electricity, oil, natural gas, etc.). ☒ ☐

The project and project construction would require increased power supply. The groundwater extraction wells would require pumps powered by electricity. It is estimated that the pumps would require approximately 4,107,000 to 5,476,000 kilowatt hours per year (KWH/year) to pump 6,000 to 8,000 acre-feet per year

proposed for the project. Approximately 9,500 feet extension of an existing power line to supply these needs may be required. Energy efficient groundwater pumps will also be considered as part of well installation. The project would therefore use only incrementally greater amounts of energy, that would not affect local or regional fuel consumption.

32. Relationship to a larger project or series of projects. ☒ ☐

The proposed Olancha Water Development Project is not directly related to a larger project or a series of groundwater withdrawal and transfer projects. In the future and at the discretion of the Los Angeles Department of Water and Power, the proposed project may supply water to control dust on Owens Lake.

Refer to the Cumulative Impacts section in the following Environmental Setting and Impact Information section for further discussion of cumulative effects.

Environmental Setting

33. Describe the project site as it exists before the project, including information on topography, soil stability, plants and animals, and any cultural, historical, or scenic aspects. Describe any existing structures on the site, and the use of the structures. Attach photographs of the site. Snapshots or polaroids will be accepted:

The proposed project is located in the southern Owens Valley, in Inyo County, California. The project lands are located south of Owens Dry Lake, east of U.S. Highway 395, and north of Haiwee Reservoir. The Coso Mountains are to the east.

Much of the project lands are currently or have been in agricultural production. Alfalfa is the primary crop. Non-cultivated lands include scrub and herbaceous communities.

There are known cultural and historical resources on the project lands. A cultural resource survey of the proposed well sites and pipeline routes will be conducted. The project does not alter these resources in most cases. An archeological study of cultural resources is being prepared to ensure that none of these resources will be impacted by the project.

There are ranch buildings on the project site. None of the structures would be affected by the proposed project. Some of these structures on the project site are believed to be over 50 years old.

See the Cultural Resources discussion in the following Environmental Setting and Impact Information section for a description of structures on the site.

34. Describe the surrounding properties, including information on plants and animals and any cultural, historical or scenic aspects. Indicate the type of land use (residential, commercial, etc.), intensity of land use (one-family, apartment houses, shops, department stores, etc.), and scale of development (height, frontage, set-back, rear yard, etc.). Attach photographs of the vicinity. Snapshots or polaroids will be accepted:

The properties surrounding the project site are all agricultural and open space lands.

The regional vegetation, wildlife, and cultural, historical and scenic aspects are described in the Vegetation and Wildlife sections in the following Environmental Setting and Impact Information section.

Certification

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this initial evaluation to the best of my ability, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date _____ Signature_____

For_____

2.B Environmental Setting and Impacts

INTRODUCTION

The Western Water Olancha Water Development Project region has been the subject of study for several different projects that have been proposed in the region. Data from these projects were reviewed and incorporated into this summary as appropriate. Existing data sources include:

- The Owens Lake Soda Ash Project Environmental Impact Report/Environmental Impact Statement (EIR/EIS)
- The Anheuser Busch Draft EIR

Western Water has initiated a baseline data gathering program to document existing conditions in the project region. Completed studies include groundwater pump tests and hydrological monitoring.

LAND USE, PLANS AND POLICIES

Affected Environment

Regional Land Use: The project would be located at the southern end of the Owens Valley in southern Inyo County. The region is characterized by a low population density, with population clustered in the small urban and rural communities of the valleys. Land use in the region has been largely determined by land ownership. Ninety-eight percent of the land in Inyo County is owned or controlled by various governmental agencies. The primary land holders include the U.S. Forest Service (USFS), the U.S. Bureau of Land Management (BLM), the California State Lands Commission (SLC), the China Lake Naval Air Weapons Station (NAWS), and the City of Los Angeles Department of Water and Power (LADWP).

A majority of government-owned land is used as open space, recreational, or grazing land. Specific land uses in the region include the John Muir and Golden Trout Wilderness areas in the Inyo National Forest, and the South Inyo Wilderness area to the east. The western portion of the Owens Valley serves as a corridor for U.S. Highway 395, several high voltage power transmission lines, the Los Angeles Aqueduct, and the out-of-service Southern Pacific Railroad (SP). The relatively small amount of privately controlled land in the region is divided between residential, commercial, and agricultural uses.

Route 395 is the major transportation corridor in and through Inyo County. It is currently a 2-lane facility in the vicinity of the project site. The completion of Route 395 as a four-lane facility is identified as an important county transportation issue. Route 395, is a Rural Principal Arterial and is authorized for use by larger trucks. The Inyo County General Plan Circulation Element has a concept level of service of C.

Plans and Policies

Inyo County General Plan Conservation and Open Space Element: The Inyo County General Plan Conservation and Open Space Element contains the following directly relevant policy and action items:

- "Policy 1: Protect and enhance watershed management ....
- Policy 3: Encourage owners of .... pipelines .... to maintain their property to prevent accidental flooding, soil erosion, and the artificial creation of alkaline areas on arable lands. rangeland and/or animal habitats .....
- Policy 4: Management of groundwater basins should be encouraged to assure the quality and quantity of the water for beneficial uses. Management should also include the use of storm water for groundwater recharge." (Page 24 Inyo County General Plan Conservation and Open Space Element)

Policy 4 is to be implemented by introduction of the systematic regulation of groundwater extractions from the Owens River Valley in a water management plan. The Board of Supervisors is to adopt regulations for extractions that consider environmental and economic factors.

- "Policy 18: Alignment of transmission and distribution facilities for .... water.... should be sited along existing rights-of-way whenever feasible. In general, the principle involved is the reduction of their visibility" (Page 28 Inyo County General Plan Conservation and Open Space Element).

The Green Book for the Long-Term Groundwater Management Plan for the Owens Valley and Inyo County 1990, provides a long term groundwater management plan for the Owens Valley. It contains water resource management goals. One goal is to avoid "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." (Page 1 Green Book). The basis for which change is assessed in vegetation from conditions documented between 1984-1987.

The Green Book divides vegetation into types according to their water needs and source. These types range from vegetation unlikely to be affected by groundwater pumping through types dependent on groundwater to vegetation supplied with water. The goal is to manage groundwater pumping to avoid causing significant decreases in live vegetation cover. Monitoring will occur at established sites linked to monitoring wells. Projections of the balance between plant water requirements and soil water availability will be made to determine whether pumping should continue. Monitoring site are to be selected following completion of a Hydrologic site assessment. Vegetation monitoring sites likely to experience impacts, due to groundwater pumping, will be associated with wells with the greatest hydrologic connection to those sites. Monitoring sites may be relocated if necessary. Where monitoring indicates that sensitive plant types will not have sufficient

groundwater, associated wells will not be permitted to pump unless soil water conditions recover sufficiently. As mitigation, well water can be used to provide needed moisture for an area where pumping has resulted in significant vegetation decrease or change.

The Green Book provides guidance for determining the significance of measurable decreases in vegetation cover. Factors that need to be considered are the size location and use of the affected area, the degree of change, the duration of the change, whether the change causes a violation of air quality standards, the cumulative effect of the impact, the value of existing enhancement and mitigation projects, the impact on rare, endangered, and on other species of concern, and whether the change affects human health. The significance of impact of other effects such as decreases in wildlife habitats or recreation opportunities are to be determined in a similar manner or by other appropriate procedures.

The project site is located in an area zoned by Inyo County as Open Space (OS) 40. This zone allows agricultural and wilderness uses of the site. Section 18.12.040 of Title 18 Zoning, identifies conditional uses. Subsection I identifies "... Mining and processing of natural resources..." as permitted conditional use within the OS zone.

Inyo County Groundwater Ordinance: Inyo County Board of Supervisors adopted Ordinance No. 1004 on November 27, 1998. The ordinance regulating the transfer or transport of water from groundwater basins located wholly or partially within Inyo County, and repeals the previous Inyo County Urgency Ordinance No. 1003. The final ordinance is substantially the same as the previous ordinance. The purpose of this amendment to the Water Code is to establish an overall groundwater policy designed to protect both the economy and the environment of Inyo County.

The ordinance applies to any person who proposes:

- A water transfer from the unincorporated area of Inyo County pursuant to Water Code Section 1810 et seq.
- A sale to the City of Los Angeles, or an acquisition by the City of Los Angeles by means other than a sale, of surface water or groundwater extracted or diverted from within Inyo County.[1]
- A transfer or transport of groundwater extracted from Inyo County from a groundwater basin located in whole or in part within the boundaries of Inyo County for use in an area outside of the groundwater basin.

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[1] **Note**: This provision applies only to water sales covered by the January 1998 Agreement between the City of Los Angeles and Inyo County. According to this agreement "the City of Los Angeles will not enter into any agreement to purchase or otherwise acquire water extracted or diverted from within Inyo County unless it has been first informed by the County that the County and the seller have entered into an agreement which provides for the management of the extraction or diversion of the water in a manner that insures the protection of the County's environment and economy. If after such notification, the City of Los Angeles enters into an agreement with the seller to purchase water, the purchase agreement will specifically require, as a continuing condition of the purchase of any water, that the seller be in full compliance with the provisions of the agreement with the County."

- A transfer or transport of groundwater extracted from a groundwater basin partially located within Inyo County to an area within the same basin, but outside the boundaries of Inyo County.

Under the ordinance, any person who proposes a transfer or transport of water shall first apply for and obtain a conditional use permit from the Inyo County planning commission, as provided in Chapter 18.81 of the Inyo County Code.

The planning commission will approve a proposed conditional use permit only if it finds that the proposed water transfer will not "unreasonably affect the overall economy of Inyo County and will not unreasonably affect the environment of Inyo County." A proposed water transfer would be deemed to unreasonably affect the economy or environment if the proposed transfer, including all proposed mitigation measures, would cause a significant adverse effect or effects on the overall economy or environment of the county. The determination of a significant adverse effect, and whether a mitigation measure would reduce such an effect, is to be made by the county planning commission by reference to the California Environmental Quality Act (Cal. Pub. Res. Code Sec. 21,000 et seq.), its guidelines, and relevant case law.

Once the environmental review process and the filing of required documents has been completed, a noticed public hearing is to be held by the county planning commission to consider whether the conditional use permit should be issued. If the conditional use permit is approved, the county planning commission shall approve and incorporate a monitoring and/or reporting program. This program would be designed to ensure that the proposed water transfer will not unreasonably affect the overall economy or the environment of the county.

Project Site Structures: Inyo County staff expressed concern that there may be historical structures on the project site. These structures are of concern since they could be affected by the project. Refer to the Existing Structure later in this section for additional information on these issues.

Existing Land Uses: Existing land uses are agriculture and open space (see Figure 4-7). Project area lands are currently used to grow alfalfa and for grazing.

Potential Environmental Impacts and Mitigation Measures: The criteria for significance identified by CEQA Guidelines is "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and object of historic and aesthetic significance" (CEQA Guidelines Section 15382). CEQA guidelines provides additional guidance for significance criteria. An impact would normally be identified as significant if it would "conflict with adopted environmental plans and goals of the community where it is located" and "substantially degrade or deplete groundwater resources" (CEQA Appendix G).

During and after construction, physical activities will occur that will result in environmental changes which are considered under the relevant environmental parameter. The sections of this report which deal with these parameters should be consulted for more information concerning these issues.

Construction: The proposed project will temporarily disturb an estimated 50.5 acres (39.6 acres for the pipeline and 10.9 acres for construction of the transmission line extension) of the project lands during construction. Construction is expected to last up to 6 months. The entire area that is expected to be disturbed will not all be disturbed at the same time. The trenching and pipeline installation crew will trench the area that they can backfill in the same day. The construction phase is temporary and will not effect the entire area used for construction at the same time. Therefore, considerably less than 50.5 acres will be disturbed for construction purposes at any one time.

The area that will be temporarily disturbed during construction is less than 4% of the area of project site. Less than 4% of the 1,832 acre project site will be withdrawn from the existing agricultural and open space uses for up to 6 months. Since this is a small portion of the site area (and total area) used for open space and agricultural purposes and the withdrawal from these uses is temporary, this impact does not conflict with Inyo County adopted plans and goals.

Operation: The proposed project will disturb only a small portion of the site during construction. Following construction, a majority of disturbed land will be returned to original grade and revegetated. Once construction of the wells and pipelines is completed, an estimated 19,200 square feet (0.44 acres) of the project site will remain in use for the project facilities for the 30-year lifespan of the project. The remaining project lands, which constitute the majority of the site, will remain in their existing uses.

After construction has been completed, an estimated 19,200 square feet of the project site (for the wells) will be withdrawn from other uses for the 30 year life of the project. This represents an estimated 0.00024% of the project site. Approximately 0.00024% of the site will not be available for use as agriculture or open space for 30 years because it will be used by the project. This is a very small proportion of the project site that will not be available for other uses for the duration of the project. This use is in an insignificant area being withdrawn from available inventory of the Park/Recreational-Natural Resources general plan land use category and the project does not conflict with Inyo County adopted environmental plans and goals

The proposed project will involve construction and operation of wells and an underground pipeline. The General Plan Land Use designation for the area where these facilities are proposed is Park/Recreational-Natural Resources. This designation allows for agricultural use and mining of resources. Wells and pipelines are a common use in agricultural areas, and are allowed in an area designated as Park/Recreational-Natural Resources. Water is considered an agricultural product. The proposed project is consistent with the Inyo County General Plan Land Use Element policy.

The project site is located in an area zoned by Inyo County as Open Space (OS) 40 . This zone allows mining and processing of natural resources as conditional uses. The proposed project involves the extraction and transportation of groundwater. This use is allowed in the OS zone with a conditional use permit. The project involves an application for a conditional use permit. The project is therefore consistent with the zoning ordinance.

The proposed project includes a groundwater pumping study and monitoring plan which are designed to ensure that the proposed groundwater pumping does not result in any watershed damage and so allows for continued protection and enhancement of watershed management as required by Policy 1 in the Inyo County General Plan Conservation and Open Space Element. The project is therefore consistent with this policy.

The project includes construction using engineering techniques that will minimize the potential for flooding resulting from pipeline breaches. The project will have a full time employee who will be responsible for daily monitoring of the pipeline route to ensure that no breaches to the pipeline have occurred. If a breach is discovered the wells will be shut down until proper repairs to the pipeline have been completed . This will ensure that the project is consistent with Conservation and Open Space Element Policy 3.

The proposed project has included a study of safe area groundwater yields and a monitoring program designed to ensure that there are no significant effects to plant and animal habitat and that water withdrawal is, on average, equal to or less than the recharge to the groundwater basin. This ensures that the project is consistent with Conservation and Open Space Element Policy 4 and associated implementation items including the need for a groundwater management plan, discussed further below.

Water lines are proposed to be located in existing rights-of-way. This will ensure that the project is consistent with Conservation and Open Space Element Policy 18.

