Watson High Desert Logistics-West

A 45-acre Industrial Development
In the Town of Apple Valley

Water Supply Assessment (WSA)

Developer:
Watson Land Company
22010 Wilmington Avenue
Carson, CA. 90745

Consultant:

KEC ENGINEERS, INC.
13201 9th Street
Chino, CA. 91710
(714) 401-4695

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ACRONYMS AND ABBREVIATIONS

AF	acre-feet
AFY	acre-feet per year
AWWA	American Water Works Association
cfs	cubic feet per second
EIR	Environmental Impact Report
gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
HGL	Hydraulic Grade Line
HWL	High Water Level
SF	Square feet
MWA	Mojave Water Agency
Project	I-15 Industrial Park, Poplar / State Hwy 395
SB	Senate Bill
SWP	State Water Project
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment

INTRODUCTION

The information provided in the preparation of this Water Supply Assessment is mainly obtained from the review of the Apple Valley Ranchos Water Company (Liberty Utilities - Apple Valley), Urban Water Management Plan (2020), North Apple Valley Industrial Specific Plan/Environmental Impact Report, information obtained from the Ranchos Water Company staff (Liberty Utilities), and the Town of Apple Valley's Planning Department, Engineering Department, and the GIS Department staff.

Water Code Section 10910:

The California Water Code Section 10910, commonly known as Senate Bill (SB) 610, requires preparation of a Water Supply Assessment (WSA). As part of that assessment, the public water system shall indicate whether its total projected water supplies available during normal, single-dry, and multiple-dry water years included in the 20-year projection contained in the urban water management plan will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses.

Water Code Section 10913. Project:

Section 10913 of the Water Code defines a "Project" for which a WSA must be prepared as any of the following:

a) A proposed residential development of more than 500 dwelling units.

b) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

c) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

d) A proposed hotel or motel, or both, having more than 500 rooms.

e) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land or having more than 650,000 square feet of floor area.

f) A mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

PROPOSED NEW DEVELOPMENT

Project Name:
Watson High Desert Logistics-West
In the Town of Apple Valley

Developer/Owner:
Watson Land Company

Project Architect:
RGA Office of Architectural Design
15231 Alton Parkway, Suite #100
Irvine, CA. 92618
Tel: (949) 341-0920

Project Civil Engineer:
Westland Group
4150 Concourse, Suit 100
Ontario, CA. 91764

Project Description:

