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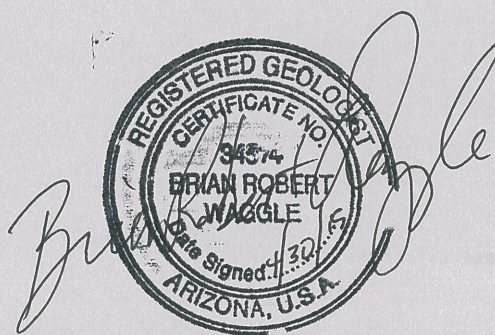
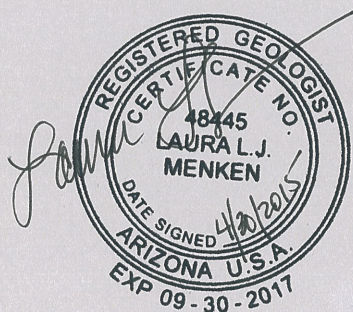
REMEDIAL INVESTIGATION REPORT

EAST CENTRAL PHOENIX

40TH STREET AND INDIAN SCHOOL ROAD

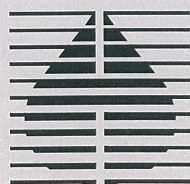
WATER QUALITY ASSURANCE REVOLVING FUND SITE

PHOENIX, ARIZONA



PREPARED FOR:

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY



HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

REMEDIAL INVESTIGATION REPORT
EAST CENTRAL PHOENIX
40th STREET AND INDIAN SCHOOL ROAD
WATER QUALITY ASSURANCE REVOLVING FUND SITE
PHOENIX, ARIZONA

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ACRONYMS AND ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
A.R.S.	Arizona Revised Statutes
AS	Air sparging
AWQS	Aquifer Water Quality Standard
bgs	Below ground surface
bls	Below land surface
CAB	community advisory board
cis-1,2-DCE	cis-1,2-Dichloroethene
The Cleaners	The Cleaners of Phoenix, Inc.
COC	Contaminant of concern
CSM	Conceptual Site Model
°F	Degrees Fahrenheit
DNAPL	Dense non-aqueous phase liquid
Earth Tech	Earth Technology Corporation
ECP	East Central Phoenix
EPA	U.S. Environmental Protection Agency
Esri	Environmental Systems Research Institute, Inc.
GPL	Groundwater Protection Limit
Gulf-Pacific	Gulf-Pacific Environmental Engineering, Inc.
H+A	Hargis + Associates, Inc.

ACRONYMS AND ABBREVIATIONS (continued)

HGL	HydroGeoLogic, Inc.
IDW	Investigation derived waste
LAU	Lower Alluvial Unit
lbs	pounds
MAU	Middle Alluvial Unit
MCAQD	Maricopa County Air Quality Department
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
MDL	method detection limit
MRLs	method reporting limits
msl	Mean sea level
OSWER	EPA Office of Solid Waste and Emergency Response
Park Avenue	Park Avenue Cleaners
PCE	Tetrachloroethene
PDB	Passive Diffusion Bag
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation Recover Act
RI	Remedial investigation
ROs	Remedial objectives
Rose Formal Wear	Rose Formal Wear, Inc.
SECOR	SECOR International, Inc.
the Site	40th Street and Indian School Road
Sonic	Rotosonic drilling methods

ACRONYMS AND ABBREVIATIONS (continued)

SRL	Soil Remediation Level
SRP	Salt River Project
SVE	Soil vapor extraction
TCE	Trichloroethene
UAU	Upper Alluvial Unit
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
$\mu\text{g}/\text{L}$	micrograms per liter
VOCs	Volatile organic compounds
WQARF	Water Quality Assurance Revolving Fund
WRCC	Western Regional Climate Center
WSRV	Western portion of the Salt River Valley

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EAST CENTRAL PHOENIX
40th STREET AND INDIAN SCHOOL ROAD
WATER QUALITY ASSURANCE REVOLVING FUND SITE
PHOENIX, ARIZONA

EXECUTIVE SUMMARY

This report summarizes the findings of the remedial investigation (RI) activities conducted by the Arizona Department of Environmental Quality at the 40th Street and Indian School Road site (the Site) of the East Central Phoenix (ECP) Water Quality Assurance Revolving Fund area located in Phoenix, Arizona. Hargis + Associates, Inc. prepared the draft RI Report to meet the requirements established under the Arizona Revised Statutes to characterize the nature and extent of contaminants of concern (COCs) in the subsurface and determine the need for appropriate cleanup actions at the Site. Tetrachloroethene (PCE) has been identified as the COC at the Site. However, trichloroethene (TCE) has been historically detected in Site area media.

The Site is located in the 4000 block of East Indian School Road in a mixed residential and commercial area of Phoenix, Arizona (Figure 1). The Site is one of six ECP WQARF sites. The current site is bounded by Devonshire Avenue to the North, 40th Street to the East, East Picadilly Road to the South and 38th Place to the West.

The Site is located in the western portion of the Salt River Valley. The alluvial sediments beneath the site are subdivided into three hydrologic units: the Upper, Middle, and Lower Alluvial Units (UAU, MAU, and LAU) (ADWR, 1993). The total thickness of alluvial sediments is estimated to be less than 250 feet thick in the vicinity of the Site, which lies near the edge of the alluvial basin. The MAU is believed to be absent in the vicinity of the Site. Twenty-five groundwater monitor wells have been installed at 18 locations in the vicinity of the Site to a maximum depth of approximately 145 feet below land surface (bls) within the UAU.

EXECUTIVE SUMMARY (continued)

The base of the UAU has not been encountered during drilling activities to date; however, it has been reported that the UAU ranges in thickness from approximately 125 to 300 feet in the ECP area. The UAU consists of predominantly fine-grained clayey silts and silt with sand to sandy silts with trace amounts of gravel.

The depth to water at the Site had ranged from approximately 21 feet bls in the mid 1990's to approximately 49 feet bls in 2014. The direction of groundwater flow is southwest with a gradient ranging from 0.005 to 0.008. Vertical gradients between the shallow and deeper zones of the UAU are generally negligible. In the vicinity of the Site, estimates of horizontal hydraulic conductivity of the UAU range between 1.3 foot/day to 67 feet/day .

Investigations began in the early 1980's when groundwater contamination was discovered in water wells in East Central Phoenix. Preliminary Responsible Party searches identified numerous potential sources of VOCs including several dry cleaning facilities. In 1989 soil vapor samples collected adjacent to former Allen's Cleaners and Kachina Cleaners detected PCE at 370 µg/L and 270 µg/L respectively. Between 1989 and 2008, numerous investigations and remedial activities were performed at former Allen's Cleaners and Kachina Cleaners in connection with the presence of PCE and TCE in the subsurface. Tasks performed during the investigations included various soil/soil vapor investigations and the installation of 15 monitor wells. Additional tasks included: aquifer testing, sludge sampling and monitor well rehabilitation.

Remedial activities performed at the former Allen's Cleaners included: sump excavation and the operation of a soil vapor extraction/air sparging (SVE/AS) system. A minimum of 33 pounds of PCE were removed during the operation of the SVE system between 2004 and 2005 at the former Allen's Cleaners; the system was removed in 2005. The most recent (2006) soil vapor sampling performed at Kachina Cleaners detected PCE at concentrations greater than the commercial screening level. No soil remedial activities, such as SVE and or soil excavations, have been performed at Kachina Cleaners. However, potential sources of contamination, including dry cleaning equipment, may have been removed. Due to budget constraints, between 2008 and 2011, investigation and remedial activities were temporarily suspended, but resumed in 2012.

EXECUTIVE SUMMARY (continued)

In 2013 and 2014, RI activities at the Site included monitoring existing monitor wells and installation and sampling of ten (10) additional paired groundwater monitor wells at five (5) locations downgradient of Kachina Cleaners facility and the former Allen's Cleaners. In 2013 and 2014, PCE was detected in six (6) of 23 monitor wells sampled ranging in concentration from 1.0 µg/L to 20 µg/L, with PCE concentrations above the Aquifer Water Quality Standard (AWQS) of 5 µg/L were detected in monitor wells AMW-08 and KMW-01. In 2013 and 2014, TCE was detected in one (1) of 23 monitor wells sampled at the concentration of 1.9 µg/L, below the AWQS of 5 µg/L; TCE has not been detected at or above the AWQS of 5 µg/L since 2004.

Historically, the highest detections of PCE in groundwater have been at the four monitor wells located next to and immediately downgradient of the dry cleaning sources. The highest concentrations of PCE in groundwater were detected between 1992 and the early 2000s. Significant declines in PCE concentrations have been observed between the early 2000's to approximately 2006, most likely a result of operating the SVE/AS treatment system. Since 2006, the decline in PCE concentrations has slowed down. During the time period with the highest PCE detections, 1992 to 2006, the furthest downgradient well from both facilities was KMW-01, located just 50 feet downgradient from Kachina Cleaners.

Historically, concentrations of TCE in groundwater greater than the AWQS were detected between 1992 and 2004 and only from monitor wells AMW-01, AMW-06 and KMW-01. From the early 2000's to approximately 2006, TCE concentrations declined significantly. The highest concentrations of TCE, up to 490 µg/L, were detected from AMW-01, located next to and downgradient of former Allen's Cleaners.

Currently the horizontal extent of PCE above the AWQS has been identified as an area downgradient of the former Allen's Cleaners, extending beneath and slightly downgradient of Kachina Cleaners. The vertical extent of PCE above the AWQS has been identified to be within the upper 11 feet of the water table. Currently TCE concentrations in groundwater are below the AWQS.

EXECUTIVE SUMMARY (continued)

It is recommended that the Site groundwater monitor wells remain in the ECP WQARF well network to be monitored quarterly to provide water level data and to verify the continued attenuation of PCE in the subsurface. Additionally, semi-annual soil vapor monitoring should be conducted in the following fiscal year to verify the sources in the vadose zone remain at diminished levels.

REMEDIAL INVESTIGATION REPORT

EAST CENTRAL PHOENIX
40th STREET AND INDIAN SCHOOL ROAD
WATER QUALITY ASSURANCE REVOLVING FUND SITE
PHOENIX, ARIZONA

1.0 INTRODUCTION

Hargis + Associates, Inc. (H+A) prepared this report to summarize the findings of remedial investigation (RI) activities conducted at the 40th Street and Indian School Road site (the Site) of the East Central Phoenix (ECP) Water Quality Assurance Revolving Fund (WQARF) area located in Phoenix, Arizona (Figure 1). This RI report was prepared on behalf of the Arizona Department of Environmental Quality (ADEQ) under the H+A ADEQ Contract No: EV09-0100AE for ECP in accordance with Arizona Revised Statutes (A.R.S.) §49-287.03 and Arizona Administrative Code (A.A.C.) R18-16-406.

The purpose of this RI is to characterize and document the nature and extent of compounds of concern in the subsurface and provide the basis for a potential future Feasibility Study (FS) that will evaluate appropriate cleanup actions at the Site, if necessary. Specifically, the objectives of the RI are to collect, analyze, report, and recommend additional data necessary to complete assessment of the following factors:

- Physical characteristics of the Site;
- Identification of present and reasonably foreseeable future uses of land and water at the Site;
- Nature, extent, and sources of contamination at the Site;
- Potential fate and transport of contamination at the Site;
- Potential and actual risk of contaminants to public health, welfare, and the environment; and
- Identification of appropriate remediation goals.

1.1 SITE BACKGROUND

The Site is located in the 4000 block of East Indian School Road in a mixed residential and commercial area of Phoenix, Arizona (Figure 1). The Site is one of six ECP WQARF sites. The current site is bounded by Devonshire Avenue to the North, 40th Street to the East, East Picadilly Road to the South and 38th Place to the West (ADEQ 2013).

The 40th Street and Indian School Road Site was placed on WQARF Registry List in 1998. The vicinity of the Kachina Cleaners facility and the former Allen's Cleaners facility have been investigated with regard to potential PCE contamination and identified as sources.

- **Kachina Cleaners** – The Kachina Cleaners facility is located approximately 300 feet west of the intersection of North 40th Street and Indian School Road at 3926 East Indian School Road (Figure 2). Kachina Cleaners is a dry cleaning and laundry facility that has been in operation from 1959 to the present (HydroGeoLogic [HGL], 2014). According to information provided to ADEQ, the dry cleaning process involves mixing dry cleaning solvent and detergent together in a dry cleaning machine (SECOR, 2008). Approximately 40 to 50 gallons of PCE was used per week in the dry cleaning process (SECOR, 2008). Spent filters (were/are) removed and disposed by Safety-Kleen Corporation. Waste PCE fluids are distilled for recycling, and leftover amounts of PCE are handled and disposed by Rinchem Company, Inc. (Earth Tech, 1996).
- **Former Allen's Cleaners** – Allen's Cleaners was located approximately 350 feet north of the intersection of North 40th Street and Indian School Road at 4129 North 40th Street. The facility was operated as a dry cleaning facility from approximately 1969 until 1989. The building has since been remodeled as an office building (Figure 2). The predominant dry cleaning solvent used was PCE. Waste disposal was not documented until 1987 when Safety-Kleen Corporation was retained to transport and dispose of generated dry cleaning process waste products (SECOR, 2008).

Several phases of investigation have been conducted including soil and soil vapor sample collection and chemical analyses and groundwater monitoring well installation and sampling. The results of these investigations have indicated that volatile organic compounds (VOCs), primarily PCE, are present in soil, soil vapor, and groundwater in the vicinity of the Site.

The research conducted by HGL for provided a summary of the WQARF site, including facilities located within the site boundary and information about their operations, chemical use, waste stream, releases, and regulatory involvement (Appendix A). Results of this research are provided below.

1.1.1 OPERATIONAL HISTORY

1.1.1.1 Kachina Cleaners

The Kachina Cleaners property, located at 3926 East Indian School Road, was purchased by the Tsantilas family in 1955 as vacant land [FSDEQP 2782].¹ On November 13, 1956, a permit for the site was issued to Alden Tyson for the installation of one dry cleaning unit that used nonflammable solvent [FSFDPX 78]. The nature of Mr. Tyson's connection to Kachina Cleaners has not been determined. Despite a permit for dry cleaning being issued for the 3926 East Indian School Road site in 1956, Kachina Cleaners did not begin dry cleaning operations at the site until 1959, when the main building was constructed [FSDEQP 2782].

Kachina Cleaners was incorporated in Arizona on April 19, 1961, as a public laundry and dry cleaning service as well as a coin-operated laundromat. The business was started in 1959 by James Tsantilas. In 1961, control of the business was ceded to Constantine Tsantilas (chief executive officer and president), Bessie Tsantilas (vice president), and Stella Tsantilas (secretary/treasurer) [FSDEQP 2389-2390].

Dry cleaning equipment was located at the north end of the main building beginning in 1959. In 1964, a second, smaller building was constructed north of the main building to house steam boilers and offices [FSDEQP 2782]. According to a 1992 Dun & Bradstreet report, Kachina Cleaners employed 14 people and occupied 3,200 square feet in a one-story concrete block building owned by the corporate officers [FSDEQP 2389-2390].

According to a June 1996 site characterization report prepared by Earth Technology Company (Earth Tech), Kachina Cleaners reportedly used 40 to 50 gallons of PCE per week.²

¹ The source document, a 1996 site characterization report prepared by Earth Tech, Inc., states that the Tsantilas family purchased the Kachina Cleaners property in 1953; however a warranty deed for the property was not signed until 1955 by James and Bessie Tsantilas [FSDEQP 2782; FSNETR 35-36]. HGL will use the deed document date as the date of ownership.

² The exact time period for which this volume of PCE use applies is unclear.

Wastewater passed through filters prior to being discharged to the sewer system, which Kachina Cleaners was reportedly connected to in the early 1960s. The spent filters were removed and disposed of by Safety-Kleen Corporation (Safety-Kleen). Waste PCE fluids were distilled for recycling, and leftover amounts of PCE were handled and disposed of by Rinchem Company, Inc. [FSDEQP 2782].

Before being connected to the sewer system, Kachina Cleaners used two cesspools and a septic tank for wastewater disposal. According to the 1996 site characterization report, the cesspools and septic tank were reportedly no longer in use, but were still present. They were located northwest of the main building. In addition, a lint trap was located just south of the septic tank [FSDEQP 2782].

On February 25, 1975, Kachina Cleaners was issued permit 11921 for the operation of a Class III dry cleaning plant. The permit was signed by Stella Tsantilas [FSFDPX 77].

A January 18, 1985, occupancy activity report from the City of Phoenix Fire Department notes the following 13 fire code violations [FSFDPX 37, 39-40]:

- Failure to complete hazardous materials application form;
- Failure to obtain a revised permit to operate a Class III dry cleaning plant;
- Failure to obtain a permit for the use and storage of hazardous chemicals;
- Failure to obtain a permit for the use and storage of flammable liquids;
- Failure to remove accumulated waste/empty containers from the storage room, properly label containers, and store paint and chemicals on stable shelving;
- Failure to remove stacked combustibles and dust from area surrounding dry cleaning equipment;
- Failure to remove all PCE drums from the interior of the building, as no open containers are allowed inside the building;
- Failure to cover the reclaiming tank behind the dryers with a completely sealed lid;
- Failure to repair a broken electrical outlet behind a vending machine;
- Failure to post National Fire Protection Association fire diamonds on the front of the dry cleaning building and on the fenced storage area containing PCE;

- Failure to label all containers with a product's chemical name;
- Failure to store oxidizers in closed containers and to separate them from other material; and
- Failure to safely store flammables.

On March 2, 1985, permit 38461 was issued by the City of Phoenix Fire Department for the storage and handling of flammable/combustible liquids and for the storage and handling of hazardous chemicals/materials [FSFDPX 36].

Kachina Cleaners filed its first U.S. Environmental Protection Agency (EPA) notification of hazardous waste activity form on April 24, 1986. The facility was listed as a small quantity generator (less than 1,000 kilograms [kg] per month) of hazardous waste (EPA hazardous waste codes F001 and F002) [FSDEQP 2376-2377].³

On August 26, 1991, Kachina Cleaners submitted an application for a Maricopa County air quality permit to install one dry-to-dry Multimatic mercury dry cleaning machine with a capacity of 15 pounds (lbs). A 30-ton cooling tower, built-in refrigerated coiling coils, and spin filter were part of the dry cleaning machine. In addition, one gas-fueled Western boiler was listed on the permit application [FSMCAQ 154-169].

A September 21, 1998, Maricopa County application for a non-Title V air quality permit indicates that Kachina Cleaners had two pieces of fuel-burning equipment: one Raynak hot water heater installed in 1974, and one horizontal return tubular boiler installed in November 1991. As for dry cleaning equipment, Kachina Cleaners had one Multimatic Shop Star 500 dry-to-dry cleaning machine installed in October 1996. According to the 1998 application, approximately 300 to 400 gallons of PCE per year were being used in the Multimatic Shop Star 500 dry cleaning machine, which has a capacity of 65 lbs. The equipment also had a cooling tower with 10 tons of cooling capacity and built-in refrigerated condensing coils. A handwritten note calculated the emissions of various constituents, including PCE, which was 8,100 lbs per year, or approximately 22.2 lbs per day [FSMCAQ 118, 120, 122, 124].

³ EPA hazardous waste code F001 represents spent halogenated solvents used in degreasing, including PCE and TCE, among other constituents. EPA hazardous waste code F002 represents spent halogenated solvents, including PCE and 1,1,1-trichloroethane, among other constituents [GDEPAW 2].

Maricopa County air quality permit 980665 was issued to Kachina Cleaners on March 9, 1999, with a renewal date of March 31, 2004 [FSMCAQ 135]. Permit conditions indicated that PCE emission limits were 23 lbs per day, or 8,100 lbs per year. Additionally, Kachina Cleaners was limited to consuming 50 gallons of PCE per month, and no more than 600 gallons per year [FSMCAQ 174].

Kachina Cleaners submitted applications to the Maricopa County Air Quality Department to operate and/or construct a dry cleaning operation on July 2, 2003, and January 20, 2006. Both applications list one piece of equipment, a 65-lb capacity Multimatic Shop Star 500 dry cleaning machine installed in October 1996.⁴ The dry cleaning machine was located on the west side of the main building. According to the applications, Kachina Cleaners was a high volume PCE dry cleaner, using more than 140 gallons of PCE per year, but less than 2,100 gallons per year. Because the equipment was installed after December 9, 1991, gas vapor generated by the equipment was routed through a refrigerated condenser. The July 2, 2003, application lists one Lattner boiler installed in 1991 and one Raytherm boiler installed in 1970. Both boilers were located in the boiler room/office building on the north side of the property. The January 20, 2006, application lists one Lattner “30HP” boiler installed in March 2004 and one Raytherm boiler installed in approximately 1968. The July 2, 2003, application notes that the coin operated laundry was located in the southwest corner of the main building, next to the restrooms. A store room was located in the northwest corner of the main building, and the production area was located along the eastern half of the main building [FSMCAQ 92-116].