Provisions, monitoring strategies, and techniques from the Green Book were followed in developing the groundwater pumping plan and associated monitoring plan for the project (see Section 6). The groundwater yield has been studied, the sphere of influence likely to be associated with the proposed well field has been identified, and the vegetation likely to be effected by wellfield groundwater withdrawal has been studied. A groundwater monitoring plan designed to stop pumping before significant impact to area vegetation occurs has been proposed as a part of the proposed project . This will ensure that the project is consistent with goals and policies contained in the Green Book.

The proposed project includes an application for a conditional use permit which is accompanied by a biological study, hydrological study, groundwater monitoring plan, archaeological study, economic study, and information on various aspects of the potential environmental impacts that are associated with the project. The project has been modified from original form to avoid environmental impacts, and possible mitigation has been

incorporated into the project description to address potential impacts. Additional mitigation measures have been suggested.

AESTHETICS / VISUAL RESOURCES

Affected Environment

The proposed project would consist of 6 to 8 water supply wells and approximately 30,700 feet of buried water-supply pipeline. The pipeline would extend from the south of Owens Dry Lake to the north end of Haiwee Reservoir. The proposed project would be located east of U.S. Highway 395 and south of Highway 190. Distant views of the property would be from the Sierra Mountains several miles to the west.

The visual appearance of the proposed project area and the surrounding Olancha area is distinguished by topography which ranges from generally flat to undulating. The area is characterized by regional vegetation cover and some already existing surface disturbance. Land use in and around the proposed location of the project is generally for agricultural and open space purposes, rather than residential. The area is already traversed by roadways, farm roads, fence lines, canals, windbreaks, and power transmission lines. Much of the area has been disturbed for agricultural purposes. Numerous wells and other small outbuildings already exist in the area. Potential visual observation points from which the site may be visible include Highways 395 and 190.

Potential Impacts and Mitigation: The area of pipeline construction, especially the pipeline trench, would potentially be visible during the construction phase of the project, but this phase is temporary, lasting only six months. After construction, restoration of the area to grade, and re-vegetation of the construction area, some portions of the project site may be visible from U.S. Highway 395 and U.S. Highway 190 and surrounding public lands, particularly lands at higher elevations. The proposed pipeline, wells, and transmission lines associated with the project would generally not be visible from Highway 395 because of the distance between the project site and the highway, and because existing landforms and vegetation would visually intervene between the highway and the proposed location of the pipeline, preventing a clear view of the site. Over time, the pipeline corridor disturbance would be barely visible, and would not change existing views or vistas.

The wellheads could be visible from various locations during operation of the project. The 20 x 20 x 12 foot structures that will house some of the well heads would be visible from some locations during operation of the project. The well heads and the housing structures, however, are relatively small and would not substantially change scenic views or vistas in the area since they are distant from the viewing locations on Highway 190 and Interstate 395.

Views from existing residences may be affected slightly during project construction. Views would not be substantially changed following construction due to the distance from the wells to these residences, and the variable terrain in the area.
Project construction would be temporary, and operation would not result in the

introduction of a substantial incongruous element (i.e., wells and pipelines are common occurrences in agricultural areas) into the area nor change its aesthetic character.

GEOLOGY AND SOILS

Affected Environment

Regional Geology

Owens Valley: The Owens Valley is a north-trending valley that lies between the southeastern Sierra Nevada on the west and the Inyo and White mountains on the east. Owens Valley lies on the eastern edge of the Basin and Range geomorphic province, an extensional feature that continues east through Nevada, Utah, and Arizona to the Rocky Mountains. The Basin and Range Province is characterized by steep northwest-trending mountain ranges separated by down-dropped, graben valleys that developed between large, north-trending faults.

Owens Valley developed primarily by fault activity along the base of the Inyo and White mountains on the east, and the Sierra Nevada on the west. The valley formed in response to graben-type subsidence of the valley floor. Synchronous development of alluvial fans along the flanks of the adjacent mountain ranges partially filled the developing basin and deposited fine-grained sediments in the lakebeds. The valley floor is underlain by valley fill that consists of unconsolidated to moderately consolidated alluvial fan, glacial talus, and fluvial and lacustrine deposits. Sediments in the valley are formed of materials eroded from the surrounding mountains. The depth to bedrock in the study area is not known, but is estimated to be approximately 8,000 feet near Owens Lake (Danskin, 1997).

Owens Valley and historic Owens Lake is one of a group of ancient lakes that occupied basins in southeastern California during the late Pleistocene period. Water supplied by Owens River filled Owens Valley to an elevation of 3,790 feet, 220 feet above historic lake levels. When Owens Lake was filled to its maximum capacity the excess water spilled over at the southern end of the valley and flowed south forming large lakes in the confined basins of Indian Wells, Searles, Panamint, and Death Valley (Gale 1914; Flint and Gale 1958). Subsequent desiccation (drying) of these lakes during the late Pleistocene period and the water diversion by the City of Los Angeles produced large volumes of saline deposits in these basins.

Fault Zones: The Owens Valley fault zone, an active fault that generated a magnitude 8 earthquake in 1872, parallels the Sierra Nevada east of the mountain front. Several strands of this fault zone trend north-south through the study area, some of which have been mapped within 1,000 feet of wells monitored during the aquifer tests. Three fault strands located between the Hunter #1 well and Highway 190 are interpreted to have had surface rupture during the 1872 earthquake (Jennings, 1994). Several fault strands are mapped within the project area that show evidence of displacement some time in the past 1.6 million years (Jennings, 1994). One fault strand, which has been mapped toward the west end of the project area, is observable at the surface as a low north-south trending ridge

with a slight concentration of Joshua trees (Stinson, 1977a, 1977b). The effect of faults on the movement of groundwater in the project area is unknown.

Coso Range: The Coso Range just south of the project area, is a mountain range with poorly defined circular form, is adjacent to the eastern border of the project area. The range is separated from the Inyo Mountains by Centennial Flat. The Coso Range is composed of sedimentary, metamorphic, and granite rocks that are mantled in part by volcanic rocks and by glacial, talus, and fluvial deposits.

Sierra Nevada: About two miles to the west of the proposed project site, the flanks of the Sierra Nevada rise steeply from the floor of Owens Valley. The Sierra Nevada in this region is underlain by Pre-Cenozoic intrusive igneous and metamorphic rocks. Coarse gravel and sands, with lesser silts and clays have accumulated as alluvial fans along the eastern flanks of the Sierra Nevada in this region.

Mixed granite and metamorphic rocks of probable early Mesozoic age form the flanks of the Sierra Nevada in the region directly adjacent to the alluvial fan sequence west of the proposed site (Matthews and Burnett 1965). Younger granite rocks of early Cretaceous age, that range in composition from granite to quartz diorite, underlie much of this region of the Sierra Nevada to the west (Bateman and Merriam 1954; Matthew and Burnett 1965). By-products of erosion form the clastic material found in the alluvial fan sequence to the east along the western margin of Owens Valley.

Project Area: Based on a geologic cross-section for an east-west transect north of Owens Lake Playa, and gravity survey interpretation for the general area (Hollett et. al. 1991) total thickness of alluvial materials in the center of the basin south of Owens Lake Playa may be about 1,000 feet. The exact stratigraphic structure of the alluvial material in the proposed project area, south of Owens Lake Playa and north of North Haiwee Reservoir, is largely unknown. Based on work north of Owens Lake Playa (Hollett et. al. 1991) it is thought that alluvial materials in the region were laid down in sequences of coarse materials during wet periods and fine materials during dry periods. This sequencing has created a geologic structure which has affected the accumulation of groundwater in the area. The structure and extent of these aquifers is discussed later in the hydrology portion of this section.

Potential Impacts and Mitigation: Local land subsidence might be caused by either the application of water to wind-blown deposits on the surface, or by deep dewatering of clays through groundwater withdrawal. The project area does not contain any of the wind-blown deposits that are susceptible to shallow subsidence. Also, the projected pumping cones resulting from groundwater withdrawal in the vicinity of the wells is estimated to reach a maximum depth of fifty feet or less. Any deep layers of clay that might be subject to subsidence would not be denatured. Therefore, no subsidence is expected due to groundwater withdrawal (Psomas and Associates, 1998).

The proposed project site is located in an area with seismic activity. The project would be subject to seismic activity should it occur. Depending on the severity of seismic activity, the pipeline and wellheads could be damaged during an event. In a worst-case scenario, the pipeline or wells could be ruptured. Pumping from the wells would be halted following any significant seismic event.

HYDROLOGY

Affected Environment

This information is compiled from existing literature and the hydrological studies done for the proposed project by Psomas and Associates. These studies are currently being refined. Additional information on hydrology of the proposed project area will be provided following the completion of hydrologic modeling and testing.

Groundwater

Groundwater Basin Structure: The proposed project area has a substantial groundwater supply, believed to be as much as three million acre-feet between Owens Lake Playa and North Haiwee Reservoir. The quality of this groundwater is generally excellent, with low total dissolved solids. Groundwater flows generally from south to north.

Aquifers in the basin are located in the sedimentary deposits laid down by the Owens River and the alluvial fan deposits of the numerous streams flowing out of the surrounding mountain ranges. The deep layers of sediments in the center of the valley interface with the more localized sedimentary deposits of the alluvial fans along the sides of the valley. Localized aquifers are found in the alluvial fans. The larger alluvial fans along the east flank of the Sierra Nevada, such as the Cottonwood Creek fan, extend for up to two miles into Owens Lake. Thus, many of the confined aquifers of these fans probably extend a mile or more eastward under the lake beyond its present shoreline (Lopes 1988).

Due to geologic and physiographic factors, Owens Valley contains a highly transmissive and deep aquifer system. Based on a cross-section of an east-west transect north of Owens Lake Playa, and gravity survey interpretation for the general area (Hollett et al. 1991), the total thickness of alluvial materials in the basin south of Owens Lake is thought to be approximately 1,000 feet. The precise stratigraphic composition of alluvial material south of Owens Lake Playa and north of North Haiwee Reservoir is not known.

Based on existing information, including available well logs and limited aquifer test data, the area is thought to be characterized by a three-tier aquifer system. The bottom two layers are thought to be confined systems with low permeability. The bottom layer is approximately 500 feet in thickness, while the middle layer is approximately 360 feet in thickness. The upper layer, approximately 200 feet in thickness, is more permeable than the other two layers.

This aquifer pattern is believed to be reversed in the Owens Lake Playa, north of the proposed project area. Due to the nature of the underlying sediments in the playa, hydraulic conductivity is presumed to be lower in the upper groundwater layer, with higher levels of hydraulic conductivity in the middle and lower layers.

Groundwater Recharge: Groundwater recharge occurs from subsurface inflows that pass through fractured surface deposits on the sides of the Sierra Nevada mountains and the Coso Range, as well as subsurface inflow through older alluvial material underlying the North Haiwee Reservoir Dam. Recharge also occurs from Sierra Nevada streams, including the Walker, Olancha and Cartago Springs.

Average annual precipitation for the proposed project area has been estimated to be 6.3 inches based on an isolyetal map of the Owens Lake basin (Schumer 1997). Of this amount, only a fraction recharges the groundwater aquifers through both direct precipitation, as well as precipitation onto the alluvial fan deposits. From available data, it was assumed that between zero and ten percent of the average annual precipitation recharges the groundwater system. A median value of five percent (0.3 inches per year) was used for the groundwater modeling.

Mountain recharge may enter the creeks at lower elevations and supply baseflow to the perennial creeks, or may discharge directly into the groundwater basin. Throughout the basin, an estimated 46% of total runoff percolates into alluvial fans (Hutchinson 1986).

Stream Recharge: Stream recharge into the groundwater system in the proposed project area occurs primarily through the Walker, Olancha and Cartago Creeks, as well as other small creeks that flow from the Sierra Nevada and Coso Mountains. Existing recharge data for streams north of the Owens Lake Playa were used to estimate recharge rates for the Walker, Olancha and Cartago Creeks.[2] Based on extrapolation of this data, the total recharge from the three streams is estimated between 2,070 and 7,490 acre-feet per year. The model used for the proposed project assumed a value of 2,050 acre-feet per year of stream recharge from the Sierra Mountains, and 200 acre-feet per year for the Coso Mountains.

Subsurface Inflow: Subsurface inflow, in the form of mountain-block recharge and interfluve recharge, represents potentially the largest source of recharge to the groundwater system. Several studies have estimated the amount and rates of interfluve recharge in the area. Mountain-block recharge[3], however, cannot be quantifiably measured.

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[2] Data from Hollett (1991) and Danskin (1997) for streamflow data at the base of mountain gauges and Owens River-Los Angeles Aqueduct gauges, used to determine the recharge for streams in the Owens Valley north of the Owens Lake Playa were used to estimate recharge rates in the proposed project area. The data used were for streams with similar annual flow rates and similar streambed materials. The calculated recharge rates varied between 0.061 and 0.221 acre-feet per year per foot of stream channel.

[3] The lateral migration of groundwater from the surrounding mountain-block regions.

Studies by Hollett (1991) and Danskin (1997) estimate interfluve recharge in southeastern Owens Valley as seventy-five percent of the total volume of precipitation falling on the ungaged drainage areas based on data from Lee (1912). Wirganowiez (1997) estimated the Owens Lake groundwater basin to have an interfluve recharge rate of 4.6×10^{-5} ft / day, which is approximately 400 acre-feet per year for the Olancha study area.

Based on several previous studies, the total subsurface inflow to the Olancha study area from the Sierra Nevada Mountains ranges between 500 and 4,500 acre-feet per year. Subsurface inflow from the Coso Range is estimated to be 2,400 acre-feet per year for the Olancha study area based on the model by Schumer (1997).

Input from North Haiwee Reservoir: Losses from the North Haiwee Reservoir system serve to recharge the Owens Lake basin groundwater system. The amount of input is unknown. Estimated recharge from the North Haiwee Reservoir is between 2,100 to 2,600 acre-feet per year based on models by Wirganoziez (1997) and Schumer (1997). A value of 2,160 acre-feet per year was selected for this project.

Groundwater Outflow: Outflow from the study area groundwater system occurs through springs and seeps, evapotranspiration, groundwater pumping, and subsurface outflow towards the Owens Lake Playa. Data on groundwater outflow is being collected and refined by the project applicant.

Springs and Seeps– There are areas along the Owens Lake playa where groundwater surfaces and wetland vegetation exists. Cartago Spring / Wicker Well, Dirty Socks Spring, and Wa Hoo Spring and several small springs are located within the study area. (Feeney Hall et al 1997).

Evapotranspiration– The evaporation from the Olancha project study area is estimated to be 0.3 feet per year (Tyler et al. 1997). Evapotranspiration (include losses via vegetation) losses near the springs and seeps in the Owens Lake Playa were measured to range between 0.7 to 7 feet per year (Feeney Hall et al. (1997).

