

RIVERSIDE COUNTY ECONOMIC DEVELOPMENT AGENCY  
3403 10TH STREET, SUITE 500  
RIVERSIDE, CALIFORNIA 92501  
(951) 955-8961

**WATER SUPPLY ASSESSMENT  
FOR  
RIVERSIDE COUNTY  
EAST COUNTY DETENTION CENTER EXPANSION (INDIO JAIL)**

**APRIL 2013**

Prepared by

**KRIEGER & STEWART, INCORPORATED  
ENGINEERING CONSULTANTS  
3602 UNIVERSITY AVENUE  
RIVERSIDE, CALIFORNIA 92501  
(951) 684-6900**

Signed: \_\_\_\_\_

*[Handwritten Signature]*

Date: \_\_\_\_\_

*4/11/2013*



## TABLE OF CONTENTS

	PAGE
<b>Chapter I – Introduction</b> .....	<b>I-1</b>
<b>Chapter II – Project</b> .....	<b>II-1</b>
A.    General.....	II-1
B.    Water Demand.....	II-2
<b>Chapter III – Water Supply</b> .....	<b>III-1</b>
A.    General.....	III-1
B.    2010 UWMP and 2012 WMPU.....	III-1
C.    Existing Water Supply Entitlements, Water Rights, or Water Service Contracts.....	III-4
D.    Groundwater Basin and Subbasins.....	III-5
E.    Public Water Systems.....	III-8
F.    Production and Replenishment.....	III-10
G.    Sufficiency of Supply to Meet Projected Water Demand.....	III-17
<b>Chapter IV – Summary / Conclusions</b> .....	<b>IV-1</b>
A.    Project.....	IV-1
B.    Water Supply.....	IV-1
C.    Conclusion.....	IV-2
 <b>Tables</b>	
Table II-1	Existing and Proposed Population..... II-1
Table II-2	Existing and Proposed Water Demand and Wastewater Contribution..... II-3
Table III-1	Indio Water Authority Projected Water Demand and Projected Water Supply..... III-3
Table III-2	Whitewater River Subbasin Estimated 2012 Groundwater Budget..... III-8
Table III-3	Indio Water Authority Projected Populations..... III-9
Table III-4	Whitewater River Subbasin Groundwater Production..... III-11
Table III-5	Indio Water Authority Whitewater River Subbasin Historic Groundwater Extractions..... III-12
Table III-6	Indio Water Authority Whitewater River Subbasin Projected Groundwater Production Excluding the Project..... III-13
Table III-7	All Pumpers Whitewater River Subbasin Projected Groundwater Production (Gross Groundwater Extractions)..... III-15
Table III-8	All Pumpers Whitewater River Subbasin Projected Consumptive Use (Net Groundwater Extractions)..... III-15
Table III-9	Indio Water Authority Whitewater River Subbasin Historical Supply Reliability Pumping Capacity..... III-18
Table III-10	Coachella Valley Groundwater Basin and Subbasins Estimated Storage Capacity..... III-18
Table III-11	Whitewater River Subbasin State Water Project Recharge Deliveries 2000 -2012..... III-26

**TABLE OF CONTENTS**  
**(continued)**

Table III-12	Coachella Valley Water District and Desert Water Agency Maximum State Water Project Water Allocations.....	III-27
Table III-13	California Department of Water Resources State Water Project Historic Table A Allocations 2000 - 2012.....	III-28

**Figures**

Figure II-1	Existing Site Plan.....	II-4
Figure II-2	Phase 1 Construction Site Plan.....	II-5
Figure II-3	Demolition of Existing Site Plan.....	II-6
Figure II-4	Proposed Final Site Plan.....	II-7
Figure III-1	Coachella Valley Water District Static Water Level Measurements (USGS Well No. 06S07E02D02S).....	III-19
Figure III-2	Coachella Valley Water District Static Water Level Measurements (USGS Well No. 05S07E08Q01S).....	III-20
Figure III-3	Indio Water Authority Static Water Level Measurements Well 13A .....	III-21
Figure III-4	Indio Water Authority Static Water Level Measurements Wells 1B, 1C, and 1E .....	III-22
Figure III-5	Indio Water Authority Static Water Level Measurements Wells 3A, 3B, and 3C .....	III-22
Figure III-6	Indio Water Authority Static Water Level Measurements Wells 4A, 4B, and 4C .....	III-23
Figure III-7	Indio Water Authority Static Water Level Measurements Well T .....	III-23
Figure III-8	Indio Water Authority Static Water Level Measurements Well S .....	III-24
Figure III-9	Indio Water Authority Static Water Level Measurements Well U .....	III-24

**Exhibits**

Exhibit A	Coachella Valley Groundwater Basin
Exhibit B	Whitewater River Subbasin, Water Purveyor Boundaries, and Wells

**Appendices**

Appendix A	References
Appendix B	Senate Bill No. 610
Appendix C	Groundwater Extracted by Indio Water Authority

## CHAPTER I INTRODUCTION

This Water Supply Assessment (WSA) has been prepared for the Riverside County East County Detention Center Project (Project), also known as the Indio Jail Project, at the request of the County of Riverside. The Project consists of expanding the existing detention facility in Indio, California, increasing the existing capacity of 353 beds by 1,273 beds for a total of 1,626 beds. A more detailed description of the Project and projected water demand is included in **Chapter II**.

In 2001, the California State Senate passed two statutes, Senate Bill Nos. 221 and 610 (SB 221 and SB 610, respectively), which require detailed project-related water availability information to be provided to city and county decision-makers when considering a project. SB 221 stipulates that approval by a city or county of certain residential subdivisions requires affirmative written verification of sufficient water supply. SB 221 applies only to subdivisions, and is, therefore, not applicable to the Project.

SB 610 stipulates that water supply assessments must be furnished to local governments for inclusion in any environmental documentation for certain specified projects subject to the California Environmental Quality Act (CEQA). The County of Riverside has elected to prepare an Environmental Impact Report (EIR) in accordance with CEQA, and this WSA was prepared for inclusion in the EIR to satisfy the requirements of SB 610. A copy of SB 610 is included in **Appendix B**.

Under SB 610, a Water Supply Assessment is required for a project with a water demand equivalent to or greater than that of a 500-unit housing development. Typically, the water demand for a 500-unit housing development in the Coachella Valley would range between approximately 500 and 850 acre feet per year (AF/Yr)<sup>1</sup>. Although the Project's estimated increase in demand (over existing) of approximately 179 AF/Yr falls substantially short of the AB 610 threshold, the County of Riverside elected to prepare this WSA to ensure a thorough evaluation of the Project's environmental effects.

SB 610 requires that a city or county, upon determining that a project with a significant water demand is subject to CEQA, request that the public water system (PWS) responsible for supplying water to the

---

<sup>1</sup> Typical water demand observed in Western portion of the Coachella Valley range between 1.0 and 1.7 AF/Yr/connection.

project determine whether the project's projected water demand was included in its most recently adopted urban water management plan (UWMP). If such demand was not accounted for, the PWS must prepare a WSA, which must include a discussion of the ability of the PWS's available water supply to meet the project's projected water demand in addition to the PWS's existing and planned future demands.

In addition to the above, SB 610 requires that the WSA identify any existing water supply entitlements, water rights, or water service contracts held by the PWS, as evidenced by written contracts, copies of capital outlay programs, necessary regulatory approvals, and federal, state, and local infrastructure construction permits relevant to the identified project's water supply, including a description of quantities of water received in prior years by the PWS under the existing water supply entitlements, water rights, or water service contracts. If no water has been received in prior years by the PWS, the WSA must identify another PWS that receives water supply from or has existing water supply entitlements, water rights, or water service contracts to the same source of water that the PWS has identified as a source of its water supply.

According to SB 610, if the water supply for a proposed project includes groundwater, the following additional information shall be included in the WSA:

- A description of the groundwater basin or basins from which the proposed project will be supplied, together with pertinent documents (if adjudicated) or information as to actual or pending [i.e. potential] overdraft (if not adjudicated).
- If a basin has been adjudicated, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system has the legal right to pump under the order or decree.
- If a basin has not been adjudicated, information as to whether the California Department of Water Resources (CDWR) has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, as well as a detailed description of the efforts being undertaken to eliminate a long-term overdraft condition.

- A detailed description and analysis of the quantity and location of groundwater pumped by the public water system for the past five years from any groundwater basin from which the proposed project will be supplied.
- A detailed description and analysis of the quantity and location of groundwater that is projected to be pumped by the public water system from any basin or basins from which the proposed project will be supplied.
- An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.

Since the Project is situated within the service area of the IWA. IWA has the authority and obligation to serve the Project, and proposes to provide water service, including water supply, to the Project

This WSA only addresses the water supply in accordance with the provisions of SB 610. This report does not address additional facilities (well pumping plants, booster pumping plants, transmission and distribution pipelines, and storage reservoirs) that may be required to serve the Project. In addition, in accordance with Government Code Section 66473.7 (m) and (n), nothing in this WSA shall be construed to create a right or entitlement for water service or any specific level of water service nor is it intended to change existing law concerning IWA's obligation to provide water service to its existing customers or to any potential future customers.

In addition, IWA reserves its authority under the Water Code (Section 350 et seq) to declare a water shortage emergency condition in the face of an existing or threatened water shortage, and thereupon adopt such regulations and restrictions on the delivery and consumption of water within its service area as it deems necessary to conserve the water supply for the greatest public benefit, including, but not limited to, denial of applications for new or additional service connections, and discontinuation of service to existing consumers who willfully violate the regulations and restrictions.

**CHAPTER II  
PROJECT**

**A. GENERAL**

The Project, as proposed, is located within the City of Indio, California, south of Highway 111, east of Oasis Street, and south of the Colorado River Aqueduct (see **Figures II-1 through II-4** and **Exhibit A**). The purpose for the Project is to satisfy the immediate need for increased inmate capacity within Riverside County.

The Indio Jail site currently occupies approximately 4.21 acres. Said acreage is not proposed to increase with completion of the Project. As part of the Project, an ancillary parking structure will be constructed offsite on an existing parking lot site located diagonally across from the jail site and across the street from the Riverside County Fairgrounds at Oasis Street and Plaza Avenue. The existing parking lot occupies approximately 5.54 acres.

Project construction will include the following major facilities: general housing units to house 192 inmates in six 32-bed dayrooms containing sixteen 2-man cells each, special housing units for inmates with physical conditions, a full service kitchen, medical office, GED classroom, health services clinic, intake and release area, administrative office, and the parking structure. The ultimate design of the detention center will accommodate up to 1,626 inmates.

Construction will occur in two phases. Phase 1 will consist of construction of the housing units, support facilities, and the parking structure. Phase 2 will consist of the demolition of the existing facility. Construction is projected to be completed in November 2016.

Existing and proposed inmate and staff populations of the Indio Jail are set forth in **Table II-1**, below:

<b>TABLE II-1 EXISTING AND PROPOSED POPULATION</b>			
<b>Phase</b>	<b>Inmates (Resident)</b>	<b>Staff (Non-Resident)</b>	<b>Total</b>
Existing	353	45	398
Proposed	1,626	232	1,858

## B. WATER DEMAND

Based on information provided by HOK Associates (HOK) by email correspondence dated February 22, 2013, gross water demand of the Indio Jail will increase from approximately 81 AF/Yr (existing) to approximately 258 AF/Yr (proposed), see **Table II-2**. Potable water will be used for sanitary, kitchen, and laundry facilities onsite (all utilizing water conserving fixtures). Minimal landscaping is planned for the facility and will include drought tolerant plants and drip irrigation, in accordance with IWA's Landscape and Water Conservation Ordinance No. 1528, with an estimated water use of 2 AF/Yr.

IWA will serve the Project through its local public (municipal) water system in accordance with its applicable rules and regulations, including applicable IWA, City of Indio, and State landscaping guidelines. The water supply necessary to meet water demands will be derived from groundwater extracted from the local aquifer using offsite water production wells for delivery through its public (municipal) water system.

To accommodate the Project, IWA will continue to supply and deliver water from its existing groundwater wells, aboveground reservoirs, and distribution system.

Project wastewater will be collected and conveyed to the Valley Sanitation District Wastewater Reclamation Facility (VSD WWRF) located on Van Buren Street. VSD will convey, treat, and recycle the wastewater for discharge to the Coachella Valley Storm Water Channel or treat the wastewater to secondary standards for irrigation use on local tribal lands.