Kachina Cleaners submitted a letter on June 19, 2006, to the Maricopa County Air Quality Department to request that a Union L860 Perc Dry Cleaning machine be added to its air quality permit [FSMCAQ 126]. The permit was revised on January 11, 2011, with a new renewal date of January 16, 2016. The equipment listed under this permit included one 65-lbs-per-hour Union L860 PCE dry-to-dry cleaning machine, one 65-lbs-per-hour Multimatic Shop Star 500 dry-to-dry cleaning machine, one 1,255,000-British thermal unit (BTU)-per-hour Lattner boiler, and one 749,800-BTU-per-hour Raytherm boiler [FSMCAQ 222, 228].

Hazardous waste manifests from December 5, 2007, to December 4, 2009, indicate that approximately 5,046 lbs of waste PCE (EPA waste codes D039 and F002) were collected by Univar USA, Englund Equipment Co., SLT Express, Univar USA, Inc., and American Trucking, Inc., and taken to either a

⁴ The January 20, 2006, application states that the Multimatic Shop Star 500 was installed in November 1996 [FSMCAQ 94].

Systech Environmental Corporation facility in Fredonia, Kansas, or a U.S. Ecology facility in Beatty, Nevada [FSDEQP 2351-2375].⁵

A June 30, 2011, City of Phoenix Fire Department inspection report notes that chemicals were only located in tanks at the dry cleaning machines and that spot removers were located in a metal cabinet. The inspection report states that normal chemicals for dry cleaning were used and that no violations had been found [FSFDPX 35]. As of 2014, Kachina Cleaners is still operating at 3926 East Indian School Road [FSINET 1].

1.1.1.2 Allen's Cleaners

Allen's Cleaners operated a dry cleaning facility at 4129 North 40th Street from 1969 to 1989. Allen's Cleaners used PCE as a dry cleaning solvent during its operations; however, waste disposal at the facility was not documented until 1987, when Safety-Kleen was retained to transport and dispose of dry cleaning waste products [FSDEQP 2678, 2717].

A December 29, 1993, site assessment and analytical data summary letter from Gulf-Pacific Environmental Engineering, Inc. (Gulf-Pacific) to ADEQ indicates that no aboveground storage tanks were found to exist on the former Allen's Cleaners property. However, an underground vault was located in the northeast corner of the laundry just inside the rear doors. The plumbing in the area of the vault consisted of a 4-inch cast iron sewer service line that passed near the west side of the vault at a depth of 5.5 feet. However, there was no fluid connection between the vault and the sewer. The vault collected drainage from a floor drain connected to a vent pipe located on the east wall of the facility. A second vent line originating in the laundry area ran along the north wall and connected with the vault. This line had no physical connection to the sewer, and the access drains to this line were capped. The vault and plumbing were removed, broken down, and placed in drums by Gulf-Pacific in November 1993 [FSDEQP 2546-2547].

According to the December 29, 1993, letter, the analytical results of the excavated materials suggested the following:

The only evidence of a potential release is from the vault itself. This evidence suggests very low quantities were released and does not support the wide area contamination reported in previous studies. A small amount of staining was observed in the matrix of

⁵ EPA hazardous waste codes D039 represents a waste that contains PCE. EPA hazardous waste code F002 represents spent halogenated solvents, including PCE and TCE, among other constituents [GDEPAW 1-2].

the vault and low levels of contamination was [sic] documented through the analytical results of samples collected [FSDEQP 2547].

Allen's Cleaners operated at the site until 1989. Some additional information regarding operations at Allen's Cleaners is available, but considered privileged at this time and, as a result, is not included in this letter report.

1.1.2 REGULATORY INVOLVEMENT HISTORY

1.1.2.1 Kachina Cleaners

An October 1988 draft Phase I report prepared by Earth Tech identified Kachina Cleaners as a high potential source of chemical contamination detected in Salt River Project (SRP) Well 17.9E-7.5N because it was located approximately 0.5 mile north of the well and had documented use of PCE.⁶ According to the 1988 Phase I report, the concentration of PCE detected in SRP Well 17.9E-7.5N was 66.0 µg/L, which exceeded the Arizona action level of 1.0 µg/L, making the well a high priority for remedial efforts. The report also identified Kachina Cleaners as a medium potential source of contamination in another well, SRP Well 17E-8N, located approximately 1 mile east of Kachina Cleaners. PCE had been detected in this well at a concentration of 8.7 µg/L. The report notes that during field reconnaissance Earth Tech personnel observed two 55-gallon drums of PCE stored in an enclosed, secured area behind the facility. These drums appeared to be in good condition, with closed lids and clear labels. According to the 1988 Phase I report, 180 to 240 pounds of PCE per month were being transported from this facility to Safety-Kleen for disposal. In addition, the 1988 draft Phase I report notes that there were no records of any Resource Conservation and Recovery Act (RCRA) compliance actions pertaining to Kachina Cleaners [FSDEQP 2396, 2406, 2450-2451, 2527].

In October 1989, a soil gas survey was conducted by Earth Tech in the ECP WQARF study area, and a sample was taken at Kachina Cleaners because of its known PCE use. The soil gas sample was taken at a depth of 16.5 feet bgs on the north side of the facility and PCE was detected at 270 µg/L [FSDEQP 2680; TIDEQP 1305-1306, 1312].

⁶ The source document initially identifies this well as SRP Well 17.4E-7.5N, but then subsequently refers to it as SRP Well 17.9E-7.5N [FSDEQP 2449-2450]. HGL has confirmed that SRP Well 17.9E-7.5N is the well located within the 40th Street and Osborn Road WQARF site [FODEQP 294-303].

In May 1994, Earth Tech conducted groundwater sampling at seven dry cleaning facilities based on results of the 1989 soil gas sampling.⁷ The monitoring well at Kachina Cleaners (KMW-01) was located 40 feet downgradient of the facility on an adjacent property and drilled to a depth of 60 feet bgs. One sample and a duplicate were collected. PCE was detected at 55 µg/L and 58 µg/L, respectively, while TCE was detected at 1.4 µg/L in both samples. The PCE concentrations exceeded the EPA maximum contaminant level (MCL) and AWQS limit of 5.0 µg/L, while the TCE concentrations were below the EPA MCL and AWQS limit of 5.0 µg/L. [FSDEQP 2888-2899].

In December 1994, groundwater samples were taken at KMW-01. PCE was detected at 130 µg/L and TCE was detected at 2.3 µg/L [FSDEQP 2919, 2924-2925]. On March 29, 1996, an access agreement was executed between ADEQ and Kachina Cleaners. The agreement allowed ADEQ access to the Kachina Cleaners property for investigation activities and remedial actions regarding soil and groundwater contamination potentially located at or near the facility [FSDEQP 2880-2884].

During a May 1996 site investigation, Earth Tech advanced eight soil borings to approximately 17 feet bgs in the parking lot north and west of the Kachina Cleaners main building and one inside the building. See Figure 2 (Enclosure 3). Soil vapor samples were collected at 5, 10, and 15 feet bgs. PCE was detected in soil vapor at all depths. In the parking lot borings, PCE was detected at levels ranging from 4.2 µg/L to 460 µg/L, with the highest concentrations detected at all depths in the borings located immediately to the west and north of the building. Ten soil samples and one duplicate sample were also collected as part of the site investigation. The samples were collected at 7, 12, or 17 feet bgs. Four soil samples (three collected at 7 feet bgs and one collected at 17 feet bgs) were found to have PCE detections at levels above the laboratory reporting limit of 1 microgram per kilogram (µg/kg) (0.001 milligram per kilogram [mg/kg]). These four soil samples coincided with the samples containing the highest soil vapor results for PCE as well as with the sample taken inside the Kachina Cleaners building.

PCE in soil ranged from 3.3 to 5.6 µg/kg (0.0033 to 0.0056 mg/kg) in the three samples collected at 7 feet bgs. The fourth soil sample was collected at 17 feet bgs and was found to contain 1.8 µg/kg (0.0018 mg/kg) of PCE. Despite having PCE detections in soil, all PCE sample results were below the

⁷ Of the seven facilities, only Kachina Cleaners and Allen's Cleaners are located within the ECP 40th Street and Indian School WQARF site addressed by this report.

non-residential soil remediation level (SRL) of 13 mg/kg and the groundwater protection level (GPL) of 0.80 mg/kg [FSDEQP 2781, 2785-2790; GDDEQW 27, 40].

The May 1996 site characterization investigation suggested that the source of contamination may have been removed. According to the investigation, the origin of the PCE contamination had been the dry cleaning equipment located inside the west wall of the building, the facility sewer line, and the former septic systems at the northwest corner of the building. In addition, the lint trap located near the northwest corner of the building may have been a source of the PCE contamination, according to the site characterization investigation. PCE and TCE contamination had been detected in one monitoring well, KMW-01, located west of the facility. However, there was no well upgradient from Kachina Cleaners that could be used to confirm that the PCE and TCE detected in groundwater had originated from the facility [FSDEQP 2793, 2795-2796].

During a May 1997 hydropunch investigation, soil boring HP-AC3 was installed approximately 270 feet west of monitoring well KMW-01. Soil samples collected from 45 and 60 feet bgs did not contain PCE at concentrations at or above the method detection limit (MDL) of 0.05 mg/kg. In-situ groundwater samples were collected at approximately 30, 75, 90 and 105 feet bgs. Dissolved-phase PCE was detected in the samples collected from 30 feet bgs (800 µg/L) and 75 feet bgs (2.42 µg/L) [FSDEQP 2680-2681].

Inspections of the two dry cleaning machines were conducted by the Maricopa County Air Quality Department between March 2000 and February 2009. Average use of PCE was reported as being between 25 and 40 gallons per month. No violations were reported during any of the inspections, and the facility was in compliance with all regulations. However, a January 31, 2002, inspection included a “notice to correct” statement asking Kachina Cleaners to conduct weekly maintenance checks instead of biweekly checks [FSMCAQ 136-146, 210-213]. In May 2006, groundwater monitoring well KMW-02 and three additional soil borings (KSB1 through KSB3) were installed near the Kachina Cleaners facility to further assess the vertical and lateral extent of PCE and TCE in soil, soil gas, and groundwater. Laboratory analysis detected PCE in soil above the method reporting limit (MRL) in only one sample.

The sample from boring KSB3 taken at 10 feet bgs contained 0.12 mg/kg of PCE, which was below the non-residential SRL of 13 mg/kg and the GPL of 0.80 mg/kg. Concentrations of PCE were reported in in situ groundwater samples collected at 52 to 54 feet bgs from all four drilling locations. These PCE

concentrations ranged from 1.2 µg/L (in the KMW-02 sample) to 400 µg/L (in the KSB3 sample). Soil vapor samples were collected from all four borings, and concentrations of PCE were detected in all samples [FSDEQP 2681; GDDEQW 27, 40].⁸

On March 7, 2006, an environmental access agreement was executed between ADEQ and Constantine and Stella Tsantilas, as trustees of the Constantine Tsantilas and Stella Tsantilas Revocable Trust (owners of Kachina Cleaners). The agreement granted an easement to ADEQ for conducting remedial, response, and corrective actions at the Kachina Cleaners facility. The agreement is described as a covenant running with the property, binding any successive property owners or tenants and terminating upon ADEQ's discretion [FSDEQP 2538-2545].

An order of abatement by consent regarding permit G03447 was executed on August 8, 2007, between Kachina Cleaners and the Maricopa County Air Quality Department. The order states that on June 20, 2007, the Maricopa County Air Quality Department (MCAQD) issued Kachina Cleaners a notice of violation for failure to submit an annual emissions inventory report for 2006. In consideration for not pursuing criminal or civil actions against Kachina Cleaners, the company agreed to pay a one-time fee of \$660 to the MCAQD and comply with all Maricopa County Air Pollution Control regulations. Payment of the fee, which occurred on August 8, 2007, constituted appropriate resolution of the violations [FSMCAQ 147-153].

An August 2007 fluid level monitoring report, prepared by SECOR International Inc., provides a summary of groundwater sampling results from 1994 to 2007 for VOCs detected in monitoring wells KMW-01 and KMW-02 near the Kachina Cleaners facility. Table 1 below highlights the PCE and TCE results above AWQS limits. Note that no results exceeding AWQS limits were recorded from well KMW-02 [FSDEQP 2667].

⁸ The source document does not provide further details regarding the concentrations of PCE in the soil vapor samples.

Table 1 from (HGL, 2014)
PCE and TCE Groundwater Concentrations Exceeding AWQS Limits at
Kachina Cleaners, May 1994 to March 2007*

Monitoring Well	Year	Sample Depth (Feet)	PCE (µg/L)	TCE (µg/L)
AWQS Limit			5	5
KMW-01 Historical Sampling	1994	NA	55-130	-
	1996	NA	340	-
	1997	NA	400-540	77
	1998	NA	360	-
KMW-01 Shallow Sampling	2002	2	38-50	-
	2003	2	5.3-15	-
	2004	2	8.9	-
	2005	2	9.6-14.0	-
	2006	2	8.5-20.0	-
	2007	2	23.0	-
KMW-01 Deep Sampling	2002	23-24	100-420	6.1-9.6
	2003	20-22	36-170	-
	2004	16-18	21-55	-
	2005	14-16	10-61	-
	2006	16	12-26	-
	2007	15	57	-

* = Sampling was not reported for 1995 or for 1999 to 2001.

NA = Not available.

- = Results not detected above AWQS limits.

Ranges of data indicate more than one sampling event occurred in the year.

1.1.2.2 Allen's Cleaners

In October 1989, a soil gas survey was conducted by Earth Tech in the ECP WQARF study area, and a sample was taken at Allen's Cleaners because of its PCE use. The soil gas sample was taken at a depth of 15.2 feet bgs. PCE was detected at a concentration of 370 µg/L [TIDEQP 1305-1306, 1312].

In April 1992, Earth Tech drilled five soil borings (AB-1 through AB-5) north of the former Allen's Cleaners and one soil boring (AB-6) to the west and downgradient of the facility. Borings AB-1 and AB-2 were drilled by hollow stem auger to a depth of 26 feet bgs. Borings AB-3 and AB-4 were drilled by hand auger to a depth of 13 feet bgs. Boring AB-5 was drilled by hand auger to a depth of 8.5 feet bgs. Boring AB-6 was drilled to a depth of 61 feet bgs and later completed as groundwater monitoring well AMW-01 with a screen interval of 20 to 60 feet bgs. See Figure 3 (Enclosure 4) for sampling

locations. Soil samples were collected at depths ranging from 5 to 15 feet bgs in AB-1 and AB-2; 4.5 to 8.5 feet in AB-3 through AB-5; and 10 to 30 feet bgs in AB-6. Laboratory analysis of the soil samples identified the presence of PCE in two samples: AB-2 collected at 5 feet bgs with a concentration of 52 µg/kg (0.052 mg/kg); and AB-6 collected at 30 feet bgs with a concentration of 188 µg/kg (0.188 mg/kg).

Both of these sample detections were below the non-residential SRL for PCE of 13 mg/kg and the GPL for PCE of 0.80 mg/kg. A groundwater sample was collected from AMW-01 on April 21, 1992. Laboratory analytical results identified dissolved-phase PCE and TCE at concentrations of 8,700 µg/L and 80 µg/L, respectively, well above the AWQS limit of 5 µg/L for both PCE and TCE. A May 22, 1992, groundwater sampling event found PCE in AMW-01 at 12,000 µg/L, with 10,000 µg/L in a duplicate sample. TCE was not detected above the laboratory detection limit in the May sampling events, but that limit was set at 100 µg/L [FSDEQP 2682; GDDEQW 27, 40; TIDEQP 1825-1836].

In June 1992, Earth Tech installed a second groundwater monitoring well (AMW-02) upgradient from the former Allen's Cleaners and a third groundwater monitoring well (AMW-03) 0.25 mile south of the former Allen's Cleaners, approximately 200 feet west of 40th Street on Clarendon Avenue. Both wells were drilled to a depth of 60 feet bgs and screened at 20 to 60 feet bgs [FSDEQP 2682; TIDEQP 1833-1836].⁹

Sampling of wells AMW-01 through AMW-03 occurred in July and August 1992. Analytical results for PCE and TCE concentrations are summarized in Table 2. See Figure 3 (Enclosure 4) for sampling locations [FSDEQP 2919, 2923].

Table 2 from (HGL, 2014)
Allen's Cleaners Groundwater Sample Results, July and August 1992

Monitoring Well	Date Sampled	PCE (µg/L)	TCE (µg/L)
AWQS Limit		5	5
AMW-01	07/02/1992	15,000	230
	08/11/1992	5,900	120
AMW-02	07/12/1992	0.5	<0.2
	08/10/1992	3.4	<0.2
AMW-03	08/10/1992	<0.2	<0.2

⁹ Note that AMW-03 is not depicted on Figure 3 (Enclosure 4).

In May 1993, ADEQ conducted a hazardous waste inspection of the former Allen's Cleaners facility. During this inspection, ADEQ identified two deep sump structures located along the east wall of the facility. Based on the presence of solvent-like odors emanating from the sumps, ADEQ collected five sludge samples from the sumps and one background soil sample. The background soil sample was collected in the alley approximately 200 feet northeast of the building.

According to ADEQ, four of the six sludge samples contained TCE and "unidentified analytes," and PCE was found in the background sample. The actual concentrations were not provided in the ADEQ hazardous waste inspection report. The sump contents were removed by Chem Waste on June 14, 1993 [FSDEQP 2682-2683].

In the summer and fall of 1993, Gulf-Pacific conducted a series of investigations into the sumps noted above and the sewer line located to the north of the former Allen's Cleaners. Additionally, an SVE system was established in a nested vapor extraction well located near the northernmost sump. Laboratory analysis of a sludge sample collected from the northernmost sump identified the presence of PCE (977.9 mg/kg), TCE (4.20 mg/kg), and 1,1,1-trichloroethane (1,1,1-TCA) (5.70 mg/kg).¹⁰ Following removal of the sump, a soil sample was collected at approximately 6 feet bgs from a boring placed within the excavation. PCE was detected in this sample at a concentration of 2.75 mg/kg. Four borings were advanced along the sewer line to the north of the building. Soil samples were collected at 5.5 and 7 feet bgs. None of the soil samples collected along the sewer line contained PCE above laboratory MRLs. During operation of the SVE system, vapors were extracted from the shallow and intermediate depth wells at a calculated extraction rate of 0.22 pounds of PCE per day. Documents obtained by HGL do not indicate how long the SVE system operated or how much PCE was removed from the soil beneath the former sump structure [FSDEQP 2546, 2548-2549, 2683, 2712, 2724-2725].

A December 1994 groundwater sampling event for monitoring wells AMW-01, AMW-02, and AMW-03 at the former Allen's Cleaners found a range of PCE and TCE concentrations. Table 3 summarizes the sampling results for PCE and TCE. See Figure 3 (Enclosure 4) for sampling locations [FSDEQP 2919, 2923].

¹⁰ The non-residential SRL is 13 mg/kg for PCE, 65 mg/kg for TCE, and 1,200 mg/kg for 1,1,1-TCA [GDDEQW 27-28].

Table 3 from (HGL, 2014)
Allen's Cleaners Groundwater Sample Results, December 16, 1994

Monitoring Well	PCE (µg/L)	TCE (µg/L)
AWQS Limit	5	5
AMW-01	31,000*	<500
AMW-01D	24,000	490
AMW-02	12	<0.50
AMW-03	<0.5	<0.50

D = Duplicate sample.

*The table and figure in the source document identifies the PCE concentration at AMW-01 as 31,000 µg/L; however, the text identifies the concentration as 34,000 µg/L [FSDEQP 2919, 2921, 2923].