Groundwater Pumping– In the valley, groundwater is pumped from the study area by wells located in Olancha, Cabin Bar, on the Hunter and Boy Scout / Butterworth Ranches, at the Crystal Geyser bottling plant, and at the water ski lake.

Subsurface Outflow– Subsurface outflow occurs towards the Owens Lake Playa.

Surface Waters : The Owens Valley is a closed drainage system, with none of the water in the valley flowing to the ocean. The valley floor lies at approximately 3,600 feet elevation and is surrounded by the Sierra Nevada to the west, the Inyo Mountains to the east, and the Coso Range to the south. Elevations in these mountains reach over 14,000 feet. The climate is generally dry, with precipitation ranging from 7 to 14 inches per year depending on the elevation and location within the valley (CH2M Hill 1991). Most of the precipitation falls as snow in the higher elevations of the Sierra Nevada. Runoff from

snow melt and rainfall enters the valley in the numerous streams flowing from the surrounding mountains.

Owens Lake: The Owens River was historically the main source of water flowing into Owens Lake. Other sources of inflow included precipitation falling directly on the lake surface and runoff from streams flowing directly into the lake from the surrounding mountains. Historically, Cottonwood Creek and Ash Creek are the largest of these streams that entered the lake directly from the Sierra Nevada. Due to natural topographical constraints, the lake has had no outflow since the Pleistocene period. Since there is no outflow from Owens Lake, the trace amounts of dissolved salts and minerals contained in the fresh water inflow to the lake were concentrated to the point where the lake had a naturally high dissolved salt content.

Prior to the last third of the nineteenth century, fluctuations in water levels in Owens Lake were the result of fluctuations in natural water inflow and evaporation. Between 1872 and 1878, Owens Lake was at a stable lake level of 3,597 ft above mean sea level (msl) and covered an area of approximately 72,000 acres (Lee 1915). Precipitation records from the Owens Valley and adjacent areas indicated that the climate during this period had no persistent tendency toward either excessive precipitation or drought. After 1878, residents in the Owens Valley began diverting water from the Owens River and tributary streams. Several ditches were opened and large-scale irrigation began in the Owens Valley north of Owens Lake and caused a lowering of the lake level. Over the following four-year period, heavy precipitation in the Owens Valley failed to increase the lake level due to the increase in water diversions.

By 1905, Owens Lake was 32 feet lower than it had been in 1870 and occupied an area of 44,000 acres in response to the preceding 10 years of drought and diversions for irrigation. Even with the diversions, above-average precipitation caused Owens Lake to rebound to an area of 62,000 acres by 1913. With the completion of the Los Angeles Aqueduct, and the diversion of water to Los Angeles in 1913, the majority of the flow from both the Owens River and Sierra streams was intercepted and exported from the valley. By 1924, the lake essentially dried to its present condition (DRI 1993). As the lake dried, the dissolved salts became increasingly concentrated as fresh water inflow decreased and water evaporated from the lake. As the brine became more concentrated, carbonate salts precipitated, forming the lakebed mineral deposits and the saturated brine solution that currently exists on the lake surface

North Haiwee Reservoir: The North Haiwee Reservoir is located at the southern end of the study area. North Haiwee Reservoir is formed by an earth-fill dam used primarily to regulate flows for the Los Angeles Aqueduct.

Streams and Rivers: Under natural conditions, mountain streams in the Owens Valley are tributary to the Owens River (the main drainage channel in the valley). The Owens River flows into Owens Lake, a large, mainly dry lakebed with no natural outflow except evaporation. The City of Los Angeles Department of Power and Water (LADWP) has

constructed the Los Angeles Aqueduct through the valley, which diverts a large amount of water from the valley to the Los Angeles area. Most of the larger streams from the Sierra Nevada flow year-round and are diverted into the aqueduct. Most of the Owens River flow is also intercepted and diverted to the aqueduct. With the exception of the Owens River and the larger tributaries, the smaller streams and washes in the Owens Valley generally lose their surface flows into the ground quickly once the streams cross porous alluvial deposits, such as fans at the base of the mountains. Therefore, many of the water courses in Owens Valley are intermittent in their surface flows (Inyo County 1979).

Stream recharge occurs through Walker, Olancha, and Cartago Creeks. These streams carry runoff from the Sierra Nevada, as well as other small creeks originating in the Sierra Nevada and Coso Mountains. Based on previous studies in the project area, (Danskin 1997; Hollett 1991; Schumer 1997; Wirganowiez 1997) it is estimated that stream recharge from Olancha, Walker, and Cartago Creeks is between 2,000 to 7,500 acre-feet per year.

Aquifer Evaluation

MODFLOW Groundwater Model: A model was developed to study groundwater dynamics for the southern end of the Owens Valley from North Haiwee Reservoir to the Owens Lake Playa. The study area for the groundwater model is approximately 30,000 acres and includes the proposed project area. The groundwater model was designed to study three potential effects of the proposed project:

1. Effects on existing groundwater wells;
2. Effects on springs and vegetation near Owens Lake Playa;
3. Effects on long term water balance for the groundwater basin south of Owens Lake Playa.

Results from the MODFLOW groundwater model will be provided in later documentation when complete. The results of the MODFLOW modeling will be used to develop a groundwater mitigation and monitoring program for the proposed project. Existing wells are illustrated in Figure 4-5.

Potential Impacts and Mitigation

Effects on Groundwater : The proposed project would consist of pumping between 6,000 to 8,000 acre-feet of groundwater per year. Numerous hypothetical operation and pumping scenarios are to be mathematically simulated to determine potential effects the proposed pumping would have on groundwater resources in the project area. The projected modeling scenarios range from continuous pumping of select wells to seasonal pumping of select wells.

Initially, project pumping would cause a "pumping cone" that would develop in the center of the project pumping area. After several years of operation, it is thought that this cone would stabilize. Consequently, the basin south of Owens Lake Playa would theoretically be in long-term equilibrium and the basin would operate on a sustained-yield basis.

A basic design parameter of the proposed project is to avoid any significant impacts to the environment of Inyo County. Accordingly, five dedicated monitoring wells have been included in the project design to determine whether drawdown of the aquifer is occurring. Three wells are to provide data on non-project conditions, while the other two wells are designed to provide data on project-induced conditions. These wells would serve to:

- Verify predicted hydrologic changes
- Determine if predicted changes occur
- Serve as an early warning to any potential impacts to existing wells, springs and vegetation.

If groundwater drawdown is detected, the pumping of the project wells would be reduced or shut off to limit drawdown of the groundwater aquifers. Since Western Water would not be required to provide minimum levels of water to any purchasers, pumping could be stopped completely in order to avoid significant adverse decreases in the level of the aquifer.

Effects to Vegetation: Maintenance of existing vegetation communities in the project area is a central goal of the proposed project. It is generally believed that vegetation in the project area is not groundwater dependent. Furthermore, the project design would include a monitoring program focused on avoiding any significant impacts to the local environment.

Effects to Off-Site Wells: Private wells in the immediate are of project pumping may be impacted by groundwater level drawdown. If private wells in the immediate area are impacted by groundwater level drawdown, either a new water supply would be provided to those owners, or compensation would be paid for additional power costs associated with increases in pump lift.

Effects on Surface Waters

Owens Lake: Due to the distance between the proposed well locations and Owens Lake, it is thought that the proposed project would have no significant effects on Owens Lake. In addition, a comprehensive monitoring program will be included in the final project design that would monitor closely the levels of groundwater south of Owens Lake. Any significant changes in water levels caused by the project would trigger appropriate reductions in pumping.

North Haiwee Reservoir: Due to the distance between the proposed well locations and North Haiwee Reservoir, it is thought that the proposed project would have no effect on North Haiwee Reservoir. In addition, the monitoring program that would be included in the project design would mitigate any possible effects from the project's pumping on water levels in North Haiwee Reservoir.

Springs: Due to the distance between the proposed well locations and springs in the area, it is expected that the proposed project would not affect springs and seeps. Flow monitoring of Dirty Socks and Wahoo Springs would be conducted on a semi-annual basis (spring and fall) during the life of the proposed project.

The monitoring program that will be developed for the project would be designed to avoid and mitigate any significant impacts to water resources in the area. Accordingly, there should not be any significant impacts to surface water in the area due to the operation of the proposed project.

AIR QUALITY

Affected Environment

Climate and Meteorology: The climate of the Owens Valley is typical of the high desert terrain, characterized by clear, dry air, with low humidity except during infrequent stormy periods. Annual rainfall for the area is usually less than 7 inches with the greatest amount falling between the months of November through April. Summer days are hot and the nights cool, with an average range of 43° Fahrenheit (F) from the heat of the afternoon to the cool of the night. Winter afternoons are usually warm, ranging from 50 to 60° F (U.S. National Oceanic and Atmospheric Administration [NOAA] 1989).

During the summer and autumn, the relative early morning and late evening coolness of the Mojave Desert causes a northerly wind through Owens Valley (winds from the north). Conversely, in the heat of the afternoon, a southerly wind arises that is occasionally strong. Winds from the east and west are less common, but give rise to hot dry winds that cause pronounced turbulence (i.e. mixing of the atmosphere).

Existing Air Quality: In general, air quality in the Owens Valley is excellent due to the low population and diffuse industrial activity. Under normal conditions, lack of heavy industry and traffic within the valley leads to good visibility and no violations of state or Federal Ambient Air Quality Standards (AAQS) for the pollutants associated with these sources, such as sulfur dioxide (SO_2), oxides of nitrogen (NO_2), carbon monoxide ($C0_1$), and ozone (O_3) (CARB 1991a). However, violations of the standard for particulate matter under 10 microns (PM_{10}) do occur, primarily as a result of wind-blown dust from the dry portions of Owens Lake.

Basin-wide emission trends for stationary sources (including industrial and residential sources) and mobile sources (including vehicles and aircraft) show a general overall increase in emissions in the basin. Basin-wide, emissions of air pollutants that are typically associated with stationary source combustion of coal and fuel oils (such as SO_x) show a relatively small increase, and within Inyo County, these pollutants show a decrease. However, emissions from mobile sources (such as CO and NO_x) show a relatively large increase in both the basin and Inyo County.

During periods of high wind (i.e., in excess of 16 miles per hour), large dust plumes are often emitted from the dry bed of Owens Lake. High winds often occur during the late spring, summer, and early fall months. Owens and Mono Lakes have been identified as the main sources of PM_{10} emissions in the region. Dust generated by the wind erosion of the dry portions of these lakebeds contribute to high background PM_{10} concentrations that violate state and Federal ambient air quality standards.

In order to monitor violations of PM_{10} air quality standards, the Great Basin Unified Air Pollution Control District (GBUAPCD) has collected data on ambient particulate concentrations at four monitoring stations within the Owens Valley: Lone Pine, Keeler, Darwin, and Coso Junction. PM_{10} data from these stations are collected every sixth day, for a total of approximately 60 readings taken at each monitoring station each year. The number of exceedances of the state standard (which is more stringent than the Federal standard) appeared to be fairly consistent in the early 1990's, with the greatest number of exceedances occurring on the east side of Owens Lake at Keeler (CARB 1991c, 1992, 1993a).

Existing Visibility: The Owens Valley is characterized by generally good visibility. The visibility ranges from 37 to 93 miles, with greatest visibility being between the months of January and March. Decreases in visibility are generally associated with gusty winds during summer months which create fugitive dust emissions from dry lakebeds within the valley.

Visibility is also affected in the region by the migration of air pollutants from the San Joaquin Valley and South Coast air basins. Up to 50% of visibility degradation can be attributed to inter-basin transport of air pollutants.

There are 11 sensitive airsheds in the region. These include wilderness areas, national parks, a national historic site, national forests, and the R-2508 military airspace. Four of these airsheds–John Muir and Domeland Wilderness Areas, King Canyon and Sequoia National Parks–are designated as Class I prevention of significant deterioration (PSD) areas, which are afforded more stringent protection from visibility degradation and for impacts from air pollutants. In addition, the R-2508 military air space and the China Lake Naval Air Weapons Station (NAWS) are sensitive sites for visibility impacts from dust emanating from Owens Lake.

Potential Impacts and Mitigation

Construction: Temporary impacts to visibility may occur as a result of project construction. Grading, excavation, and other construction activities could disturb surfaces in the proposed project area, resulting in the generation of fugitive particulate emissions, also known as PM_{10} (dust). Peak emissions of paticulates would occur during pipeline installation, when excavation of the pipeline trench would result in soil disturbance. Well drilling would also contribute to particulate emissions from the proposed project site. Additional data regarding air quality can be found in various recent GBUAPCD's documents.

Construction activities in the project area would result in some emissions of hydrocarbons and criteria air pollutants in addition to dust emissions. Inyo County is currently unclassified for criteria air pollutants other than PM_{10}. Heavy equipment used for well drilling and construction of the pipeline route would emit hydrocarbons and criteria pollutants from the burning of fossil fuels. Air toxins and trace metals could also be emitted from heavy construction equipment during project construction. These emissions, however, are not expected to cause exceedances of any applicable AAQS or cause significant health risks.

Operation: Operation of the proposed project would result in some particulate emissions. Vehicular traffic along non-paved roads in the project site would create some dust emissions, but such traffic would be generated only for facility maintenance.

There is the possibility that groundwater drawdown from the project could result in drier soil conditions in the area. Conceivably, such a change would result in a higher levels of particulate emissions from the project area. However, the proposed project design includes an extensive well monitoring program designed to avoid any significant changes in groundwater levels in the area. Increased dust emissions due to changes in soil hydrology should therefore not result from project operation.

Fugitive dust emissions would be controlled through the use of Best Available Control Measures (BACM), including the use of chemical soil stabilizers, surface coverings, water trucks, and water sprays. Vegetation will be re-established to reduce the area of exposed soils.

VEGETATION AND WILDLIFE

Affected Environment

Vegetation: The project site is located within the Mojave Desert, which in California encompasses most of Inyo and San Bernardino Counties and eastern Kern County. The study area lies in a narrow basin, with the alluvial fans of the Sierra Nevada and the Coso Mountains on either side. Species within the study area are partly a result of the project's location in a transitional region between the Great Basin Desert, which has cold winters and warm to hot summers, and the Mojave Desert, which has relatively mild winters and hot to very hot summers. At about 3,630 feet, the study area is at the lower elevational range for Great Basin Desert and in the upper range for Mojave Desert basins. In this transitional region the ranges of many Great Basin species overlap with those of Mojave Desert species.

Habitats within the project study area are determined largely by land forms, soils and available moisture, and in some places by the influence of human activities. In the northern Mojave Desert and southern Great Basin Desert, the most abundant vegetation types at the project elevation are scrub communities that are dominated by one or several small to medium-sized, drought-tolerant shrubs. These scrub communities are found on upland sites including bajadas, slopes, and upland flats. The dominant species and the

density of plants varies depending on environmental conditions such as soil texture, soil drainage, aspect, and salt concentration.