Based on email correspondence from HOK dated February 15, 2013, the quantity of wastewater produced by the Project will increase from 73 AF/Yr (existing) to 232 AF/Yr (proposed), see **Table II-2**. Current capacity of the existing VSD WWRF is approximately 11 million gallons per day (MGD)<sup>1</sup>. The facility will ultimately expand to accommodate 17 MGD by 2020. Average wastewater flow at the VSD WWRF is approximately 9 MGD. Wastewater flow from the Project would increase the VSD WWRF total influent volume to 9.2 MGD.

---

<sup>1</sup> VSD existing and ultimate treatment capacities and current wastewater flows were obtained from IWA's 2010 UWMP



It is possible that vacuum water closets will be included in construction of the Project. These toilets use as little as 1/2 gallon per flush, thus reducing the water and sewer demands of the Project. If installed, use of the vacuum water closets would yield a total water demand of 64 AF/Yr and wastewater demand of 58 AF/Yr, approximately 20% less than demand of the existing facility which houses fewer inmates. The decision to include vacuum water closets is still pending as of the time of preparation of this WSA.

Existing and proposed gross water demands and wastewater contributions for the Project are set forth as follows:

<b>TABLE II-2 EXISTING AND PROPOSED WATER DEMAND AND WASTEWATER CONTRIBUTION (AF/YR)</b>		
	<b>Gross Water Production to Meet Demand <sup>(1)</sup></b>	<b>Gross Wastewater Contribution Resulting from Use <sup>(2)</sup></b>
Existing	81	73
Proposed	258	232

**Notes:**

- (1) Estimated figure from HOK
- (2) Estimated figure from HOK, equals 90% of Gross Water Demand