In January 1997, a subsurface soil investigation was conducted at the former Allen's Cleaners. Soil borings BB-1 and BB-2 were located inside the building near the former sumps, and boring BB-3 was located near the northwest corner of the building. Soil samples were collected at depths ranging from 7 to 25 feet bgs. Laboratory analysis did not detect VOC concentrations at or above the MDL in any of the collected soil samples. Soil gas samples were collected for laboratory analysis at depths of 7 and 20 feet bgs. Laboratory analysis identified the presence of PCE in all of the soil gas borings. The maximum concentration of PCE detected (33 µg/L) was in the soil gas sample collected at 7 feet bgs in boring BB-3 [FSDEQP 2683-2684].¹¹

In April 1997, three groundwater monitoring wells (AMW-04, AMW-05, AMW-06) were installed along the western portion of the former Allen's Cleaners property. In August 1997 a fourth well (AMW-07) was installed in the same location. AMW-04 was drilled to a depth of 100 feet bgs and screened at 80 to 100 feet bgs. AMW-05 through AMW-07 were drilled to a depth of approximately 60 feet bgs and screened at 30 to 50 feet bgs. During drilling activities, in situ groundwater samples were taken at various depths between 35 and 98 feet bgs. Samples from AMW-04 were collected at 55, 60, 75, 80, 90, and 98 feet bgs. Samples from AMW-05 were collected at 40 and 55 feet bgs. Samples from AMW-06 were collected at 35, 45, 50, and 60 feet bgs. Samples from AMW-07 were collected at 37 feet bgs. Laboratory analysis detected concentrations of dissolved-phase PCE above the AWQS limit of 5 µg/L in the in situ groundwater samples collected from boring AMW-04 at 55 feet bgs (7.6 µg/L), 90 feet bgs (13 µg/L), and 98 feet bgs (7.1 µg/L); from boring AMW-05 at 40 feet bgs (120 µg/L); and from boring AMW-06 at 35 feet bgs (8,500 µg/L) and 45 feet bgs (23 µg/L) [FSDEQP 2684].¹²

¹¹ Analytical data for all samples and depicted locations of the wells were not provided in the source document.

¹² The location of the wells was not provided in the source document.

Under a separate investigation in May 1997, two soil borings, HP-AC1 and HP-AC2, were drilled downgradient (to the west) of the former Allen's Cleaners. Boring HP-AC1 was drilled to a depth of 124 bgs. Boring HP-AC2 was drilled to a depth of 112 feet bgs. No soil samples were collected for boring HP-AC1, but in-situ groundwater samples were collected at the following depths: 33, 48, 63, 78, 105, and 120 feet bgs. Dissolved-phase PCE was detected above the AWQS limit of 5.0 µg/L in groundwater samples collected at 33 feet bgs (44.5 µg/L) and 48 feet bgs (316 µg/L). Laboratory analysis of groundwater samples collected at depths greater than 48 feet bgs did not contain concentrations of dissolved-phase PCE above the MDL (1.0 µg/L). For boring HP-AC2, one soil sample was collected at 70 feet bgs and no PCE was detected. In situ groundwater samples were collected from boring HP-AC2 at the following depths: 30, 45, 75, 90, and 105 feet bgs. Dissolved-phase PCE was detected at levels exceeding the AWQS limit of 5.0 µg/L in the groundwater sample collected at 45 feet bgs (43.2 µg/L) [FSDEQP 2684-2685].¹³

In December 2003, three SVE and six AS wells were installed at the former Allen's Cleaners. An SVE/AS system was installed and started in November 2004. As of July 8, 2005, the SVE/AS system had removed approximately 33 pounds of PCE and was then decommissioned on that date [FSDEQP 2686].

An August 2007 fluid level monitoring report, prepared by SECOR International Inc., provides a summary of groundwater sampling results from 1992 to 2007 for selected VOCs, including PCE and TCE, detected in monitoring wells AMW-01 through AMW-08 near the former Allen's Cleaners facility.¹⁴ Table 4 below highlights the PCE and TCE results above AWQS limits. Note that no results exceeding AWQS limits were recorded from well AMW-03 and AMW-04 [FSDEQP 2662-2666].

¹³ Analytical data for all samples and depicted locations of the wells was not provided in the source document.

¹⁴ AMW-08 appears to have been installed in 2003 as the first sampling event noted is June 13, 2003. The well is located approximately 350 feet southwest of the former Allen's Cleaners property on the west side of 40th Street [FSDEQP 2666, 2670].

Table 4 from (HGL, 2014)
PCE and TCE Groundwater Concentration Exceeding AWQS Limits at the
Former Allen's Cleaners, April 1992 to March 2007*

Monitoring Well	Year	Sample Depth (Feet)	PCE (µg/L)	TCE (µg/L)
AWQS Limit			5	5
AMW-01 Historical Sampling	1992	NA	5,900-15,000	80-230
	1994	NA	24,000-31,000	490
	1996	NA	11,000-12,000	340
	1997	NA	1,700-18,000	11
	1998	NA	37,000	-
AMW-01 Shallow Sampling	2002	2	6,900-22,000	25-34
	2003	2	2,000-5,900	6.9-17
	2004	2	1,100-1,330	5.4
	2005	2	29-95	-
	2006	2	8.7	-
	2007	2	6.2	-
AMW-01 Deep Sampling	2002	23-24	290-6,500	8.3
	2003	10-22	110-400	-
	2004	16-18	34.9-100	-
	2005	14-16	7.4-9.4	-
	2006	16-17	5.2-5.5	-
	2007	16	-	-
AMW-02 Historical Sampling	1994	NA	12	-
AMW-05 Historical Sampling	1997	NA	24	-
AMW-05 Shallow Sampling	2002	1-2	150-810	-
	2003	2	57-170	-
	2004	<1	200	-
	2005	1	15	-
	2006	<1	54	-
	2007	NA	NA	NA
AMW-06 Historical Sampling	1997	NA	1,800	35
AMW-06 Shallow Sampling	2002	2	28-380	-
	2003	2	38-69	-
	2004	<1-2	41-377	-
	2005	2	28	-
AMW-06 Deep Sampling	2002	13-14	70-2,300	15
	2003	10-12	10-47	-
	2004	6-8	36-125	-
	2005	5-7	33	-
AMW-07 Historical Sampling	1997	NA	10	-
AMW-07 Shallow Sampling	2002	2	6.9	-
	2003	2	6.1	-
AMW-07 Deep Sampling	2002	11-12	25	-
	2003	8-10	8.1-10	-
	2005	5	33	-
AMW-08 Shallow Sampling	2003	2	14-55	-
	2004	<1-2	13-25.4	-

Monitoring Well	Year	Sample Depth (Feet)	PCE (µg/L)	TCE (µg/L)
AWQS Limit			5	5
	2005	2	7.0-7.9	-
AMW-08 Deep Sampling	2003	20-21	49-75	-
	2004	16-18	16.5-23	-
	2005	15-17	5.6-37.0	-
	2006	16-17	9.1-78.0	-
	2007	16	62.0	-

* = Sampling was not reported for 1993, 1995 or for 1999 to 2001.

NA = Not available.

- = Results not detected above AWQS limits.

Ranges of data indicate more than one sampling event occurred in the year.

1.1.3 OWNERSHIP HISTORY

1.1.3.1 Kachina Cleaners

Kachina Cleaners has operated on Parcel 170-32-099D at 3926 East Indian School Road from 1959 to present. This parcel is currently owned by Constantine and Stella Tsantilas, as trustees of the Constantine and Stella Tsantilas Revocable Trust, and comprises approximately 12,060 square feet [FSMCTA 1-2]. Table 5 below lists the owners of Parcel 170-32-099D during the time PCE was used on the property. The complete conveyances for this parcel are shown in the title tree enclosed as Figure 4 (Enclosure 5).

**Table 5 from (HGL, 2014)
List of Owners for Parcel 170-32-099D**

Owner	Date
James and Bessie Tsantilas	1955–1973
Bessie Tsantilas	1973–1988
Constantine and Stella Tsantilas	1973–1999
Constantine and Stella Tsantilas Revocable Trust	1999–Present

Parcel 170-32-099D was purchased by the Tsantilas family in 1955 as vacant land [FSDEQP 2782].¹⁵ PCE use at the property is assumed to have started in 1959 when dry cleaning operations began. Kachina Cleaners is currently operating on the site and is believed to still use PCE, though it is only used in the dry cleaning machines and not stored on site [FSDEQP 2351-2375, 2782; FSFDPX 35].

¹⁵ The source document, a 1996 site characterization report prepared by Earth Tech, states that the Tsantilas family purchased the property in 1953; however, a warranty deed for the property was not signed until 1955 by James and Bessie Tsantilas [FSDEQP 2782; FSNETR 35-36]. HGL will use the deed document date as the date of ownership.

1.1.3.2 Allen's Cleaners

Allen's Cleaners operated on Parcel 171-26-061G at 4129 North 40th Street from 1969 to 1989.¹⁶ The current parcel owner is Verde SPE I, LLC, a Delaware corporation. Table 6 below lists the owners for Parcel 171-26-061G during the time PCE was used on the property. The complete conveyances for this parcel are shown in the title tree enclosed as Figure 5 (Enclosure 6).+

**Table 6 from (HGL, 2014)
List of Owners for Parcel 171-26-061G**

Owner	Date
Herbert and Norma Potthoff	1958–1977
Harris Trust Company and Rose Morgan, Co-trustees of the Herbert Potthoff Revocable Trust	1977–1984
Palm Grove Redevelopers	1984–1999

Allen's Cleaners operated on Parcel 171-26-061G from 1969 to 1989. Allen's Cleaners used PCE dry cleaning solvent during its operations; however, the exact period of use is not documented, though it is assumed that the company used PCE throughout its entire period of operations [FSDEQP 2678].

1.2 WQARF PROCESS

The WQARF program was created by the Arizona Legislature under the Environmental Quality Act of 1986 to support environmental cleanup efforts in Arizona. WQARF was amended in 1997 to include additional public notice and community involvement requirements (ADEQ, 2013). Through the WQARF program, ADEQ identifies, assesses, and cleans up soil and groundwater that is contaminated with hazardous substances (ADEQ, 2013). Before a site is placed under the WQARF program, it is evaluated for the type of contaminant(s) present, the location of the contaminant(s), and the number of people that may be affected by the contaminant(s) and assigned a numeric score with a maximum of 120. Sites placed under the WQARF program are listed in the WQARF Registry. As part of the WQARF process the ADEQ may:

- Perform emergency responses.
- Conduct investigations including remedial investigations, feasibility studies, and risk assessment.

¹⁶ 17 Parcel 171-26-061G was created in 2007 when Parcels 171-26-061E and 171-26-061F were merged.

- Conduct long-term remedial action programs.
- Identify potential responsible parties.
- Perform outreach programs to the public including the formation of community advisory boards (CABs). (A.R.S. 49-282)

The ECP study area was placed on the WQARF Priority List in 1987, and the 40th Street and Indian School Road Site was subsequently placed on the WQARF registry in 1998 with a score of 20 out of the possible 120 (ADEQ, 2013; HGL, 2014).

2.0 PREVIOUS INVESTIGATIONS AND EARLY RESPONSE ACTIONS

The original ECP 40th Street and Indian School Road WQARF study area investigation began after the 1989 discovery of PCE in a soil vapor sample taken north of Kachina Cleaners and Laundry, Inc. (Kachina Cleaners) at 16.5 feet below ground surface (bgs). The concentration of PCE in the soil vapor sample was 270 micrograms per liter ($\mu\text{g/L}$). Another soil vapor sample was taken north of the former Allen's Cleaners and Laundry, Inc. (Allen's Cleaners) at 15.2 feet bgs. PCE was detected in that sample at a concentration of 370 $\mu\text{g/L}$ (HGL, 2014).

In 1997, groundwater, soil, and soil vapor surveys were conducted at the former Allen's Cleaners. PCE in groundwater was detected at concentrations up to 316 $\mu\text{g/L}$. Soil samples did not contain detectable concentrations of PCE. Soil vapor concentrations of PCE ranged from 0.13 $\mu\text{g/L}$ to 33 $\mu\text{g/L}$. Also in 1997, ADEQ installed four groundwater monitoring wells west of the former Allen's Cleaners. Initial groundwater samples collected from these wells reported a maximum PCE concentration of 1,800 $\mu\text{g/L}$. ADEQ also collected groundwater and soil samples in the vicinity of Kachina Cleaners in 1997. PCE in groundwater was detected with concentrations up to 800 $\mu\text{g/L}$. The soil samples did not contain detectable concentrations of PCE (HGL, 2014).

A 2002 ADEQ groundwater sampling event showed the continued presence of PCE above the 5 $\mu\text{g/L}$ AWQS limit. In 2003, ADEQ installed a groundwater monitoring well in the alley between the former Allen's Cleaners and Kachina Cleaners. ADEQ also installed three SVE wells and six AS wells at the former Allen's Cleaners as part of an early response action (ERA). In 2005, the SVE/AS system was decommissioned and removed from the former Allen's Cleaners. The SVE/AS system had removed approximately 33 pounds of PCE from the vadose zone throughout its operation (Figure 6) (HGL, 2014).

In 2007, ADEQ sent out notices per Arizona Revised Statutes (A.R.S) § 49-287.03, initiating the Remedial Investigation (RI) for the site, and installed an additional groundwater monitoring well on 39th Street, north of Indian School Road. In 2008, ADEQ installed two more groundwater wells: one on 39th Street, north of Indian School Road, and one on Monterosa Street, south of the former Allen's Cleaners. Concentrations of PCE were still detected above the AWQS limit of 5 $\mu\text{g/L}$.

From 2009 to 2012, ADEQ did not conduct work at the site. In October 2013, ADEQ began additional well installation and groundwater sampling activities, to be presented in this report.

Refer to Tables 1 to 5 and Appendices A and B for a summary of data collected during previous investigations.

3.0 SITE PHYSICAL CHARACTERISTICS

3.1 DEMOGRAPHICS AND LAND USE

The entire Site is located within the City of Phoenix (COP), in Maricopa County. The COP is comprised of 15 "urban villages"; the ECP Site is located in the center of the Camelback East Village (CEV) which covers an area of 36.3 square miles. CEV has two primary cores: 1) the 24th Street and Camelback Road core; comprised of office and retail shops, including movie theaters, major department stores, restaurants, and hotels; and 2) the 44th Street and Van Buren Street core an area of airport and regional offices along with a Chinese cultural center. The area around 44th Street and Thomas Road is considered a secondary core of the village. CEV offers a range of housing diversity and neighborhood types evenly split in the number of single family and multi-family residences, ranging from multi-acre lots to higher density residential developments in the more concentrated centers. A major portion of the housing stock in CEV was built between 1950 and 1970, but new construction of both single family and multi-family homes continues.

Detailed information regarding current and future uses of land or water impacted by a contaminant release from the Site is provided in the Land and Water Use Report (LWUR) presented in Appendix F. According to COP, the primary land use within the CEV is single family residential (38%) followed by parks/open space (26%), multiple family residential (12%) and commercial/industrial (12%), public/transportation (8%). Four (4%) percent of the land within the village is reportedly vacant. Current zoning districts in the Site as well as a detailed description of COP zoning designations can be found in the LWUR in Appendix F.

The ECP study area is an older established part of Phoenix that is mostly residential and commercial with dry cleaning businesses and strip malls containing retail stores (ADEQ, 2013). General land use within 0.25 mile of the 40th Street and Indian School Road Site is presented in Figure 3. The majority of commercial zoning is along the Indian School road commercial corridor.

Presently, the area within the Site boundary is zoned for commercial and single family residential use. Surrounding land uses include single family residential to the south and north, and commercial to the east and west, and multi-family residential to the south and northwest.

Five school districts are represented in the entire CEV, three are located within the ECP WQARF Site: 1) Scottsdale Unified School District, 2) Phoenix Union School District, and 3) Creighton School District. Monte Vista School (Creighton School District) and Christ Lutheran School are located in the vicinity of the 38th Street and Indian School Road Site. Christ Lutheran School is located approximately 400 feet to the west of the intersection of 40th Street and Indian School Road and Monte Vista School is located approximately one mile southwest of the Site (City of Phoenix, 2014).

The zoning pattern in the area has been long established and there are no foreseeable changes for the future. Land uses for the Site are expected to remain predominantly residential and commercial.

3.2 CLIMATE

The Phoenix area climate is of a desert type with low annual rainfall and low relative humidity (Schmidli, 1996). The hottest month of the year is July where the average minimum and maximum temperatures range from 84 degrees Fahrenheit (°F) to 106°F. The coolest month of the year is December where the average minimum and maximum temperatures range from 44°F to 66°F (Western Regional Climate Center [WRCC], 2014b).

Annual precipitation averages for Phoenix range between 6.6 to 7.5 inches (WRCC, 2014a and 2014b). There are two separate rainfall seasons. The first rainfall season occurs from December through April from occasional Pacific storm systems. The second rainfall period (also known as the Arizona Monsoon) occurs from July through September when southerly winds bring moisture from the Pacific Ocean, Gulf of Mexico, and the Gulf of California (Schmidli, 1996; The Flood Control District of Maricopa County, 2014).

3.3 TOPOGRAPHY

The Site is located in a relatively flat alluvial valley at an elevation of approximately 1,200 feet mean sea level (msl). The land surface slopes gently to the southwest at a gradient of 0.005 away from the Camelback Mountains. The Camelback Mountains, located approximately 1.6 miles to the northeast, rise 1,250 feet above the valley surface to an elevation of 2,600 feet msl. Also approximately 2.2 miles to the southeast are the low lying Barnes and Papago Buttes which rise 350 feet above the valley surface up to an elevation of 1,570 feet msl.

3.4 SURFACE WATER

The nearest surface water body is the Arizona Canal, located approximately 0.75 miles to the northeast of the Site. The Site area is situated within an active flood irrigation district of Salt River Project (SRP), which receives water from the Arizona Canal lateral canals. The water is used for residential irrigation; it discharges into the Grand Canal located over two (2) miles southwest of the Site.

3.5 REGIONAL GEOLOGY

The Site is located on the western portion of the Salt River Valley (WSRV), a broad, relatively level alluvial valley in the Basin and Range physiographic province of Central Arizona. This alluvium represents a combination of deposits from the surrounding mountains and fluvial deposits from the Salt River.

The stratigraphy of the WSRV is divided into the Mountain Bedrock, Pre-Basin and Range Sediments, Lower Basin-Fill, Upper Basin-Fill, and Stream Alluvium (Anderson et al., 1990). In upward sequence, the Mountain Bedrock consists of igneous, metamorphic, and consolidated sedimentary rocks ranging from Precambrian to Cenozoic in age. The Pre-Basin and Range Sediments consist of moderately to highly consolidated continental deposits of silt, clay, gravel, and conglomerate, primarily Tertiary in age. Examples of these sediments would be the Camelshead Formation and the Tempe Beds, exposed in Papago Park area of east Phoenix. These sediments generally exceed several thousand feet in thickness.

Above the Pre-Basin and Range Sediments lie the Lower Basin-Fill Sediments. The thickness, areal extent, and grain size of the Lower Basin-Fill Sediments are variable, but generally consist of weakly to highly consolidated gravel, sand, silt, and clay and may include interbedded evaporate deposits and volcanic rocks at selected locations. The Lower Basin-Fill Sediments typically include 2,000 to 7,000 feet of fine-grained sediments of silt and clay at the base, in the center of the basins in which these deposits are found.

The Upper Basin fill is generally composed of unconsolidated to moderately consolidated conglomerates and alluvial deposits laid down during the last stages of the Basin and Range disturbance. This unit also grades into finer-grained facies towards the interiors of the basins, but is generally coarser than the lower unit and with less evaporites. This unit generally produces substantial amounts of groundwater compared to the lower units.

Some fine-grained deposits in this unit impede the vertical migration of groundwater, such that perched or semi-perched conditions exist. The Upper Basin fill is composed mainly of silt, sand, and gravel; locally, relatively thin clay layers can be present. Within the WSRV, the unit is predominantly gravel and sand with some thick zones of cobbles near the present channels of the Salt River. Gravel and sand is also found in areas north and south of the present-day channel, where ancestral channels were located.

The upper-most geologic unit in the WSRV is the Stream Alluvium, which represents stream channel and related sediments typically up to 1,200 feet thick. This sedimentary unit was deposited after the basins were filled, and during the establishment of the present drainage system. Stream Alluvium sediments consist of floodplain, channel-fill, alluvial-fan, and playa deposits. The Stream Alluvium is generally unconsolidated, except where cemented by caliche. Grain size ranges from boulder-and cobble-size gravel in the alluvial fans to clays in local playa deposits. In general, sand and gravel are found along the stream channels (Anderson et al., 1990).