In the project area there are ten natural vegetation types, four highly modified vegetation types, and two land forms that are devoid of vegetation, playa and gravel bars (Table 2B-1) also see Figure 4-7. At least six of the natural communities are considered sensitive by the California Department of Fish and Game. Each of these vegetation types will be described in detail in a vegetation and wildlife report for this project currently being prepared by Mark Bagley and Brian Leatherman. The information presented here (including Figure 4-10) is based on a draft report.

Table 2B-1: Vegetation Types in the Study Area

Natural vegetation types	**Highly modified or disturbed vegetation, and largely barren areas**
Forest vegetation types	*Human-modified areas*
Mojave riparian forest*	Old fields
	Developed / disturbed areas
Scrub vegetation types	Pasture (some pastures support native herbaceous components, including special status species)
Desert saltbush / shadscale scrub	Windbreak trees
Desert sink / greasewood scrub	
Rabbitbrush / saltbrush / sagebrush scrum	*Naturally-barren areas*
Rabbitbrush / sagebrush meadow*	Gravel bar
Mojave creosote bush scrub	Playa
Herbaceous vegetation types	*Sparsely-vegetated, unique vegetation types*
Transmontane freshwater and alkali marsh*	Active desert dunes (Olancha Dunes)*
Alkali meadow*	Stabilized or partially stabilized desert sand fields and dunes*

* Considered a sensitive community by the California Department of Fish and Game

Source: Bagley and Leatherman 1998 in preparation

Special-Status Plants: Nine species of special-status plants were identified as occurring or potentially occurring in the project area. Three of these species are found in the study area: Ripley's cymopterus (*Cymopterus ripleyi*), Owens Valley checkerbloom (*Sidalcea covillei*), and alkali cordgrass (*Spartina gracilis*). Owens Valley checkerbloom is listed by the state as endangered. Ripley's cymopterus and alkali cordgrass are not state- or federally-listed, but they are on the California Native Plant Society's List 2 and 4, respectively. The occurrence of these three species in the study area is briefly discussed below.

Based on previous records, Owens Valley checkerbloom occurs in the study area in moist alkali meadows and possibly in irrigated pastures between Olancha and Cartago. Because these areas are north of the expected zone of impact, they were not searched in detail for Owens Valley checkerbloom. The exact location and population size of this species in the study area is unknown.

A total of at least 1,320 individuals of Ripley's cymopterus occur in the study area in 14 groups ranging in size from one plant to over 1,000 plants each. Most plants were found in desert saltbush scrub and shadscale scrub south of the Olancha Dunes. Approximately 85 individuals of alkali cordgrass are found in the study area in the alkali meadow in two locations west of the Olancha Dunes.

Suitable habitat for the other six special-status plants was present in the study area but these species were not observed during the botanical surveys for this project.

Special-Status Wildlife: Forty-one special-status wildlife species occur in the study area based on the presence of suitable habitat. Of these 41 species, nine are currently listed by the state or federal government as threatened or endangered: Owens tui chub, Owens pupfish, desert tortoise, Swainson's hawk, Western yellow-billed cuckoo, willow flycatcher, Least Bell's vireo, bank swallow, and Mohave ground squirrel. These nine species are briefly discussed below.

The Owens tui chub is found in springs on the Cabin Bar Ranch in the northwest corner of the study area and may be found in other springs near Owens Lake. Suitable habitat for this species is absent from the rest of the study area. There are no known records for the Owens pupfish south of Owens Lake, and there is no suitable habitat for this species in the study area. Three Swainson's hawks were observed during the surveys for this project, and two of these established a nest in the southern portion of the study area. The majority of the study area and surrounding region provide excellent foraging habitat for Swainson's hawks.

No Western yellow-billed cuckoos were observed during surveys for this project or in past surveys in the vicinity. However, suitable habitat for this species may be present in the gallery riparian forest on the Cabin Bar Ranch north of the study area. Many migrant willow flycatchers were observed during the surveys for this project in the rows of trees and thickets associated with ranches in the study area. No willow flycatchers were observed nesting in the study area and there is no habitat suitable for nesting by the willow flycatcher in the study area. The least Bell's vireo and bank swallow both nested in Owens Valley historically, but neither currently nests in the study area. The bank swallow may move through the area during migration.

The study area is located at the extreme northern edge of the range of the Mojave ground squirrel. No Mojave ground squirrels or their sign were observed in the study area during surveys for this project or in nearby locations in the recent past. However, due to the presence of potentially-suitable habitat, and one historic record there is a low to moderate probability that this species occurs in the study area.

The study area is just north of the known range of the desert tortoise (considered to be more or less at the south end of Haiwee Reservoir), and no tortoise or tortoise sign was observed during surveys conducted as part of this project. As such, this species is not expected to occur in the study area. However, because focused surveys for this species

have not been conducted, a conclusive statement that the tortoise is absent cannot be made at this time.

Other special-status wildlife, not state- or federally-listed as threatened or endangered, that were observed in the study area during surveys for this project, or that have been reported from other surveys include the alkali skipper, Wong's springsnail, Northern harrier, ferruginous hawk, sharp-shinned hawk, western snowy plover, long-eared owl, LeConte's thrasher, loggerhead shrike, pallid bat, spotted bat, Yuma myotis, and Owens Valley vole. Several invertebrate species that are of local concern are known from the Owens Lake playa and Olancha dunes in the northern portion of the study area. These include Owens valley tiger beetle, alkali tiger beetle, slender-girdled tiger beetle, Owens dune weevil, and a moth (no common name).

Potential Impacts and Mitigation: Assessment of potential impact and mitigation is being investigated.

NOISE

Introduction

Noise is usually measured in terms of decibels (dB) or decibels A-weighted (dBA). The measurement of noise in dB is a direct representation of measured noise levels. The measurement of noise in dBA weights the various frequencies comprising all sounds to simulate the relative response of the human auditory system to those frequencies. The measurement of noise in dB or dBA is a measurement of the intensity of sound at any instant in time.

The measurement scale for decibels is a logarithmic scale (rather than a linear scale) that measures noise levels in a range from 0 dB to about 120 dB. Logarithmic scales cannot be added arithmetically. For example, a 70 dB sound added to another 70 dB sound produces a combined sound pressure of 73 dB, not 140 dB. In general, a 10dB increase in noise level is perceived as a doubling in loudness.

For a "line source" of noise such as a heavily traveled roadway, the noise level drops off by a nominal value of 3.0 decibels for each doubling of distance between the noise source and the noise receiver. Environmental factors such as wind conditions, temperature gradients, characteristics of the ground and air, and the presence of vegetation combine to increase the attenuation of sound achieved outside laboratory conditions. In most cases, environmental factors tend to attenuate noise by 4.5 decibels for each doubling of distance.

In an area which is relatively flat and free of barriers, the sound level resulting from a single "point source" of noise drops by 6 decibels for each doubling of distance. This applies to fixed noise sources and mobile noise sources which are temporarily stationary such as an idling truck or other heavy duty equipment operating within a confined area (such as industrial processes or construction).

Table 2B-2 depicts some common noise sources and their corresponding noise levels.

Table 2B-2: Typical Noise Sources and Levels

Noise Source	Noise Level (dBA)
Rustle of leaves in breeze	25
Whisper (at 6 feet)	35
Inside average residence	40
Refrigerator (in same room)	40
Average office	55
Normal female speech (at 3 feet)	60
Vacuum cleaner (at 10 feet)	70
Garbage disposal (at 3 feet)	80
Food blender (at 3 feet)	90
Auto horn (at 10 feet)	100

Affected Environment: The noise environment at the proposed project site is typical of rural, low population density areas. Overall, the area is quiet as is typical of undeveloped areas. Although a detailed noise analysis has not been performed in the project area, it is anticipated that ambient noise levels in the project area are low. Existing sources of noise that affect the overall ambient noise conditions in the project area include:

- Traffic noise along Highway 395 and Highway 190
- Farming equipment
- Airplane fly-overs and sonic booms
- High winds

During farming operations, noise levels in the project area are dominated by farming equipment. Ambient noise measurements that are typical of agricultural lands range from 40 to 50 dBA. Table 2B-3 provides noise levels for typical farming equipment and construction equipment:

Table 2B-3: Noise Levels of Typical Farming Equipment

Equipment Item	Noise Level at 50 feet (dBA)
Front loaders	72-85
Backhoes	72-93
Tractors	77-97
Scrapers and graders	80-93
Trucks	82-93

SOURCE: Canter 1977

Sensitive noise receptors present in the project area include inhabitants of buildings and residences located on the Hunter Ranch and Butterworth/Boyscout Ranch properties.

Potential Impacts and Mitigation

Effects of Noise During Construction: Construction of the groundwater wells would last approximately 6 months. The proposed six to eight groundwater wells would be drilled with reverse rotary equipment with drilling taking place approximately 2 to 4 weeks for each well. Drilling of groundwater wells would occur 24 hours per day until each well is completed. Two wells may be drilled at one time, depending on the availability of the drilling equipment. The drill rig used to construct the wells would be diesel-powered.

During pipeline construction, a trench would be excavated and soils laid on one side of the trench and pipe on the other side of the trench. The amount of trench open at one time would be the approximate amount of trench which could be laid with pipe and backfilled within the same day. Construction equipment used during pipeline construction would include a small crane, large trenching machine, backhoe, and miscellaneous trucks and equipment.

A transmission line extension of approximately 10,000 feet would be required to supply the groundwater well pumps with power. Equipment used during transmission line construction would include a bulldozer, backhoe, drill rig, crane, and miscellaneous trucks and equipment. Table 3B-4 provides noise levels of equipment that would be used during the construction phase of the project.

Table 3B-4: Noise Levels of Construction Equipment

Equipment Item	**Noise Level at 50 feet (dBA)**
Generators	72-83
Compressors	75-87
Cranes (moveable)	75-87
Front loaders	72-85
Backhoe	82-95
Bulldozer	82-95
Tractors	77-97
Trucks	82-93

SOURCE: Smith, Peroni & Fox, Planning Consultants 1994

Construction-related noise would be similar to the noise produced by farming equipment in the project area. As shown in Tables 3H-2, Noise Levels of Typical Farming Equipment and Table 3H-3, Noise Levels of Construction Equipment, noise levels produced by farming equipment and construction equipment are relatively equivalent. Due to the

short-term nature of construction related noise and existing noise levels in the project area, noise associated with construction of the proposed project would have a less-than-significant impact on the overall ambient noise levels in the project area. The project proponent would ensure that noise related to construction would have a less-than-significant effect on the existing environment by requiring noise controls on standard construction equipment.

The project proponent shall use feasible noise controls on standard construction equipment to minimize potential noise effects to existing nearby sensitive receptors. Impact tolls should be shielded or shrouded when practicable, and equipment should have a muffled exhaust.

Effects of Noise During Operation: Noise associated with the operation phase of the proposed project would consist of groundwater well pumping equipment. At a maximum, six to eight groundwater wells would be in operation at one time each requiring a 100 horsepower motor. Wells would be pumped for 12 weeks followed by a one week shutdown to allow for monitoring of static water levels.

Noise associated with the operation phase of the proposed project is anticipated to be minimal. Previous studies of groundwater well pumps indicate that 350 horsepower motors did not result in perception of noise by sensitive receptors (Thornton, pers comm. 1998), and it is therefore reasonable to assume that 100 hp motors would not have a significant effect on the ambient noise levels in the project area. The project proponent would ensure that groundwater pumps used during project operation would not produce noise levels that would have a significant impact on the ambient noise levels in the project area. The project proponent shall explore the different types of groundwater well pumps available and will implement groundwater well pumps that will not substantially increase noise levels in the project area.

TRANSPORTATION AND TRAFFIC

Affected Environment

Regional Access Routes: Regional access in the project region is provided by Interstate Highway 395 and Highway 190. Interstate Highway 395 is the major transportation corridor in and through Inyo County (Inyo County Planning Dept. 1996). This route serves as the major transportation corridor connecting the Eastern Sierra Region and Western Central Nevada to the Southern California Region. This north-south arterial is located approximately 0.5 mile from the western boundary of the project site and passes through the states of California, Nevada, Oregon, and Washington. Interstate Highway 395 is generally a two-lane highway, however the highway is scheduled for expansion to a four-lane facility by the year 2010 (Inyo County Planning Dept. 1996). Areas to the north and south of the project site have been improved to four lanes. The average annual daily traffic on Interstate 395 was estimated at 18,559 for 1996 (Inyo County Planning Dept. 1996).

Interstate Highway 190 is a two-lane facility that extends east from Interstate Highway 395 and joins Highway 127 near the Nevada state border. From the western to eastern boundaries of the Death Valley National Park (55.5 miles), Highway 190 is officially designated as a state scenic highway.

Project Vicinity Roads: Roads in the immediate vicinity of the proposed project area include privately-owned and County roads. Traffic volumes in the immediate project vicinity are very low and are typical of rural areas with sparse populations. Roads in the project vicinity are predominately dirt roads, however some paved roads, such as portions of Cactus Flat Road, exist in the immediate project area.

Project vicinity roads have generally been established to support farming activities. These roads are also used by persons residing near and in the proposed project area.

Potential Impacts and Mitigation

Effects on Regional Access and Project Vicinity Roads

Increases in Traffic Due to Construction: Construction and operation of the proposed project would result in additional daily trips on project area roads. During construction, traffic would be generated by construction workers traveling to and from the project site, and by construction vehicles transporting necessary equipment and materials to and from the site. Construction vehicle access to the project site would be accomplished from the north or south via Highway 395, and from the east via Highway 190. Cactus Flat Road (County maintained roadway) and a variety of privately-owned roadways in the immediate project vicinity would be used for site access .

Most of the materials that would be hauled on project area roads would be typical of new construction and would come to the site on standard semi-truck loads. Exceptions to this may include heavy equipment such as drilling rigs which would require special over-size and over-weight permits and flag.

Increases in vehicular trips associated with construction would be temporary and would occur over a six-month period. Construction related trips would be relatively few in number. Thus, additional vehicular trips associated with the proposed project would not have a long-term significant effect on traffic conditions along Highway 395, Highway 190, and other project vicinity roadways. Existing traffic conditions along these routes would not be significantly effected by construction of the proposed project.

Increases in Traffic Due to Operation: Operation and maintenance of the wellfield and transmission line would result in slight increases in vehicular traffic in the project area. During operation, an estimated additional 8 trips per day would occur on project area roads (assuming 4 full time and from 1 to 3 part-time employees would be needed during project operation). Additionally, occasional vehicular trips by maintenance vehicles would be required to ensure that the transmission line and wellheads are operating effectively.

The estimated 8 additional vehicular trips per day that would be generated by operation and maintenance of the proposed project would have a negligible effect on traffic conditions on Highways 135 and 190 because these routes already accommodate substantial amounts of traffic (Highway 395 has an annual daily traffic average of 18,559 trips). The additional trips associated with operation and maintenance would not add substantially to congestion on these highways.