FIGURE II-1  
EXISTING SITE PLAN

EXISTING FACILITY TO BE DEMOLISHED

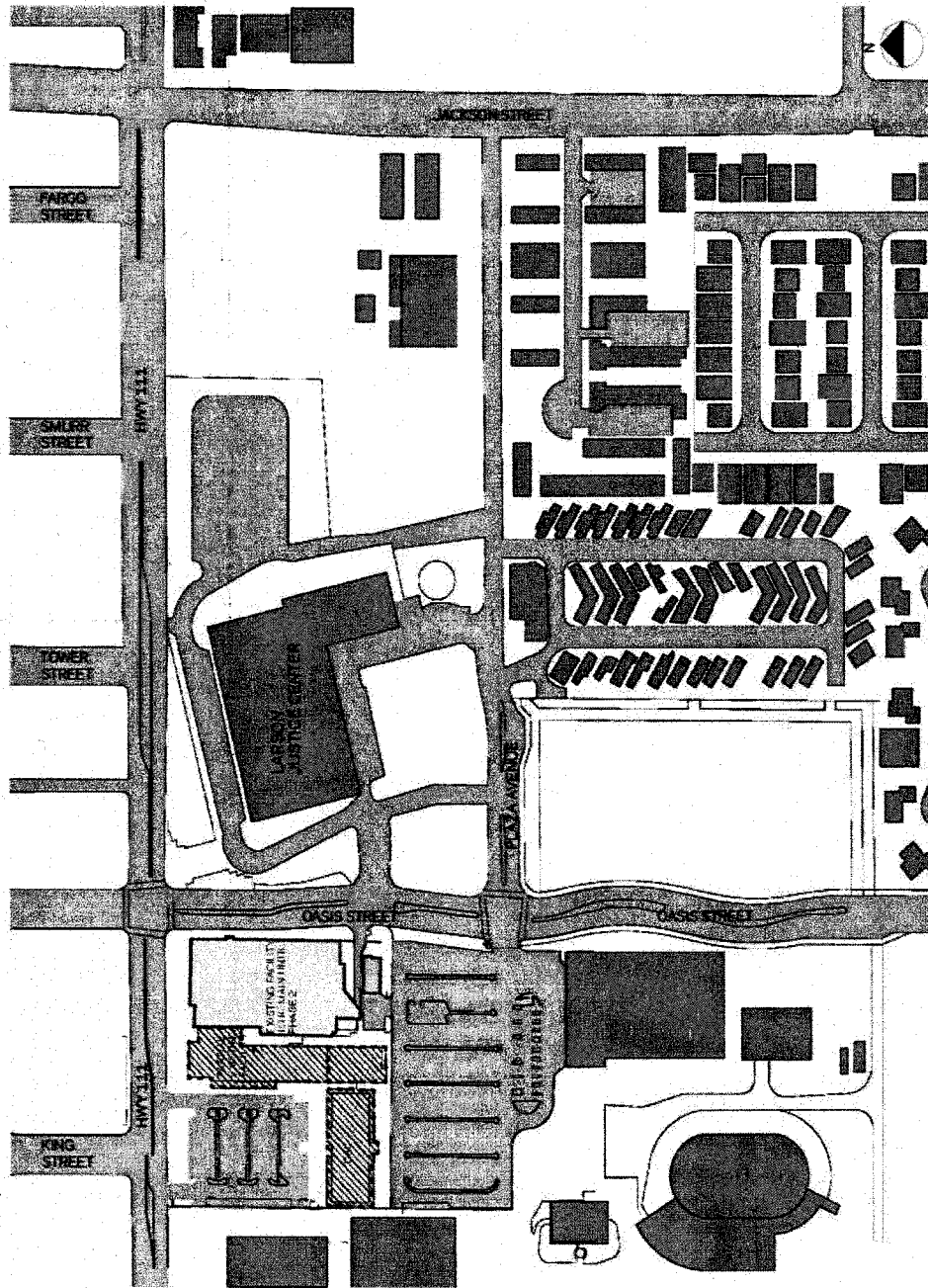


FIGURE II-2  
PHASE 1 CONSTRUCTION SITE PLAN

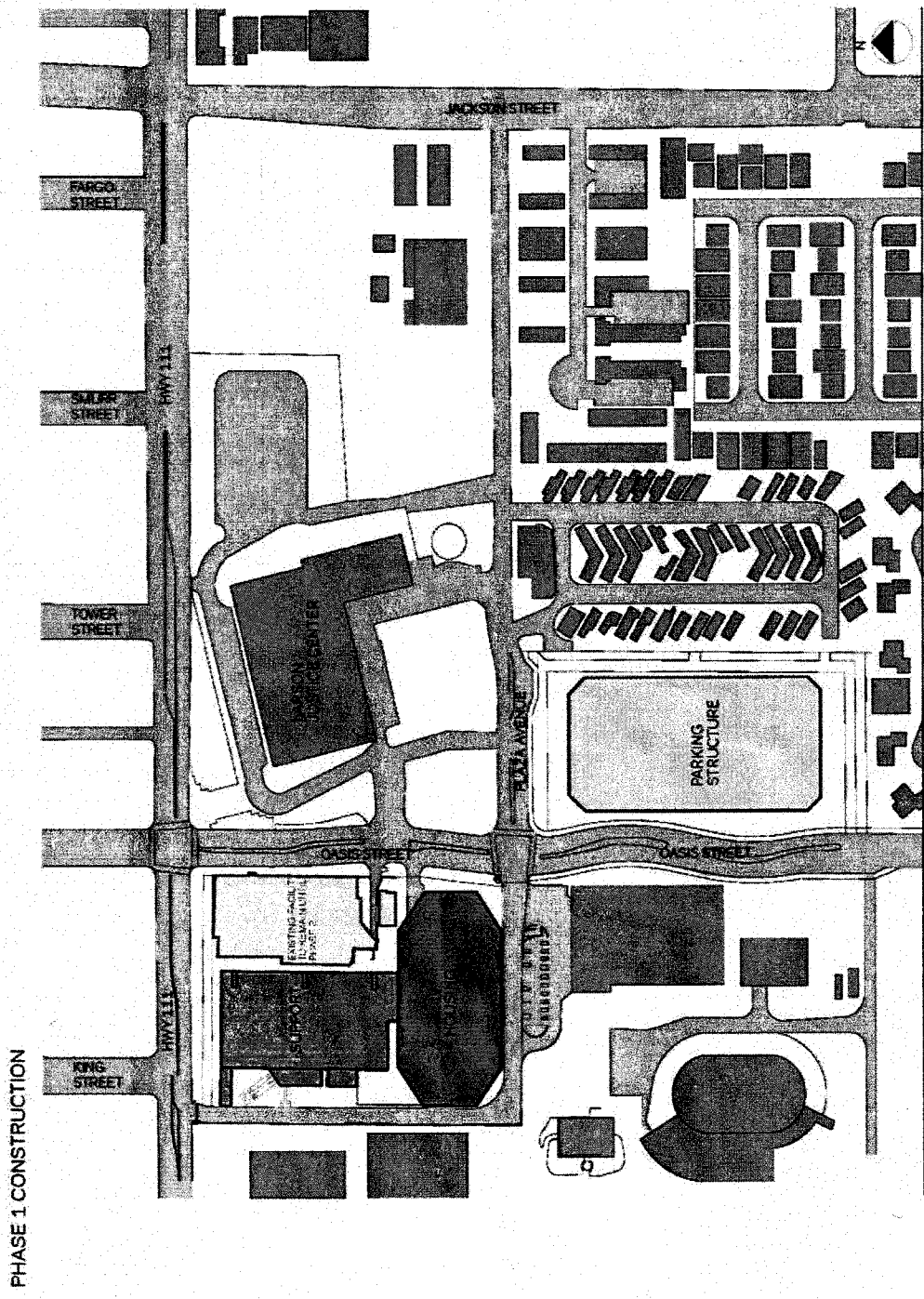


FIGURE II-3  
DEMOLITION OF EXISTING SITE PLAN

DEMOLITION OF EXISTING FACILITY

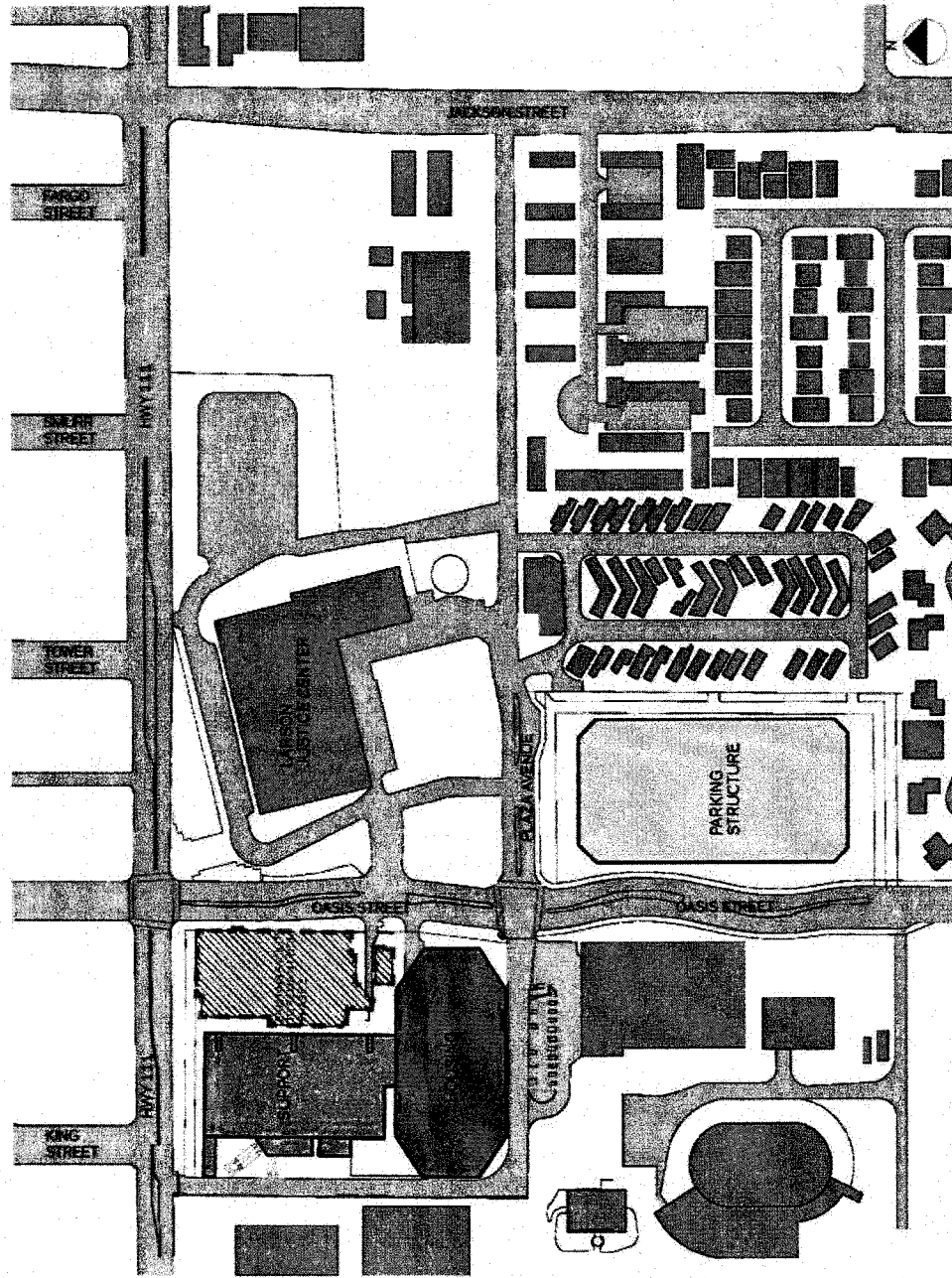
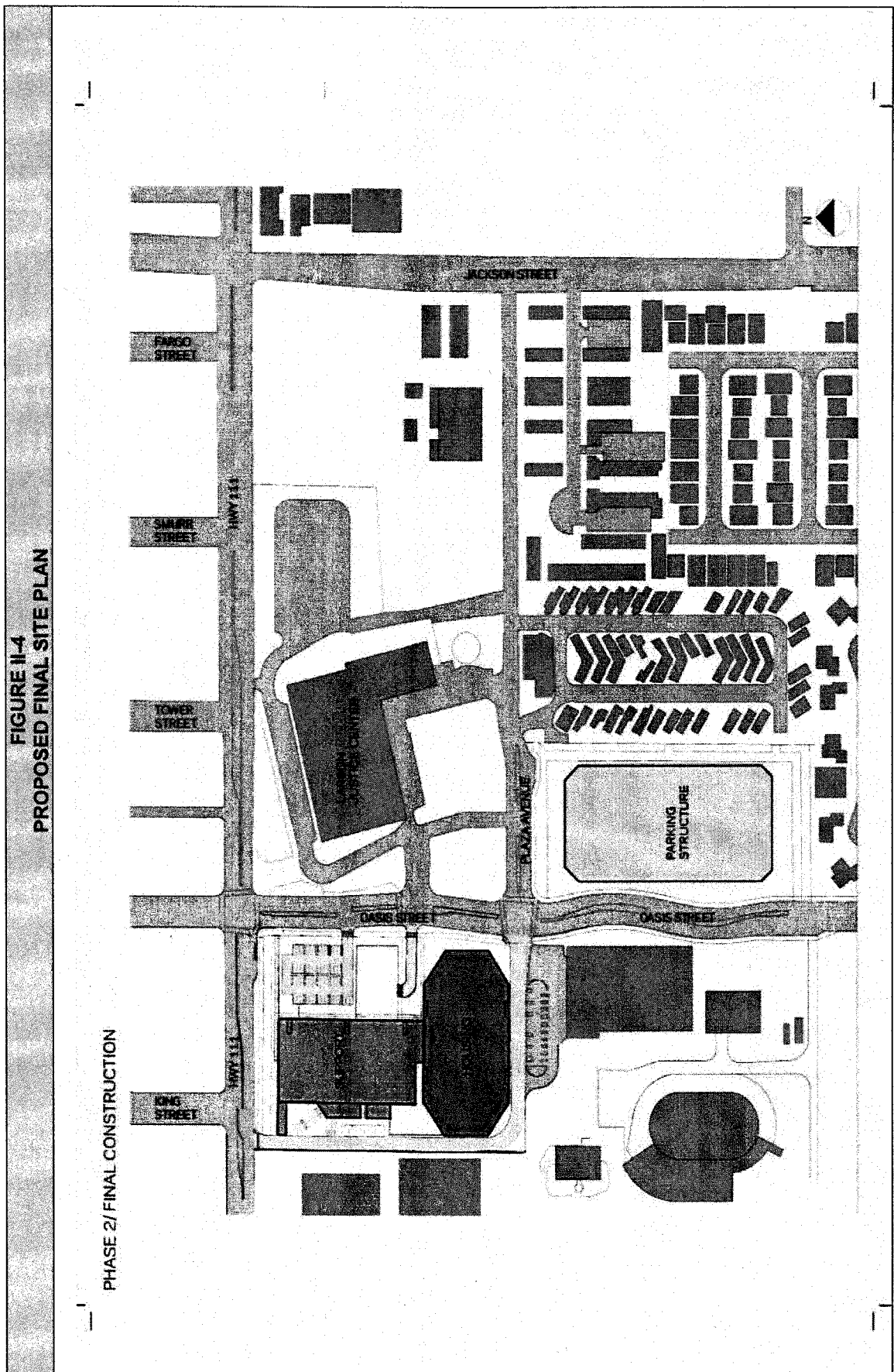


FIGURE II-4  
PROPOSED FINAL SITE PLAN



## **CHAPTER III WATER SUPPLY**

### **A. GENERAL**

The Project is situated within the City of Indio, lying within California's Colorado River Hydrologic Region (herein referred to as the Whitewater River Watershed), where available water supplies consist of surface water, groundwater, and imported water used for artificial groundwater recharge. Surface waters were statutorily adjudicated as set forth in the Whitewater River Adjudication Decree, Case Number 18035, dated September 28, 1938. The decree lists the surface water diverters and their surface water rights, including quantity, priority, and purpose, as well as other related information. IWA is not listed as a surface water diverter.

To serve the Project, IWA must therefore secure the necessary water supply for the Project from groundwater, specifically from the Whitewater River Subbasin of the Coachella Valley Groundwater Basin, which is replenished with Colorado River water exchanged for State Water Project (SWP) water allocations by Coachella Valley Water District (CVWD) and Desert Water Agency (DWA). The locations of the Whitewater River Subbasin and the Coachella Valley Groundwater Basin are shown on **Exhibit A** (CDWR 1964, revised by K&S 2013 to reflect USGS 1971). The service areas for IWA and other local water purveyors in the area are shown on **Exhibit B**.

A description of the groundwater basin is provided in **Part D** herein. The groundwater replenishment activities are discussed in **Parts F and G** herein.

### **B. 2010 UWMP AND 2012 WMPU**

IWA's 2010 Urban Water Management Plan (2010 UWMP), which superseded its 2005 UWMP, was adopted in September 2011. IWA's 2012 Water Master Plan Update (WMPU), which superseded its 2007 WMPU, was prepared in September 2012. Both of these reports address development and population growth.

Information relevant to the water supply for the proposed Project from the 2010 UWMP and 2012 WMPU follows:

- IWA currently relies entirely on groundwater sources for its water supply.
- The existing land uses within IWA's service area include residential, commercial, and limited industrial. The majority of land use can be classified as residential, varying in density from equestrian and country estates to high-density multi-family dwellings.
- IWA's service area overlies a portion of the Whitewater River Subbasin of the Coachella Valley Groundwater Basin. The Coachella Valley Groundwater Basin also includes the Mission Creek Subbasin, the Garnet Hill Subbasin, the San Geronio Pass Subbasin, and the Desert Hot Springs Subbasin.
- IWA currently extracts groundwater from the Whitewater River Subbasin using 20 existing domestic water production wells (Wells 1B, 1C, 1E, 2C, 2D, 3A, 3B, 3C, 4A, 4B, 4C, S, T, U, V, W, Z, AA, BB, and 13A). IWA currently operates 6 pumping plants to deliver the groundwater throughout its distribution system.
- The total pumping capacity of IWA's wells is approximately 69 MGD.
- Future water demands, up to 20,000 AF/Yr, will be met by continued and increased groundwater production from the Whitewater River Subbasin.
- Beyond 20,000 AF/Yr, IWA proposes to meet future demands with a combination of surface water transactions and recycled water sources. **Part G.6** herein discusses IWA's goals and reasoning in seeking alternative sources of water supply.
- IWA currently has emergency inter-connections with the CVWD.
- CVWD is a Colorado River importer and a California State Water Contractor which operates and maintains groundwater recharge facilities at three locations in the Coachella Valley: the Whitewater River Spreading Area (located near Windy Point), the Thomas E. Levy Groundwater Replenishment Facility (TEL Recharge Facility,



located approximately 2 miles south of Lake Cahuilla in La Quinta), and Martinez Canyon Pilot Recharge Facility (located in the Martinez Canyon alluvial fan west of the Salton Sea).

- CVWD has operated the Whitewater River Spreading Area since 1919, first utilizing local surface runoff. Since 1973, CVWD and DWA have used Colorado River water exchanged for SWP water allocations to replenish groundwater in the Whitewater River Subbasin. See **Parts F and G** herein for additional discussion regarding CVWD's and DWA's groundwater recharge programs.
- CVWD and DWA (also a State Water Contractor) have also jointly operated and managed the Mission Creek Recharge Facility to replenish the aquifer beneath the western portion of the Coachella Valley since 2003.

The 2010 UWMP and 2012 WMPU also include projected water demands and supplies for the Whitewater River Subbasin, as set forth in **Table III-1** below.

<b>TABLE III-1 INDIO WATER AUTHORITY PROJECTED WATER DEMAND AND PROJECTED WATER SUPPLY (AF)</b>				
<b>Whitewater River Subbasin</b>				
<b>Year</b>	<b>Projected Water Demand</b>		<b>Projected Water Supply</b>	
	<b>2010 UWMP<sup>(1)</sup></b>	<b>2012 WMPU</b>	<b>2010 UWMP<sup>(2)</sup></b>	<b>2012 WMPU</b>
2015	27,594	22,000	26,700	20,000
2020	34,141	27,000	35,800	29,000
2025	38,394	32,000	46,500	49,000
2030	44,154	51,000 <sup>(3)</sup>	46,500	53,000 <sup>(3)</sup>

**Notes:**

- (1) 2010 UWMP projected water demands consist of the projected number of accounts multiplied by the average water use rates based on 2008 consumption data.
- (2) 2010 UMWP projected water supply consists of mostly groundwater, unspecified surface water transactions, and projected recycled water use within the Whitewater River Subbasin.
- (3) 2012 WMPU estimated build-out is expected to occur between 2026 and 2050.



### C. EXISTING WATER SUPPLY ENTITLEMENTS, WATER RIGHTS, OR WATER SERVICE CONTRACTS

The Coachella Valley Groundwater Basin has not been adjudicated; therefore, groundwater pumping is not currently limited. CDWR (Bulletin 108) has identified the Coachella Valley Groundwater Basin as being in overdraft<sup>1</sup>, which is also the primary challenge to the Basin (CDWR Bulletin 118, Update 2003). Continued replenishment efforts by CVWD and DWA are necessary to reduce the decline in groundwater levels and reduce cumulative overdraft conditions (CVWD and DWA 2012).

Groundwater rights in California fall into three categories: overlying rights, appropriative rights, and prescriptive rights. An overlying right is the right of an owner of land to extract percolating groundwater<sup>2</sup> and use it on that land; it has a higher priority and is paramount to an appropriative right. An appropriative right permits the owner to extract percolating groundwater, take it off the land, and use it elsewhere, such as what a public agency or public utility does when it pumps water to supply its customers. A prescriptive right is established by adverse use against prior rights holders. All groundwater rights are usufructuary, and are subject to the reasonable, beneficial use requirements of the California Constitution (Littleworth and Garner 2007).

Riverside County, as the owner of the Project site which overlies a groundwater basin, has an overlying right to produce percolating groundwater for the Project. Since the groundwater basin has not been adjudicated, and overlying rights have not been restricted, the overlying right could be exercised by simply constructing a well, pumping it, and putting the water to reasonable, beneficial use on the Project site. Permits would be required for construction. However, no private groundwater production facilities are planned for the Project.

IWA, a joint powers authority and a public water agency, exercises an appropriative groundwater right since it is a public water system that pumps percolating groundwater and distributes it

---

<sup>1</sup> Overdraft is defined in CDWR Bulletin 118 (2003) as "the condition of a groundwater basin in which the amount of water withdrawn by pumping over the long term exceeds the amount of water that recharges the basin. Overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years. Overdraft can lead to increased extraction costs, land subsidence, water quality degradation, and environmental impacts."

<sup>2</sup> The term "percolating groundwater" is used to distinguish groundwater in aquifers from subterranean streams flowing through known and definite channels. Common law considers percolating groundwater as part of the soil; therefore, whoever owns the soil, owns everything up to the sky and down to the depths (Littleworth and Garner 2007).

throughout its service area. An appropriative right is acquired simply by pumping the groundwater and putting it to reasonable, beneficial use since there are no statutory procedures for appropriating percolating groundwater (Littleworth and Garner 2007).

IWA's appropriative right can be increased in quantity, provided sufficient groundwater, subject to prior and paramount rights, is available to meet increasing needs.