3.6 REGIONAL HYDROGEOLOGY

The Arizona Department of Water Resources (ADWR) documented the Site area hydrogeology in a document titled *A Regional Groundwater Flow Model of the Salt River Valley-Phase I Phoenix Active Management Area Hydrogeologic Framework and Basic Data Report* (ADWR, 1993). Although the hydrogeologic stratigraphy generally corresponds to the geologic units, the correlation is not exact and different unit names are used.

The alluvial sediments (Lower and Upper Basin Fill) are subdivided into three hydrologic units: the Upper, Middle, and Lower Alluvial Units (UAU, MAU, and LAU, respectively) (Figure 4). The total thickness of alluvial sediments is estimated to be less than 250 feet thick in the vicinity of the Site, which lies near the edge of the alluvial basin (ADWR, 2009).

The LAU is composed of consolidated sands and gravels. The MAU is also consolidated, but it contains a higher proportion of fine-grained material. Both the MAU and LAU represent a depositional environment within closed basin (lake bed) conditions. Although the hydraulic properties of the MAU are less favorable for water production, the MAU is the most productive unit basin-wide due to its

saturated thickness. It has been reported that the MAU is absent in the ECP area such that the UAU and LAU appear to have a hydraulic connection (Earth Tech, 1992 and 1995a).

The UAU consists of unconsolidated sands and gravels deposited by flowing drainages, and is the most permeable unit. According to the ADWR, the UAU is typically 300 to 400 feet thick in the WSRV. Where thick saturated sections of the UAU are present, the groundwater production rates are generally very high.

In addition to the UAU, MAU and LAU, several noted geologic units have been classified, including the Pre-Basin and Range sedimentary units (Tempe Beds and Camelshead Formation) and the crystalline bedrock. Hydrologically, these units are not significant for groundwater use or production except in a few limited areas of the WSRV.

3.7 LOCAL GEOLOGY AND HYDROGEOLOGY

The hydrostratigraphic units have been defined based on a review and evaluation of data generated during groundwater assessments at the Site. The Site hydrogeology has been investigated to a maximum depth of 145 feet bgs (Figure 5). Available Site boring logs are included in Appendix C. Groundwater monitor wells have been installed at 25 locations to a maximum depth of approximately 145 feet bgs within the UAU (Table 1). The base of the UAU has not been encountered during drilling activities to date; however, it has been reported that the UAU ranges in thickness from approximately 125 to 300 feet in the ECP area (Earth Tech, 1995). The UAU at the Site consists of predominantly fine-grained, clayey silts and silt with sand to sandy silts with trace amounts of gravel.

The horizontal hydraulic conductivity of the clayey sand with gravel/sandy gravel with silt range from 0.75 to 130 feet per day based on slug tests conducted at monitor wells AMW-01 and AMW-04, and approximately 27 feet per day based on a reported aquifer test (ADEQ 2012; SECOR, 2007b).

3.7.1 Water Levels

Water levels in the UAU have been monitored since April 1992 (Table 2; Appendix D and Appendix E). Monitor wells installed at the Site are screened across both shallow (water table) and deeper intervals within the UAU. Water levels in co-located shallow and deeper screened monitor wells are generally nearly identical.

During the period of record for the Site monitor wells, the depth to water has ranged from approximately 21 feet below land surface (bls) in the mid 1990's to approximately 49 feet bls in 2014. The direction of groundwater flow historically has been to the southwest with gradients ranging from approximately 0.005 to 0.008. Vertical gradients between the shallow and deeper zones of the UAU monitored at the Site are generally negligible.

4.0 REMEDIAL INVESTIGATION

RI activities at the 40th Street and Indian School Road Site included groundwater assessment and installation of additional groundwater monitor wells.

4.1 GROUNDWATER ASSESSMENT

Groundwater assessment activities conducted since January 2013 have included collection of groundwater samples for laboratory analysis, water level measurements, and installation of additional groundwater monitor wells. The purpose of these investigations was to address data gaps and further define the extent of VOCs in groundwater beneath the Site. All assessment activities were performed in accordance with work plans submitted to and approved by ADEQ in 2013, and the Quality Assurance Project Plan (QAPP) (H+A, 2013a, 2013b, 2013c, and 2013d).

4.1.1 Monitor Well Installation

Between January 2014 and May 2014, ten (10) groundwater monitor wells (KMW-03, KMW-04, KMW-05, KMW-06, and KMW-07) were drilled and constructed at five (5) locations within the Site boundary (Figure 2). Each location included dual completion of shallow (A) and deep (B) monitor wells.

All drilling was performed using Rotosonic drilling methods (Sonic). At each location the deeper monitor well was first drilled and a continuous core collected to obtain detailed lithologic data. The core was screened for evidence of VOCs with a photoionization detector/flame ionization detector.

Groundwater grab samples were collected during drilling using low-flow methods with a Simulprobe[®] from the borehole per the approved work plan (H+A, 2013c). The clay content of the sediments made it difficult to obtain a viable sample. Additionally, the grab water samples were displaying a strong reaction with the preservative (hydrochloric acid) in the 40 milliliter (mL) glass VOA vials during sample collection. The amount of effervescence from these water samples indicated high in calcium carbonate content and likely affected sample integrity. After attempting several collections of groundwater grab samples yielding questionable results, a decision was made by H+A, in conjunction with ADEQ, to deviate from the work plan and discontinue the groundwater grab sampling during drilling.

After the total depth was reached the boring was reamed from 6 inches to 8-5/8 inches and completed as a monitor well. After completion of the deeper monitor well, the shallow well was drilled and constructed with no coring and or sampling. Lithologic and well construction information are summarized (Table 1; Appendix C).

Monitor wells were constructed with 4-inch diameter Schedule 40 polyvinyl chloride (PVC) well casing. Screen lengths ranged between 25 and 40 feet with 0.020 inch screen slot size.

4.1.2 Groundwater Level Monitoring

Depth to groundwater was measured in all previously existing Site monitor wells in January and September/October 2013. Depth to groundwater was measured in newly installed Site monitor wells in April 2014, with the exception of wells KMW-03A and KMW-03B because they were not installed until May 2014. Subsequently, depth to groundwater was measured in all Site monitor wells in May 2014.

The depth to groundwater measured during the most recent monitoring event in May 2014 ranged from approximately 39.67 to 48.58 feet bls (Table 2). The groundwater elevation ranged from a high of 1166.73 feet msl at AMW-02 to a low of 1153.89 feet msl at KMW-04B. The direction of groundwater flow at the Site is southwest with a hydraulic gradient of approximately 0.007 to 0.008 (Figure 7). Data trends and current drought conditions suggest water levels may be in a period of continuing decline (Appendix E).

4.1.3 Monitor Well Sampling

Groundwater samples were collected from existing and newly installed monitor wells. Generally, groundwater samples were collected from existing and newly installed monitor wells using Passive Diffusion Bag (PDB) samplers in accordance with the approved groundwater characterization and well installation work plans (H+A, 2013a and 2013c).

Groundwater samples were collected during three sampling events in 2013 to 2014 (Table 4). Prior to the drilling of additional RI monitor wells, the existing monitor wells (AMW-01 to AMW-04, AMW-06, AMW-08 to AMW-09C, KMW-01 and KMW-02) were sampled in October 2013 to identify data gaps and aid in determination of locations for additional monitor wells. Monitor wells AMW-05 and AMW-07 did not contain sufficient water to be sampled.

Generally, samples referred to as “shallow” are collected approximately 2 feet below the groundwater surface, or in deeper screened wells 2 feet below the top of the screen. A sample, referred to as “Deep” is collected near the bottom of the screen interval. If there is a large enough distance between the two samples, an “Intermediate” sample is collected between the “Shallow” and “Deep” sample.

The second sampling event was conducted in April and May 2014, when the newly installed monitor wells (KMW-03A, KMW-03B, KMW-04A, KMW-04B, KMW-05A, KMW-05B, KMW-06A, KMW-06B, KMW-07A and KMW-07B) were sampled. Groundwater samples during this sampling were collected generally at 5-foot intervals along the screen lengths.

The third sampling event occurred in May 2014, when twenty-three Site monitor wells were sampled. These samples were collected at intervals from the “Shallow”, “Intermediate”, and “Deep” sample intervals described above. Monitor wells AMW-05 and AMW-07 did not contain sufficient water to be sampled.

During the groundwater sampling events conducted in 2013 and 2014, VOCs detected in groundwater include PCE, TCE, and chloroform. PCE was detected in six (6) of the 23 monitor wells sampled at concentrations ranging from 1.0 to 20 µg/L (Table 4; Figures 5 and 6). Specifically, the following was noted:

- PCE was only detected above 5 µg/L in monitor wells AMW-08 and KMW-01 with maximum concentrations of 20 µg/L and 5.4 µg/L, respectively.
- At monitor wells AMW-01, AMW-06, AMW-09A, and KMW-02, PCE was detected at concentrations below 5 µg/L.
- TCE was detected in a single sample from AMW-08 at a concentration of 1.9 µg/L, less than the AWQS of 5 µg/L.
- Low levels of chloroform (between 2.0 and 3.4 µg/L) were detected in newly installed monitor wells KMW-04A, KMW-05A, and KMW-06A.
- Chloroform was detected in all samples collected from KMW-07A and KMW-07B at concentrations ranging from 6.9 to 23 µg/L.

4.1.4 Investigation Derived Waste

Investigation derived waste (IDW) was temporarily stored in secure storage containers including a poly tank (development water) and roll off bins (drill cuttings), which displayed Site and investigation information. Prior to disposal, drill cuttings and development water were analyzed for VOCs using EPA Method 8260B, the eight RCRA metals by Toxicity Characteristic Leaching Procedure (TCLP) ; groundwater was also analyzed for flashpoint to 200 °F and pH. All IDW was then transported by Chemical Transportation, Inc. and disposed of at Butterfield Station Landfill in Mobile, Arizona, a certified, licensed disposal facility accepting Non-Hazardous Materials.

5.0 NATURE AND EXTENT OF CONTAMINATION

The following discussion on the nature and extent of contamination constitutes the Conceptual Site Model (CSM). The CSM is based on the CSM presented for the Site in 2008, updated to include results of additional RI Site investigations conducted to date (SECOR, 2008).

5.1 CONTAMINANTS OF CONCERN

PCE is the COC associated with the Site. However, both PCE and TCE have historically been discovered in soil vapor, soil, and groundwater samples collected. The approximate current lateral and vertical distribution of PCE in groundwater at the Site has been identified (Figures 5 and 6). The distribution and concentrations of PCE compared to TCE are much greater. TCE, when detected, is often an order of magnitude less than PCE.

5.2 PHYSICAL AND CHEMICAL PROPERTIES OF TETRACHLOROETHENE AND TRICHLOROETHENE

PCE is a colorless, non-flammable liquid that does not occur naturally in the environment. Its solubility is approximately 206 milligrams per liter, and has a density of 1.62 grams/milliliter (EPA, 2014). Thus, PCE is more dense than water and is considered a dense non-aqueous phase liquid (DNAPL). Approximately 60 percent of the PCE used in the U.S., in 1991, was in the dry cleaning and textile industries (EPA, 1994). Among other applications, PCE is also used in vapor degreasing and metal cleaning operations, and the production of solvent soaps, adhesives, sealants, and as a solvent in various consumer products.

TCE is a colorless, non-flammable liquid that does not occur naturally in the environment. Its solubility is approximately 1,280 milligrams per liter, and has a density of 1.46 grams/milliliter (EPA, 2014, ATSDR, 2007). Thus, TCE is more dense than water and is considered a dense non-aqueous phase liquid (DNAPL). Approximately 80 percent of the TCE used for vapor degreasing of fabricated metal parts and some textiles (ATSDR, 2007). Among other applications, TCE is also used as a solvent in dry cleaning, an intermediate in chemical production, extraction, and as a refrigerant/heat exchange liquid (ATSDR, 2007).

5.3 CONTAMINANT SOURCES

Results of the industrial survey and Site investigations provide evidence of releases and the presence of PCE due to dry cleaning operations at the Kachina Cleaners facility and the former Allen's Cleaners facility. Concentrations of PCE in groundwater greater than 1 percent of the effective solubility of pure-phase PCE (200,000 µg/L) can be indicative of the presence of DNAPL in the subsurface (EPA, Office of Solid Waste and Emergency Response [OSWER], 1992, EPA, 2004). Historical concentrations of PCE in groundwater greater than 1 percent of solubility have been observed at monitor wells AMW-01 (37,000 µg/L in February 1998) and AMW-06 (2,300 µg/L in May 2002) both located downgradient of the former Allen's Cleaners. The highest reported PCE concentration in groundwater during the May 2014 sampling event was 20 µg/L. This concentration is well below the 1 percent solubility level, indicating it is likely that no PCE DNAPL is currently present in the subsurface at the Site.

TCE is used in the dry cleaning operations as a pre-cleaning or spotting agent and is also a breakdown product of PCE. TCE is present in soil vapor and groundwater at the Site; however, it is detected less frequently and at significantly lower concentrations than PCE. Concentrations of TCE in groundwater greater than 1 percent of the effective solubility of pure-phase TCE (1,472,000 µg/L) can be indicative of the presence of DNAPL in the subsurface (OSWER, 1992; EPA, 2004). The highest historical concentration of TCE at the Site in groundwater is 490 µg/L, which is well below 1 percent of solubility. Therefore, based on available data there is no indication that TCE DNAPL has been present in the subsurface at the Site.

5.4 DISTRIBUTION AND TRENDS OF SOIL VAPOR CONTAMINATION

Historical sampling indicated the presence of PCE in soil vapor in the vicinity of Kachina Cleaners and the former Allen's Cleaners (Table 3; Appendix B). The current distribution of PCE in soil vapor was not evaluated as part of this RI. Historically, PCE in soil vapor has been detected at a maximum value of 460 µg/L from 5 feet to 40 feet bls and a maximum value of 370 µg/L PCE and from 7 feet to 20 feet bls in the vicinity of Kachina Cleaners. The operation of a SVE/AS system at the former Allen's Cleaners from October 2004 to July 2005 removed approximately 33 pounds of PCE. This SVE/AS system significantly decreased PCE in soil vapor at both source areas.

5.5 DISTRIBUTION AND TRENDS OF SOIL CONTAMINATION

At the former Allen's Cleaners facility, between 1992 and 1997 45 soil samples were collected between 3 to 30 feet bls and were analyzed for PCE. PCE was detected in seven soil samples at concentrations ranging from 0.040 to 2.750 milligrams per kilograms (mg/kg). Only four (4) samples exceeded the Groundwater Protection Level (GPL) and/or Soil Remediation Level (SRL) for PCE of 1.3 mg/kg and 0.51 mg/kg, respectively (ADEQ (1996) and A.A.C. R18-7, Appendix A). All of these samples were collected adjacent to the north sump, between three (3) to six (6) feet bls, and before the operation of the SVE system noted above. After operation of the SVE system, soil samples were collected adjacent to the north sump and PCE was not detected above the 0.025 mg/kg reporting limit. The deepest detection of PCE in soil was at a depth of 30 feet bls with a reported concentration of 0.188 mg/kg. TCE and cis-1,2-DCE have not been detected in any soil samples.

At the Kachina Cleaners facility, between 1996 and 2006 20 soil samples were collected between five (5) to 40 feet bls and were analyzed for PCE. PCE was detected in five (5) soil samples at concentrations ranging from 0.0018 to 0.12 mg/kg. PCE was not detected above the GPL and/or SRL for PCE of 1.3 mg/kg & 0.51 mg/kg, respectively (ADEQ (1996) and A.A.C. R18-7, Appendix A). The deepest detection of PCE in soil was at a depth of 17 feet bls with a reported concentration of 0.0018 mg/kg. TCE and cis-1,2-DCE have not been detected in any soil samples.

5.6 DISTRIBUTION AND TRENDS OF GROUNDWATER CONTAMINATION

5.6.1 PCE

Concentrations of PCE in groundwater are generally declining in Site monitor wells since monitoring began in 1992 (Table 4; Appendix E). The current distribution of PCE in groundwater suggests a low-concentration plume remains downgradient of the former Kachina Cleaners and the former Allen's Cleaners with a current maximum groundwater concentration of 20 µg/L (in monitor well AMW-08 located in the source area near Kachina Cleaners) (Figures 5 and 6). PCE was reported at a concentration of 5.4 µg/L in monitor well KMW-01 in May 2014 immediately downgradient of the Kachina Cleaners source area. PCE concentrations in groundwater samples collected from all other wells in 2013 and 2014 were below the ADEQ AWQS for PCE of 5 µg/L. The current lateral and vertical extent of the PCE plume appear to be adequately identified in all directions (Figures 5 and 6).

Monitor wells next to and down gradient of former Allen's Cleaners show that PCE concentrations are highest near the surface of the water table and decrease with depth. When compared to similar data for Kachina Cleaners, PCE concentrations increase with depth. This vertical distribution of PCE in groundwater is consistent with a conceptual model that PCE from the Kachina Cleaners has comeled with PCE from former Allen's Cleaners which has migrated downgradient and vertically downward.

5.6.2 TRICHLOROETHENE (TCE)

Historically, concentrations of TCE in groundwater greater than the AWQS were detected between 1992 and 2004 and only from monitor wells AMW-01, AMW-06 and KMW-01. TCE concentrations have declined significantly between the early 2000's to approximately 2006. TCE has not been detected at or above the AWQS of 5 µg/L since 2004. The highest concentrations of TCE, up to 490 µg/L, were detected at monitor well AMW-01, located immediately downgradient of the former Allen's Cleaners source area. At KMW-01, concentrations of TCE were higher in samples collected approximately 24 feet below the water table than samples collected at the water table. It is also noted that even though TCE concentrations were generally approximately two (2) percent of reported PCE concentrations, a similar decreasing concentration trend is noted (Figure 8). In samples collected at Site monitor wells in 2013 and 2014, TCE in groundwater is limited to a single detection of 1.9 µg/L at AMW-08, which is below the established AWQS of 5 µg/L.

6.0 FATE AND TRANSPORT

6.1 FATE AND TRANSPORT OF TETRACHLOROETHENE AND TRICHLOROETHENE IN SOILS

The fate and transport of PCE and TCE in soil at the Site is largely influenced by the physical and chemical properties of PCE and TCE and the type of subsurface sediments. Processes that primarily affect the mobility of PCE and TCE in soil include dissolution into percolating surface water, sorption, volatilization, and biodegradation.

The Site is underlain by an approximate 25-foot to 40-foot thick vadose zone consisting of interbedded mixed sand, gravel, silt, and clay. Much of the land surface in the vicinity of Kachina Cleaners and the former Allen's Cleaners are covered by asphalt and concrete pavement. Consequently, there appears to be little potential for surface water runoff to infiltrate the surface pavement during and following rainfall events.

Sorption and release from soils is largely dependent on soil type, organic carbon content, temperature, saturation, and salinity. It has been reported that approximately 97 percent of PCE released to the subsurface will undergo sorption in the unsaturated topsoil. Approximately 2 percent of the PCE in the unsaturated topsoil will volatilize into soil vapor. In deeper saturated soils, 26 percent of sorbed mass will leach into the groundwater, and volatilization of dissolved mass back into the soil vapor may occur. Small amounts of anaerobic microbial degradation may also occur in the unsaturated zone (U.S. Air Force, 1989).

The CSM assumes that releases of PCE have occurred in the past, as suggested by the presence of PCE historically detected in soil. The localized high concentrations of PCE in groundwater may have migrated downward through the entire vadose zone thickness existing at that time, reached the capillary fringe, and possibly passed through the capillary fringe into the unconfined aquifer. The less permeable sediments in the then unsaturated zone (i.e., silty clays and clayey silts) may have caused the PCE to adsorb onto the fine-grained sediments and/or were trapped in soil pores surrounded by water, thus leaving some residual PCE in the vadose zone and/or the capillary fringe. In addition, the water levels have declined approximately 20 feet since the late 1990's. As the groundwater elevation in AMW-01 decreased, the concentration of PCE decreased from over 20,000 µg/L to less than 20 µg/L.

It is possible that the observed decreasing PCE concentration trend in groundwater is due to losing contact with any remaining residual PCE adsorbed to soil particles or trapped in soil pores between soil particles in the historical capillary fringe as the water table continued to fall. However, if this were the cause of decreasing groundwater concentrations, elevated soil vapor concentrations would be expected as well; the magnitude of recent soil vapor concentrations do not suggest the presence of residual localized high concentrations of PCE in the vadose zone.