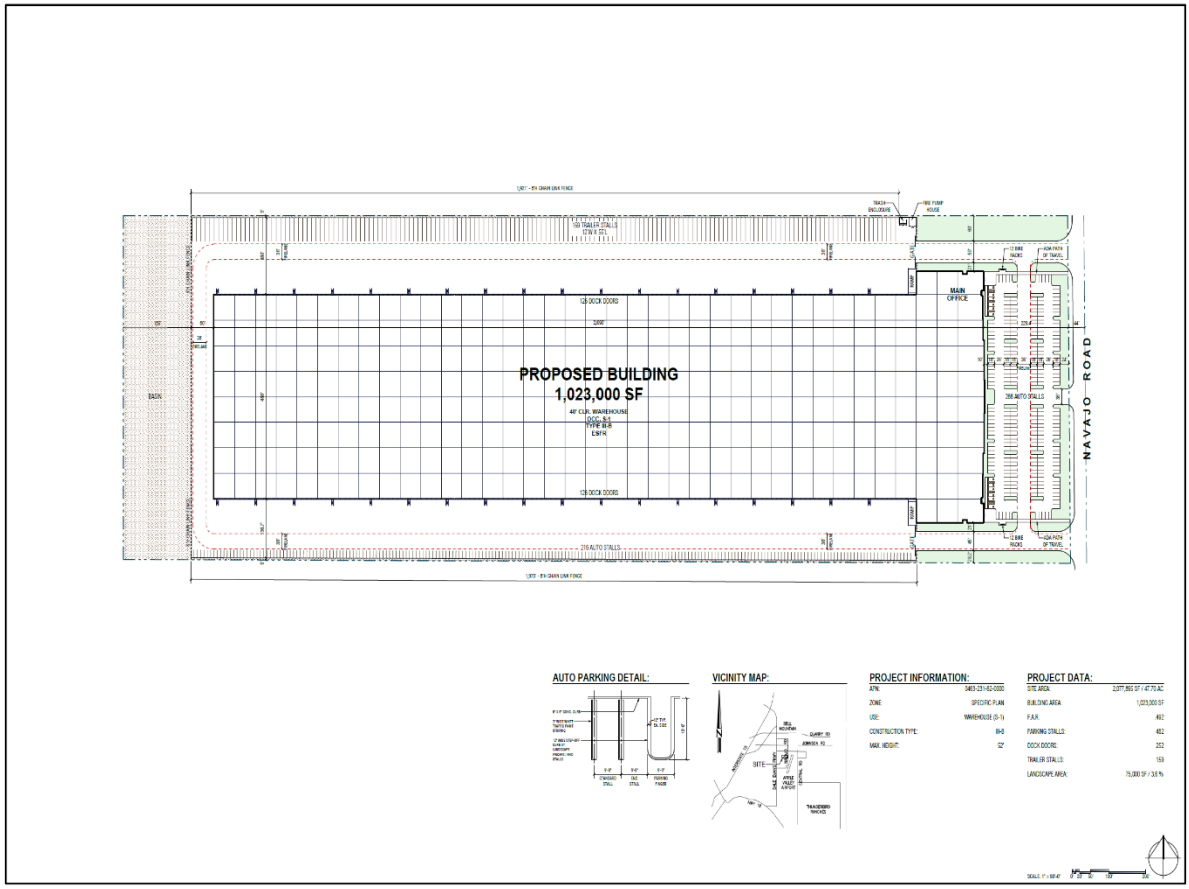
Watson High Desert Logistics- West Project is a proposed 45- acre site in the Town of Apple Valley. This site is located in the North Apple Valley Industrial Specific Plan (NAVISP) which was adopted by the Town Council on October 24, 2006. The EIR for the NAVISP was certified on October 10, 2006. The Project site currently being evaluated is bounded by Navajo Road to the east, Johnson Road to the north, and vacant land to the south and west. The approximately 45-acre site would be developed with 934,775 square foot (S.F.) cross dock warehouse building.

N

VICINITY MAP

NO SCALE

Building: APN: 0463-231-62-0-000, 934,775 S.F. of warehouse



Water Purveyor: Apple Valley Ranchos Water Company (Liberty Utilities)

The Apple Valley Ranchos Water Company was purchased by Liberty Utilities (whose parent company is Algonquin Power and Utilities Corp) in 1987. The Town of Apple Valley and a portion of unincorporated areas of San Bernardino County are being served by Liberty Utilities.

Liberty Utilities Service area encompasses approximately 50 square miles in the High Desert of San Bernardino County. Liberty Utilities' service area is bordered by the City of Victorville to the west and the City of Hesperia to the southwest. (The map below depicts the map of Town of Apple Valley and the neighboring cities)