Prescriptive rights must be established by adverse use (prescription) against prior rights holders, and requires a taking that is adverse and hostile to a prior right holder. The taking must be actual, open, notorious, continuous, and uninterrupted for a period of at least five years. Also, the taking must be under claim of right. To date, there are no publicly known claims for such rights within the Whitewater River Subbasin.

With respect to the Project, neither Riverside County nor IWA have water supply entitlements or water supply contracts; however, as described above, each has a water right: Riverside County has an overlying groundwater right which has priority over an appropriative groundwater right, and IWA has an appropriative groundwater right which is dependent upon availability of surplus percolating groundwater.

Although Riverside County and its predecessors have had and continue to have an overlying right to percolating groundwater for the Project site, they have never exercised that right, at least within the last half century. In contrast, IWA has exercised its appropriative right in the Whitewater River Subbasin to the extent it has extracted sufficient quantities of percolating groundwater to meet all water demands for more than fifty years.

#### **D. GROUNDWATER BASIN AND SUBBASINS**

As previously stated, the sole source of water supply for IWA is groundwater from the Whitewater River Subbasin (USGS 1971) of the Coachella Valley Groundwater Basin (CDWR 1964).

The proposed Project lies entirely within the surface boundaries of the Whitewater River Subbasin, and would be supplied by groundwater therefrom. The location of the Whitewater River Subbasin and the Coachella Valley Groundwater Basin are shown on **Exhibit A** (CDWR 1964, revised by K&S 2013 to reflect USGS 1971).

**1. Coachella Valley Groundwater Basin (CDWR Bulletin 118, Basin 7-21, Update 2003)**

The Coachella Valley Groundwater Basin extends from the west end of the San Gorgonio Pass at the Santa Ana River System/Whitewater River System Watershed divide to the Salton Sea on the southeast. There has been considerable uncertainty about the westerly boundary of the Coachella Valley Groundwater Basin over the years, but herein it is assumed to be the same as the watershed boundary. It includes 690 square miles bounded by the aforementioned watershed divide on the west, the San Bernardino Mountains on the north, the Santa Rosa Mountains on the south, and the San Jacinto Mountains on the southwest (CDWR 1964).

According to CDWR (1964), the Coachella Valley Groundwater Basin is subdivided into four subbasins: San Gorgonio Pass, Mission Creek, Indio, and Desert Hot Springs. However, according to the USGS (1974), the Indio Subbasin is actually two separate subbasins, Garnet Hill and Whitewater River. The Garnet Hill Subbasin is confined to the upper portion of the Coachella Valley Groundwater Basin whereas the Whitewater River Subbasin extends into the lower portion of the Coachella Valley Groundwater Basin. These subbasins are bounded by faults and other geologic features and the individual storage units within the subbasins are also bounded by various geologic features (see **Exhibits A and B**).

The San Andreas Fault drives a complex pattern of branching faults that define the boundaries of the groundwater basins and subbasins in the region. The San Gorgonio Pass and Whitewater River Subbasins are separated by a buried bedrock ridge projecting northward from the flank of Mount San Jacinto at Fingal Point. The Desert Hot Springs and Mission Creek Subbasins are divided by the Mission Creek Fault, a branch of the San Andreas Fault. The Mission Creek and Garnet Hill Subbasins are divided by the Banning Fault, another branch of the San Andreas Fault. The Garnet Hill and Whitewater River Subbasins are divided by the Garnet Hill Fault, a branch of the Banning Fault.

The San Gorgonio Pass Subbasin is at the upper end of the Coachella Valley Groundwater Basin. Generally, groundwater flows easterly through the San Gorgonio Pass Subbasin to the Whitewater River Subbasin. Also, groundwater flows from the Desert Hot Springs Subbasin to and through the Mission Creek Subbasin, to and through the Garnet Hill

Subbasin, and then to the Whitewater River Subbasin (CDWR 1964, and USGS 1974, 1978, and 1992).

The San Gorgonio, Mission Creek, and Whitewater River Subbasins have been significantly developed for water supply purposes.

2. **Whitewater River Subbasin** (Indio Subbasin per CDWR Bulletin 118, Basin No. 7-21.01, Update 2003)

The Whitewater River Subbasin is bounded on the north by the San Bernardino Mountains and Little San Bernardino Mountains, on the south by the San Jacinto Mountains and Santa Rosa Mountains, on the west by the Whitewater River Watershed divide, and on the east by the Salton Sea (CDWR 1964 and 2003).

The Whitewater River Subbasin encompasses of the majority of the Coachella Valley Groundwater Basin (approximately 400 square miles).

The groundwater supply comes from natural and imported water sources. The natural water sources include underflow from the San Gorgonio River at the northwest end of the Subbasin, the Whitewater River, Snow Creek, Falls Creek, Chino Creek, Tahquitz Creek, Andreas Creek, Palm Canyon, and Deep Creek, as well as underflow from the Garnet Hill Subbasin.

The imported water source consists of Colorado River water provided jointly by CVWD and DWA which is exchanged for SWP water and recharged to the Whitewater Spreading Basin near Windy Point and Highway 111. Since there are no SWP facilities available to deliver SWP water to the Coachella Valley, CVWD and DWA have been exchanging their SWP allocations (formerly entitlements) for Colorado River water from the Colorado River Aqueduct to replenish groundwater in the Whitewater River Subbasin pursuant to an exchange agreement with The Metropolitan Water District of Southern California (MWD).

**Table III-2** below presents the estimated water budget for the Whitewater River Subbasin during 2012. The production quantities (pumping extractions) and imported groundwater quantities shown for the entire Whitewater River Subbasin are based on preliminary data

obtained from CVWD's and DWA's replenishment reports which are currently being prepared for the 2012 calendar year. Non-consumptive return is estimated to be approximately 35% of production, and natural inflow and outflow were obtained from USGS Water Resources Investigation Report 91-4142.

<b>TABLE III-2                      WHITEWATER RIVER SUBBASIN                      ESTIMATED 2012 GROUNDWATER BUDGET                      (AF/YR)</b>		
<b>Element of Budget</b>		<b>Estimated Quantity 2012</b>
<b>Inflow</b>	Natural Inflow (USGS 91-4142, 1992)	36,000
	Imported Groundwater (CVWD and DWA, 2013)	261,400
	Non Consumptive Return	105,800
	<b>Total Inflow</b>	<b>403,200</b>
<b>Outflow</b>	Pumping Extractions (CVWD and DWA, 2013)	302,400
	Natural Outflow (USGS 91-4142, 1992)	7,000
	<b>Total Outflow</b>	<b>309,400</b>

Note: As of the date of this WSA, the imported water quantities for 2012 are preliminary and had not yet been published by CVWD and DWA.

## **E. PUBLIC WATER SYSTEMS**

### **1. Indio Water Authority**

IWA is a public agency, specifically a Joint Powers Authority, wholly owned by the City of Indio and the Indio Housing Authority (formerly the Indio Redevelopment Agency), and is responsible for delivering water to residents of the City of Indio for all municipal water programs and services. IWA has five elected commission members to serve on its Governing Board (2010 UWMP). IWA is the logical candidate to serve the Project since it currently serves the Project site, its service territory encompasses the Project site, and it is a public water system consistent with SB 610's definition of a public water system (it serves more than 20,000 service connections, which exceeds SB 610's threshold of 3,000 service connections).

IWA's service area comprises the City of Indio, which encompasses approximately 38 square miles with a sphere of influence that extends approximately 22 square miles

north of Interstate 10 (2010 UWMP). The service area boundaries for IWA and other public water systems in the area are shown in **Exhibit B**.

Like much of Southern California, the City of Indio experienced rapid growth until the economy slowed in 2008. According to the 2010 U.S. Census, the total population in the City of Indio is approximately 76,000. For the past 5 years, growth in the Indio area has been relatively sluggish. IWA has experienced slightly more than 3% growth per year, despite projections of high growth rates for the next 10 to 15 years developed by the Riverside County Center for Demographic Research (2008), which were included in IWA's 2010 UWMP and shown in **Table III-3** below.

<b>TABLE III-3            INDIO WATER AUTHORITY            PROJECTED POPULATIONS            (AF)</b>					
	2010	2015	2020	2025	2030
Service Area Population	76,036	86,889	93,115	99,476	105,873

Climate in the City of Indio is arid with low annual rainfall, low humidity, hot summers, and mild winters. Precipitation typically occurs during the winter months at an annual average of approximately 3.2 inches (2010 UWMP).

IWA has a single distribution system composed of three separate pressure zones: the Low Zone that serves the majority of the service area, the Shadow Lake Boosted Zone that serves the residential community of Shadow Lakes, and the Terra Lago Boosted Zone that serves the Terra Lago Golf Club and Trendwest timeshare development (2012 WMPU). Each pressure zone within the single distribution system derives its water supply from groundwater extracted from the Whitewater River Subbasin. The Project is situated in and will be served by the Low Zone.

IWA, which relies exclusively on groundwater to meet water demands, currently operates 20 wells in the Whitewater River Subbasin (Wells 1B, 1C, 1E, 2C, 2D, 3A, 3B, 3C, 4A, 4B, 4C, S, T, U, V, W, Z, AA, BB, and 13A). The total pumping capacity of all 20 wells is approximately 69 MGD (2012 WMPU). IWA tests the quality of water from each of its wells and has consistently met all drinking water standards (2010 UWMP).

## 2. Other Public Water Systems

IWA is not the only public water system (per SB 610) in the Whitewater River Subbasin. COC, CVWD, and DWA are the other public water systems in the Whitewater River Subbasin; however, their service territories do not encompass the Project site.

It is unlikely that the COC, CVWD, or DWA would elect to serve the Project since they each would have to annex the Project site and the Project is already currently served by IWA within its service area.

DWA is the furthest from the Project site on the west side of the Coachella Valley. It would not be reasonable or economical for DWA to serve the Project. If either CVWD or COC expressed an interest in serving the Project, it would undoubtedly be challenged by IWA since IWA already serves the area. In addition, the Local Agency Formation Commission would likely prohibit overlapping districts, thus prohibiting the other public water systems from annexing the Project site into their jurisdictions.

## F. PRODUCTION AND REPLENISHMENT

### 1. Groundwater Production (Extractions)

#### a. Groundwater Production within the Whitewater River Subbasin (Table III-4)

Groundwater production (including surface water diversions) within the Whitewater River Subbasin for the eight year period 2005 through 2012 is set forth in **Table III-4** and described in further detail below.

Groundwater production and surface water quantities for the Whitewater River Subbasin were obtained from CVWD's and DWA's groundwater replenishment and assessment reports for the years indicated. Surface water consists of quantities diverted from the Whitewater River, Snow Creek, Falls Creek, and Chino Creek. These surface water sources are natural tributaries to the groundwater in the Whitewater River Subbasin which would percolate into the groundwater table and then be pumped to meet water supply demands. Therefore,

diversion quantities are included the production data shown in **Table III-4**. CVWD, DWA, IWA, and COC constitute the public water systems serving the Whitewater River Subbasin, including the Cities of Palm Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells La Quinta, Indio, and Coachella. "All Others" consist of private or public producers for such uses as golf courses, local parks, and vacation resorts.

<b>TABLE III-4 WHITEWATER RIVER SUBBASIN GROUNDWATER PRODUCTION (AF/YR)</b>								
<b>Producer</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>CVWD</b>	118,868	132,454	126,656	127,571	120,860	106,379	110,733	111,983
<b>IWA</b>	20,827	24,446	23,233	23,647	22,363	21,492	22,167	22,170
<b>COC</b>	3,623	9,833	8,824	8,371	8,339	8,135	7,228	8,043
All Others within CVWD	191,182	175,117	170,774	174,106	164,231	155,475	145,901	119,247
<b>DWA</b>								
Groundwater	40,600	42,490	43,562	40,430	37,244	36,716	37,011	36,990
Surface Water	2,467	2,294	1,017	1,003	1,128	934	1,080	1,571
All Others within DWA (Groundwater)	5,908	6,286	6,367	5,223	4,508	2,492	2,910	2,371
Surface Water	2,332	1,173	2,473	2,590	315	648	644	651
<b>Total</b>	<b>385,807</b>	<b>394,093</b>	<b>382,906</b>	<b>380,351</b>	<b>358,673</b>	<b>331,623</b>	<b>327,029</b>	<b>302,375</b>

**Notes:**

1. Public water systems are shown in boldface type.
2. Virtually all water production was metered.
3. Production quantities were obtained from CVWD's and DWA's replenishment reports.

b. Historic IWA Groundwater Production within Whitewater River Subbasin (Table III-5)

IWA has been extracting groundwater from the Whitewater River Subbasin for service within the City of Indio for approximately sixty years.