TCE is used in the dry cleaning operations as a pre-cleaning or spotting agent and is also a degradation product of PCE. The CSM assumes that the presence of TCE may be the result of minor releases, degradation of PCE, and or a combination of the two. In the soil at the Site TCE may be transported as a dissolved component of vadose zone moisture down to the groundwater. The presence of less permeable soils in the unsaturated zone may cause TCE to adsorb onto the fine-grained sediments and/or were trapped in soil pores surrounded by water, thus leaving some residual TCE in the vadose zone and/or the capillary fringe. In addition, water levels at the Site have declined approximately 20 feet since the late 1990's, and the concentration of TCE in AMW-01 has decreased from 230 µg/L to less than 1 µg/L. It is possible that the observed decreasing TCE concentration trend in groundwater is due to losing contact with the residual TCE adsorbed to soil particles or trapped in soil pores between soil particles in the historic capillary fringe as the water table continues to decline.

6.2 FATE AND TRANSPORT OF TETRACHLOROETHENE AND TRICHLOROETHENE IN GROUNDWATER

Empirical data indicate that the original localized high concentrations of PCE released to the subsurface at the Site has undergone at least some phase transfer, thus resulting in the presence of dissolved-phase PCE in the VOC-impacted aquifer. The highest observed concentrations of dissolved phase PCE in samples from Site monitor wells have been detected in samples from monitor wells AMW-01, AMW-05, AMW-06 and KMW-01. The high concentration of PCE detected in groundwater sampled from monitor well AMW-01 (37,000 µg/L) and AMW-06 (2,300 µg/L), suggests that these wells are located near a PCE release source (as previously discussed in Section 6.3).

The fate and transport of PCE and TCE as dissolved compounds is controlled by a number of physical, chemical, and biological processes that are briefly described below. Processes that primarily affect the mobility of dissolved compounds in groundwater include advection, dispersion, diffusion, sorption, and biodegradation.

6.2.1 Advection

Advection is the process whereby constituents dissolved in groundwater are transported along with the flowing groundwater. Although it is the most easily understood of the transport processes, it must be evaluated within the context of two main considerations. First, what portion of the fluid in the porous media can be mobilized, and second, what is the true velocity of the groundwater through the porous media. For porous media with relatively high hydraulic conductivities, such as sands, advection is the primary transport mechanism for dissolved constituents.

The rate of groundwater flow is determined based on the hydraulic conductivity of the sediments, the effective porosity of the sediments, and the hydraulic gradient. The horizontal hydraulic conductivity of the UAU at the Site is estimated to range between 1.3 foot/day to 67 feet/day (Earth Tech, 1995; SECOR, 2007b; ADWR, 2009). Published values of total porosity for the types of sediment observed at the Site (silt, mixed sand, and gravel) range from 20 to 50 percent (Fetter, 1994). The effective porosity of the sediments is the pore space through which groundwater moves. The effective porosity is less than the total porosity of the soil, for the purposes of this report it was assumed that effective porosity was approximately 80 percent of total porosity (16 to 40 percent). The historical hydraulic gradient is estimated to range from 0.005 to 0.008. Based on these hydraulic properties, groundwater is estimated to flow west/southwest at a rate of approximately 0.02 foot/day to 3.4 feet/day, with PCE possibly transported via advective processes.

6.2.2 Dispersion and Diffusion

Contaminant plumes tend to spread laterally and longitudinally as they migrate downgradient within the groundwater due to several mixing processes that cause dispersion of the contaminant. Dispersion processes operate both at the pore scale and at the field scale due to variations in pore size and configuration and field scale heterogeneity in hydraulic conductivity. Differences in hydraulic conductivity are a function of the different types of sediment and also may be related to vertical stratification or channel-related deposition of sediments.

Diffusion is a transport process where dissolved constituents migrate from areas of high concentration to areas of low concentration. Diffusion will occur as long as a concentration gradient exists, even when groundwater is not moving. For porous media with relatively low hydraulic conductivities, such as clays, diffusion is the primary transport mechanism for dissolved constituents.

The degree to which dissolved constituents diffuse into low conductivity zones, such as clays, is often a function of how long the constituents have been present in the subsurface.

Conversely, removal of dissolved constituents from low conductivity zones may be limited by the rate at which these constituents can diffuse out of the low conductivity zones.

Dispersion can be measured by injecting a tracer and measuring the concentration at different points over time. However, at most sites (including the subject Site) this kind of testing is not conducted due to the time and effort required to set up a tracer test and because dispersion can vary spatially.

6.2.3 Sorption

As groundwater flows through porous media, dissolved constituents in the groundwater may undergo sorption processes including: adsorption, chemisorption, absorption, and ion exchange (Fetter, 1994). These sorption processes tend to slow the rate at which dissolved constituents travel through the porous media relative to the average linear velocity of groundwater. The phenomenon is termed retardation, and the ratio of the average linear groundwater velocity to the velocity of the dissolved constituent is called the retardation factor. The partitioning of a dissolved constituent between the dissolved phase and solid surfaces is dependent on the chemical properties of the dissolved constituent, the amount of sorbing material present in the aquifer matrix, and the concentration of the dissolved constituents.

Adsorption is the process whereby dissolved constituents cling to a solid surface. Hydrophobic organic compounds adsorb to organic carbon present in the aquifer matrix. The more hydrophobic a compound is, the greater the affinity it has for organic carbon. In general semi-volatile organic compounds/polycyclic aromatic hydrocarbons have a greater affinity for sorption than many VOCs. Total organic carbon (TOC) was measured in nine (9) soil samples collected at depths ranging from 48 to 116 feet bls (SECOR, 2008). TOC ranged from 0.1% to 1.1% of the total weight of sample. Absorption occurs when the aquifer materials are porous enough for dissolved constituents to diffuse into and/or on the particles associated with the sediments and be sorbed onto the interior and exterior surfaces of the particles.

Sorption processes may be reversible or non-reversible. For reversible sorption, the net effect of the sorption process is to slow the movement of dissolved constituents and the total mass of the dissolved constituent in the system does not decrease.

6.2.4 Biodegradation

Biodegradation is the process whereby organic compounds are biologically degraded to other compounds, usually by microorganisms. The process by which intrinsic microbial metabolism or co-metabolism by indigenous microorganisms within the subsurface results in a chemical or biological transformation of contaminants, and a corresponding reduction of contaminant mass, is called "intrinsic biodegradation". The microorganisms break down the organic compound into different chemical components. Biodegradation may also cause conversion of organic compounds to inorganic compounds. This process is termed mineralization.

Biodegradation rates are highly variable. Biodegradation rates are affected in part by the concentration of the organic compound; the types and number of organisms present; the presence of other compounds; the presence of oxygen; the oxidation-reduction potential; temperature; pH; salinity; composition of the aquifer matrix; and the quantity and quality of nutrients in the aquifer (Weed and Weber, 1974; Kobayashi and Rittman, 1982; Verschueren, 1983; Cheng and Koskinen, 1986).

Biological transformations result in a reduction in the mass of the dissolved constituent being degraded. However, daughter products may be formed which may have different mobility and toxicity characteristics than the parent constituent.

Persistence of PCE in the environment, under all but the most favorable conditions (e.g., high availability of electron donors, anaerobic environment, suitable and robust microbial population, etc.), can be measured in terms of decades. PCE is degraded anaerobically through a process known as reductive dechlorination. Reductive dechlorination is an oxidation-reduction reaction whereby electrons are transferred from a donor (e.g., reduced organic substrate) to a chlorinated hydrocarbon acceptor, thus resulting in the replacement of a chlorine atom on the VOC molecule with a hydrogen atom (Vogel and Criddle, 1987). Under optimal conditions, this process can proceed until all of the chlorine atoms are removed. As this occurs, PCE is dechlorinated in the order of PCE~ trichloroethene (TCE)~ cis-1,2-dichloroethene (DCE)~ vinyl chloride~ ethene (Vogel and McCarty, 1985). It should be noted that, following the reductive dechlorination of PCE to TCE, further degradation may occur either

aerobically or anaerobically. The efficiency of the PCE bioremediation process is difficult to measure due to such physical processes as adsorption/desorption, advection, mixing, and dispersion. The presence of degradation daughter products in groundwater, and (to a lesser extent) in subsurface soil, is an industry-standard indicator that biodegradation is occurring.

If PCE were being anaerobically biodegraded to TCE, the TCE concentrations would be expected to increase as the PCE concentrations decreased, and likewise, as TCE biodegrades to cis-1,2-DCE. TCE and cis-1,2-DCE have not been regularly detected in monitor wells at the Site (Table 4). Therefore, there does not appear to be any evidence that biodegradation is occurring in the UAU at the Site.

7.0 RISK EVALUATION

7.1 ROUTES OF EXPOSURE

Migration or "exposure" pathways are routes potentially taken by contaminants from the Site as they migrate away from the sources through the environmental media to potential environmental receptors. An exposure pathway is incomplete if any of the following elements is missing (American Society for Testing and Materials, 2003):

- A mechanism of contaminant release from primary or secondary sources;
- A transport medium, if potential environmental receptors are not located at the source; and/or
- A point of potential contact between environmental receptors and the contaminated medium.

Possible migration pathways for a given site might include groundwater, surface water, air, sediment, soils, and biological transport. Descriptions of each of the potential migration pathways are discussed below.

7.1.1 Groundwater

Given the current depth to groundwater (approximately 40 to 50 feet bgs), human receptor contact is improbable. However, a potential groundwater pathway could be established if active groundwater supply wells in the vicinity of the Site were to pump PCE-impacted groundwater to the surface, such as the SRP wells supplying water to the canals for irrigation in the ECP WQARF area. This type of pathway could create a transport mechanism that may allow human receptors located in residential/business communities nearby or served by these supply wells to come in contact with PCE- and or TCE-impacted groundwater.

7.1.2 Surface Water

There are no natural surface water bodies within a 0.75 mile radius of the former Allen's Cleaners and Kachina Cleaners sites. Surface water impacts resulting from facility dry cleaning solvent releases is improbable. However, the ECP Site area irrigation is supplied by the SRP through the lateral canal system which connect to the Arizona and Grand Canals. The canal water is supplied by groundwater pumped from SRP wells (Appendix F).

This type of pathway could create a transport mechanism that may allow human receptors located in residential/business communities nearby or served by canal irrigation to come in contact with PCE-impacted groundwater.

7.1.3 Air

Migration of PCE and or TCE by the air pathway is possible, given their high potential for volatilization from liquid to gas. Given that the Site is covered by asphalt or concrete, a direct exposure pathway from soil gas to potential receptors is improbable and, therefore, considered incomplete. However, a direct exposure pathway could be created if excavation is conducted at the Site or if excavated materials are inadequately containerized pending their proper disposal. An air (soil gas) pathway could still be created if properties adjacent to either the former Allen's Cleaners or the Kachina Cleaners build subgrade structures (i.e., basements, underground parking, and subgrade vaults). Volatilized PCE or TCE then could migrate via soil gas and concentrate in these structures, possibly creating an atmosphere resulting in acute or chronic health affects to human receptors.

7.1.4 Soil and Sediments

PCE-impacted soil has been documented at the Site. A PCE pathway from soil to groundwater has been established as detectable concentrations of PCE in groundwater have been identified. Given that the majority of the Site is covered by asphalt or concrete, a direct exposure pathway from residual high concentrations of PCE adsorbed on soil particles or trapped in pore spaces between soil particles to potential receptors, is incomplete. A direct exposure pathway could be created if excavation is conducted at the Site or if excavated investigative derived waste is inadequately containerized pending proper disposal.

Sediment transport can occur via surface erosion and wind. Most of the Site is covered with asphalt pavement or concrete, thereby forming a barrier between the sediment and potential human receptors. However, there are small portions of the Site that are not covered by pavement or concrete. Where these unpaved areas are within a contaminated zone, they are susceptible to surface erosion and transport of contaminated sediments. Disturbance of sediment within such areas could establish a direct exposure pathway.

7.1.5 Biota

Biota transport can occur if contaminated groundwater is used in agricultural or livestock practices. There are no operational production wells within a 1,000-foot radius of the Site. Therefore, the biota exposure pathway is incomplete.

7.2 POTENTIAL RECEPTORS

Potential receptors include human and ecological receptors. A description of each of these receptors is discussed below.

7.2.1 Human Receptors

The Site is located in a mixed residential/business district. The nearest residential housing is located approximately 50 feet from both Kachina Cleaners and former Allen's Cleaners. Potential human receptors in the vicinity of the Site include offsite residential populations, site workers, and site visitors. No registered potable or non-potable water wells are located within a 1,000-foot radius of the Site. While unlikely, it is possible for onsite workers and/or visitors to be exposed to PCE- and or TCE-impacted media (soil, groundwater, and investigative derived waste) at the facilities. Site workers and visitors may be exposed to contaminants through dermal contact or ingestion of contaminated soil/groundwater and/or inhalation of contaminant vapors if any vapors or contaminants remain in soil pores or adhered to the soil.

7.2.2 Ecological Receptors

The Site is located in an urban, residential/business district. The properties are mostly covered with asphalt or bare soil. Typical plants in the area are ornamental and native species used for landscaping at business and residential properties. Normal ecological receptors are not considered a factor.

7.3 CURRENT AND FORESEEABLE FUTURE USES OF LAND AND WATER

The land and water uses described in the Land and Water Use Report (Appendix F) most likely to be relevant to the discussion of remedial objectives are presented below.

7.3.1 Land Use

The zoning pattern in the area has been long established and there are no foreseeable changes for the future. Land uses for the Site are expected to remain predominantly residential and commercial.

7.3.2 Groundwater Use

The COP and SRP pump groundwater as needed when surface water supplies cannot meet their customer needs. Current and future groundwater uses within the Site include the following:

- The most accessible alternate water source for COP is local groundwater. The COP currently has no plans to develop groundwater within the Site but will consider the Site area for well development in the future. Therefore, the potential exists for the COP to install future municipal wells within the Site or within one mile of the Site plumes.
- While there are no SRP wells in the immediate vicinity of the Site, SRP operates and maintains seven (7) irrigation wells within one-mile of the 40th Street and Indian School Road Site (Appendix F).

ADWR 55-Registry No.	SRP Well No.
55-202398	18.6E-7.6N
55-607672	17.5E-7N
55-607731	17.1E-7.4N
55-608431	17E-8N
55-617825	18E-8.8N
55-617857	17.9E-7.5N
55-607748	19E-8.1N

The last groundwater sample collected from SRP well 17E-8N in June 2011 contained PCE at a concentration of 2.2 µg/L, and in April 2013, SRP reported PCE at a concentration of 3 µg/L in well 17.9E-7.5N (Elliott, 2014). Groundwater quality data collected from these wells indicates that PCE concentrations attributed to the Site in these two SRP wells are below the AWQS of 5 µg/L. Groundwater pumpage at these wells has been intermittent in the recent past, but the wells can potentially be activated.

- SRP will continue to need the irrigation wells in the Site area to be operational to supplement surface water supplies. SRP has indicated that they may change water usage from irrigation to drinking water within the foreseeable future to accommodate COP needs.

7.3.3 Surface Water Use

Currently, surface water uses within the Site are for residential irrigation and they are likely to remain as such in the future.

8.0 SUMMARY AND CONCLUSIONS

RI activities at the Site included soil sampling, vapor sampling, and installation of additional groundwater monitor wells and groundwater characterization. Results of RI activities have been used to further characterize and reasonably identify the approximate lateral and vertical extent of VOCs in groundwater. PCE has been identified as the COC at the Site, however, TCE has historically been present in Site media. RI activities conducted in 2013 and 2014 included the monitoring of 15 existing groundwater monitor wells and the installation and monitoring of ten (10) additional paired groundwater monitor wells at five (5) locations downgradient of the Kachina Cleaners facility and the former Allen's Cleaners.

In 2013 and 2014 PCE was detected in samples from six (6) of 23 monitor wells. PCE concentrations ranged from 1.0 µg/L to 20 µg/L. PCE concentrations detected above the AWQS of 5 µg/L were reported in samples collected from monitor wells AMW-08 and KMW-01. Of note are the following:

- At monitor well AMW-08, PCE concentrations greater than the AWQS were observed in samples collected from depths of 49.6 feet to 54 feet bls, which corresponds to approximately 2 to 7 feet below the water table.
- Samples collected at 58.3 feet bls in monitor well AMW-08 (approximately 11 feet below the water table) were slightly below the AWQS.
- At KMW-01, concentrations above the AWQS were reported in a sample collected from a depth of 50.5 bls, corresponding to 2 feet below the water table.
- Samples collected at 55.5 feet bls in KMW-01 (or approximately 7 feet below the water table) were slightly below the AWQS.
- PCE was not detected in any of the monitor wells installed in 2013 and 2014 (KMW-03A/B through KMW-07A/B).

The horizontal extent of PCE above the AWQS has been identified in an area downgradient of the former Allen's Cleaners, extending beneath and slightly downgradient of Kachina Cleaners. The maximum PCE groundwater concentration was detected at 20 µg/L in AMW-08 (Figure 7). PCE above the AWQS extends vertically from the water table surface to 11 feet below the water table.

In 2013 and 2014 TCE was detected only in one monitor well at a concentration of 1.9 µg/L; TCE has not been detected at or above the AWQS of 5 µg/L since 2004.

The declining concentration trends observed in groundwater and soil vapor and the stability of the current plume configuration are likely the result of attenuation mechanisms such as sorption, dilution, volatilization, dispersion and/or biodegradation and remedial efforts. Due to the minimal amount of PCE remaining in the subsurface, no further remedial action is recommended at this time. However, the following activities are recommended:

- Site groundwater monitor wells remain in the ECP WQARF well network to be monitored on a quarterly basis to provide water level data and to verify the continued attenuation of PCE and TCE in the subsurface.
- Soil vapor from all site wells be monitored semi-annually for the next fiscal year to verify concentrations in the vadose zone remain at a depressed level.

8.1 DATA GAPS

Based on the data obtained from the RI and previous investigations, the following data gap has been identified:

- With the recent slight increase in chemical concentrations in groundwater, additional source investigation is needed to determine whether a continuing source still exists and is impacting groundwater concentrations. The current groundwater and soil vapor monitor well network appears to be sufficient to assess this question.

8.2 REMEDIAL OBJECTIVES

In accordance with A.A.C. R18-16-406(I) and A.A.C. R18-16-406(J), the ADEQ held a public meeting to obtain information for purposes of establishing remedial objectives for the site during the CAB meeting held at Arcadia High School on February 5, 2015. Following the community involvement activities regarding the remedial investigation report and the proposed ROs report, a final remedial investigation report was prepared containing the results of the site characterization and the Remedial Objectives Report which is included in Appendix G.

8.3 REMEDIAL OBJECTIVES RESPONSIVENESS SUMMARY

Pursuant to the requirements of the A.C.C. R18-16-406(I), the ADEQ has prepared this comprehensive responsiveness summary for comments received on the ROs for the 40th Street and Indian School Road WQARF Site, Phoenix, Arizona. Two oral comments and no written comments were received on the ROs during the CAB meeting held at Arcadia High School on February 5, 2015. The RO Responsiveness Summary for the site is included in Appendix H.

8.4 REMEDIAL INVESTIGATION RESPONSIVENESS SUMMARY

Pursuant to the requirements of the A.C.C. R18-16-406(H), the ADEQ has prepared this comprehensive responsiveness summary for comments received on the Draft Remedial Investigation Report, 40th Street and Indian School Road WQARF Site, Phoenix, Arizona dated November 25, 2014, after being available for a 60-day period of public review and comment. No comments were received for this report. The RI Responsiveness Summary for the site is included in Appendix I.

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HARGIS + ASSOCIATES, INC.