Traffic associated with operation and maintenance of the proposed project would have a less-than-significant impact on County and privately-owned roads in the project area due to the minimal number of trips that would be required. The County and privately-owned roads in the project area presently receive minimal amounts of vehicular traffic, therefore 8 additional trips would not congest these routes.

Effects on Structural Integrity of Project Area Roads: During the operation phase of the project, increased traffic volumes would have a negligible effect on roadways in the project area. However, vehicular traffic during the construction phase of the project would have the potential to create a significant effect on the structural integrity of privately-owned dirt roads in the proposed project area. In order to mitigate effects to project area roads, the project proponent would be responsible for road repairs and maintenance of privately-owned dirt roads in the project area. Repair and maintenance would include regrading, compacting, and watering roads when necessary. The applicant will ensure that privately-owned roads used by construction vehicles are maintained in their present condition during and after construction.

CULTURAL RESOURCES

Affected Environment

The project area would consist of six to eight water supply wells, approximately 9,500 feet of power line extension, and approximately 34,500 feet of water-supply pipeline, which would be constructed to the edge of the Caltrans right-of-way at Highway 190. The pipeline construction corridor would be approximately 50 feet wide and 34,500 feet long. The pipeline would extend from just south of the Owens Dry Lake bed to the northern tip of the Haiwee Reservoir. Permanent surface disturbance for project facilities would be 7,200 square feet for 8 well heads and related construction.

This section presents the regulatory framework and existing information about prehistoric and historic resources in the project vicinity. An archaeological overview of the project vicinity is provided, and is followed by discussions of the results of an archaeological study that has been conducted for the proposed project.

Field surveys and record searches were conducted for these studies. Record searches for the proposed project involved investigations of available resources, including the database and paper records at the State Historic Preservation Office (SHPO). In addition, the following California archaeological repositories were researched:

- California Archaeological Inventory, Eastern Information Center,

The proposed project will be designed to minimize any potential effects to cultural resources. This section identifies the cultural resources of concern in the area in order to provide a basis for further assessment and analysis. Brian F. Smith and Associates completed the cultural study of the proposed area.

Regulatory Framework: State legislation requires the protection of historical and cultural resources. In 1980, the Governor's Executive Order No. B-64-80 required that state agencies inventory all "significant historic and cultural sites, structures, and objects under their jurisdiction which are over 50 years of age and which may qualify for listing on the National Register of Historic Places." Section 15065(a) of the CEQA Guidelines specifies that projects which "degrade the quality of ... or eliminate ... important examples of the major periods of California history or prehistory" shall be found to have a significant impact on the environment.

Overview

Prehistoric: Although archaeological research in the region has expanded greatly over the last 20 years, many of the recorded archaeological sites in the project vicinity have yet to be even preliminary explored. Knowledge of the earliest inhabitants of the region is therefore limited. Geomorphic changes, gaps in comprehensive coverage of detailed investigations and the lack of permanent settlements by early populations contribute to the scarcity of knowledge concerning the prehistoric archaeology of the area (FWARG 1992b).

Existing archaeological evidence from the project vicinity suggests that humans have been active in central-eastern California for approximately the last 10,000 years. However, evidence of cultural activity in the area from about 3,500 to 7,500 years ago is far more abundant and widespread than that of earlier occupations. This evidence indicates that small, mobile hunter-gatherer populations that used temporary camps occupied the area during this period. Although temporary camps continued to be a vital component of the hunter-gatherer populations, more complex and permanent human settlements began to develop in the area approximately 2,000 years ago. This trend continued throughout the next two millennia as populations in the area centralized their settlements, developed more elaborate sociopolitical systems, diversified and intensified the use of subsistence sources (FWARG 1992b).

The territories of four distinct prehistoric hunter-gatherer populations were still in existence in the vicinity of the project area at the time of European contact in the early nineteenth century. The Paiute of Owens Valley occupied land between the crests of the Sierra Nevada and Inyo and White mountains and from the southern shore of Owens Lake to the northern end of the Owens Valley north of Bishop. Coso Shoshone resided in Rose Valley and Indian Wells Valley. The Tubatulabal occupied the southern Sierra uplands, and the Kawaiisu occupied portions of Indian Wells Valley. The Paiute and Tubatulabal maintained a relatively centralized society with more permanent settlements,

while the Coso Shoshone and the Kawaiisu existed primarily in small and mobile family units. These populations relied on a wide variety of subsistence sources spread throughout the region (FWARG 1992b).

Historic: Recorded European exploration of the region began in the 1830s when Joseph Reddeford Walker, a fur trapper and explorer, passed through the region . The region remained relatively unexplored until the discovery of silver and other metals at Cerro Gordo on the east side of Owens Lake in the 1860s. Permanent European settlement in the area began in 1865 as a result of mining activities at Cerro Gordo. Mining was the predominant activity in the project vicinity in the late nineteenth century as natural resources were extracted, processed and transported out of the region (FWARG 1992b).

As a result of mining activities, industrial facilities were constructed in the region to process extracted natural resources. Small communities such as Cartago and Olancha were established near these facilities. During the 1880s, the Carson & Colorado Railroad extended a railroad line from Virginia City, Nevada south to Keeler on the east side of Owens Lake. By 1900, the SP and the Atchison, Topeka, and Santa Fe Railroad had established railroad lines to Mojave from Los Angeles (FWARG 1992b).

In addition to mining, various agricultural activities were undertaken in the Owens Valley in the late nineteenth century. Irrigation districts were formed by local farmers to build irrigation ditches that diverted water from the Owens River and tributaries for their crops and grazing lands.

During the early 1900s, the Owens Valley attracted the interest of the City of Los Angeles, which was beginning to experience a boom in its population and was quickly outgrowing its local water supply. At the time, the Owens River and its tributaries fed into Owens Lake. In 1904, the City of Los Angeles began buying land in the Owens Valley and acquiring water rights in order to construct the Los Angeles Aqueduct to carry water from the Owens Valley to Los Angeles.

During construction of the Los Angeles Aqueduct, many small communities were established along the Mojave-Owenyo railroad line, such as Haiwee, Little Lake, Narka, Brown, and Inyokern. The populations of already established communities such as Cartago and Olancha also increased. These communities provided homes and shops for the aqueduct construction workers and support people, and served as supply centers for the agricultural population that was in existence in the region at the time (FWARG 1992b).

The population of the region began to decline in 1913 as the aqueduct was completed and the region's water supply was exported by the aqueduct. However, small communities continued to exist at various locations. Cartago and Olancha served the mining and industrial facilities that existed near Owens Lake until the 1930s. Inyokern developed into a regional agricultural supply center and a support community for the China Lake Naval Air Weapons Station (formerly the Naval Weapons Center), which was established in

1943. A small agricultural population also remained scattered throughout the project vicinity.

Archaeological and Paleontological Study– Pipeline Corridor and Well Sites
In November 1998, Brian F. Smith and Associates completed an archaeological and paleontological study of the proposed area for the pipeline corridor and well sites. While some areas of prehistoric and historic interest were identified, the significance of these areas has not yet been determined, nor has it been determined whether construction and operation of the proposed project would affect any existing areas of cultural significance. Once the results of this survey have been developed, and after any additional studies have been performed and evaluated, such information will be provided to Inyo County.

Environmental Impacts

While some areas of prehistoric and historic interest were identified during the archaeological and paleontological study of the proposed project area, the significance of these areas has not yet been determined. Once the results of this survey have been developed, and after any additional studies have been performed and evaluated, such information will be provided to Inyo County.

There are few cultural or historical resources likely to be located in the project area. Additionally, the contracted project engineer would consult any available surveys and studies of such resources and provide a 50-foot buffer between project construction and any cultural resources sites in order to avoid such sites during project construction.

HISTORICAL RESOURCES– STRUCTURES

Structures that are located in the area through which the proposed pipeline and wells would extend are shown on Figure 4-8 in Section 4. These structures are located on several of the parcels affected by the project. (The scale of Figure 4-8 does not clearly indicate distances between structures and the proposed pipelines, wells, and transmission lines. The project applicant will provide a map with a smaller scale, on which these distances may be more accurately determined, as the information becomes available). In addition, photographs showing existing structures on project lands are attached to this subsection (Photos 1-14).

A short description of each parcel, along with available information describing structures located on the parcel, is presented below.

The proposed project will be designed to avoid effects to existing structures on the properties involved. In fact, the proposed well sites and pipeline routes are distant from existing structures, and will not impact them.

Butterworth Ranch Property Appraisal– Site Structures: In November, 1995, Alliance Appraisal Company inspected the land known as Butterworth Ranch, including buildings and site improvements. Two farmsteads, the Middle Ranch farmstead and the South Ranch farmstead, are located on the property. Building and site improvements located in these areas and on the ranch in general are more particularly described below.

Middle Ranch Farmstead: There are eight structures and some other site improvements in this area of the Butterworth Ranch property (see photos 1-10), including:

- **Owner's Residence:** This single family residence is 1,436 square feet. Attached to the residence are a 78 square foot covered porch and an 878 square foot wood deck. This structure is older, but reportedly was totally renovated and refurbished in 1983. (Photo 1)
- **Garage:** This 360 square foot detached garage, reported as built in 1983, is adjacent to the owner's residence. (Photo 2)
- **Guest House:** This two-story single family residence is 1,372 square feet. Attached to this residence are a 112 square foot covered porch and a 240 square foot carport / storage area. This structure reportedly was built in 1983. (Photo 3)
- **Storage Shed:** Adjacent to the Owen's house is this 180 square foot structure, which has an estimated effective age of 9 years. (Photo 4)
- **Rail Car Building:** This 648 square foot structure has ambiguous information on its date of construction.
- **Bunkhouse:** This building is 168 square feet, and has an estimated effective age of 12 years. (Photo 5)
- **Utility/Storage Shed:** This building is 861 square feet, and has an estimated effective age of 18 years. (Photo 6)
- **Hay Barn:** This building is 7,200 square feet, and has an estimated effective age of 8 years.
- **Site Improvements:** Site improvements include a domestic well and septic system; approximately 1,000 linear feet of wood corrals; a wood plank loading ramp; two concrete mobile home pads (250± square feet and 400± square feet); a 56 square foot wood frame tool shed on concrete slab; a wood water tower with tank; a 168 square foot wood frame chicken house; an ornamental brick bell tower; and landscaping comprising numerous mature trees and side yard lawn at the guest house.

South Ranch Farmstead: There are seven structures and some other site improvements in the South Ranch Farmstead area of the Butterworth Ranch property, including:

- **Equipment Building:** This building is a 960 square foot structure, and has an estimated effective age of 18 years. (Photo 7)
- **Equipment Building:** This building is 828 square feet, and has an estimated effective age of 24 years. (Photo 8)
- **Shop Building:** This structure is 564 square feet, which has an estimated effective age of 18 years.
- **Farm Worker's House:** This 840 square foot single family residence has an estimated effective age of 24 years. (Photo 9)
- **Trailer House:** This 750 square foot single-wide mobile home lies on hand-laid stone foundation. The structure reportedly is 25 years old, and is in the process of being refurbished. The effective age of this structure is 18 years. (Photo 9)

- **Pump House:** This structure is 132 square feet, with an estimated effective age of 12 years.
- **Horsestall/Corral:** This structure is 521 square feet, and has an estimated effective age of 24 years. (Photo 10)
- **Site Improvements:** Site improvements include a domestic well and septic system; a 210 square foot railroad box car utilized for storage; a concrete loading ramp; a flag pole; a 35 square foot metal storage shed on a concrete slab; approximately 200 linear feet of wood rail corrals adjacent to the stable; and landscaping comprising mature trees, hand-laid stone accents and front yard lawn at the foreman's residence.

Other Ranch Site Improvements: In addition to the site improvements associated with each farmstead, there are certain site improvements that benefit the entire property. These include approximately 3 miles of barbed wire perimeter fencing; approximately 2-1/2 miles of windbreaks comprising mature trees reported by the owner to be Siberian elms; a wood frame observation tower situated on high ground at the northeast corner of the property; and flood control measures comprising a catch basin and runoff channel located near the northeast corner of the property.

Hampton/Brandsma Property– Site Structures

Van Skyock (Sand Ranch)– Site Structures: In 1998, MHA personnel conducted an informal site survey of the Sand Ranch property. During this survey, two structures, a mobile home and the remains of a house that had been destroyed, were identified on this property.

Stine Property– Site Structures: The Stine property has the following structures:

- **Owner's House**: This structure is believed to have been constructed in the 1960s. (Photo 11)
- **Utility Building**: Several small buildings are located adjacent to the owner's house. (Photo 11)
- **Barn**: The property includes a barn. The exact date of construction is not known at present. (Photo 12)
- **Corrals:** Several corrals are located on the property.

Hunter Ranch– Site Structures: The Hunter Ranch comprises property that would not be purchased by Western Water as part of the proposed project. The Hunter Ranch land, however, would be part of the project and the pipeline would cross the property. According to John Hunter, owner and operator of the Hunter Ranch, none of the buildings on the Hunter Ranch property are over 50 years old (John Hunter, pers. communication, 1998).

During the research, record searches, and site surveys conducted to locate structures of historical importance on the project site, only one structure was determined to be more than 50 years old (a railroad car building on the Middle Ranch Farmstead of

Butterworth/Boy Scout Ranch). This building may qualify as an historical resource, but its structural stability is not likely to be threatened by project construction, because it is located at least 100 feet away from the proposed location of any water wells or the project pipeline.

Environmental Impacts

As part of scoping for project construction, locations of the proposed pipeline, wells, and power line extensions will be plotted by the contracted project engineer such that they will be located outside of the 50-foot buffer zone for construction whenever possible. Should the location of any structures fall within that buffer zone, measures will be taken by the contracted project engineer in order to protect the stability of existing structures. In this way, the proposed project is not expected to have any adverse impacts on existing structures in the project area, or historical resources in general.

PUBLIC SERVICES AND UTILITIES

Existing Environment

Public Services

Police, Fire, and Emergency Services: Police protection services are provided by the Inyo County Sheriff's Department, which is responsible for all unincorporated areas in the County. Police protection services to the proposed project area would be provided by the Department's Lone Pine Substation which has five deputies, one sergeant, and two investigators. In addition to the Lone Pine Substation, the Department maintains a resident post in Olancha with one deputy on duty and a service area of 5,000 square miles (Lutz 1992). Emergency response is coordinated through the Sheriff Department's 911 program.