IWA's historic groundwater extractions from the Whitewater River Subbasin for the past five years (2008-2012) from three separate data sources are set forth in **Table III-5** below.



<b>TABLE III-5  INDIO WATER AUTHORITY  WHITWATER RIVER SUBBASIN  HISTORIC GROUNDWATER EXTRACTIONS</b>	
<b>Year</b>	<b>AF/Yr</b>
2008	23,647
2009	22,363
2010	21,492
2011	22,167
2012	22,170

Data reported in CVWD's Engineer's Reports for Groundwater Replenishment and Assessment Program, April 2008 through April 2013 (2013 not yet published). See **Appendix C**.

Since IWA's most current Urban Water Management Plan (2010 UWMP) was adopted in 2011 and Water Master Plan Update (2012 WMPU) was adopted in 2012, the historic data reported therein does not include IWA's more current extractions. IWA reports its annual metered extractions to CVWD, as part of the groundwater replenishment program. For purposes of the WSA, the quantities obtained from CVWD's replenishment reports are reported to demonstrate IWA's past groundwater extractions.

Based on the production data set forth in CVWD's replenishment reports, IWA's groundwater production averages approximately 20 MGD. As previously stated, IWA's total pumping capacity is approximately 69 MGD. The increase in water used associated with the Project would increase IWA's total service area demand from 20 MGD to 20.5 MGD, which is well within its total available pumping capacity.

IWA groundwater extractions have been generally and gradually decreasing, however, they will increase slightly with the implementation of the Project. IWA's current appropriative groundwater rights, which were developed by actual pumping, can be increased to meet the Project's requirements, in addition to IWA's current and projected service obligations, by increasing pumping and putting the extracted water to reasonable, beneficial use.

c. Projected Groundwater Production within Whitewater River Subbasin  
(Table III-6)

Based on data set forth in IWA's 2010 UWMP, the projected quantities of groundwater to be pumped by IWA from the Whitewater River Subbasin (not including the Project), for the period 2010 through 2030, are listed in **Table III-6** below.

<b>TABLE III-6</b> <b>INDIO WATER AUTHORITY</b> <b>WHITEWATER RIVER SUBBASIN</b> <b>PROJECTED GROUNDWATER PRODUCTION</b> <b>EXCLUDING THE PROJECT</b> <b>(AF)</b>		
<b>2010 UWMP</b>		
<b>Year</b>	<b>Groundwater Demand</b>	<b>Total IWA Water Demand</b>
2015	20,000	27,594
2020	20,000	34,141
2025	20,000	38,394
2030	20,000	44,154

Note: IWA has set a goal to limit groundwater production to 20,000 AF/Yr and meet all exceeding demands with surface water and recycled water sources. Refer to **Part G.6** herein for details on IWA's proposed alternative water supply.

The data set forth in IWA's 2010 UWMP includes projected demand requirements plus 7.5% for unaccounted-for losses. The 2010 UWMP anticipates offsetting groundwater production with water conservation measures, and by actively pursuing several agreements that would enable it to exchange purchased water for Colorado River Water from the Coachella Canal to meet water demands in addition to the 20,000 AF/Yr of groundwater production.

Until alternative water supply sources (see **Part G.6** herein) are utilized, IWA must continue to produce groundwater from the Whitewater River Subbasin to meet the total demands within its service area. The total projected groundwater production for IWA is set forth in **Table III-7**.

d. Basin-Wide Groundwater Production Projections (Tables III-7 and III-8)

Projected groundwater production (gross groundwater extractions) within the Whitewater River Subbasin for all pumpers (assuming that all projected IWA water supply is derived from groundwater) is set forth in **Table III-7**. There are four significant pumpers within the Whitewater River Subbasin, including IWA; although there may be also some less significant pumpers, they are included herein. The projected groundwater production quantities for IWA include quantities for the Project as well as for the community.

Based on the projected groundwater quantities in **Table III-7**, gross groundwater production by IWA for delivery to the Project will be less than 0.1% of total estimated gross groundwater production in the Whitewater River Subbasin through 2030.

Groundwater extracted by IWA for the Project will be subject to groundwater replenishment assessment charges (RACs or assessments) by CVWD, just as the groundwater extracted by IWA for the community during the last 30 years has been and will continue to be subject to these assessments. Such assessments are used to fund CVWD's groundwater replenishment of the Whitewater River Subbasin.

Projected consumptive use (net groundwater extractions), also called net pumpage, is gross groundwater produced less return flow following use; projected consumptive use within the Whitewater River Subbasin for the same four significant pumpers is set forth in **Table III-8**. Conservatively, 35% of groundwater extractions is assumed to be returned to the Whitewater River Subbasin; therefore, only 65% is estimated to be consumptively used. Net groundwater extractions are equal to 65% of gross groundwater extractions.

Increased precipitation, at least to average levels, if not to higher levels, would result in higher groundwater levels, since drought effects have reduced natural replenishment of the Whitewater River Subbasin. During the past eleven years,

precipitation averaged 1.85 inches, about 56% of normal. During the prior eleven years, precipitation averaged 2.24 inches, 68% of normal.

Based on data set forth in Tables III-7 and III-8, the proposed Project is expected to result in an additional quantity of gross groundwater production of 179 AF/Yr (including irrigation) starting in November 2016.

<b>TABLE III-7 ALL PUMPERS WHITEWATER RIVER SUBBASIN PROJECTED GROUNDWATER PRODUCTION (GROSS GROUNDWATER EXTRACTIONS) (AF/YR)</b>									
Year	CVWD <sup>(1)</sup>	DWA <sup>(2)</sup>	COC <sup>(3)</sup>	Subtotal	IWA <sup>(4)</sup>			Total	Rounded (Nearest 100)
					Community	Project	Combined		
2015	113,700	43,100	8,850	165,650	27,594	179	27,773	193,421	193,400
2020	119,600	47,100	9,340	176,040	34,141	179	34,320	210,358	210,400
2025	123,000	51,100	9,700	183,800	38,394	179	39,573	222,371	222,400
2030	126,400	55,100	10,000	191,500	44,154	179	44,333	235,831	235,800

**Notes:**

- (1) CVWD projected groundwater production obtained from CVWD's 2010 UWMP for the Upper and Lower Whitewater River Subbasin.
- (2) DWA projected groundwater production obtained from DWA's 2010 UWMP for the Upper Whitewater River Subbasin.
- (3) COC projected groundwater production obtained from COC's 2010 UWMP for the Lower Whitewater River Subbasin.
- (4) IWA's projected water use obtained from IWA's 2010 UWMP for the Lower Whitewater River Subbasin. The Project and its estimated increase in water demand are included in the 2015 projection since the Project is expected to be completed in November 2016. The difference in total groundwater production will only be a matter of months; therefore, the Project demands are included for 2015 as a more conservative estimate.

<b>TABLE III-8 ALL PUMPERS WHITEWATER RIVER SUBBASIN PROJECTED CONSUMPTIVE USE (NET GROUNDWATER EXTRACTIONS) (AF/YR)</b>									
Year	CVWD	DWA	COC	Subtotal	IWA			Total	Rounded (Nearest 100)
					Community	Project	Combined		
2015	73,905	28,015	5,753	107,673	17,936	116	18,052	125,724	125,700
2020	77,740	30,615	6,071	114,426	22,192	116	22,308	136,733	136,700
2025	79,950	33,215	6,305	119,470	24,956	116	25,072	144,541	144,500
2030	82,160	35,815	6,500	124,475	28,700	116	28,816	153,290	153,300

## 2. Groundwater Replenishment

In addition to being within the IWA service area, the Project also lies within Coachella Valley Water District's (CVWD) urban water service area. CVWD is a State Water Contractor entitled to SWP water allocations pursuant to a contract with the State of California. The boundary of IWA and a portion of CVWD's boundary are shown on **Exhibit B**.

Within the Upper Coachella Valley Groundwater Basin, three separate State Water Contractors (CVWD, DWA, and San Geronio Pass Water Agency) import SWP water or equivalent into their imported water service areas to augment local water supplies, mostly groundwater. CVWD's imported water service area encompasses the easterly portions of the Desert Hot Springs, Mission Creek, Garnet Hill, and Whitewater River Subbasins. DWA's imported water service area encompasses the easterly portions of the San Geronio Pass Subbasin, and the westerly portions of the Desert Hot Springs, Mission Creek, Garnet Hill, and Whitewater River Subbasins. San Geronio Pass imports water to the San Geronio Pass Subbasin at the west end of the Coachella Valley Groundwater Basin.

Since 1973, pursuant to an exchange agreement with MWD, CVWD and DWA have been exchanging their SWP water allocations (formerly entitlements) for Colorado River water to replenish groundwater in the Whitewater River Subbasin through CVWD's groundwater replenishment facilities. The two agencies have recharged the Whitewater River Subbasin with more than 2,853,605 AF of Colorado River water (DWA 2013). In 1978, DWA established a groundwater replenishment and assessment program and began levying groundwater replenishment assessments on groundwater extractions within the Whitewater River Subbasin, and DWA has levied groundwater replenishment assessments on all groundwater extractions (10 AF/Yr or more) every fiscal year since. CVWD followed with a similar program. CVWD has levied such assessments on IWA's extractions from the Whitewater River Subbasin and IWA has paid the assessments. With funds collected from IWA and other groundwater extractors, along with certain surface water diverters, CVWD has and will continue to purchase imported water to replenish the Whitewater River Subbasin.

Within the lower portion of the Whitewater River Subbasin, CVWD imports water for recharge with water from the Colorado River. The quantities of imported water are obtained as a result of the Quantification Settlement Agreement (QSA) of 2003 among CVWD, Imperial Irrigation District (IID), and MWD. Prior to implementation of the QSA, CVWD and IID were entitled to an unspecified amount of Colorado River water, which was conveyed to the Coachella Valley in the Coachella Canal. The QSA quantifies the water allocations of California's agricultural water contractors for the next 75 years. CVWD uses a portion of its share of that water to recharge the lower portion of the Whitewater River Subbasin through the TEL Recharge Facility and the pilot Martinez Canyon Recharge Facility (MWH 2010, Draft).

#### **G. SUFFICIENCY OF SUPPLY TO MEET PROJECTED WATER DEMAND**

The Whitewater River Subbasin and its ability to supply the proposed project water demands depend on the historic and current groundwater levels, water level trends, groundwater replenishment, and overall water availability.

The Coachella Valley Groundwater Basin (including the Whitewater River Subbasin) is unadjudicated and, with artificial recharge, has sufficient groundwater in storage to meet the projected pumping conditions on the basin for the next 20 years, and beyond. Thus, issues related to reliability of supply and vulnerability to seasonal and climatic changes generally do not significantly affect the reliability of the Coachella Valley Groundwater Basin. Currently 100% of water consumed by IWA comes from this source. Therefore, supplies are currently limited only by IWA's pumping capacity (2010 UWMP). The recharge activities in the Coachella Valley are described in **Part G.4** herein.

In an effort to secure long-term water supply reliability within the Coachella Valley, the Coachella Valley Integrated Regional Water Management Group (composed of CVWD, DWA, IWA, Mission Springs Water District, and the COC) participate in the Integrated Regional Water Management Program. The main goal of the program is to reduce the reliance and demand on the groundwater sources by utilizing imported water sources.

Per IWA's 2010 UWMP, the supply reliability, or pumping capacity, for normal, single dry, and multiple dry years is set forth in **Table III-9** below.

<b>TABLE III-9</b> <b>INDIO WATER AUTHORITY</b> <b>WHITewater RIVER SUBBASIN</b> <b>HISTORICAL SUPPLY RELIABILITY</b> <b>PUMPING CAPACITY</b> <b>(AF/YR)</b>				
Average/Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
		Year 1	Year 2	Year 3
56,000	56,000	56,000	56,000	56,000
% of Normal	100%	100%	100%	100%

Pumping capacity is estimated by assuming 75% reliability with one of the largest wells offline.

### 1. Groundwater Storage

CDWR's Bulletin 108 estimated the storage capacity of the Coachella Valley Groundwater Basin in 1964 at approximately 39,200,000 AF. Due to increased urban, rural, and agricultural development within the Coachella Valley over the years, that quantity has decreased. **Table III-10** shows the estimated storage quantities of the basin and each subbasin.