TABLES

TABLE 1
WELL CONSTRUCTION DATA

Well Identifier	Casing Identifier	Well Type	ADWR Reg. #	Date Completed	Drilling Method	Boring Diameter (inches)	Boring Depth (ft bgs)	Casing Material/ Diameter/ Slot Size (inches)	Perforated Interval (ft bgs)	Sand Pack Interval (ft bgs)	Filter Pack Material	Bentonite Seal (ft bgs)	Current Top of Casing Elevation ⁽¹⁾ (ft amsl)	Ground Surface Elevation ⁽¹⁾ (ft amsl)	Comments
AMW-01	na	MW	533299	4/7/92	H.S.A.	10.25	60	PVC / 4 / 0.010	20 - 60	19 - 60	#10-20 Sand	16 - 19	1212.27	1212.71	
AMW-02	na	MW	535791	6/28/92	H.S.A.	10	61	PVC / 4 / 0.010	20 - 60	18.5 - 61	#10-20 Sand	15.5 - 18.5	1213.49		
AMW-03	na	MW	535793	6/30/92	H.S.A.	10	66	PVC / 4 / 0.010	25 - 65	23 - 65	#10-20 Sand	20 - 23	1200.42		
AMW-04	na	MW	560710	4/22/97	AIR	8	101	PVC / 4 / 0.010	80 - 100	77 - 101	#10-20 Sand	74 - 77	1212.23	1212.8	
AMW-05	na	MW	560712	--	--	--	--	PVC / 4 / 0.020	30 - 50	--	#3 Sand	--	1212.39		
AMW-06	na	MW	560711	--	--	--	--	PVC / 4 / 0.020	30 - 50	--	#3 Sand	--	1211.97		
AMW-07	na	MW	560713	8/28/97	H.S.A.	--	52	PVC / 4 / 0.020	30 - 50	--	--	--	1211.81		
AMW-08	na	MW	598110	6/5/03	H.S.A.	8	70	PVC / 4 / 0.020	20 - 60	15 - 63	--	10 - 15	1210.22		
AMW-09	A	MW	908368	4/7/08	H.S.A.	10	76	PVC / 4 / 0.020	30 - 75	25 - 76	#8/12 Sand	20 - 25	1207.25		
	B	MW	907365	12/18/07	Sonic	8	105.3	PVC / 2 / 0.020	80 - 105	76 - 106	#8/12 Sand	70 - 76	1207.18		Nested
	C	MW	907365	12/18/07	Sonic	8	145	PVC / 2 / 0.020	115 - 140	111 - 145	#8/12 Sand	106 - 111	1207.15		Nested
AMW-10	A	MW	909055	5/21/08	H.S.A.	10	106	PVC / 2 / 0.020	35 - 70	30 - 70	#8/12 Sand	25 - 30	1210.8		Nested
	B	MW	908612	5/21/08	H.S.A.	10	106	PVC / 2 / 0.020	80 - 105	75 - 106	#8/12 Sand	70 - 75	1210.42		Nested
KMW-01	na	MW	543425	5/10/94	H.S.A.		60	PVC / 2 / 0.020	20 - 60	18 - 60	#3 Sand	16 - 18	1209.07		
KMW-02	na	MW	904765	5/7/06	H.S.A.	8	65	PVC / 2 / -	25 - 65	22 - 65	--	20 - 22	1208.83		Nested - Vadose Well 10-20 ft
KMW-03	A	MW	916786	5/2/14	Sonic	8.625 6.0	75.5 77.0	PVC / 4 / 0.020	39.8 - 74.8	37.5 - 76.5	#10-20 Sand	32.2 - 37.5	1208.300	1208.795	Slough: 76.5 - 77.0 ft
	B	MW	916787	5/1/14	Sonic	8.625 6.0	125.5 127.0	PVC / 4 / 0.020	84.5 - 124.5	80.8 - 126.8	#10-20 Sand	75.2 - 80.8	1208.285	1208.805	Slough: 126.3 - 127.0 ft
KMW-04	A	MW	916208	2/20/14	Sonic	8.625 6.0	70.0 73.0	PVC / 4 / 0.020	45.4 - 70.4	41.3 - 72.2	#10-20 Sand	39.0 - 41.3	1202.43	1202.90	Slough: 72.2 - 73.0 ft
	B	MW	916209	2/19/14	Sonic	8.625 6.0	120.0 127.0	PVC / 4 / 0.020	80.9 - 120.9	78.5 - 125.5	#10-20 Sand	75.9 - 78.5	1202.47	1202.95	Slough: 125.5 - 127.0 ft
KMW-05	A	MW	901210	2/12/14	Sonic	8.625 6.0	70.0 72.0	PVC / 4 / 0.020	39.5 - 69.5	36.0 - 71.0	#10-20 Sand	33.6 - 36.0	1202.75	1203.29	Slough: 71.0 - 72.0 ft
	B	MW	916211	2/11/14	Sonic	8.625 6.0	120.0 122.0	PVC / 4 / 0.020	80.1 - 120.1	74.7 - 120.5	#10-20 Sand	68.6 - 74.7	1202.71	1203.25	Slough: 120.5 - 122.0 ft
KMW-06	A	MW	916212	2/2/14	Sonic	8.625 7.125	70.0 70.5	PVC / 4 / 0.020	39.6 - 69.6	37.0 - 70.5	#10-20 Sand	34.2 - 37.0	1200.69	1201.09	
	B	MW	916213	2/1/14	Sonic	8.625 7.125	120.0 123.0	PVC / 4 / 0.020	84.6 - 119.6	82.5 - 123.0	#10-20 Sand	77.0 - 82.5	1200.70	1201.07	
KMW-07	A	MW	916206	1/29/14	Sonic	8.625	70.3	PVC / 4 / 0.020	39.5 - 69.5	35.2 - 70.3	#10-20 Sand	32.0 - 35.2	1200.44	1200.96	
	B	MW	916207	1/28/14	Sonic	8.625 7.125	119.0 124.3	PVC / 4 / 0.020	79.7 - 119.7	76.3 - 121.1	#10-20 Sand	71.1 - 76.3 121.1 - 124.3	1200.48	1200.98	Bentonite Seal 121.0 - 124.3 ft

NOTES:

(1) = NGVD29
PVC = Polyvinyl chloride
ft bgs =feet below ground surface
ft amsl =feet above mean sea level

Sonic =Rotosonic drilling method
- =not applicable
MW =groundwater monitor well
AIR = Air Percussion

NA =not available
H.S.A. = Hollow stem auger drilling method
WQARF =Water Quality Assurance Revolving Fund
ADWR =Arizona Department of Water Resources

TABLE 2
HISTORICAL GROUNDWATER ELEVATIONS

Well Identifier (Screen Interval)	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet bls)	Water Level Elevation (feet msl)	Notes
AMW-01 (20-60 ft bls)	04/21/92	1212.30	31.47	1180.83	
	05/22/92		31.12	1181.18	
	07/02/92		30.65	1181.65	
	08/11/92		29.93	1182.37	
	01/20/94		27.08	1185.22	
	12/16/94		27.65	1184.65	
	03/28/96		28.19	1184.11	
	02/20/97		28.49	1183.81	
	03/10/97		28.75	1183.55	
	04/14/97		29.06	1183.24	
	05/08/97		29.25	1183.05	
	09/05/97	1212.27	28.39	1183.88	1
	11/20/97		27.97	1184.30	
	12/17/97		28.13	1184.14	
	01/17/98		28.15	1184.12	
	02/05/98		28.65	1183.62	
	03/02/98		28.38	1183.89	
	03/21/02		33.87	1178.40	
	05/03/02		34.24	1178.03	
	09/04/02		34.70	1177.57	
	11/18/02		34.59	1177.68	
	02/19/03		35.85	1176.42	
	05/20/03		36.68	1175.59	
	12/10/03		38.29	1173.98	
	03/30/04		39.55	1172.72	
	10/12/04		41.86	1170.41	
	03/22/05		43.55	1168.72	
	10/06/05		41.63	1170.64	
	03/14/06		42.55	1169.72	
	10/27/06		40.99	1171.28	
	02/26/07		42.29	1169.98	7
	04/11/07		42.85	1169.42	
	06/22/07		44.06	1168.21	
	09/26/07		43.98	1168.29	
	04/09/08		44.75	1167.52	
	10/01/08		42.70	1169.57	
	05/09/11		45.40	1166.87	
	01/30/13		46.86	1165.41	
	09/30/13		47.11	1165.16	
	05/03/14		48.33	1163.94	
AMW-02 (20-60 ft bls)	07/02/92	1213.59	30.89	1182.70	
	08/10/92		30.21	1183.38	
	01/19/94		27.24	1186.35	
	02/03/94		27.47	1186.12	
	12/16/94		27.83	1185.76	
	03/21/96		28.35	1185.24	
	02/20/97		28.65	1184.94	
	03/10/97		28.87	1184.72	
	04/14/97	1213.49	29.22	1184.27	
	05/07/97		29.44	1184.05	
	09/05/97		28.50	1184.99	1
	11/18/97		28.12	1185.37	
	12/17/97		28.34	1185.15	
	01/07/98		28.27	1185.22	
	02/03/98		28.65	1184.84	
	03/02/98		28.18	1185.31	
	03/21/02		34.06	1179.43	
	05/02/02		34.39	1179.10	
	09/04/02		34.84	1178.65	
	11/18/02		34.78	1178.71	
	02/19/03		35.96	1177.53	
	05/20/03		36.81	1176.68	
	12/10/03		38.43	1175.06	
	03/30/04		39.66	1173.83	
	10/12/04		41.94	1171.55	
	03/22/05		43.34	1170.15	
AMW-02 (cont'd)	10/06/05	1213.49	NM	NM	

TABLE 2
HISTORICAL GROUNDWATER ELEVATIONS

Well Identifier (Screen Interval)	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet bls)	Water Level Elevation (feet msl)	Notes
(20-60 ft bls)	03/15/06	1200.42	42.41	1171.08	7
	10/27/06		40.86	1172.63	
	02/26/07		42.12	1171.37	
	04/11/07		42.78	1170.71	
	06/22/07		43.92	1169.57	
	09/26/07		43.85	1169.64	
	04/09/08		44.46	1169.03	
	10/01/08		42.58	1170.91	
	01/30/13		46.76	1166.73	
	09/30/13		47.02	1166.47	
AMW-03 (20-60 ft bls)	05/03/14		48.22	1165.27	Roots detected at 44 feet
	08/10/92	1200.42	23.30	1177.12	
	01/18/94		20.55	1179.87	
	12/12/94		21.22	1179.20	
	03/29/96		21.94	1178.48	
	02/20/97		22.27	1178.15	
	03/11/97		22.34	1178.08	
	04/14/97		22.58	1177.84	
	05/06/97		22.70	1177.72	
	11/17/97		21.80	1178.62	
	12/17/97		22.00	1178.42	
	01/07/98		21.93	1178.49	
	02/02/98		22.34	1178.08	
	03/02/98		21.89	1178.53	
	03/21/02		27.86	1172.56	
	09/04/02		28.80	1171.62	
	06/22/07		NM	NM	
	09/26/07		NM	NM	
	04/09/08		37.75	1162.67	
	10/01/08		35.84	1164.58	
	01/19/09		36.66	1163.76	
	11/15/10		37.01	1163.41	
	05/09/11		38.28	1162.14	
	10/19/11		38.12	1162.30	
	04/18/12		39.26	1161.16	
	01/30/13		39.67	1160.75	
	09/30/13		39.73	1160.69	
	05/03/14		41.11	1159.31	
AMW-04 (80-100 ft bls)	09/05/97	1212.23	28.39	1183.84	7
	03/21/02		33.91	1178.32	
	05/02/02		34.26	1177.97	
	09/04/02		34.72	1177.51	
	11/18/02		34.60	1177.63	
	02/19/03		35.87	1176.36	
	05/20/03		36.70	1175.53	
	12/10/03		38.32	1173.91	
	03/30/04		39.58	1172.65	
	10/12/04		41.88	1170.35	
	03/22/05		43.40	1168.83	
	10/06/05		NM	NM	
	03/14/06		42.32	1169.91	
	10/27/06		40.76	1171.47	
	02/26/07		42.06	1170.17	
	04/11/07		42.68	1169.55	
	06/22/07		43.87	1168.36	
	09/26/07		43.76	1168.47	
	04/09/08		44.42	1167.81	
	10/01/08		42.52	1169.71	
	01/30/13		46.66	1165.57	
	09/30/13		46.89	1165.34	
	05/03/14		48.08	1164.15	

TABLE 2
HISTORICAL GROUNDWATER ELEVATIONS

Well Identifier (Screen Interval)	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet bls)	Water Level Elevation (feet msl)	Notes
AMW-05 (30-50 ft bls)	09/05/97	1212.39	28.46	1183.93	
	03/21/02		33.85	1178.54	3
	05/03/02		34.27	1178.12	6
	09/04/02		34.71	1177.68	
	11/18/02		34.61	1177.78	
	02/19/03		35.85	1176.54	
	05/20/03		36.68	1175.71	
	12/10/03		38.3	1174.09	
	03/30/04		39.57	1172.82	
	10/12/04		40.86	1171.53	
	03/22/05		40.85	1171.54	
	10/06/05		41.14	1171.25	
	03/14/06		NM	NM	Insufficient water. Not sampled.
	10/27/06		40.78	1171.61	
	02/26/07		41.02	1171.37	Insufficient water. Not sampled.
	04/11/07		40.91	1171.48	7
	06/22/07		40.92	1171.47	
	09/26/07		41.08	1171.31	Insufficient water. Not sampled.
	04/09/08		41.08	1171.31	Insufficient water. Not sampled.
	10/01/08		41.56	1170.83	Insufficient water. Not sampled.
	01/30/13		Dry >41.9	<1170.49	Obstruction at 41.90 feet
	09/30/13		Dry >41.9	<1170.49	Obstruction at 41.90 feet
	05/03/14		Dry	<1170.49	
AMW-06 (30-50 ft bls)	09/05/97	1211.97	28.22	1183.75	
	03/21/02		NM	NM	4
	05/02/02		34.12	1177.85	
	09/04/02		34.58	1177.39	
	11/18/02		34.38	1177.59	
	02/19/03		35.72	1176.25	
	05/20/03		36.54	1175.43	
	12/10/03		38.15	1173.82	
	03/30/04		39.42	1172.55	
	10/12/04		41.73	1170.24	
	03/22/05		42.99	1168.98	
	10/06/05		41.32	1170.65	
	03/14/06		42.24	1169.73	
	10/27/06		40.69	1171.28	
	02/26/07		41.99	1169.98	
	04/11/07		NM	NM	Unable to open well cover.
	06/22/07		43.75	NM	
	09/26/07		43.67	1168.30	
	04/09/08		44.32	1167.65	
	10/01/08		42.39	1169.58	
	01/30/13		46.55	1165.42	PDB cable in well; tied to SVE-7?
	09/30/13		46.78	1165.19	
	05/03/14		48.00	1163.97	
AMW-07 (30-50 ft bls)	09/05/97	1211.81	28.13	1183.68	
	03/21/02		NM	NM	5
	05/02/02		34.18	1177.63	6
	09/04/02		34.63	1177.18	
	11/18/02		34.44	1177.37	
	02/19/03		35.79	1176.02	
	05/20/03		36.60	1175.21	
	12/10/03		38.20	1173.61	
	03/30/04		39.47	1172.34	
	10/12/04		41.75	1170.06	
	03/22/05		43.30	1168.51	
	10/06/05		41.41	1170.40	
	03/14/06		42.35	1169.46	
	10/27/06		40.80	1171.01	
	02/26/07		42.08	1169.73	
	04/12/07		42.68	1169.13	7
	06/22/07		43.83	1167.98	
	09/26/07		43.79	1168.02	
	04/09/08		44.43	1167.38	
AMW-07 (cont'd)	10/01/08	1211.81	42.49	1169.32	

TABLE 2
HISTORICAL GROUNDWATER ELEVATIONS

Well Identifier (Screen Interval)	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet bls)	Water Level Elevation (feet msl)	Notes
(30-50 ft bls)	01/30/13	1210.22	46.42	1165.39	8
	10/01/13		46.50	1165.31	
	05/03/14		46.69	1165.12	
AMW-08 (20-60 ft bls)	06/13/03	1210.22	37.00	1173.22	7
	12/10/03		38.05	1172.17	
	03/30/04		39.33	1170.89	
	10/12/04		41.69	1168.53	
	03/22/05		43.23	1166.99	
	10/06/05		41.21	1169.01	
	03/14/06		42.18	1168.04	
	10/27/06		40.59	1169.63	
	02/26/07		41.91	1168.31	
	04/11/07		42.51	1167.71	
	06/22/07		43.74	1166.48	
	09/26/07		43.58	1166.64	
	04/09/08		44.30	1165.92	
	10/01/08		42.31	1167.91	
	11/15/10		43.37	1166.85	
	05/09/11		44.99	1165.23	
	01/30/13		46.41	1163.81	
	09/30/13		46.63	1163.59	PDB cable in well
	05/03/14		47.80	1162.42	
AMW-09A (30-75 ft bls)	04/09/08	1207.25	44.78	1162.47	Roots detected at 45 feet
	10/01/08		42.71	1164.54	
	01/30/13		46.76	1160.49	
	09/30/13		46.93	1160.32	
	05/03/14		48.20	1159.05	
AMW-09B (80-105 ft bls)	04/09/08	1207.18	44.74	1162.44	PDB cable in well
	10/01/08		42.68	1164.50	
	01/30/13		46.73	1160.45	
	09/30/13		46.88	1160.30	
	05/03/14		48.18	1159.00	
AMW-09C (115-140 ft bls)	04/09/08	1207.15	44.70	1162.45	PDB cable in well
	10/01/08		42.61	1164.54	
	01/30/13		46.69	1160.46	
	09/30/13		46.84	1160.31	
	05/03/14		48.15	1159.00	
AMW-10A (35-70 ft bls)	06/03/08	1210.80	43.96	1166.84	
	10/01/08		42.47	1168.33	
	01/30/13		46.62	1164.18	
	09/30/13		46.84	1163.96	
	05/03/14		48.07	1162.73	
AMW-10B (80-105 ft bls)	06/03/08	1210.42	43.67	1166.75	
	10/01/08		42.19	1168.23	
	01/30/13		46.32	1164.10	
	09/30/13		46.55	1163.87	
	05/03/14		47.79	1162.63	
KMW-01 (20-60 ft bls)	05/19/94	1209.07	27.79	1181.28	
	12/15/94		27.54	1181.53	
	03/21/96		27.99	1181.08	
	02/20/97		28.33	1180.74	
	03/10/97		28.63	1180.44	
	04/14/97		28.88	1180.19	
	05/07/97		29.05	1180.02	
	11/19/97		27.83	1181.24	
	12/17/97		28.02	1181.05	
	02/04/98		28.49	1180.58	
	03/02/98		28.08	1180.99	
	03/21/02		33.87	1175.20	

TABLE 2
HISTORICAL GROUNDWATER ELEVATIONS

Well Identifier (Screen Interval)	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet bls)	Water Level Elevation (feet msl)	Notes
KMW-01 (cont'd) (20-60 ft bls)	05/02/02	1209.07	34.25	1174.82	
	09/04/02		34.62	1174.45	
	11/18/02		34.50	1174.57	
	02/19/03		35.91	1173.16	
	05/20/03		36.68	1172.39	
	12/10/03		38.31	1170.76	
	03/30/04		39.90	1169.17	
	10/12/04		41.98	1167.09	
	03/22/05		43.64	1165.43	
	10/06/05		41.49	1167.58	
	03/15/06		42.49	1166.58	
	10/27/06		40.86	1168.21	
	02/26/07		42.21	1166.86	
	04/11/07		42.77	1166.30	7
	06/22/07		44.01	1165.06	
	09/26/07		43.84	1165.23	
	04/09/08		44.59	1164.48	
	10/01/08		42.56	1166.51	
	01/30/13		46.64	1162.43	Broken PDB cable inwell; soft bottom
	09/30/13		46.86	1162.21	Observed mud on probe
	05/03/14		48.11	1160.96	
KMW-02 (25-65 ft bls)	06/02/06	1208.83	41.51	1167.32	Well gauging information from installation.
	10/27/06		40.53	1168.30	
	02/26/07		41.85	1166.98	
	04/11/07		42.42	1166.41	7
	06/22/07		43.62	1165.21	
	09/26/07		43.51	1165.32	
	04/09/08		44.23	1164.60	
	10/01/08		42.21	1166.62	
	01/30/13		46.29	1162.54	PDB cable in well; paired w/shallow(17.4'td) 2" well
	09/30/13		46.44	1162.39	
	05/03/14		47.76	1161.07	
KMW-03A (39.8 - 74.8)	05/06/14	1208.3	47.08	1161.22	
KMW-03B (84.5 - 124.5)	05/06/14	1208.29	47.09	1161.2	
KMW-04A (45.4 - 70.4)	04/10/14	1202.43	48.40	1154.03	
	05/03/14		48.52	1153.91	
KMW-04B (80.9 - 120.9)	04/10/14	1202.47	48.45	1154.02	
	05/03/14		48.58	1153.89	
KMW-05A (39.5 - 69.5)	04/10/14	1202.75	46.99	1155.76	
	05/03/14		47.13	1155.62	
KMW-05B (80.1 - 120.1)	04/10/14	1202.71	47.02	1155.69	
	05/03/14		47.12	1155.59	
KMW-06A (39.6 - 69.6)	04/10/14	1200.69	45.51	1155.18	
	05/03/14		45.49	1155.20	
KMW-06B (84.6 - 119.6)	04/10/14	1200.7	45.48	1155.22	
	05/03/14		45.56	1155.14	
KMW-07A (39.5 - 69.5)	04/10/14	1200.44	43.61	1156.83	
	05/03/14		43.75	1156.69	
KMW-07B (79.7 - 119.7)	04/10/14	1200.48	43.62	1156.86	
	05/03/14		43.73	1156.75	