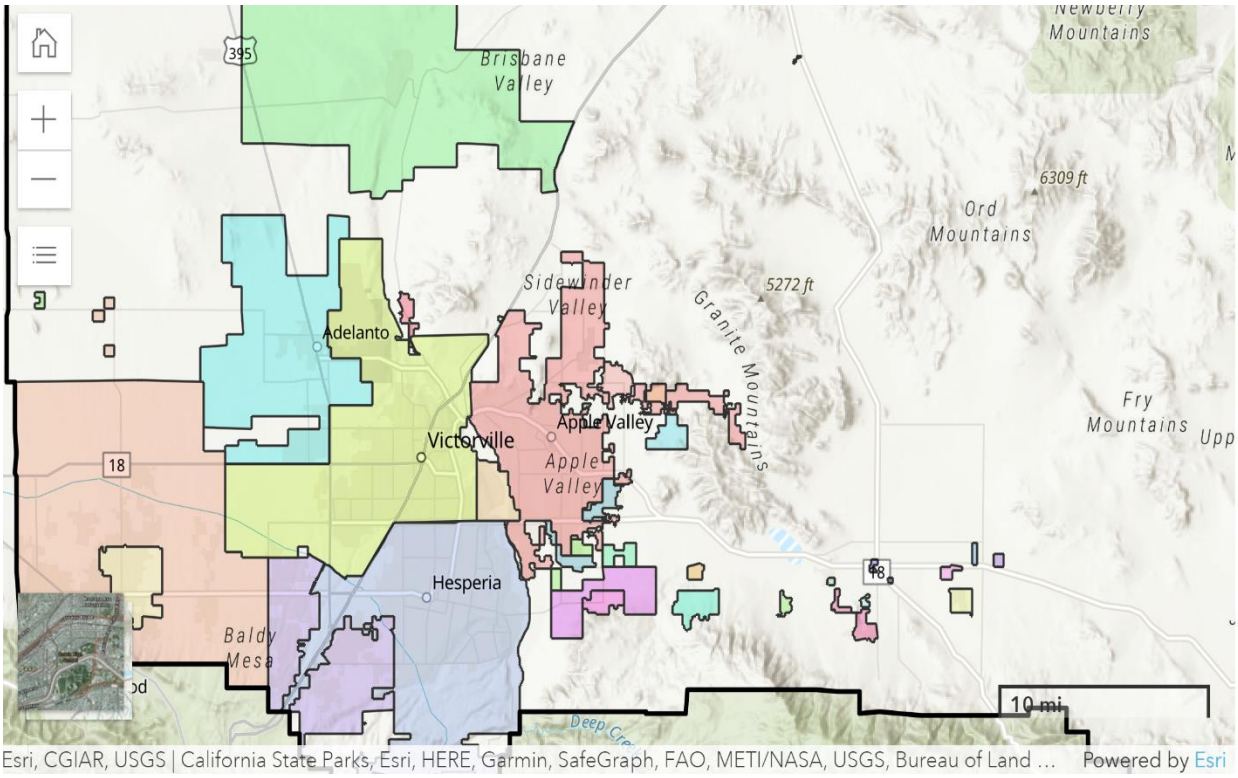


Fig. 1

Liberty service area consists of residential, commercial, industrial, institutional, and open space land uses.

Table-1 Liberty Utilities Service Area Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045
	61,444	64,828	68,399	72,166	76,141	80,334
NOTES: The DWR Population Tool was used to estimate the 2020 population. Growth rates obtained from SCAG data were applied to the 2020 population and projected through 2045 (See Section 3.4.1, Liberty Utilities UWMP, 2020).						

Liberty Utilities Source of Water:

Liberty Utilities relies on the groundwater produced from the Alto Sub-Basin of the Mojave Basin-Area managed by Mojave Water Agency (MWA) which is the Watermaster for this region.

The domestic water is extracted from active wells within Mojave River Ground Water Basin and conveyed from the wells to the consumers via a distribution system with pipe sizes ranging from 4 to 24 inches in diameter.