<b>TABLE III-10</b> <b>COACHELLA VALLEY GROUNDWATER BASIN</b> <b>AND SUBBASINS</b> <b>ESTIMATED STORAGE CAPACITY</b> <b>(AF)</b>	
Subbasin	Total Capacity
San Geronio Pass	2,700,000
Mission Creek	2,600,000
Garnet Hill	1,000,000
Desert Hot Springs	
Miracle Hill Subarea	400,000
Sky Valley Subarea	1,400,000
Fargo Canyon Subarea	2,300,000
Whitewater River (Indio)	
Palm Springs Subarea	4,600,000
Thousand Palms Subarea	1,800,000
Oasis Subarea	3,000,000
Thermal Subarea	19,400,000
<b>Coachella Valley Groundwater Basin</b>	<b>39,200,000</b>

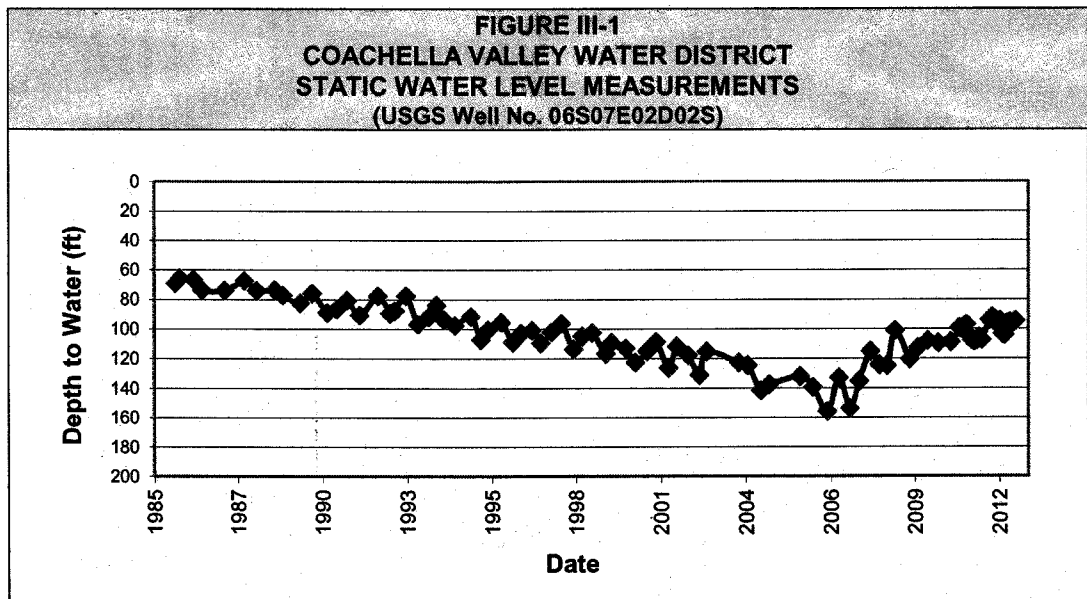
The natural inflow of the Whitewater River Subbasin cannot satisfy the current level of groundwater production; therefore, imported water supplies are a significant component of the hydrology in the area (CVWD 2012).

## 2. Groundwater Levels

Based on data provided by USGS, CVWD, DWA and IWA, groundwater levels within the Whitewater River Subbasin have historically been declining since 1940 due to groundwater production. However, groundwater levels in the Coachella Valley rose in the 1970s with the introduction of imported water recharge (CVWD 2012). Due to the combined efforts of CVWD and DWA in acquiring imported water sources, groundwater levels appear to have stabilized or are rising as a result of recharge activities.

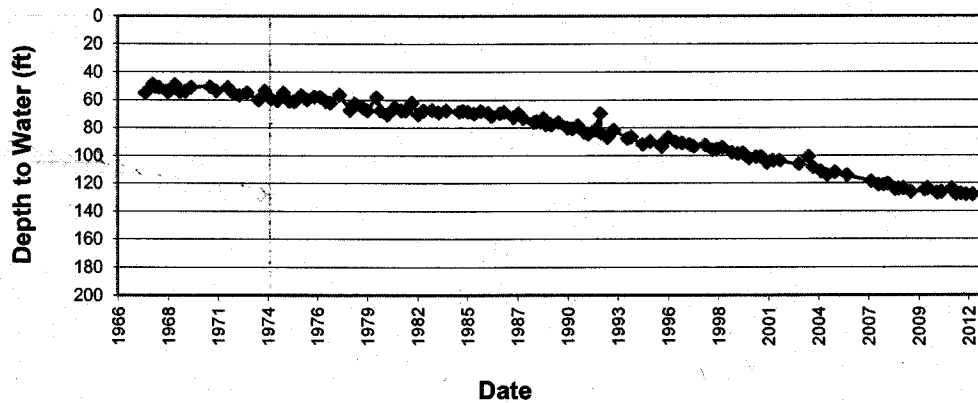
Hydrographs for nine groundwater wells monitored in the Whitewater River Subbasin are presented below in **Figures III-1 through III-9**.

**Figures III-1 and III-2** show static water level measurements based on USGS well data for two CVWD wells which extract groundwater from the Whitewater River Subbasin in the vicinity of the project.





**FIGURE III-2  
COACHELLA VALLEY WATER DISTRICT  
STATIC WATER LEVEL MEASUREMENTS  
(USGS Well No. 05S07E08Q01S)**



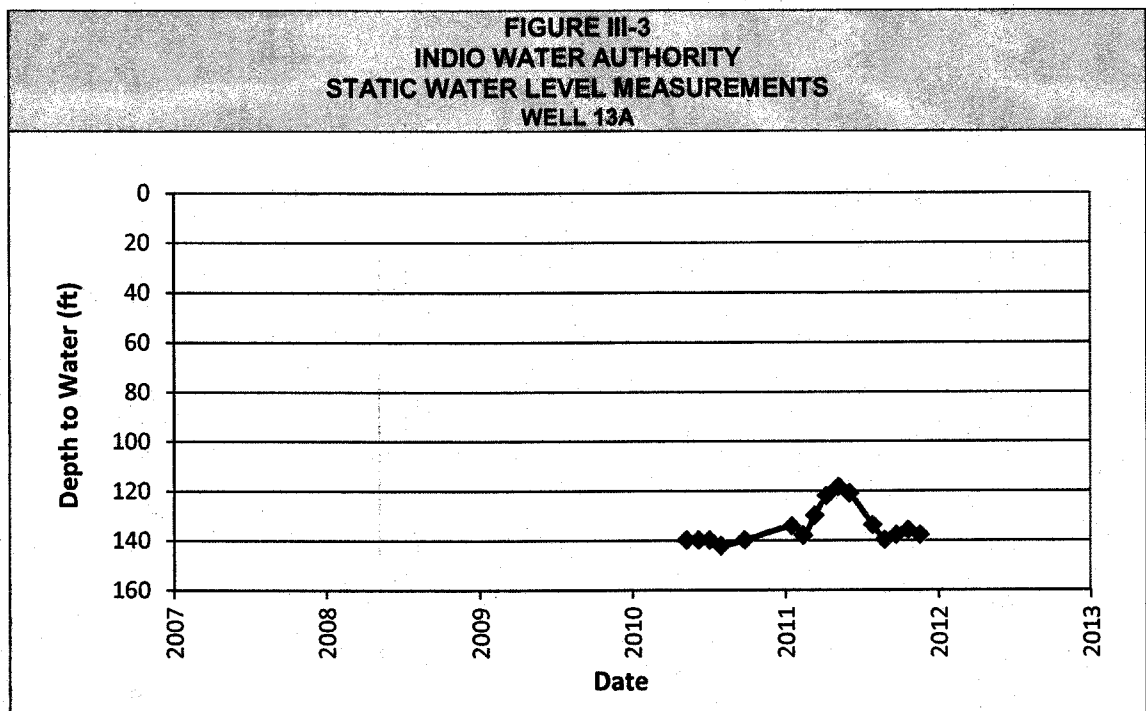
Of all of CVWD monitoring wells, these two wells are the closest to the Project (see **Exhibit B**). Well No. 06S07E02D02S (**Figure III-1**) is located south of the City of Indio near IWA Well U (**Figure III-9**) on Avenue 50. This well is located approximately 6 miles from CVWD's TEL Recharge Facility; as shown in **Exhibit B**, the water level in said well has risen approximately 57 feet since 2007. The recharge facility was placed online in June 2009 and may be potentially responsible (in addition to declining IWA water demands) for the water level increase observed at this well location. Other CVWD monitoring wells in the vicinity of the TEL Recharge Facility have shown similar trends in water levels, and other CVWD monitoring wells in the Lower Whitewater River Subbasin have shown general stabilization trends over the past few years. Hydrographs for said wells are included in CVWD's current replenishment report for the Whitewater River Subbasin.

Well No. 05S07E08Q01S (**Figure III-2**) is located northwest of the City of Indio near the Bermuda Dunes Airport and located approximately 10 miles from the TEL Recharge Facility. The continued gradual decline in the water level of this well is unusual in comparison with other CVWD monitoring wells in the Lower Whitewater River Subbasin, and may be related to its distance from the TEL Recharge Facility and the large number of groundwater production wells in between.

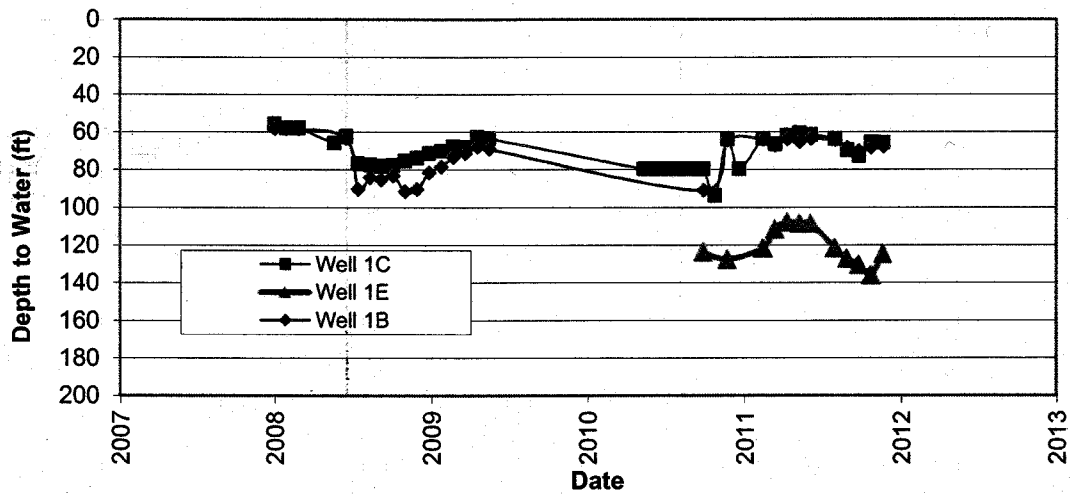
Complete water level data from IWA is not available. Currently, IWA is in the process of enrolling in the CASGEM program. CASGEM is the California Statewide Groundwater Elevation Monitoring Program developed by CDWR as part of Senate Bill x7\_6, and implemented to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. The program requires collaboration between local monitoring entities and CDWR to collect the groundwater elevation data.

The benefits of IWA's participation in the CASGEM includes the availability of consistent groundwater level data that can be used to assess the condition of the groundwater basin, and access to more reliable information regarding the amount of groundwater in storage within the Coachella Valley.

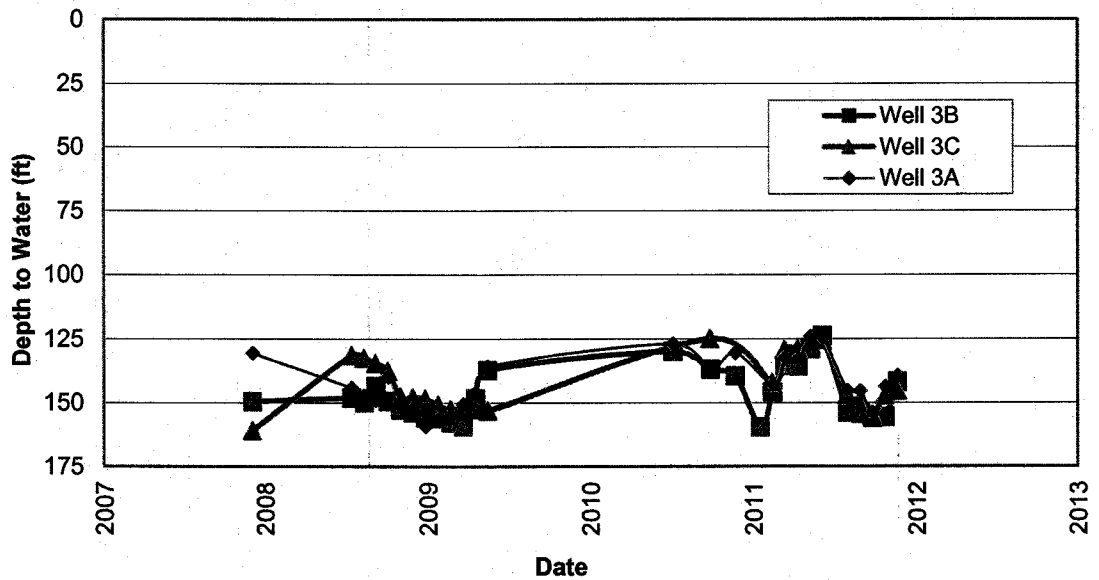
Figures III-3 through III-9 present hydrographs of a selection of IWA's existing groundwater wells in locations throughout the service area. Although there are missing data (specifically 2010), it appears that the water levels have largely stabilized in current years. Without historic groundwater level data, it is difficult to make a definitive judgment in water level stabilization, but, based on available data, there is no indication of a steady decline in water levels such as that experienced by CVWD Well No. 05S07E08Q01S as shown in Figure III-2.