TABLE 2

HISTORICAL GROUNDWATER ELEVATIONS

Well Identifier (Screen Interval)	Date Measured	Reference Point Elevation (a) (feet msl)	Depth to Water (feet bls)	Water Level Elevation (feet msl)	Notes
1 =		Hydro Geo Chem, Inc. Results of Groundwater Investigation, Former Allen's Cleaners Facility, dated 2/17/98. FD GTI calculated groundwater elevations at AMW1 and AMW2 corrected to most recent MPE.			
2 =		FD GTI measured DTW suspect; measurements indicated have been adjusted by Stantec (formerly SECOR) based on available data.			
3 =		On 3/21/02, a blockage was measured at ~34.7 feet below MPE. On 4/24/02, air injection was utilized to clear the well to approximately 42 feet below ground surface.			
4 =		On 3/21/02, a blockage was measured at ~31.2 feet below MPE. On 4/24/02, air injection was utilized to clear the well to 50 feet below ground surface.			
5 =		On 3/21/02, a blockage was measured at ~26.6 feet below MPE. On 4/24/02, air injection was utilized to clear the well to approximately 47 feet below ground surface.			
6 =		On 4/24/02, a 2-inch diameter well was installed inside the existing 4-inch diameter well due to a suspected casing break.			
7 =		Wells were gauged to examine the influence of pumping the SRP well located at 32nd Street and Indian School Road.			
8 =		PDB cable in well; 4/24/02 - 2" installed in 4" well. 3/21/02 well blocked at 26.6'; 4/24/02 air injection used to clear well to 47', install 2" well.			
9 =		PDB cable in well; paired w/shallow(17.4'td) 2" well			



TABLE 3
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR

Well Identifier / Sample Identifier	Date Sampled	Sample Depth (inches bls)	..Concentration (micrograms per liter)..			Notes
			PCE	TCE	cis-1,2-DCE	
Site ID No. 20	10/10/89	15.2	370	0.92	NA	
Site ID No. 21	10/10/89	16.5	270	<0.5	NA	
DP-1	05/16/96	5	20	<1	NA	
DP-1	05/16/96	10	18	<1	NA	
DP-1	05/16/96	15	14	<1	NA	
DP-2	05/16/96	5	51	<1	NA	
DP-2	05/16/96	10	41	<1	NA	
DP-2	05/16/96	15	10	<1	NA	
DP-3	05/16/96	5	7.2	<1	NA	
DP-3	05/16/96	10	4.2	<1	NA	
DP-3	05/16/96	10	9.5	<1	NA	DUP
DP-3	05/16/96	15	5.7	<1	NA	
DP-4	05/17/96	5	190	<1	NA	
DP-4	05/17/96	10	460	<1	NA	
DP-4	05/17/96	15	370	<1	NA	
DP-5	05/17/96	5	66	<1	NA	
DP-5	05/17/96	10	88	<1	NA	
DP-5	05/17/96	10	110	<1	NA	DUP
DP-5	05/17/96	15	43	<1	NA	
DP-6	05/17/96	5	41	<1	NA	
DP-6	05/17/96	10	67	<1	NA	
DP-6	05/17/96	15	89	<1	NA	
DP-6	05/17/96	15	83	<1	NA	DUP
DP-7	05/17/96	5	370	<5	NA	
DP-7	05/17/96	10	220	<5	NA	
DP-7	05/17/96	15	140	<1	NA	
DP-8	05/17/96	5	410	<1	NA	
DP-8	05/17/96	10	260	<1	NA	
DP-8	05/18/96	15	120	<1	NA	
DP-9	05/18/96	5	160	<1	NA	
DP-9	05/18/96	10	180	<1	NA	
DP-9	05/18/96	12	250	<1	NA	
BB-1-7	01/15/97	7	0.13	<0.10	NA	
BB-1-20	01/15/97	7	0.53	<0.10	NA	
BB-2-7	01/15/97	7	31	<0.10	NA	1
BB-2-20	01/15/97	20	24	<0.10	NA	1
BB-3-7	01/15/97	7	33	<0.10	NA	
BB-3-20	01/15/97	20	30	<5.0	NA	



TABLE 3
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN SOIL VAPOR

..Concentration (micrograms per liter)..

Well Identifier / Sample Identifier	Date Sampled	Sample Depth (inches bls)	PCE	TCE	cis-1,2-DCE	Notes
KMW2-8	05/06/06	8	0.52	<0.0080	<0.0080	2
KMW2-15	05/06/06	15	0.34	<0.0080	<0.0080	2
KMW2-25	05/06/06	25	1.8	0.017	<0.0080	2
KMW2-35	05/06/06	35	0.38	<0.0080	<0.0080	2
KMW2-40	05/06/06	40	0.29	<0.0080	<0.0080	2
KSB1-5	05/07/06	5	0.8	0.013	<0.0080	2
KSB1-15	05/07/06	15	0.27	<0.0080	<0.0080	2
KSB1-25	05/07/06	25	1.1	0.02	<0.0080	2
KSB1-35	05/07/06	35	0.29	<0.0080	<0.0080	2
KSB1-40	05/07/06	40	0.032	<0.0080	<0.0080	2
KSB3-5	05/19/06	5	6.7	0.045	<0.0080	2
KSB3-5D	05/19/06	5	6.2	0.038	<0.0080	DUP, 2
KSB3-15	05/19/06	15	2.1	0.0	<0.0040	2
KSB3-25	05/19/06	25	3.1	0.08	<0.0080	2
KSB3-35	05/19/06	35	2.6	0.07	<0.0240	2
KSB3-40	05/19/06	40	<0.0040	<0.0040	<0.0040	2
KSB3-40D	05/19/06	40	0.054	<0.0120	<0.0120	DUP, 2
KSB2-5	05/20/06	5	0.0044	<0.0032	<0.0032	2
KSB2-15	05/20/06	15	0.22	<0.0512	<0.0512	2
KSB2-25	05/20/06	25	0.7	<0.500	<0.500	2
KSB2-35	05/20/06	35	1.7	<1.280	<1.280	2
KSB2-40	05/20/06	40	0.46	0.0075	<0.0020	2

NOTE: Detections are shown in **BOLD** type.

(1) = Sample dilution required.

(2) = Sample results reported as ppmV on laboratory report.

FOOTNOTES

bls = Below land surface

PCE = Tetrachloroethylene

TCE = Trichloroethylene

cis-1,2-DCE = cis-1,2-Dichloroethylene

(<) = Less than; the value is the Limit of Detection for that compound

NA = Not analyzed or not available

DUP = Duplicate sample

ppmV = Parts per million by volume (or volumetric)

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

	Concentration (micrograms per liter).....													
		MCL	5	5	70	--	5	1,000	700	10,000	--				
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes	
AMW-01	Non-specific depth	04/21/92	NA	NA	8700	80	NA	NA	NA	NA	NA	NA	NA		
		05/22/92	NA	NA	12000	< 100	NA	NA	NA	NA	NA	NA	NA		
		05/22/92	NA	NA	10000	< 100	NA	NA	NA	NA	NA	NA	NA	DUP	
		07/02/92	NA	NA	15000	230	NA	NA	NA	NA	NA	NA	NA		
		08/11/92	NA	NA	5900	120	NA	NA	NA	NA	NA	NA	NA		
		12/16/94	NA	NA	31000	< 500	NA	NA	NA	NA	NA	NA	NA		
		12/16/94	NA	NA	24000	490	NA	NA	NA	NA	NA	NA	NA	DUP	
		03/28/96	NA	NA	11000	340	NA	NA	420	NA	540	NA	NA	Indicated m- and p-xylenes	
		03/28/96	NA	NA	12000	340	NA	NA	360	NA	1150	NA	NA	DUP	
		03/13/97	NA	NA	5000	< 250	NA	NA	NA	NA	NA	NA	NA		
		05/01/97	NA	NA	1800	11	<10	<10	<10	<10	<10	<10	NA		
		05/08/97	NA	NA	1700	< 50	NA	NA	NA	NA	NA	NA	NA		
		11/20/97	NA	NA	18000	< 250	NA	NA	NA	NA	NA	NA	NA		
		11/20/97	NA	NA	15000	< 250	NA	NA	NA	NA	NA	NA	NA	DUP	
		02/05/98	NA	NA	37000	< 1000	NA	NA	NA	NA	NA	NA	NA		
	Shallow	05/03/02	36.24	2	22000	< 25	< 25	< 25	< 150	< 100	< 150	< 25	< 100		
		09/06/02	36.7	2	17000	25	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	3.8	< 2.0		
		12/02/02	36.59	2	6900	34	< 25	< 25	< 150	< 100	< 150	< 25	< 100		
		03/05/03	37.85	2	5100	25	< 25	< 25	< 150	< 100	< 150	< 25	< 100		
		06/04/03	38.68	2	5900	17	<10	<10	< 60	< 40	< 60	<10	< 40		
		12/10/03	40.29	2	2000	6.9	< 2.5	< 2.5	< 15	< 10	< 15	< 2.5	< 10		
		03/30/04	41.55	2	1100	5.4	< 0.50	0.98	< 3.0	< 2.0	< 3.0	0.74	< 2.0		
		10/12/04	43.86	2	1330	3.8	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		
		03/22/05	45.55	2	29	< 1.0	< 1.0	1.7	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	43.63	2	95	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/14/06	44.55	2	3.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/27/06	42.99	2	8.7	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	44.29	2	6.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	46	2.02	9.1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
	Deep	04/25/08	47	2.25	2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	47	2.25	2.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/10/08	45	2.3	17	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		05/19/14	50.9	2.57	3.1	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0			
		03/27/02	57.87	24	6500	8.3	< 0.50	0.6	< 3.0	< 2.0	< 3.0	1.5	< 2.0		
		05/03/02	58.24	24	2300	< 5.0	< 5.0	< 5.0	< 30	< 20	< 30	< 5.0	< 20		
		09/06/02	58.7	24	490.0	0.8	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	57.59	23	290	1.7	< 1.0	< 1.0	< 6.0	< 4.0	< 6.0	< 1.0	< 4.0		
		03/05/03	57.85	22	380	1.4	< 1.0	< 1.0	< 6.0	< 4.0	< 6.0	< 1.0	< 4.0		
		03/05/03	57.85	22	340	1.5	< 1.0	< 1.0	< 6.0	< 4.0	< 6.0	< 1.0	< 4.0	DUP	
		06/04/03	57.68	21	400	1.7	< 1.0	< 1.0	< 6.0	< 4.0	< 6.0	< 1.0	< 4.0		
		12/10/03	48.29	10	110	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	57.55	18	100	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/12/04	57.86	16	34.9	< 1.0	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		
		03/22/05	57.55	14	7.4	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	57.63	16	9.4	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

	Concentration (micrograms per liter).....													
		MCL	5	5	70	--	5	1,000	700	10,000	--				
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes	
AMW-01 (cont;'d)	Deep	03/14/06	58.55	16	3.9	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/27/06	57.99	17	5.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/27/06	57.99	17	5.5	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		03/15/07	58.29	16	3.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	58.29	16	3.7	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/17/07	56.5	12.52	6.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	56.5	11.75	2.1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	56.5	13.8	6	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
AMW-02	Non-specific depth	10/10/08	56.5	13.8	5.3	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/23/13	57.1	9.99	1.9	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		07/12/92	NA	NA	0.5	< 0.2	NA	NA	NA	NA	NA	NA	NA		
		08/10/92	NA	NA	3.4	< 0.2	NA	NA	NA	NA	NA	NA	NA		
		12/16/94	NA	NA	12	< 0.5	NA	NA	NA	NA	NA	NA	NA		
		03/21/96	NA	NA	2.4	< 0.5	NA	NA	NA	NA	NA	NA	NA		
		03/12/97	NA	NA	1	< 0.5	NA	NA	NA	NA	NA	NA	NA		
		05/07/97	NA	NA	< 0.50	< 0.50	NA	NA	NA	NA	NA	NA	NA		
	Shallow	11/18/97	NA	NA	1.4	< 0.5	NA	NA	NA	NA	NA	NA	NA		
		02/03/98	NA	NA	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA		
		05/02/02	36.39	2	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/05/02	36.84	2	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	36.78	2	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/05/03	37.96	2	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	38.81	2	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	40.43	2	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/22/05	45.34	2	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	46	2.15	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	46.5	2.04	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/09/08	45	2.42	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
	Deep	05/19/14	50.9	2.68	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	50.9	2.68	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP	
		03/26/02	58.06	24	1.1	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		05/02/02	58.39	24	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/05/02	57.84	23	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	57.78	23	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/05/03	57.96	22	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	57.81	21	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	57.66	18	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/12/04	57.94	16	< 0.4	< 1.0	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		
		03/14/06	58.41	16	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 3.0	< 1.0		
		10/27/06	57.86	17	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 3.0	< 1.0		
		03/15/07	58.12	16	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 3.0	< 1.0		
		10/17/07	56.5	12.65	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 3.0	< 1.0		
		04/25/08	56.5	12.04	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 3.0	< 1.0		
		10/09/08	56.5	13.92	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 1.0	< 3.0	< 1.0		
		10/23/13	57.1	10.08	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

	Concentration (micrograms per liter).....													
		MCL	5	5	70	--	5	1,000	700	10,000	--				
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes	
AMW-03	Non-specific depth	08/10/92	NA	NA	< 0.2	< 0.2	NA	NA	NA	NA	NA	NA	NA		
		12/12/94	NA	NA	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA		
		03/29/96	NA	NA	< 0.5	< 0.5	NA	NA	1	NA	NA	NA	NA		
		03/11/97	NA	NA	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA		
		05/06/97	NA	NA	< 0.50	< 0.50	NA	NA	NA	NA	NA	NA	NA		
		11/17/97	NA	NA	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA		
AMW-03 (cont'd)	Non-specific depth	02/02/98	NA	NA	< 1.0	< 1.0	NA	NA	NA	NA	NA	NA	NA		
		03/25/02	57.86	30	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/06/02	30.8	2	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/06/02	57.8	29	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
	Shallow	10/09/08	38	2.16	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	43.9	4.17	< 1.0	< 1.0	< 1.0	2.2	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		05/19/14	44	2.89	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
	Deep	05/19/14	44	2.89	< 1.0	< 1.0	< 1.0	1.8	< 1.0	< 1.0	< 1.0	< 2.0	NA	SPT	
		10/09/08	56.5	20.66	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	50.5	10.77	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		10/23/13	57	17.27	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
	NSD	05/01/97	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA		
		05/02/02	82.26	48	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
AMW-04	Shallow	09/05/02	81.72	47	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	81.6	47	0.89	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
	Deep	03/05/03	81.87	46	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	80.87	44.17	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/17/07	82	38.24	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	82	37.58	< 1.0	< 1.0	< 1.0	1.8	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/09/08	82	39.48	< 1.0	< 1.0	< 1.0	1.8	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	85.4	38.51	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		05/19/14	85.4	37.32	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		03/25/02	97.91	64	0.99	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		05/02/02	98.26	64	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/05/02	97.72	63	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	97.6	63	1.4	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/05/03	97.87	62	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	97.7	61	0.65	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	98.32	60	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	97.58	58	< 0.50	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/12/04	97.88	56	0.5	< 1.0	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		
		03/22/05	97.4	54	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/14/06	98.32	56	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/27/06	97.76	57	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	96.76	54.7	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	96.5	52.74	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	98	53.58	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	98	53.58	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/09/08	98	55.48	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

	Concentration (micrograms per liter).....													
		MCL	5	5	70	--	5	1,000	700	10,000	--				
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes	
AMW-05	NSD Shallow	05/01/97	NA	NA	24	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA		
		03/25/02	34.85	1	810	3.2	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		05/03/02	36.27	2	460	2.3	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/05/02	36.71	2	720	3.4	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	36.61	2	150	2.1	< 0.50	0.76	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/05/03	37.85	2	170	1.6	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	38.68	2	110	0.91	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	40.3	2	57	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	40.57	1	200	0.92	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/22/05	41.85	1	15	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
AMW-06	NSD Shallow	10/27/06	41.78	1	54	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		05/01/97	NA	NA	1800	35	<10	<10	<10	<10	<10	<10	NA		
		05/02/02	36.12	2	210	2.2	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/06/02	36.58	2	380	2.5	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	36.38	2	37	0.72	< 0.50	< 0.82	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	36.38	2	28	0.68	< 0.50	< 0.69	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0	DUP	
		03/05/03	37.72	2	38	0.7	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	38.54	2	48	0.89	< 0.50	0.58	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	38.54	2	51	0.94	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0	DUP	
		12/10/03	40.15	2	69	1.7	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
	Deep	03/30/04	41.42	2	41	0.9	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	41.42	2	41	0.82	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0	DUP	
		10/12/04	42.73	1	377	2.2	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		
		03/22/05	44.99	2	28	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	43.32	2	4.5	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		05/02/02	48.12	14	2300	15	< 2.5	< 2.5	< 15	< 10	< 15	< 2.5	< 10		
		09/06/02	47.58	13	70	1	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	48.38	14	97	3.2	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/05/03	47.72	12	29	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	47.54	11	17	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	48.15	10	10	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	48.15	10	47	1.6	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0	DUP	
		03/30/04	47.42	8	36	0.73	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/12/04	47.73	6	125	3.1	< 0.9	< 0.60	< 0.7	< 0.6	< 1.8	< 0.50	< 0.8		
		03/22/05	47.99	5	33	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	48.32	7	1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	48.32	7	1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		03/14/06	48.24	6	1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/27/06	47.69	7	1.5	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	46.69	4.7	1.7	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	47	3.33	2.1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	47	3.33	2.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		04/25/08	46.5	2.18	1.6	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	47	4.61	3.8	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	49.1	2.32	< 1.0	< 1.0	< 1.0	5.9	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

	Concentration (micrograms per liter).....													
		MCL	5	5	70	--	5	1,000	700	10,000	--				
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes	
AMW-07	NSD	05/19/14	49.1	1.1	1.1	< 1.0	< 1.0	3.7	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		09/05/97	NA	NA	10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA		
	Shallow	05/02/02	36.18	2	3.3	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0	DUP	
		05/02/02	36.18	2	3.1	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/05/02	36.63	2	3.6	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	36.44	2	6.9	< 0.50	< 0.50	< 0.86	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/05/03	37.79	2	6.1	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	38.6	2	4.6	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
	Deep	03/23/05	45.3	2	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		05/02/02	46.18	12	2.7	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		09/05/02	45.63	11	3.2	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/02/02	46.44	12	25	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/05/03	45.79	10	10	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	45.6	9	8.1	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	46.2	8	2.9	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	45.47	6	3.7	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/12/04	45.75	4	2.9	< 1.0	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		
	Deep	03/22/05	48.3	5	33	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	45.41	4	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/14/06	45.35	3	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/27/06	44.8	4	1.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	43.8	1.72	1.1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	44.5	0.71	2.4	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	45	0.57	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	45	2.51	2.7	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
AMW-08	Shallow	06/13/03	39	2	55	0.8	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	40.05	2	14	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	41.33	2	13	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/12/04	42.69	1	25.4	< 1.0	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		
		03/22/05	45.23	2	7.9	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	43.21	2	7	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/14/06	44.18	2	3.9	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/14/06	44.18	2	4.1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/17/07	45.5	1.92	50	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	46.5	2.2	9.1	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
	Intermediate	10/10/08	45	2.69	52	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	49.6	2.97	3.4	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	SPT	
		05/19/14	49.6	1.8	20	1.9	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		10/23/13	54	7.37	6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0		
		10/23/13	54	7.37	5.6	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
	Deep	05/19/14	53.9	6.1	3.8	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		06/13/03	58	21	75	1.1	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	58.05	20	49	0.93	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	57.33	18	23	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/12/04	57.69	16	16.5	< 1.0	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