The proposed project area is located in the Olancha Fire District. The Olancha Fire Department would be the first to respond in an emergency. It is a volunteer department with 12 trained personnel, five of whom have emergency medical training, and one who is a trained paramedic. Fire equipment at the station includes (Davis 1992):

- One emergency vehicle
- One all-wheel drive vehicle
- One one-ton quick attack vehicle
- One water tender
- Two ambulances

The Lone Pine Fire Department, also a volunteer department, would respond to emergencies, as needed, through their mutual aid agreement with the Olancha Fire District. The Lone Pine Fire Station maintains 35 trained personnel. Fire equipment at the station includes eight engines, one chief car, and two tankers (Kritz 1992).

The proposed project site is within the jurisdiction of the BLM, which maintains a fire station in Olancha. The California Department of Forestry (CDF) is responsible for

fighting wildland fires in the area. CDF provides coverage for all CDF lands and provides backup fire services for the BLM. The CDF station in Independence would respond to wildland fires within the proposed project vicinity. This facility has a staff of three trained personnel and one fire truck (Escher 1992). The CDF also has a work camp in Round Valley, north of Bishop, that provides additional fire fighting capabilities (Thistlethwaite 1994).

Solid Waste Disposal: Sierra Disposal Company collects solid waste in the proposed project vicinity. Residential waste is hauled from the Olancha Transfer Station before disposal at the Lone Pine Landfill, a County-maintained facility. (Industrial or construction waste must be hauled by the generator to the Lone Pine Landfill.) According to the County, the landfill has about 15 to 20 years remaining before it reaches capacity. There is no adopted program in place to reduce solid waste; however, the County encourages voluntary source reduction through public education and backyard composting (Hawkins 1992).

The California Integrated Waste Management Act of 1989 requires that 50% of solid waste be diverted from landfields. This can be accomplished by source reduction, recycling, and composting.

Schools: Lone Pine, Olancha, and Cartago are within the Lone Pine Unified School District. The District's schools, along with their capacities and enrollments, are shown in Table 2B-6. School enrollment figures are supplied by the California Basic Education Data System.

Table 2B-6: Lone Pine Unified School District Enrollment

School	Capacity	Enrollment (10/98)
Lone Pine High School (9-12)	200	158
Lo-Inyo School (Elementary / Middle School, K-8)	375	284
Olancha Elementary School (K-5)	90	47

SOURCE: Schmidt 1992

Health Services: One hospital, Southern Inyo Hospital located in Lone Pine, provides health care and limited emergency services for the Owens Valley communities. This facility functions essentially like a clinic and maintains three full-time physicians. The outpatient clinic is open five days a week, and 24-hour emergency care is provided. The hospital does not provide surgery, baby deliveries, or intensive care. For these health services, residents must travel to Bishop, located 75 miles to the north of Olancha, or Ridgecrest, 55 miles south of Olancha. Five private physicians practice in Lone Pine, offering standard medical services for residents of the communities (Clement 1992). Lone

Pine maintains a volunteer ambulance, located at the Lone Pine Airport, which is staffed by emergency medical trained personnel.

A medical airlift program to handle medical emergencies is provided at the Southern Inyo Hospital. Sierra Aviation of Bishop, as well as Westar (a private helicopter service located in Bakersfield), are used by the hospital for emergency response. Emergency patients are rushed to the Southern Inyo Hospital via the volunteer ambulance, where they are examined by a physician to determine if the patient should be airlifted to a major medical facility for treatment. If it is determined that the patient should be airlifted, the patient is transported to the Lone Pine Airport where they are flown to Loma Linda Medical Center located in Redlands, California (Clement 1992).

Public Utilities

Water and Sanitary Sewer: In the Olancha region, areas are served by individual wells and septic systems. Lone Pine is the only community with a sewer system and public water supply.

Olancha and Keeler depend on groundwater supplied by individual wells and septic systems. There are no community water or sewer systems in Olancha.

Cartago Mutual Water Company (CMWC) supplies water to most of the Cartago community east of Interstate Interstate Highway 395 for both household consumption and fire fighting. The CMWC currently has two water supply wells, one of which is inactive and is used only for emergency supply. West of Highway 395, residents are served by individual wells and septic systems. Because sewage facilities and systems are limited, the community currently has a construction moratorium that limits new development.

Electricity Requirements: It is estimated that operation of the project well pumps will require 4,107,000 to 5,476,000 kilowatt hour (KWH)/year to pump 6,000 to 8,000 acre fee per year (Psomas, 1998).

A Los Angeles Department of Water and Power (LADWP) powerline previously supplied several wells in the area that are now abandoned. It is expected that the existing line has sufficient capacity to provide the necessary power for the project. In order to provide this power, the existing power line will require an extension of approximately 10,000 feet (1.9 miles). The pipeline construction corridor would be approximately 50 feet wide. The estimated surface disturbance would be 39.6 acres.

Energy use during project construction is not anticipated to surpass the capacity of local electrical service providers.

Potential Impacts and Mitigation

Construction will take place for approximately six months, during which time between 20 and 30 construction employees will be on site. During project operation, one full-time and 1 to 3 part-time employees will be responsible for maintenance and operation of the

project wells and well housing. The proposed project introduces only a small increase in demand for municipal services and thus, not anticipated to adversely affect local municipal services or utilities. Water used during construction will be supplied by groundwater wells on the site, and will not draw on municipal supplies. On-site sewage services for construction workers will be supplied by temporary toilets. Site fire safety and security will also be augmented by the proponent's selected contractor.

Public Services

Effects on Police, Fire, and Emergency Services: The proposed project would not place demand on police services in the County during construction and operation that would surpass the capacity of the equipment and officers already available at the local police jurisdiction, supplemented by site safety provided by the project contractor.

The proposed project will not substantially increase the risk of wildland fires. Although electrical lines, motors, and panels are included in the project and will comply with existing electrical engineering practices and Uniform Electrical Code. These measures will assure that the project adds minimal increases in risk of starting wildland and structural fires.

The population increase related to the proposed project would be one full-time and 1-3 part-time employees, and would not be likely to substantially increase the number of crimes and traffic accidents in the Olancha area.

The proposed project construction and operation would not substantially add to response times for emergency police services, because of the small demand that would be placed on such services by project-related temporary (construction) and permanent (operations) population increases.

The proposed project would not result in a substantial increase of the need for emergency first aid services during construction and operation, because only a small, temporary construction crew and one to full-time and 1 to 3 part-time employees would potentially require these services, and because the construction contractor would be responsible for supplying emergency first aid services to construction employees.

The proposed project would not result in a substantial increase in the risk of facility fires during construction and operation, because of the nature of the proposed project (6 to 8 wells and a pipeline) and the absence of large quantities of flammable construction materials. The project contractor would provide water and fire prevention and suppression services during project construction. Fire prevention and suppression during project operation would involve only small, isolated structures, and is not anticipated to be greater than the capacity of the local fire safety jurisdiction. There are existing firefighting facilities in the area which are available in the event of a wildland or structural fire on the site in the area.

Effects on Solid Waste Facilities: During the six-month construction phase, the proposed project is expected to generate between 9.8 and 19.7 tons of "residential," or construction employee-related, waste at a factor of 8.2 pounds per day waste generation per employee (Moreno Highlands Specific Plan EIR). Waste generated by project construction crews during drilling and trenching activities would either be immediately recycled or re-used (e.g. soil cuttings), or it would be containerized and removed to the Lone Pine Landfill by the project contractor. This solid waste could be accommodated by the existing landfill and would not result in significant adverse affects to landfill capacity.

The combined solid waste generated by project construction, the temporary households of construction employees, and potential new households is not expected to adversely affect the current landfill operation or substantially accelerate its targeted closure date. (Olsac)

Effects on Schools: Project construction would take place for six months, during which 20 to 40 construction employees would be on site. During project construction, some employees may stay temporarily in the neighboring towns of Olancha, Cartago, or other neighboring communities. Construction employees would not be anticipated to stay in these communities after project construction would be completed. The enrollment of children of construction workers is not expected to have an adverse effect on the enrollment capacity of the local school jurisdiction since no construction related school enrollment is expected in the local school district.

Project operation would be anticipated to have a duration of 30 years, during which one full-time and up to 3 part-time workers would be employed at the site. Accordingly, the project workforce would be relatively small, and would have few associated growth impacts on neighboring communities. According to the Lone Pine Unified School District, the current student generation rate per new household is 1.66. (Olsac EIR 1997) Households established during project operation would be up to 7, not, adversely affect the enrollment capacity of the local district.

Effects on Health Services: The proposed project is not expected to adversely affect medical services in the Olancha area. The project contractor would provide its own first aid to handle minor medical emergencies. Health care demands generated by the very few new households that may be created by in-migration are not expected to place significant demands on health care services (Clement 1992).

Public Utilities

Effects on Water and Sanitary Sewer Utilities: The use of local non-potable groundwater wells would be sufficient for project construction, and drinking water will be provided to construction crews by the project contractor. The Hydrology study prepared by Psomas indicates that there is sufficient water to supply project construction and operation.

The proposed project's water use, including water used for dust mitigation, would not have an adverse impact on the surrounding environment, because of its relatively small demand for such water services and the adequate size of the areas groundwater.

Temporary sanitation services for construction personnel during project construction would be supplied by the construction contractor. The proposed project is not expected to generate substantial sewage during operation. A portable toilet will be available for project operation and maintenance personnel. Because of the limited size of the construction crew, and because sanitation services would be provided by the construction contractor, disposal of sewage generated by the proposed project would not result in an overburden of existing treatment facilities, the contamination of local water supplies, or in other adverse environmental impacts.

Effects on Electricity Requirements: It is estimated that operation of the well pumps will require 4,106,000 kilowatt hour (KWH) / year to pump 6,000 to 8,000 acre fee per year.

A Los Angeles Department of Water and Power (LADWP) powerline previously supplied several wells in the area that are now abandoned. It is expected that the existing line has sufficient capacity to provide the necessary power for the project. In order to provide this power, the existing power line will require an extension of approximately 10,000 feet (1.9 miles). The construction corridor would be approximately 50 feet wide. The estimated surface disturbance would be 11.5 acres.

Energy use during project construction is not anticipated to surpass the capacity of local electrical service providers.

SOCIO-ECONOMICS

Existing Environment

The capacity of developable land in the Olancha area to accommodate future growth in population and employment was analyzed by Alfred Gobar Associates (AGA) in November 1998. AGA's report was used to prepare this document. The study area used by AGA in their analysis includes a ten-mile radius area surrounding the community of Olancha.

Most (98 percent) of all land in the Owens Valley is controlled by the BLM, the U.S. Forest Service, the State of California, or the LADWP. A relatively small proportion of land in the area is subject to regulatory control by Inyo County and available for private development or use. A concern was raised by Inyo County staff that any land withdrawn from the available inventory would restrict growth potential and could result in potential hardship, in terms of future growth for Inyo County. the AGA report addresses this concern.

AGA analyzed the capacity of the Olancha area and project-specific lands for future development, represented by currently available land combined with existing development levels. The density of development of these lands, for purposes of defining

the development capacity of available land resources, was also analyzed. AGA also analyzed estimates of projected increases in demand for development of these lands, as a function of various reasonable economic growth scenarios.

Methods employed in the report to determine capacity for future development include the use of a field survey undertaken by AGA personnel. The report addresses 524 legal parcels totaling 34,465 acres extending from the north dam of the Haiwee Reservoir through Olancha and the northern limits of Cartago.

Methods of determining development density of vacant and unimproved property use assumptions of type of land use that are based on Inyo County General Plan Land Use designations. An assumption in the report's analysis is that development in the Olancha area would be very low density, based on water and sewer constraints.

Methods used in the report to determine projected growth in demand for land for future development are a function of economic growth (population and employment) and assumed development densities. Assumed densities of potential development are based on those allowed by the General Plan. Growth scenarios were generated from a number of analytical perspectives. These perspectives included:

1. Historical growth in population in Inyo County, Bishop, the unincorporated area, Census Tract #0600, and a ten-mile ring that defines the Olancha area for purposes of AGA's analysis.
2. A detailed evaluation of historical growth trends in smaller counties in California, over a 28-year period from 1970 through 1998.
3. The evaluation of rapid population growth in Douglas County, Nevada over the period from 1991 through 1998 in terms of growth rate and absolute net growth in population. The AGA report used this county as an example of a fast-growing rural community.

Potential Impacts and Mitigation

Residential Development Potential in Project Area: Analysis employed in the AGA report identifies existing and future residential development potential in the project area. Allowing for more intense development of existing partially developed parcels, the existing and future residential potential in the project area is 1,292 units. Existing and permissible land uses on 1,832 acres of land that may be controlled by Western Water Company indicate that the residential development potential of the project area amounts to less than 3.0 percent of the total residential development potential in the Olancha area. Because of land use constraints, and because service facilities pertinent to the proposed project's water recovery operations are limited to sites for pump houses and well servicing, (and therefore, most of the project site would still be available for other uses) the report concludes that the project would be unlikely to restrict economic growth in the study area because of reduced availability of land which would be developed for housing.

Commercial: None of the future development potential from commercial uses in the Olancha area is related to the land use designations applicable to Western Water Company's project site. The AGA report determines that the development potential of the Olancha study area for commercial uses, according to their General Land Use Plan designation, would apply to 217,800 square feet of gross leasable are (GLA). Even should maximum growth potential be realized, it would be unlikely that the amount of land currently available for commercial uses would be fully utilized in the Olancha study area.

Industrial: None of the future development potential for industrial uses in the Olancha area is related to the land use designations applicable to Western Water Company's current land holdings. The AGA report explores the relationship of existing and future industrial development in the Olancha study area. The report assumes 178 acres of potential future industrial development, employing at least 1,032 workers. Projected population growth would result in an increased employment base of about 964 jobs. Based upon this analysis, the projected inventory of commercial and industrial development potential is more than adequate to accommodate employment consistent with the projected expected population base, on the basis of land use designation and density constraints.

Agricultural: Much of the proposed project lands are under agricultural use, or potentially under agricultural use (according to the AGA report, 1,272 acres, or 68% of proposed project lands are under existing or future potential agricultural use). Management of Western Water Company indicates that agricultural operations are not in any way incompatible with their proposed water recovery operations, and are in fact complementary to this use, benefiting from proximity in terms of the availability of irrigation water.

Summary and Conclusions: The report concludes that the proposed (Olancha Groundwater Development Project) would not be expected to restrict potential use of the property for purposes consistent with Inyo County General Plan designations. The project area lands can be used to their potential because Western Water Company proposes to extend groundwater rights and access sufficiently to support land use activities designated by the General Plan. The report concludes that, because of the compatibility between permissible surface development and the water recovery operations, the project appears unlikely to restrict the Olancha area's capacity for growth by creating an artificial shortage of developable land of any type.

Because the proposed project is not expected to restrict economic growth in terms of employment and population, the project is not expected to have any adverse impacts on the socioeconomic character of the Olancha area. To the extent that construction and operation of the proposed pipeline and wells will provide employment and potentially increase student enrollment at schools in the Lone Pine Unified School District, the proposed project will have a potential beneficial impact on economic growth in the Olancha area.