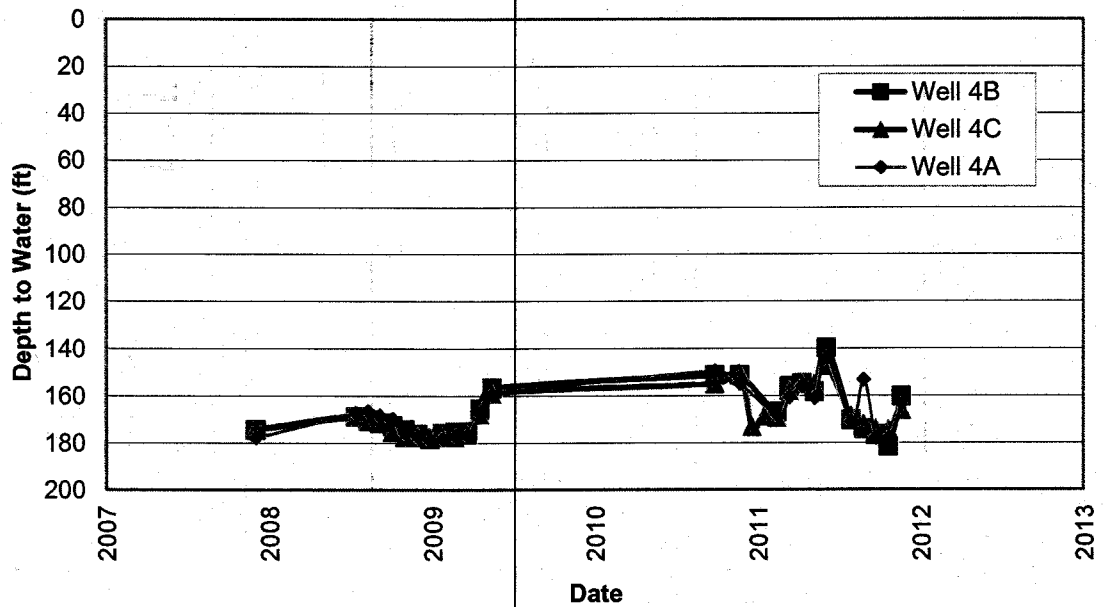
**FIGURE III-4  
INDIO WATER AUTHORITY  
STATIC WATER LEVEL MEASUREMENTS  
WELL 1B, 1C, AND 1E**



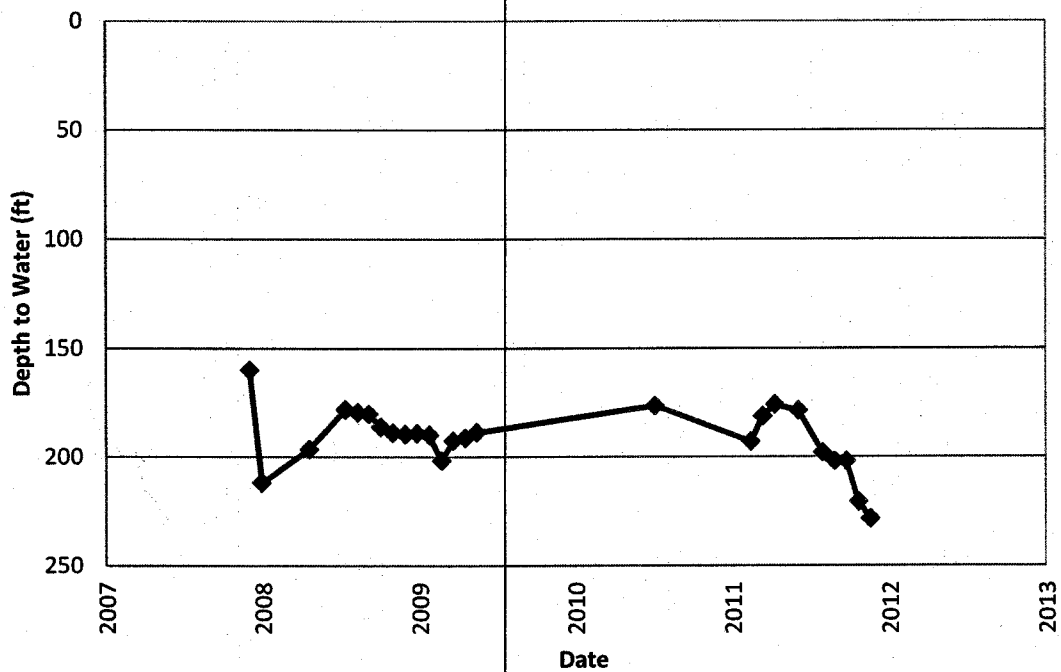
**FIGURE III-5  
INDIO WATER AUTHORITY  
STATIC WATER LEVEL MEASUREMENTS  
WELLS 3A, 3B, AND 3C**



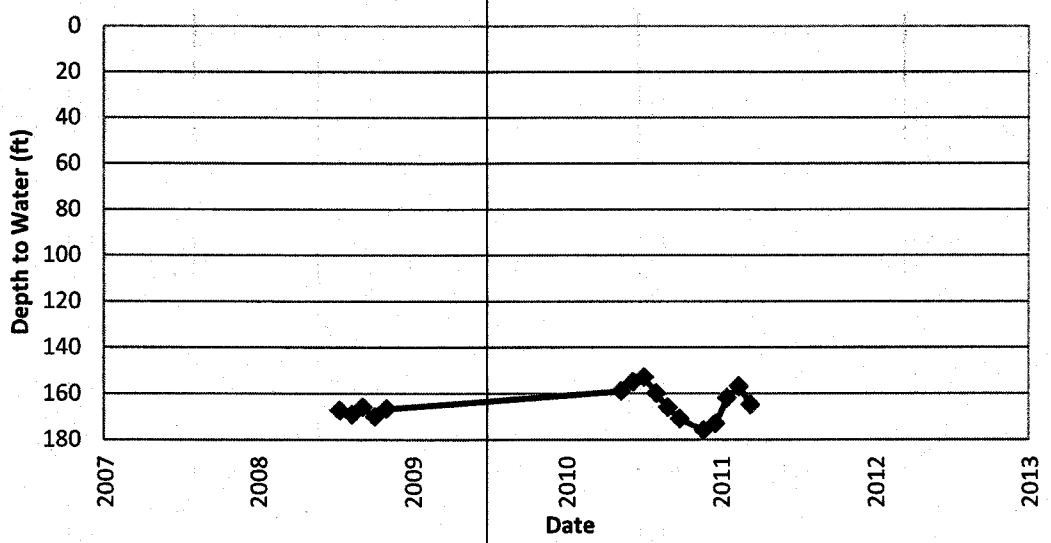
**FIGURE III-6  
INDIO WATER AUTHORITY  
STATIC WATER LEVEL MEASUREMENTS  
WELLS 4A, 4B, AND 4C**



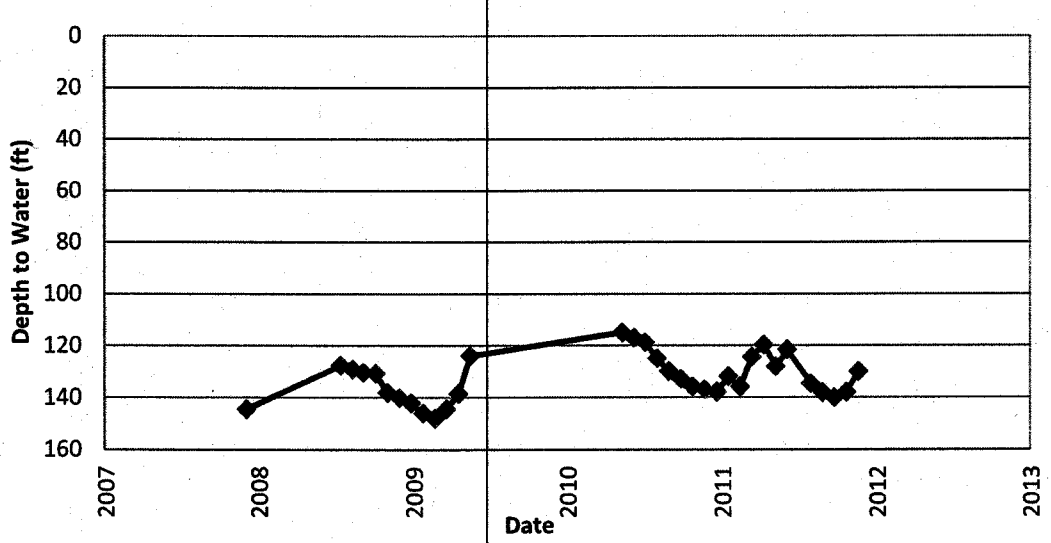
**FIGURE III-7  
INDIO WATER AUTHORITY  
STATIC WATER LEVEL MEASUREMENTS  
WELL T**



**FIGURE III-8  
INDIO WATER AUTHORITY  
STATIC WATER LEVEL MEASUREMENTS  
WELL S**



**FIGURE III-9  
INDIO WATER AUTHORITY  
STATIC WATER LEVEL MEASUREMENTS  
WELL U**



The stabilization of groundwater levels within IWA's service area may be attributed to the TEL Recharge Facility coming online in 2009, but as previously discussed, it is difficult to make that judgment definitively without previous groundwater level data.

As stated previously, all groundwater extracted by IWA from the Whitewater River Subbasin is subject to an assessment by CVWD which contributes to the replenishment of the Whitewater River Subbasin. The costs involved in carrying out the groundwater replenishment program within the Whitewater River Subbasin have been and will continue to be recovered through groundwater replenishment assessments applied to all groundwater extractions, including all current and future extractions by IWA. CVWD uses the funds collected through groundwater replenishment assessments to purchase and import water for groundwater replenishment.

### **3. Cumulative Overdraft**

Groundwater overdraft is the calculated change in groundwater storage based on long-term local hydrology and imported water deliveries, as defined by the CVWMP Update. Simply put, overdraft is the difference between the quantity of groundwater extracted from the basin that exceeds the quantity that is replenished, naturally or artificially. It is universally recognized that the Whitewater River Subbasin is in a state of overdraft. CVWD and DWA approximate the quantities of subbasin overdraft in each of their annual replenishment reports. The cumulative overdraft quantities for the upper portion of the Whitewater River Subbasin are consistent between CVWD and DWA reports.

### **4. Groundwater Replenishment by CVWD and DWA**

CVWD and DWA executed a Joint Water Management Agreement in July 1976 (amended in December 1992) to import SWP water to the Coachella Valley to replenish the Whitewater River Subbasin because groundwater extractions were exceeding the natural replenishment rates, per information within USGS Investigations 77-29 and 91-4142.

To offset the effects of cumulative overdraft within the subbasin and maintain supply, CVWD and DWA continue to pursue new sources of supply while continuing to request their maximum Table A allocations of 194,100 AF per year from CDWR and the SWP.

To date, DWA and CVWD have delivered to and recharged approximately 2,983,244 AF of water in the Whitewater River Subbasin (upper and lower portions combined) through CVWD groundwater replenishment facilities. The artificial recharge program in the

Whitewater River Subbasin has resulted in stabilization of long-term groundwater levels within that subbasin and retardation of groundwater level decline in others.

Per CVWD's 2012/2013 Replenishment Report for the Upper and Lower Whitewater River Subbasin, annual recharge of the lower portion of the Whitewater River Subbasin through CVWD's Whitewater and TEL Recharge Facility are shown in **Table III-11**.

<b>TABLE III-11                      WHITEWATER RIVER SUBBASIN                      STATE WATER PROJECT                      RECHARGE DELIVERIES                      2000 - 2012</b>	
<b>Year</b>	<b>AF</b>
2000	72,450
2001	4,279
2002	35,795
2003	2,573
2004	16,694
2005	170,297
2006	101,607
2007	21,784
2008	15,481
2009	78,759
2010	265,731
2011	355,631
2012	261,401

Note: As of the date of this WSA, 2012 Recharge Deliveries are preliminary and have not yet been published by CVWD and DWA.