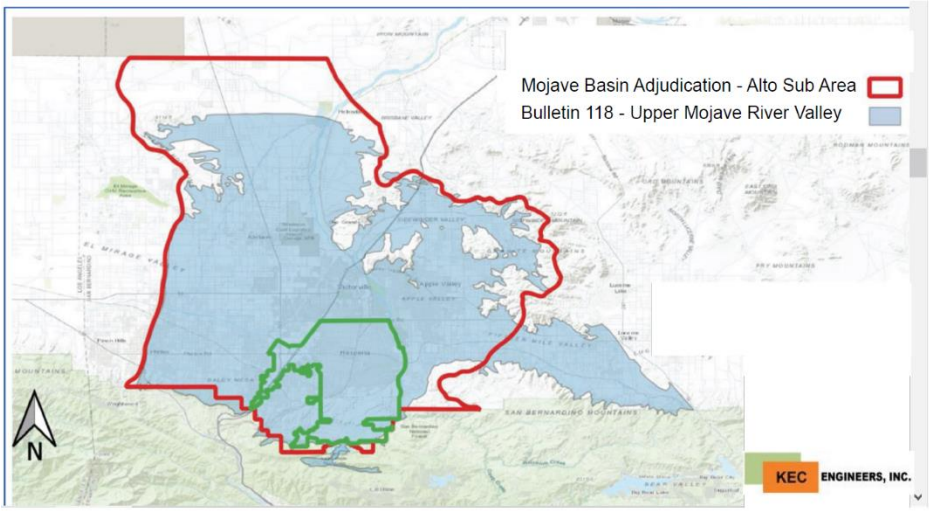


Fig. 2

The District pays for a portion of the ground water to the Mojave Basin Area Watermaster for replenishment of the Mojave Water Basin. In 2013 the MWA, in partnership with retail water purveyors, completed the Regional Recharge and Recovery Project known as “R3” (See Figure 3). The purpose of this project is to bank State Water (SWP) in the Mojave River Groundwater Basin and then later recover and deliver the water as a potable supply.

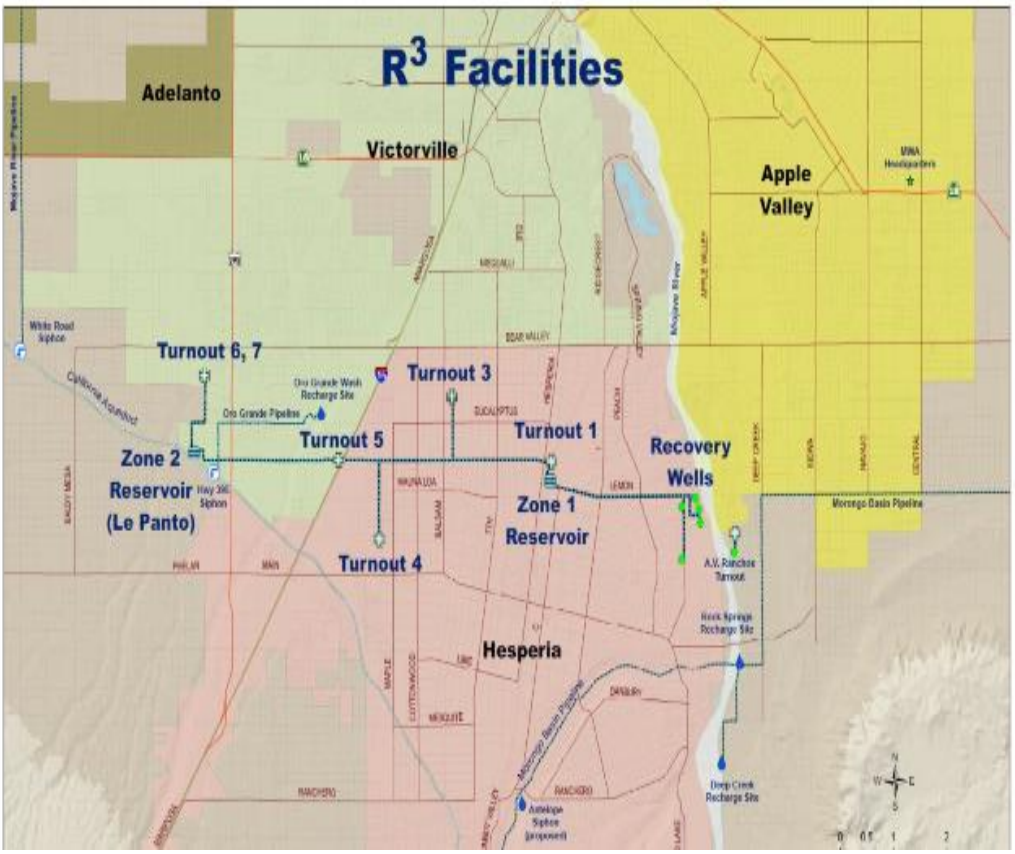


Fig. 3, Recharge and Recovery Project

Current Water Demands:

Liberty Utilities' actual water demands in 2020 are provided in the table below. The majority of the drinking water demand appears to be for residential use.