CUMULATIVE ANALYSIS

Introduction

The California Environmental Quality Act (CEQA) requires that agencies consider the cumulative impacts of a proposed project. CEQA defines a cumulative impact as two or more individual effects (from either a single project or a number of separate projects) which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines Section 15355). CEQA Guidelines (15130) allow for the use of a list of past, present, and reasonably foreseeable future projects that would be expected to produce related or cumulative impacts. An alternative method is to use a summary of projections contained in an adopted general plan or related planning document which is designed to evaluate regional or area-wide conditions. The relationship of these cumulative projects is physical. They need to be related due to the fact that the project and the related project both impact the same environmental resource.

Cumulative impact analysis required by CEQA "... is an analysis of a particular project viewed over time and in conjunction with other related past, present and reasonably foreseeable probable future projects whose impacts might compound or interrelate with those of the project at hand." (Remy et. al. *Guide to the California Environmental Quality Act* 1996, Page 304). Under CEQA, the sphere of impact within which an impact may occur needs to be defined.

Inyo County Water Ordinance: The Inyo County water ordinance requires that a conditional use permit for a transfer to transport water (as described in Section 18.77.010.A of the Inyo County Code) shall be approved only if the county planning commission finds that the proposed water transfer, subject to the conditions placed upon the transfer will not unreasonably affect the overall economy of Inyo County and will not unreasonably affect the environment of the County.

In considering whether the project would have an adverse effect on the economy of the county, the ordinance directs that the planning commission consider relevant factors such as:

- Potential injuries to legal users of water in the groundwater basin and the county.
- Direct or indirect economic impacts to suppliers, service providers and others in the county.
- Impacts to the tax base of the county.
- Cumulative effects of the proposed water transfer when considered together with the effects of past water transfers, past surface and groundwater exports as well as the effects of approved or anticipated future water transfers and exports, on the county's overall economy.

In determining whether a proposed water transfer will unreasonably affect the environment of Inyo County, the county planning commission and the county water commission shall consider all relevant factors including, but not limited to, effects on:

- Fish, wildlife, and other instream uses

- Water levels in wells
- Springs and seeps
- Riparian and groundwater dependent vegetation
- Rare or endangered plant or animal species
- Surface water features
- Recharge to the groundwater basin
- Groundwater storage capacity of the basin
- Overdraft
- Subsidence
- Water quality
- Cumulative effects of the proposed water transfer, when considered together with the effects of past water transfers, past transfers and water exports, as well as approved and anticipated future water transfers, and water exports on the county's environment.

The Olancha Water Development Project cumulative impact analysis will necessarily start with the project impact analysis and with the definition of past water transfers and water exports and future water transfers and exports. A listing of water withdrawal projects which are physically related to the proposed project must be described along with an analysis of the cumulative impacts associated with these projects.

Western Water may choose to submit cumulative impact data after additional hydrologic analysis.

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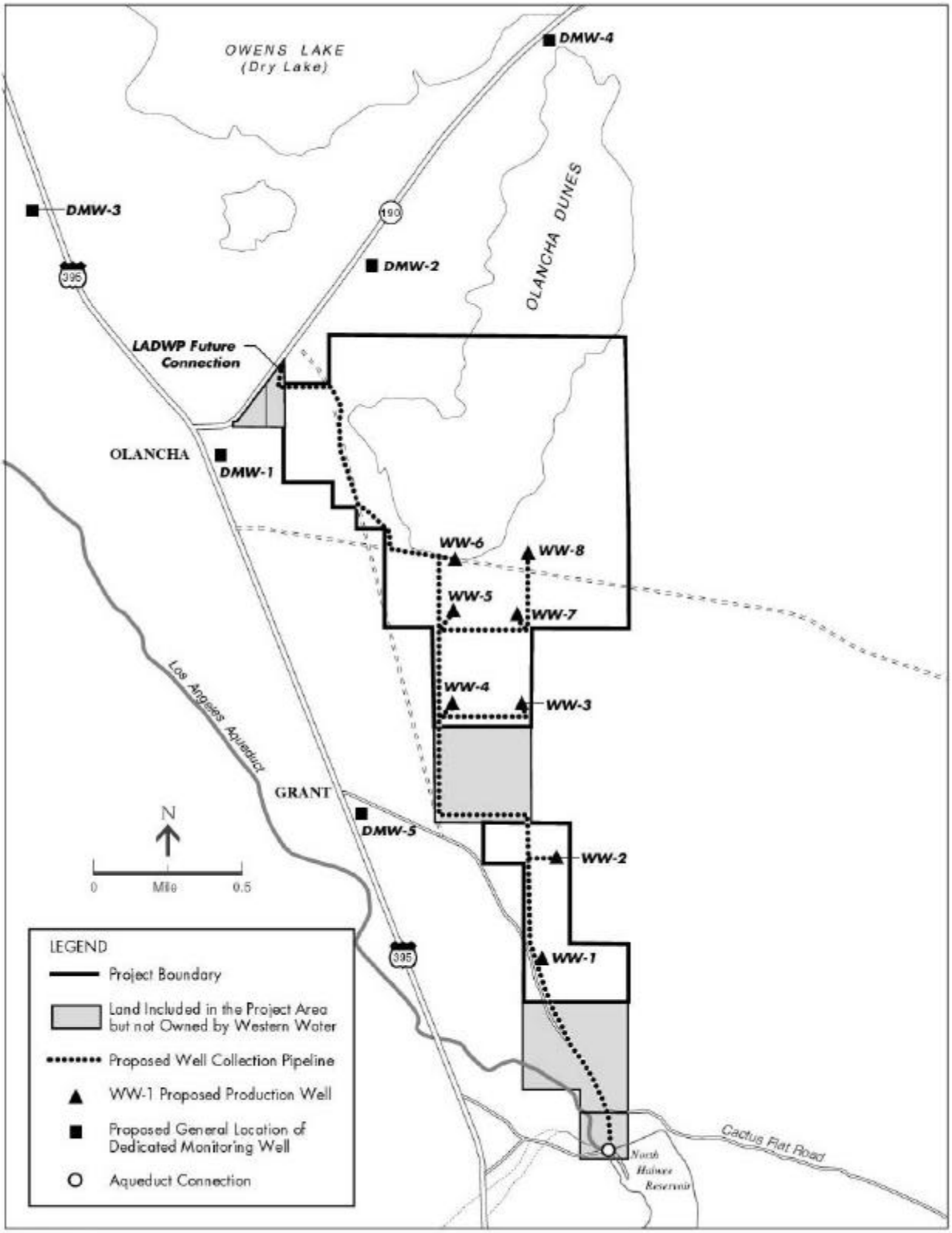
4: OLANCHA WATER DEVELOPMENT PROJECT: FIGURES



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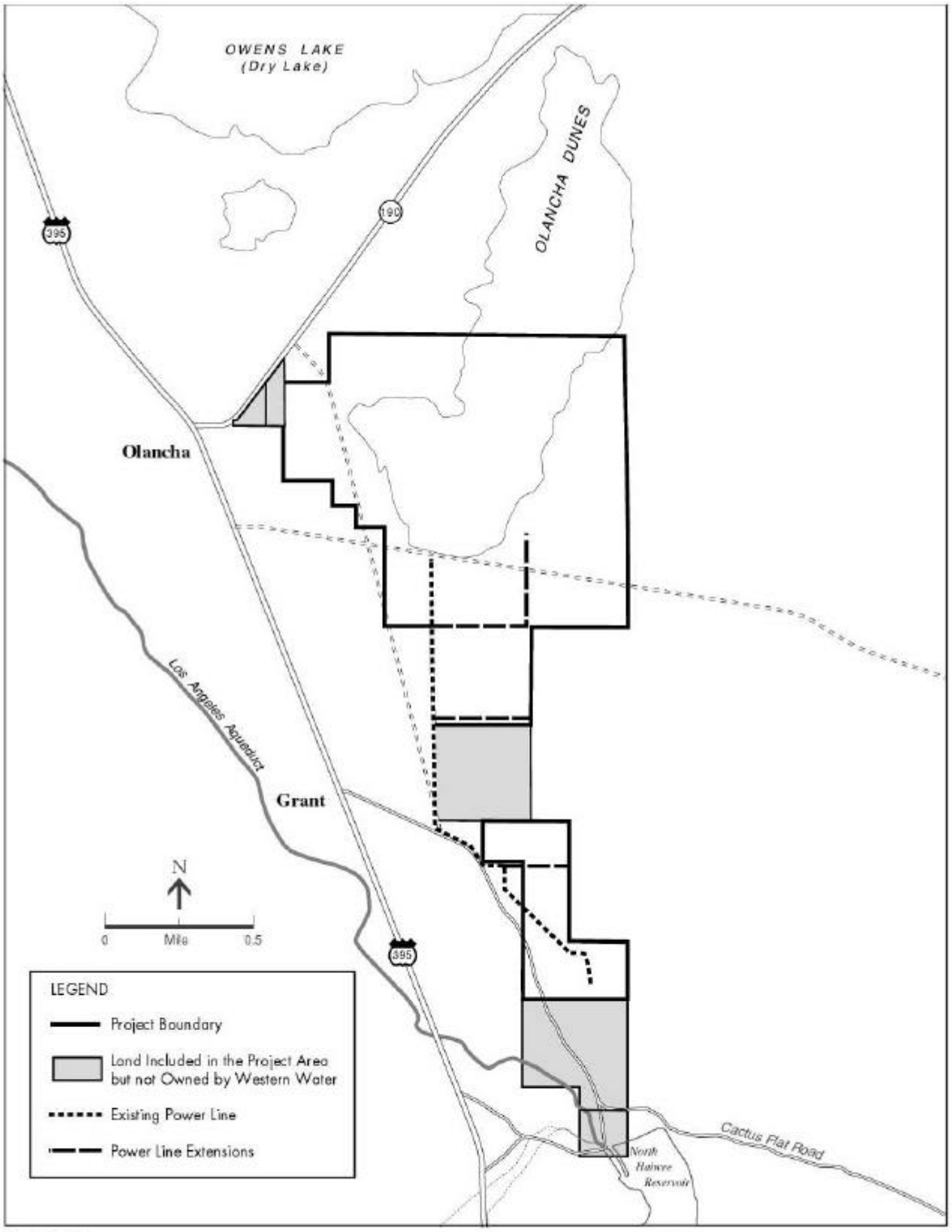
SOURCE: Psomas and Associates

Figure 4-1: Project Site, Well Sites, and Pipeline Locations



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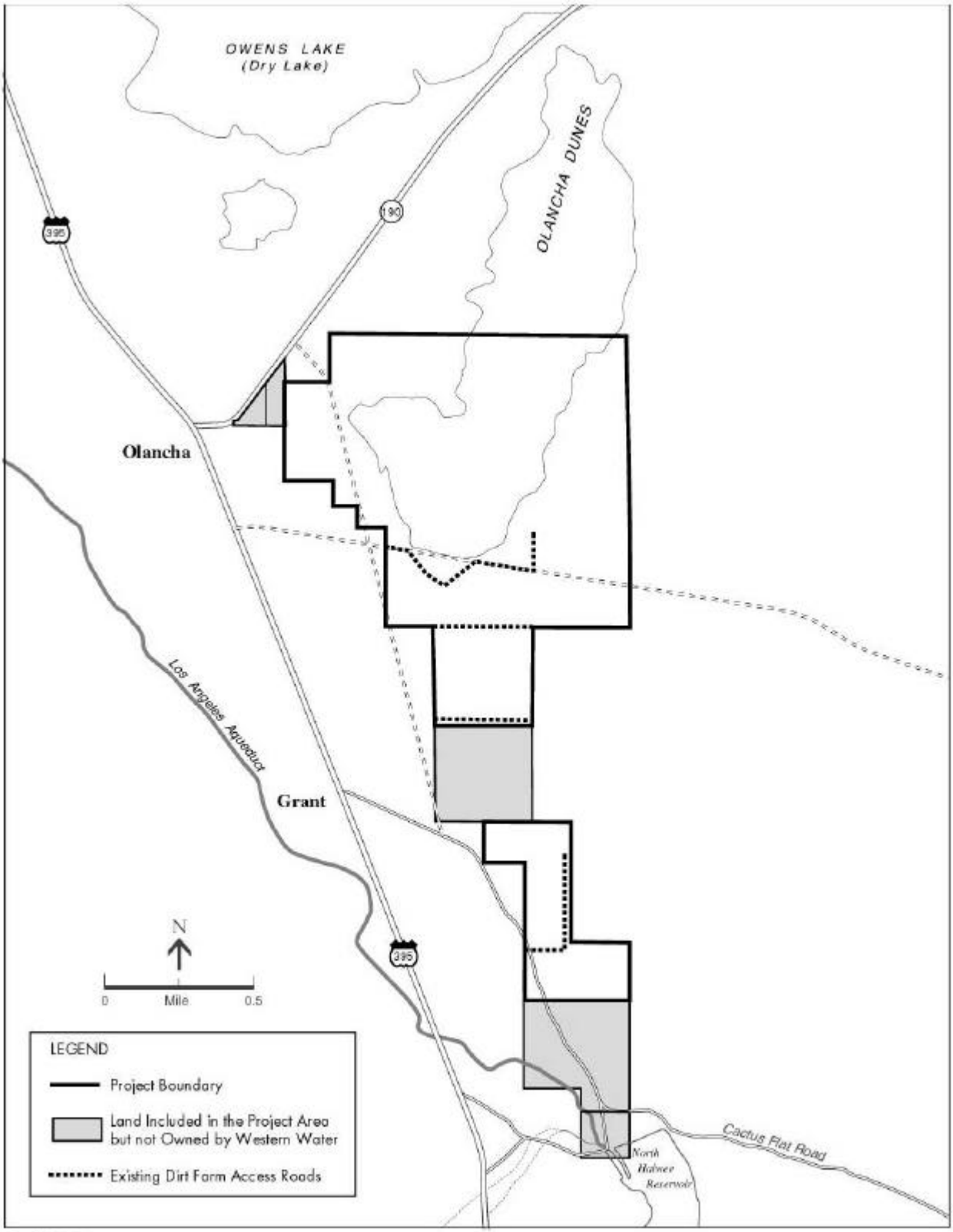
SOURCE: Psomas and Associates

Figure 4-2: Power Line Extensions



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SOURCE: Psomas and Associates