Without artificial recharge activities, cumulative overdraft of the Whitewater River Subbasin would continue to increase and groundwater levels would decline. Artificial recharge offsets and reduces the effects of annual groundwater overdraft.

## 5. **Water Availability**

Declining groundwater levels observed in some portions of the Whitewater River Subbasin indicate that current groundwater extractions are exceeding current natural recharge as discussed in this Chapter and illustrated in **Figure III-2**. Despite the declines seen in other areas, it appears that the water levels in the City of Indio vicinity have stabilized, as indicated by the hydrographs shown in **Figure III-1** and **Figures III-3** through **III-9**,

probably due to a combination of decreased production and artificial groundwater recharge activities. Regardless of the water level trends throughout the subbasin, the increase in water demands resulting from Project implementation will not be significant enough to have a negative influence on the subbasin underlying the Project vicinity.

Further, there is currently sufficient groundwater stored within the Whitewater River Subbasin (due to continuing recharge activities) to satisfy all projected IWA demands, including those for the Project, for many years of an extended drought without adversely impacting the subbasin's storage capacity or groundwater quality, although groundwater levels would be expected to decline. Implementation of the Project would have an insignificant impact on any such decline.

CVWD and DWA are both State Water Contractors. As State Water Contractors, CVWD and DWA hold Table A allocations as well as other imported water sources. **Table III-12** shows the breakdown of CVWD's and DWA's contracted water supplies that are requested in full annually from CDWR.

<b>TABLE III-12            COACHELLA VALLEY WATER DISTRICT            AND            DESERT WATER AGENCY            MAXIMUM STATE WATER PROJECT WATER ALLOCATIONS</b>						
	Table A	Tulare Lake Basin Water Services District	Tulare Lake Basin Water Services District	MWD	Kern County Water Agency	Total
CVWD	23,100	9,900	5,250	88,100	12,000	138,350
DWA	38,100	0	1,750	11,900	4,000	55,750
<b>Total</b>	<b>61,200</b>	<b>9,900</b>	<b>7,000</b>	<b>100,000</b>	<b>16,000</b>	<b>194,100</b>

CDWR projects initial SWP Table A allocations annually and releases additional information throughout the year regarding water availability. These projected allocations are updated based on hydrologic conditions (wet, normal, or dry years), storage levels in SWP reservoirs, operational and environmental constraints, and State Water Contractor delivery requests (CVWD 2010 UWMP).



As of March 22, 2013, CDWR projected it will be able to deliver 35% of the total requested allocation quantities for 2013; however, this percentage could increase due to the amount of precipitation that may have occurred this year. The historic reliability of the SWP deliveries since 2000, including initial (projected) and final allocation, is shown in **Table III-13**.

<b>TABLE III-13</b> <b>CALIFORNIA DEPARTMENT OF WATER RESOURCES</b> <b>STATE WATER PROJECT</b> <b>HISTORIC TABLE A ALLOCATIONS</b> <b>2000 - 2012</b>		
<b>Year</b>	<b>Initial Allocation</b>	<b>Final Allocation</b>
2000	50%	90%
2001	40%	39%
2002	20%	70%
2003	20%	90%
2004	35%	65%
2005	40%	90%
2006	55%	100%
2007	60%	60%
2008	25%	35%
2009	15%	40%
2010	5%	50%
2011	25%	80%
2012	60%	65%

Data obtained from [www.water.ca.gov/swpao/deliveries](http://www.water.ca.gov/swpao/deliveries).

On average, CDWR anticipates that 60% of all SWP allocations will be delivered on an annual basis, per CDWR's 2011 State Water Project Reliability Report. The actual percentage of these allocations depends entirely on the hydrologic conditions and environmental constraints placed on the the SWP each year.

The availability of water to recharge the Whitewater River Subbasin is dependent upon the annual SWP allocations delivered by CDWR. CVWD and DWA routinely request them maximum quantity of imported water for replenishment of the subbasin.

#### **6. Proposed IWA Alternative Water Sources**

IWA pays a Replenishment Assessment Charge (RAC) for all groundwater that is pumped. CVWD is responsible for assessing this charge. In an effort to reduce RACs, IWA has set a goal to only pump 20,000 AF (see **Table III-6**) of groundwater per year (2012 WMPU).

In an effort to reduce groundwater production and provide an alternative supplement water supply to its customers, IWA is considering the strategies described herein.

IWA is working with the Valley Sanitary District (VSD) to construct a recycled water plant; the first phase of the plant is estimated to be completed in 2025 and the second phase should be completed by 2040. The recycled water supply from this plant could provide irrigation water to approximately 39 customers identified within IWA's service area (2012 WMPU), and help reduce the demand on potable water supplies by 6 MGD to 15.5 MGD, according to the Draft Environmental Impact Report for the plant, prepared by Tom Dodson & Associates in September 2011.

In addition, IWA is proposing to construct the proposed Posse Park Surface Water Treatment Facility (Black and Veatch, 2010) that would treat Colorado River Water from the Coachella Canal that could be delivered as soon as 2015. If IWA were to move forward with the development of this facility, the surface water would supplement IWA's current water supply and reduce the groundwater production from the Whitewater River Subbasin. The initial capacity of the Project is estimated to be approximately 10 MGD in 2015 with an ultimate capacity of 14 MGD by 2025.

There are economic and water quality concerns with the alternative water source options set forth above that IWA will need to assess in order to determine the most beneficial method of providing supplemental water within its service area. The development will be assessed a Supplemental Water Supply Fee that will in turn be utilized to obtain additional water supplies.

Until alternative sources can be utilized by IWA, groundwater will continue to be produced from the Whitewater River Subbasin to meet all water demands within the service area.

**CHAPTER IV**

**SUMMARY / CONCLUSIONS**

## **CHAPTER IV SUMMARY / CONCLUSIONS**

### **A. PROJECT**

The East County Jail Expansion Project (Indio Jail) will consist of the development of approximately 10 total acres of land (existing 4.21 acre jail site and existing 5.54 acre parking structure site) to be completed in two phases. The first phase will consist of construction of the new inmate housing and other facility buildings (kitchen, medical, GED classrooms, intake and release area, and administration offices), and the parking structure. The second phase will consist of demolition of the existing facility. Completion of the project is expected for November 2016. Ultimately, the detention center will accommodate up to 1,626 inmates with corresponding increases in beds and related facilities. Water demand for the Project is estimated to increase from 81 AF/Yr to 258 AF/Yr. The incremental increase in demand resulting from Project implementation will be approximately 0.4% of IWA's total water demand through 2030, less than 0.1% of the total estimated gross groundwater production in the Whitewater River Subbasin through 2030, and considerably less than that of a typical 500-unit housing development.

### **B. WATER SUPPLY**

Water supply for the Project will be derived entirely from groundwater provided by IWA. The groundwater wells are located throughout IWA's service area and connected to a single distribution system. IWA will serve the Project with groundwater extracted from the Whitewater River Subbasin of the Coachella Valley Groundwater Basin. As discussed in **Chapter III**, groundwater currently in storage, supplemented with imported Colorado River Water, and IWA's existing well pumping capacity are available and sufficient to meet full Project demands for at least the next twenty to thirty years, or longer.

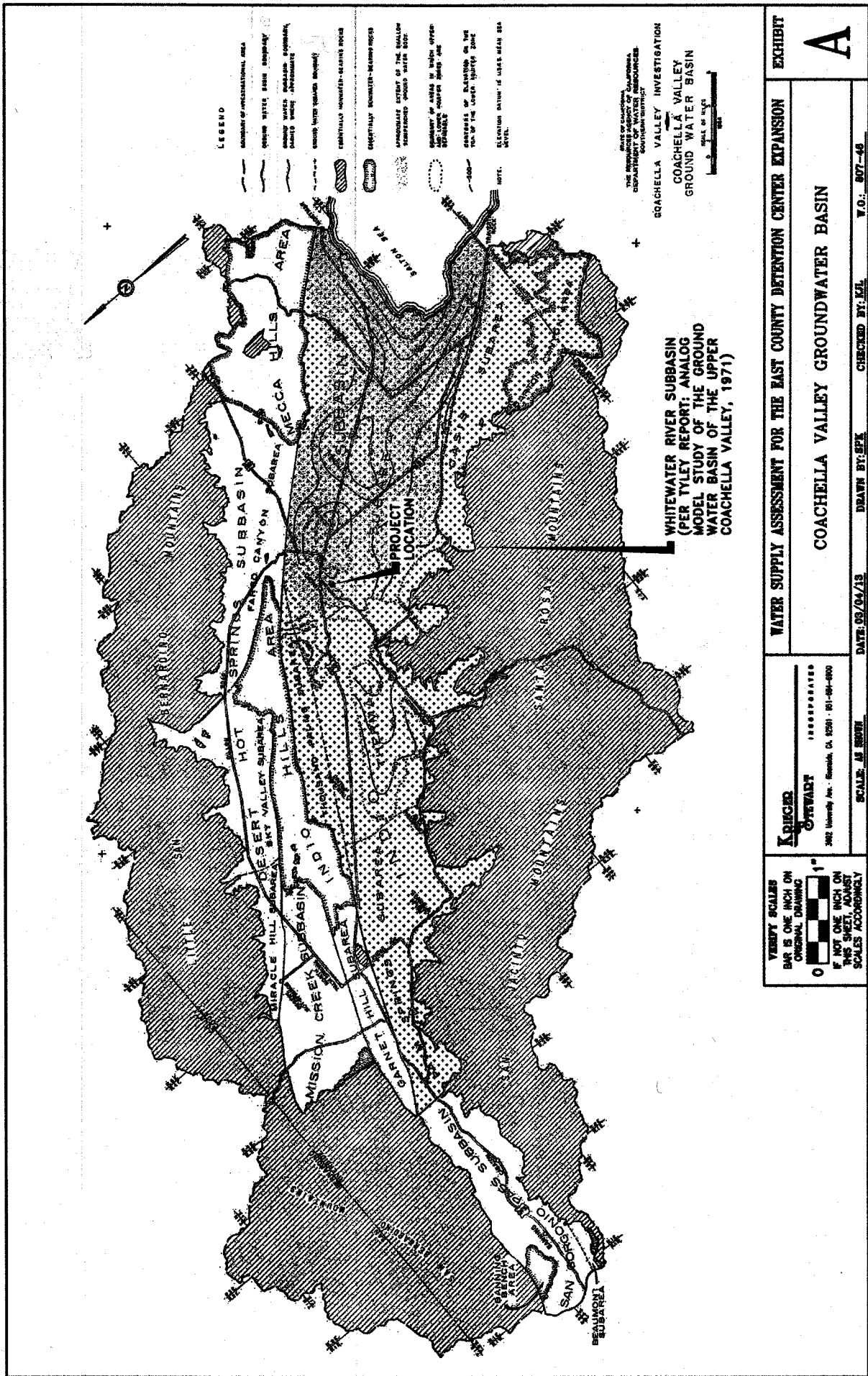
Groundwater levels in the Whitewater River Subbasin have historically been in decline due to drought conditions, increased groundwater production, and surface water diversions. However, groundwater levels have stabilized or increased in portions of the subbasin due to the influence

of replenishment activities conducted by CVWD and DWA within the Whitewater River Subbasin.

All groundwater extracted by IWA from the Whitewater River Subbasin is subject to an assessment that contributes to the replenishment of the Whitewater River Subbasin by CVWD, which contributes to retardation of the decline of groundwater levels within the Whitewater River Subbasin by retarding of cumulative overdraft.

### **C. CONCLUSION**

Based on current information, groundwater will be available from storage, as needed, augmented by natural and artificial replenishment, to supply the Project as well as others for at least the next twenty to thirty years. Groundwater levels are likely to continue to gradually decline in portions of the Whitewater River Subbasin, with or without the proposed Project, until the Coachella Valley area experiences a period of weather cycles that provide an increase in rainfall and winter snowpack runoff from the local mountain ranges. Due to the collective efforts of all the major water purveyors in the Coachella Valley for groundwater management planning through the 2010 UWMPs, the Coachella Valley Integrated Regional Water Management Plan, and the implemented groundwater replenishment programs, there is currently a sufficient supply of groundwater in storage so that extractors, including IWA, which will provide water for the Project, can depend solely on groundwater in storage for their water supplies for the next twenty to thirty years.



\\807\451\Drawings\Figures\807-48mp1.dwg