Table: 2 Demands for Potable and Non-Potable water - Actual			
Use Type	**2020 Actual**		
Residential		Drinking Water	6,486
Commercial		Drinking Water	1,736
Industrial		Drinking Water	2
Institutional/Governmental	Public Authority	Drinking Water	517
Landscape		Drinking Water	588
Agricultural irrigation		Raw Water	4,912
Losses		Drinking Water	710
Other	Fire services and Temporary Meter Services	Drinking Water	28
Total actual water demands for 2020:			**14,979 Acre-Feet**

Projected Water Demands:

Based on the population growth projections provided by SCAG, the Mojave Water Agency developed water demand projections by region as well as by purveyor service area, including Liberty Utilities. The MWA methodology utilized historical water production and population data (2010 through 2015) to develop a trend in GPCD that was then applied to the Beacon population growth. Using the past historical data, Liberty Utilities projected the water demand in 5- year increments by multiplying the average GPCD to the projected population with exception of those categories which were not impacted by the population growth. In addition, the projection of the Liberty Utilities water demand was coordinated and collaborated with Mojave Water Agency, the wholesaler water agency in this region.

Table 3 Potable and Non - Potable Water - Projected

Use Type	Additional Description					
		2025	2030	2035	2040	2045
Add additional rows as needed						
single Family		7,107	7,579	8,077	8,602	9,156
Commercial		1,837	1,909	1,984	2,064	2,149
Industrial		2	2	2	2	2
Institutional/Governmental	Public Authority	547	568	591	615	640
Landscape		622	646	672	699	727
Agricultural irrigation		4,950	4,950	4,950	4,950	4,950
Losses		751	781	812	844	879
Other	Fire Services and Temporary Meter Services	30	31	32	34	35
	TOTAL	15,846	16,466	17,120	17,810	18,538

The "losses" category includes actual apparent losses including all unaccounted water usage.

Liberty Utilities Water Reliability Analysis:

Liberty Utilities has historically pumped ground water from the Alto Sub-Basin groundwater area which is one of the five subareas of the Mojave Ground Water Basin managed by Mojave Water Agency (MWA), the Watermaster for this region. The estimated water storage capacity of the Mojave Water Basin is 5 million acre-feet or approximately 1.63 trillion gallons over 1,400 square miles of surface area (Bookman-Edmonston Engineering Inc., 1994). The Mojave Water Basin was the subject of a court-ordered adjudication in 1993 due to the rapid growth and the groundwater overdraft in this area. Court judgement assigned Based Annual Production Rights to the pumpers which historically pumped 10 acre-feet of ground water or more per year based on historical pumping records. The Based Annual Production was defined as the pumper's highest annual production based on a verified 5 year consecutive pumping from years1986 to1990. Pumpers receiving the court judgement were benefitted with a variable Free Pumping Allowance (FPA) by the Watermaster. The Free Pumping Allowance was a percentage of the pumper's Base Annual Production for each subarea basin. The current Free Pumping Allowance for the Alto Sub-Basin is 55% of Base Annual Production for Municipal and industrial and 70% of Base Annual Production for agriculture. Any water user pumping more than Free Production Allowance in any year must buy replacement water equal to the amount of production in excess of FPA .

Groundwater Volume Pumped

Table -4 Ground water Volume Pumped by Liberty Utilities (Acre-feet)

	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	Mojave Basin Area	13,724	14,106	14,307	13,539	14,979
	TOTAL	13,724	14,106	14,307	13,539	14,979

Liberty Utilities has pumped an average of 14,131 Acre-feet of water for potable use from Mojave Basin Area, Alto subarea.

Liberty Utilities does not use recycled water within its service area. However, Victor Valley Wastewater Reclamation Authority (VVWRA) is currently discharging the treated effluent from the 1 MG membrane bioreactors (Subregional Water Reclamation Plant) to the Apple Valley Golf Course which is located within Liberty

Utilities' service area and intends to expand the use of recycled water for irrigation and landscaping projects.

Table - 5 Available water supply during normal years through 2045						
Water Source	2020 (Actual)	2025	2030	2035	2040	2045
Mojave Basin Area	14,979	15,846	16,466	17,120	17,810	18,538
Other sources	_	-	-	-	-	-
TOTAL PROJECTED NORMAL WATER DEMAND	14,979	15,846	16,466	17,120	17,810	18,538

Liberty Utilities water supply is obtained from the Mojave Basin Area which is an adjudicated water basin managed by Mojave Water Agency (Watermaster). MWA maintains a comprehensive record of pumping, replenishment, groundwater elevations, and water quality. There are over 900 monitoring wells in this region which track water production within each of the five subareas.