Figure 4-3: Facilities Access Roads

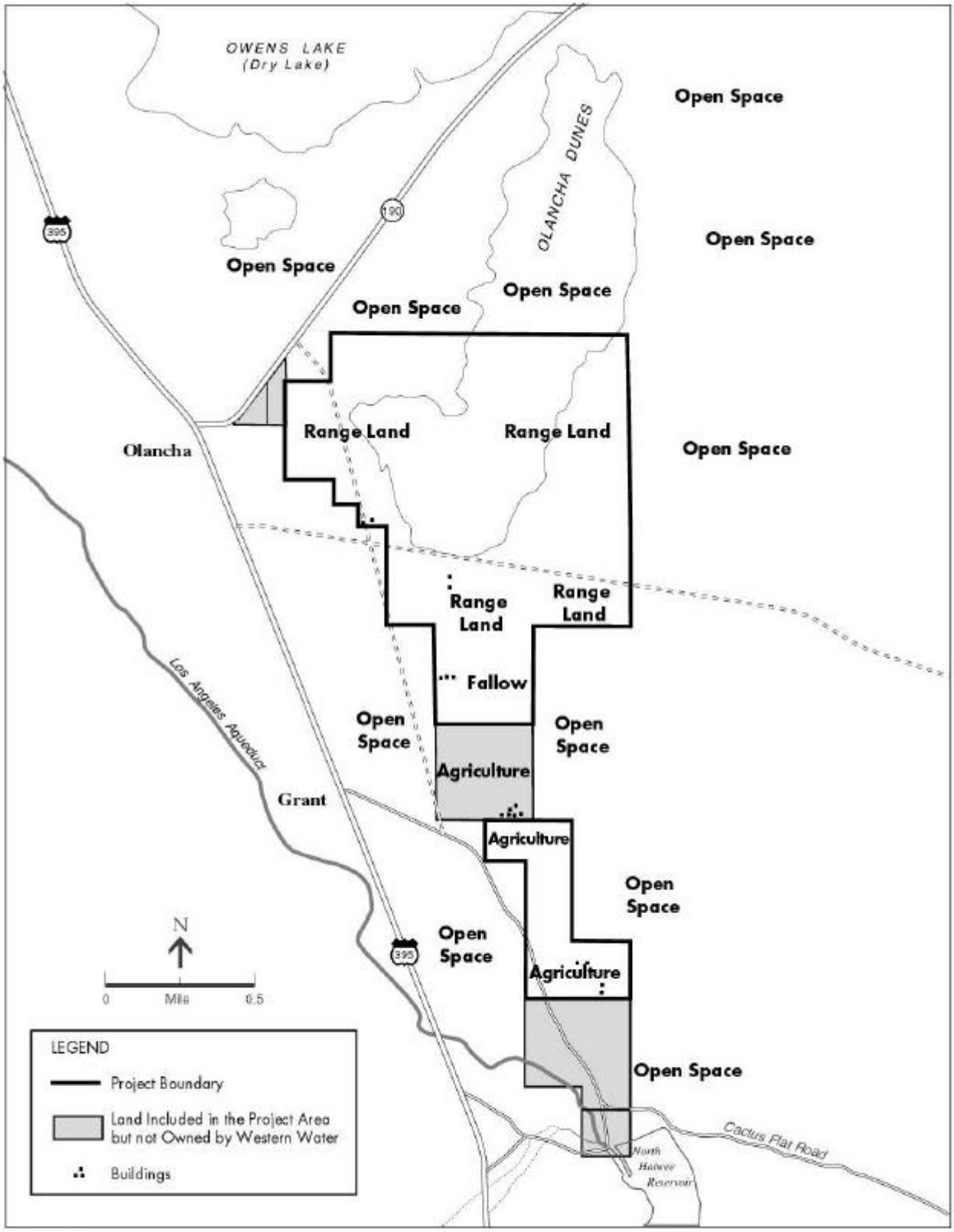

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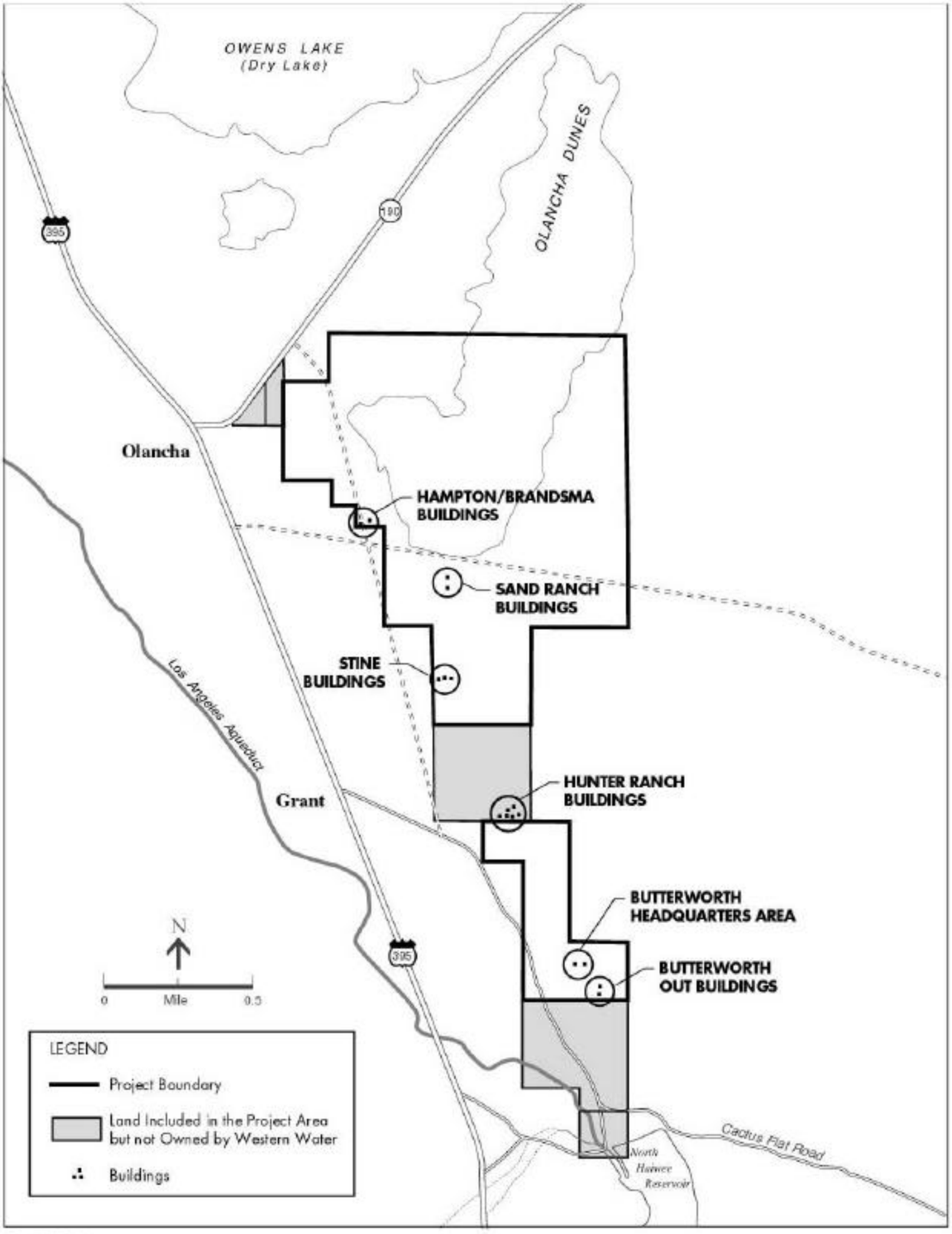
Figure 4-5: Existing Land Uses in the Project Area



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SOURCE: Psomas and Associates

Figure 4-8: Building Locations within Project Area

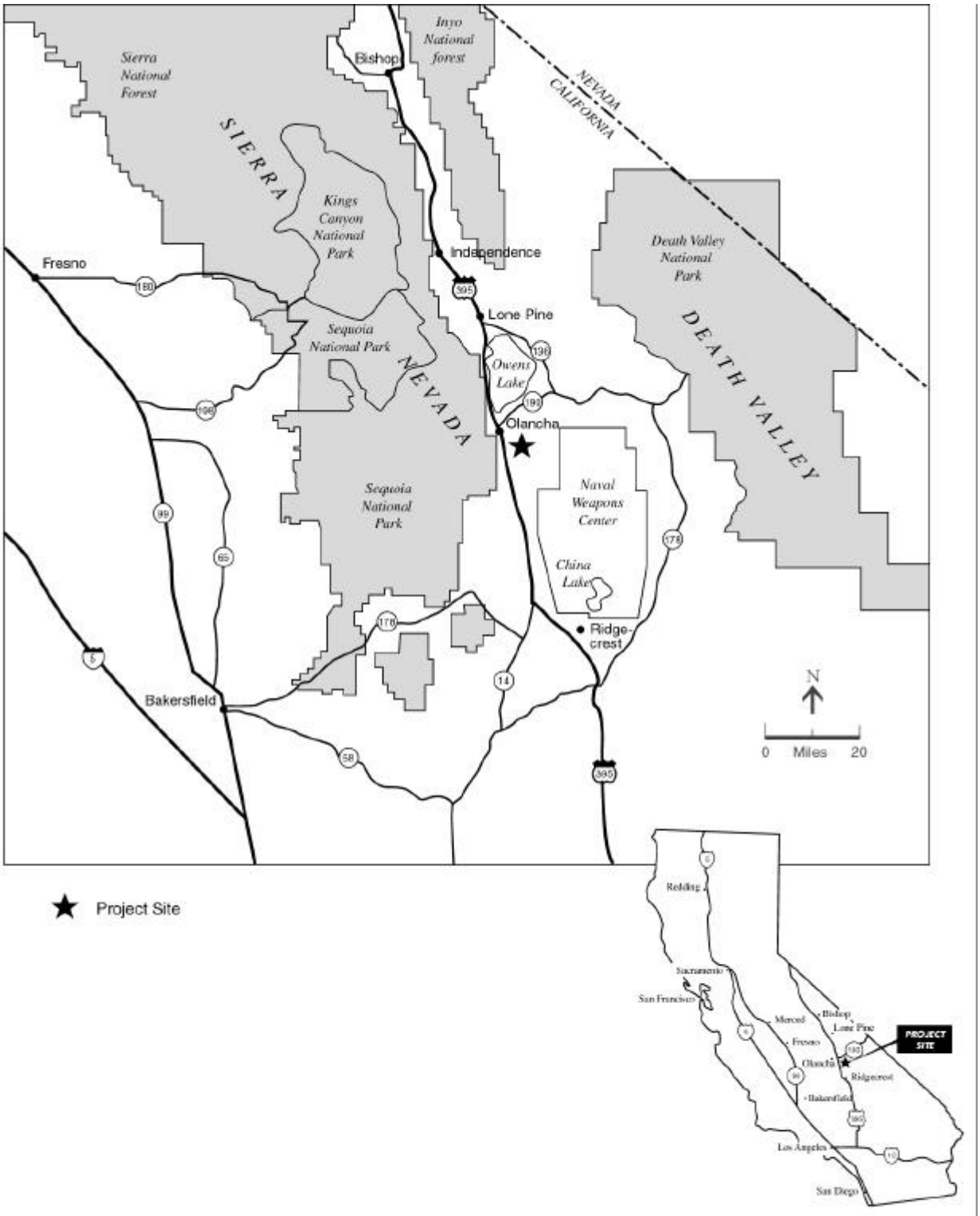

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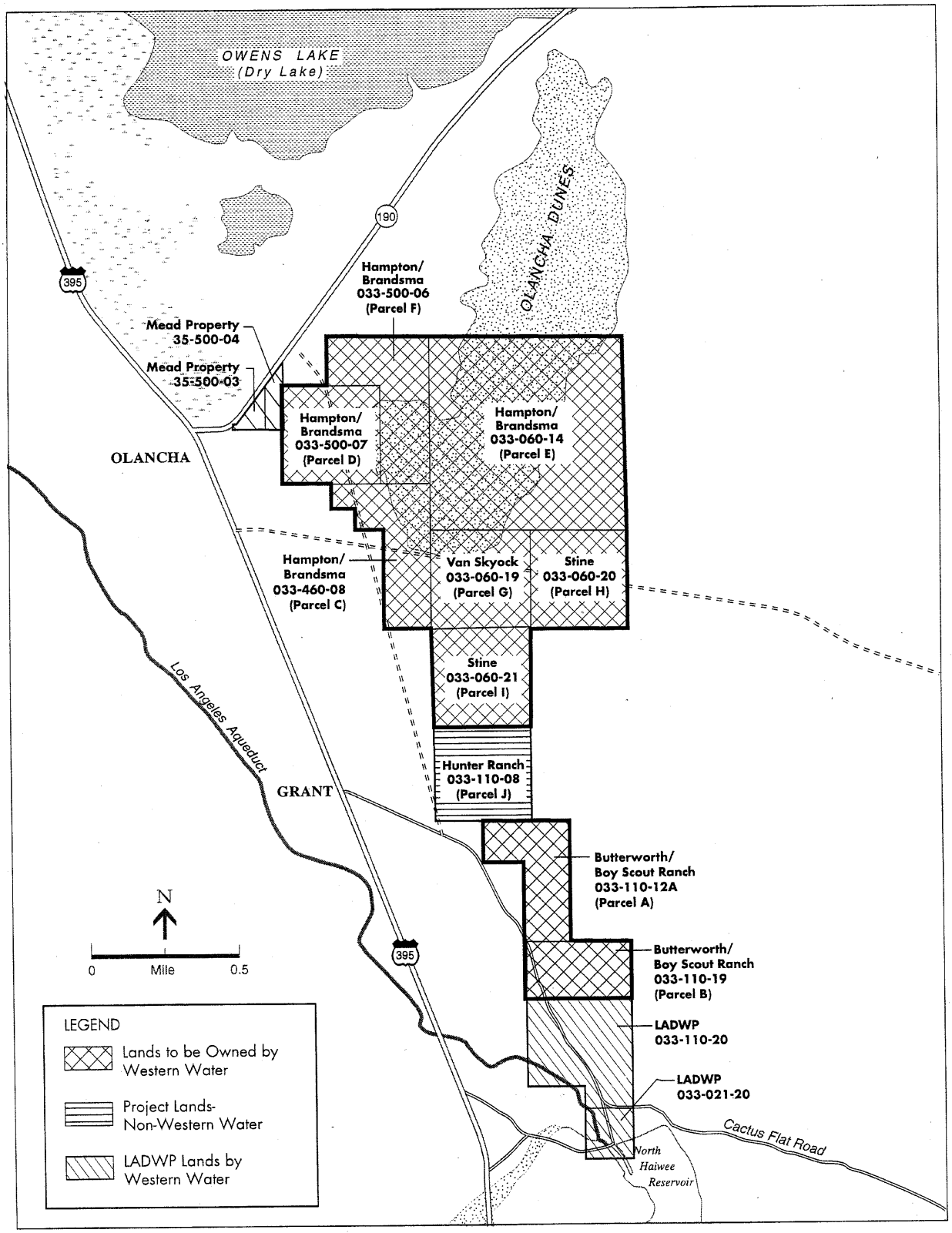
Figure 4-9: Project Location



MHA Environmental Consulting, Inc.

SOURCE: MHA

Figure 4-10: Property Ownership Map