Liberty Utilities water demand for a normal year is based on its target of 238 GPCD for potable water demands.

Table 6 below, shows Liberty Utilities Service area for a Normal year supply and demand comparison:

Normal Year Supply and Demand Comparison (ACRE-FT per year)

Table-6 Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045
Supply totals	15,846	16,466	17,120	17,810	18,538
Demand totals	15,846	16,466	17,120	17,810	18,538
Difference	0	0	0	0	0
Units are in ACRE-FT					

Table 7, below, indicates that Liberty Utilities can meet projected water demands and supplies during single dry years over the next 25 years.

Table-7 Single Dry Year Supply and Demand Comparison , (ACRE-FT Per Year)					
	2025	2030	2035	2040	2045
Supply totals	14,922	15,506	16,122	16,772	17,458
Demand totals	14,922	15,506	16,122	16,772	17,458
Difference	0	0	0	0	0

Table 8 summarizes Liberty Utilities Projected water demands and supplies over the next 25 years in five-year increments during consecutive year drought periods.

Table- 8 Multiple Dry Years Supply and Demand Comparison (ACRE-FT Per Year)

		2025	2030	2035	2040	2045
First year	Supply totals	19,285	20,039	20,835	21,675	22,561
	Demand totals	19,285	20,039	20,835	21,675	22,561
	Difference	0	0	0	0	0
Second year	Supply totals	17,760	18,454	19,188	19,961	20,777
	Demand totals	17,760	18,454	19,188	19,961	20,777
	Difference	0	0	0	0	0
Third year	Supply totals	18,114	18,823	19,571	20,360	21,192
	Demand totals	18,114	18,823	19,571	20,360	21,192
	Difference	0	0	0	0	0
Forth year	Supply totals	17,440	18,122	18,842	19,602	20,403
	Demand totals	17,440	18,122	18,842	19,602	20,403
	Difference	0	0	0	0	0
Fifth year	Supply totals	14,296	14,856	15,446	16,069	16,726
	Demand totals	14,296	14,856	15,446	16,069	16,726
	Difference	0	0	0	0	0

California Water Code (CWC 10635) states that

a) *Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assess shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.*

Water Pressure Zone:

Watson High Logistics-West is located at the North West Corner (NWC) of Navajo and Livermore/Los Padres. The overall site area is approximately 48 acres (APN: 0463-231-62-0-000) with a proposed building of approximately 935 SF preliminary proposed pad elevation for the proposed building varies from 3,020 to 3,029 feet. Potable water for this site will be provided by Liberty Utilities. **"Bell Mountain"** Pressure zone via a 1MG reservoir (HWL = 3,140 feet). The static water pressure is around 50 PSI (based on the proposed pad elevation) and according to the Liberty Utilities staff, the existing water network system can deliver 4,000 gpm fire flow based the Liberty Utilities recent hydraulic modeling)

Pumping Stations:

This project is being served from Bell Mountain PZ with the HWL of 3,140 feet and thus, no pumping will be required.

Fire Flow Storage:
Fire flow storage requirements are based on the Apple Valley Fire Protection District, which has been established at 4,000 gpm, for 4 hours duration at 20 psi residual pressure. In speaking with the Liberty Utilities Engineer, he indicated that there is a one-million-gallon water storage tank serving this pressure zone and is available based on first come first serve basis.

Conclusion:
In accordance with the foregoing, which includes:

- The reliability of the source water (Adjudicated Mojave Basin Groundwater),
- Historical water delivery and meeting the water demand during normal and single dry year as well a period of drought lasting five consecutive water years,
- Having the ability to pump water from the Alto Sub Area Basin,
- Coordination with the Mojave Water Agency (Watermaster) for pumping the ground water,
- Having the option of the conjunctive use.

Liberty Utilities has met and proven to meet the standards set forth by SB 610. This WSA concludes that the total projected water supplies available to Liberty Utilities during normal, single-dry, and multiple-dry water years over the next 20 years will be sufficient to meet the projected water demand for the proposed project.