	Concentration (micrograms per liter).....													
		MCL	5	5	70	--	5	1,000	700	10,000	--				
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes	
AMW-09A	Shallow	03/22/05	58.23	15	5.6	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		03/22/05	58.23	15	4.8	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	58.21	17	37	1.8	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		03/14/06	58.18	16	9.1	< 1.0	< 1.0	1.2	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/14/06	58.18	16	13	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/27/06	57.59	17	78	2.3	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	57.91	16	62	1.3	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/17/07	56.5	12.92	18	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	56.5	12.92	23	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		04/25/08	56.5	12.2	20	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	56.5	14.19	48	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/10/08	56.5	14.19	48	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	58.3	11.67	3.4	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		05/19/14	58.3	10.5	4.6	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/25/08	47	2.22	30	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	45	2.29	120	1.9	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	50	5.22	37	1	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		05/19/14	50.6	2.4	2.6	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/25/08	55	10.22	34	1.1	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	56.5	9.57	1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
AMW-09A (cont'd)	Deep	04/25/08	60	15.22	49	1.6	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	64.1	17.17	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		04/25/08	65	20.22	57	1.9	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	70	25.22	62	1.8	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	73	28.22	55	1.8	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		04/25/08	73	28.22	56	2	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	71.5	28.79	170	2.4	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		10/10/08	71.5	28.79	180	2.5	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	71.7	24.77	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	SPT	
		10/23/13	71.7	24.77	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0		
AMW-09B	Shallow	04/25/08	80	35.26	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/09/08	82	39.32	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	82.8	35.92	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		05/19/14	82.8	34.62	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/25/08	85	40.26	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	90	45.26	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	95	50.26	< 1.0	4.7	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	1.9	< 1.0		
		04/25/08	100	55.26	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	103	58.26	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/09/08	103	60.32	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
AMW-09C	Shallow	04/25/08	117	72.3	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/09/08	117	74.39	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	117.7	70.86	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	DUP	
		10/23/13	117.7	70.86	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		05/19/14	117.7	69.55	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

					Concentration (micrograms per liter)												
					MCL	5	5	70	--	5	1,000	700	10,000	--			
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes			
AMW-10A	Intermediate	04/25/08	127	82.3	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	SPT			
	Deep	04/25/08	136.5	91.8	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
	Shallow	10/09/08	136.5	93.89	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		10/09/08	45	2.53	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		10/23/13	55.3	8.46	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0				
		05/19/14	50.6	2.53	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA				
		05/19/14	50.6	2.53	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA				
AMW-10B	Intermediate	10/09/08	56	13.53	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP			
	Deep	10/23/13	61.3	14.46	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0				
		10/09/08	67	24.53	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		10/23/13	67.5	20.66	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0				
		10/09/08	82	39.81	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		Shallow	10/23/13	82.3	35.75	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0			< 1.0	
	10/23/13		82.3	35.75	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0				
05/19/14	82.3		34.51	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA					
Intermediate	10/09/08		92	49.81	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
	Deep		10/09/08	102	59.81	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0			
KMW-01	Non-specific depth	05/19/94	NA	NA	55	1.4	NA	NA	NA	NA	NA	NA	NA	DUP			
		05/19/94	NA	NA	58	1.4	NA	NA	NA	NA	NA	NA	NA				
		12/15/94	NA	NA	130	2.3	NA	NA	NA	NA	NA	NA	NA				
		03/21/96	NA	NA	340	4.6	NA	NA	NA	NA	NA	NA	NA				
		03/13/97	NA	NA	540	< 25	NA	NA	NA	NA	NA	NA	NA				
		05/07/97	NA	NA	400	< 13	NA	NA	NA	NA	NA	NA	NA				
		11/19/97	NA	NA	500	77	NA	NA	NA	NA	NA	NA	NA				
		02/04/98	NA	NA	360	< 10	NA	NA	NA	NA	NA	NA	NA				
		KMW-01 (cont'd)	Shallow	05/02/02	36.25	2	50	0.99	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0			< 0.50	< 2.0
				09/06/02	36.62	2	46	0.67	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0			< 0.50	< 2.0
12/02/02	36.5			2	38	0.99	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0				
03/06/03	37.91			2	15	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0				
06/04/03	38.68			2	5.3	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0				
12/10/03	40.31			2	5.7	< 0.50	< 0.50	0.67	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0				
03/30/04	41.9			2	3.4	< 0.50	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0				
10/12/04	42.98			1	8.9	< 1.0	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8				
03/22/05	45.64			2	9.6	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
10/06/05	43.49			2	14	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
KMW-01 (cont'd)	Shallow	03/15/06	44.49	2	8.5	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		10/27/06	42.86	2	20	1.3	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		03/15/07	44.21	2	23	1.4	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		10/17/07	46	2.16	35	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		04/25/08	46.5	1.91	35	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		10/10/08	45	2.44	61	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0				
		Deep	03/26/02	57.87	24	310	7.3	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	1.2	< 2.0			
			03/26/02	57.87	24	340	7.5	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	1.1	< 2.0			
			05/02/02	58.25	24	420	9.6	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	0.88	< 2.0			
			09/06/02	57.62	23	250	6.2	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	0.63	< 2.0			

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

	Concentration (micrograms per liter).....													
		MCL	5	5	70	--	5	1,000	700	10,000	--				
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes	
KMW-02	Shallow	09/06/02	57.62	23	250	6.1	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	0.6	< 2.0	DUP	
		12/02/02	57.5	23	100	4.7	< 0.50	0.72	< 3.0	< 2.0	< 3.0	0.68	< 2.0		
		02/19/03	57.91	22	170	2.9	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/06/03	57.91	22	38	1.1	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		06/04/03	56.68	20	58	1.7	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0	DUP	
		06/04/03	57.68	21	63	1.8	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		12/10/03	58.31	20	36	1.3	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		03/30/04	57.9	18	55	2.1	< 0.50	< 0.50	< 3.0	< 2.0	< 3.0	< 0.50	< 2.0		
		10/12/04	57.98	16	21	< 1.0	< 0.9	< 0.6	< 0.7	< 0.6	< 1.8	< 0.5	< 0.8		
		03/22/05	57.64	14	11	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	DUP	
		03/22/05	57.64	14	10	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/06/05	57.49	16	61	1.6	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/06	58.49	16	12	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/27/06	56.86	16	26	1	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	57.21	15	57	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	56.5	12.66	22	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	56.5	11.91	16	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	56.5	13.94	31	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	55.5	8.64	4.6	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		05/19/14	50.5	2.39	5.4	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP	
		05/19/14	50.5	2.39	4.9	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	55.5	7.39	2.6	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		06/16/06	43.51	2	1.4	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	Sampled following installation	
		10/27/06	42.53	2	1.8	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	43.85	2	2.2	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	45.5	1.99	2.8	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	46.5	2.27	2.4	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	45	2.79	3.8	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	54.1	7.66	1.4	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		05/19/14	49.9	2.14	1.1	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
KMW-03A	Deep	06/16/06	57.51	16	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0	Sampled following installation	
		10/27/06	54.53	14	1.4	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		03/15/07	60.85	19	1.5	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/17/07	61.5	17.99	1.9	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		04/25/08	61.5	17.27	1.5	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/10/08	61.5	19.29	1.3	< 1.0	< 1.0	< 1.0	< 5.0	< 1.0	< 3.0	< 1.0	< 1.0		
		10/23/13	60.1	13.66	1.1	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		05/19/14	60.5	12.74	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	50.7	3.62	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	56.1	9.02	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	61.4	14.32	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP	
		05/19/14	61.4	14.32	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
KMW-03A (cont'd)		05/19/14	66.7	19.62	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	72	24.92	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/06/14	74	26.92	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

	Concentration (micrograms per liter).....													
		MCL	5	5	70	--	5	1,000	700	10,000	--				
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes	
KMW-03B		05/19/14	86.8	39.71	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	92.6	45.51	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	92.6	45.51	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA	SPT	
		05/19/14	98.3	51.21	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	104	56.91	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	109.7	62.61	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	115.4	68.31	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	121.1	74.01	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
KMW-04A		05/05/14	123.5	76.41	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0		
		04/10/14	51.7	3.3	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	51.7	3.18	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	57.1	8.7	< 1.0	< 1.0	< 1.0	3.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	62.4	14	< 1.0	< 1.0	< 1.0	3.4	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	67.7	19.3	< 1.0	< 1.0	< 1.0	3.4	< 1.0	< 1.0	< 1.0	< 3.0	NA		
KMW-04B		04/10/14	83.3	34.85	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	83.3	34.72	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	89	40.55	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	94.7	46.25	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	100.4	51.95	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP	
		04/10/14	100.4	51.95	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	106.1	57.65	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	111.8	63.35	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
KMW-05A		04/10/14	117.6	69.15	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	50.4	3.41	< 1.0	< 1.0	< 1.0	2.3	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	50.4	3.27	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP	
		05/19/14	50.4	3.27	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	55.9	8.91	< 1.0	< 1.0	< 1.0	2.2	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	61.3	14.31	< 1.0	< 1.0	< 1.0	2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
KMW-05B		04/10/14	66.8	19.81	< 1.0	< 1.0	< 1.0	2.4	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	82.4	35.38	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	82.4	35.28	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	88.1	41.08	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP	
		04/10/14	88.1	41.08	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	93.8	46.78	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	99.6	52.58	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	105.3	58.28	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
KMW-06A		04/10/14	111	63.98	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	116.7	69.68	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	49.1	3.59	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		05/19/14	49.1	3.61	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	55	9.49	< 1.0	< 1.0	< 1.0	2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	60.9	15.39	< 1.0	< 1.0	< 1.0	2.2	< 1.0	< 1.0	< 1.0	< 3.0	NA		
KMW-06B		04/10/14	66.8	21.29	< 1.0	< 1.0	< 1.0	2.2	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP	
		04/10/14	66.8	21.29	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	87.1	41.62	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		
		04/10/14	87.1	41.62	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA		

TABLE 4
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

				Concentration (micrograms per liter).....											
					MCL	5	5	70	--	5	1,000	700	10,000	--		
Well Identifier / Sample Identifier	Sample Interval	Date Sampled	Sample Depth (feet btoc)	Sample Submergence (feet btwt)	PCE	TCE	cis-1,2-DCE	Chloroform	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Notes		
KMW-06B (cont'd) KMW-07A		05/19/14	87.1	41.54	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA	SPT		
		05/19/14	87.1	41.54	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	NA			
		04/10/14	93	47.52	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	98.8	53.32	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	104.6	59.12	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	110.5	65.02	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP		
		04/10/14	116.3	70.82	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	46.8	3.19	< 1.0	< 1.0	< 1.0	21	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		05/19/14	46.8	3.05	< 1.0	< 1.0	< 1.0	16	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	51.8	8.19	< 1.0	< 1.0	< 1.0	23	< 1.0	< 1.0	< 1.0	< 3.0	NA			
KMW-07B		04/10/14	56.9	13.29	< 1.0	< 1.0	< 1.0	19	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	56.9	13.29	< 1.0	< 1.0	< 1.0	19	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	61.9	18.29	< 1.0	< 1.0	< 1.0	19	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	67	23.39	< 1.0	< 1.0	< 1.0	13	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	82.1	38.48	< 1.0	< 1.0	< 1.0	8.4	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		05/19/14	82.1	38.37	< 1.0	< 1.0	< 1.0	7.9	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	87.8	44.18	< 1.0	< 1.0	< 1.0	8.7	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	93.5	49.88	< 1.0	< 1.0	< 1.0	8.0	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	99.2	55.58	< 1.0	< 1.0	< 1.0	7.0	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	104.9	61.28	< 1.0	< 1.0	< 1.0	7.3	< 1.0	< 1.0	< 1.0	< 3.0	NA	DUP		
		04/10/14	110.6	66.98	< 1.0	< 1.0	< 1.0	7.6	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	116.3	72.68	< 1.0	< 1.0	< 1.0	7.3	< 1.0	< 1.0	< 1.0	< 3.0	NA			
		04/10/14	116.3	72.68	< 1.0	< 1.0	< 1.0	6.9	< 1.0	< 1.0	< 1.0	< 3.0	NA			

NOTE: Detections are shown in **BOLD** type.

FOOTNOTES

MCL = Maximum Contaminant Level
(--) = Not promulgated
btoc = below top of casing
NA = Not analyzed or not available
btwt = Below top of water table
(<) = Less than; the value is the Limit of Detection for that compound

DUP = Duplicate sample
PCE = Tetrachloroethylene
TCE = Trichloroethylene
cis-1,2-DCE = cis-1,2-Dichloroethylene
MTBE = Methyl Tertiary Butyl Ether

TABLE 5
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER IN-SITU SAMPLES

Location Identifier / Sample Identifier	Date Sampled	Sample Depth (feet bls)	..Concentration (micrograms per liter)..			Notes
			PCE	TCE	cis-1,2-DCE	
AMW-4	4/21/97	55	7.6	<5	<5	
AMW-4	4/21/97	60	<5	<5	<5	
AMW-4	4/21/97	75	<5	<5	<5	
AMW-4	4/22/97	80	<5	<5	<5	
AMW-4	4/22/97	90	13	<5	<5	1
AMW-4	4/22/97	98	7.1	<5	<5	1
AMW-5	4/24/97	40	120	<5	<5	
AMW-5	4/25/97	55	<5	<5	<5	
AMW-6	4/23/97	35	8500	<5	<5	
AMW-6	4/23/97	45	23	<5	<5	
AMW-6	4/23/97	50	<5	<5	<5	
AMW-6	4/23/97	60	<5	<5	<5	
AMW-7A	8/28/97	37	4.9	<0.5	<0.5	
AMW-7B	8/28/97	37	4	<0.5	<0.5	
HP-AC1	5/3/97	33	44.5	NA	NA	
HP-AC1	5/3/97	48	316	NA	NA	
HP-AC1	5/3/97	63	<1.0	NA	NA	
HP-AC1	5/3/97	78	<1.0	NA	NA	
HP-AC1	5/3/97	78	<1.0	NA	NA	DUP
HP-AC1	5/3/97	105	<1.0	NA	NA	
HP-AC1	5/4/97	120	<1.0	NA	NA	
HP-AC2	5/19/97	30	<1.0	NA	NA	
HP-AC2	5/19/97	45	43.2	NA	NA	
HP-AC2	5/20/97	75	<1.0	NA	NA	
HP-AC2	5/20/97	90	<1.0	NA	NA	
HP-AC2	5/20/97	90	<1.0	NA	NA	DUP
HP-AC2	5/20/97	105	<1.0	NA	NA	
HP-AC3	5/21/97	30	800	NA	NA	
HP-AC3	5/21/97	75	1.59	NA	NA	
HP-AC3	5/21/97	75	2.42	NA	NA	DUP
HP-AC3	5/22/97	90	<1.0	NA	NA	
HP-AC3	5/22/97	105	<1.0	NA	NA	
KMW2-52	5/7/06	52	1.2	<1.0	<1.0	
KSB1-52	5/7/06	52	71	<1.0	<1.0	
KSB2-54	5/21/06	54	7.2	<1.0	<1.0	
KSB3-54	5/20/06	54	400	1.8	<1.0	
KSB3-54D	5/20/06	54	79	1.9	<2.0	DUP

NOTE: Detections are shown in **BOLD** type.

(1) Results likely due to borehole leakage from overlying horizons (Hydro Geo Chem, 1998).

Hydro Geo Chem, Inc., 1998. Results of Groundwater Investigation, Former Allen's Cleaners Facility,
4129 North 40th Street, Phoenix, Arizona. ADEQ Reference Number HW96-0375. February 17, 1998.

FOOTNOTES

bls = Below land surface	MTBE = Methyl Tertiary Butyl Ether
PCE = Tetrachloroethylene	(--) = Not promulgated
TCE = Trichloroethylene	(<) = Less than; the value is the Limit of Detection for that compound
cis-1,2-DCE = cis-1,2-Dichloroethylene	DUP = Duplicate sample

TABLE 6
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN SOIL

..Concentration (milligrams per kilogram)..						
Sample Location / Sample Identifier	Date Sampled	Sample Depth (feet bls)	PCE	TCE	cis-1,2-DCE	Notes
AB-1	04/07/92	5	<0.020	<0.020	NA	
AB-1	04/07/92	10	<0.0005	<0.0005	NA	
AB-1	04/07/92	15	<0.0005	<0.0005	NA	
AB-2	04/07/92	5	0.052	<0.020	NA	
AB-2	04/07/92	10	<0.020	<0.020	NA	
AB-2	04/07/92	15	<0.020	<0.020	NA	
AB-3	04/07/92	4.5	<0.020	<0.020	NA	
AB-3	04/07/92	8.5	<0.020	<0.020	NA	
AB-4	04/07/92	5	<0.020	<0.020	NA	
AB-4	04/07/92	8.5	<0.020	<0.020	NA	
AB-5	04/07/92	4.5	<0.020	<0.020	NA	
AB-5	04/07/92	8.5	<0.020	<0.020	NA	
AB-6	04/07/92	10	<0.020	<0.020	NA	
AB-6	04/07/92	20	<0.020	<0.020	NA	
AB-6	04/07/92	30	0.188	<0.020	NA	
Boring 2	06/15/93	6	2.750	NA	NA	
CA001A	08/19/93	5.5	<0.005	NA	NA	
CA001C	08/19/93	7	<0.005	NA	NA	
CA002A	08/19/93	5.5	<0.005	NA	NA	
CA002C	08/19/93	7	<0.005	NA	NA	
CA003A	08/20/93	5.5	<0.005	NA	NA	
CA003C	08/20/93	7	<0.005	NA	NA	
CA004A	08/20/93	5.5	<0.005	NA	NA	
CA004C	08/20/93	7	<0.005	NA	NA	
VA1-A	08/20/93	7	<0.005	NA	NA	
VA1-C	08/20/93	9	<0.005	NA	NA	
VA1-E	08/20/93	11	<0.005	NA	NA	
VA1-G	08/20/93	13	0.040	NA	NA	
VA1-H	08/20/93	15	<0.005	NA	NA	Listed in laboratory report as V1-H
VA1-J	08/21/93	27.5	<0.005	NA	NA	
V1-S@3	08/20/93	3	0.390	NA	NA	
V1-N@5	08/20/93	5	<0.005	NA	NA	
V1-S@5	08/20/93	5	<0.005	NA	NA	
V1-E	08/20/93	5	0.215	NA	NA	
V1-W	08/20/93	5	0.160	NA	NA	
DP-1	05/16/96	12	<0.001	<0.001	<0.001	
DP-2	05/16/96	7	<0.001	<0.001	<0.001	
DP-2	05/16/96	12	<0.001	<0.001	<0.001	
DP-2	05/16/96	12	<0.001	<0.001	<0.001	DUP
DP-3	05/16/96	17	<0.001	<0.001	<0.001	
DP-4	05/17/96	7	0.0033	<0.001	<0.001	
DP-5	05/17/96	7	<0.001	<0.001	<0.001	
DP-6	05/17/96	12	<0.001	<0.001	<0.001	
DP-7	05/17/96	17	0.0018	<0.001	<0.001	
DP-8	05/18/96	7	0.0056	<0.001	<0.001	
DP-9	05/18/96	7	0.0045	<0.001	<0.001	
BB-1-7	01/15/97	7	<0.025	<0.025	<0.025	
BB-1-10	01/15/97	10	<0.025	<0.025	<0.025	
BB-1-15	01/15/97	15	<0.025	<0.025	<0.025	
BB-1-20	01/15/97	20	<0.025	<0.025	<0.025	
BB-2-7	01/15/97	7	<0.025	<0.025	<0.025	
BB-2-15	01/15/97	15	<0.025	<0.025	<0.025	
BB-2-20	01/15/97	20	<0.025	<0.025	<0.025	
BB-3-7	01/15/97	7	<0.025	<0.025	<0.025	
BB-3-20	01/15/97	20	<0.025	<0.025	<0.025	

TABLE 6
HISTORICAL VOLATILE ORGANIC COMPOUNDS IN SOIL

..Concentration (milligrams per kilogram)..

Sample Location / Sample Identifier	Date Sampled	Sample Depth (feet bls)	PCE	TCE	cis-1,2-DCE	Notes
BB-3-25	01/15/97	25	<0.025	<0.025	<0.025	
HP-AC2	05/19/97	70	<0.05	NA	NA	
HP-AC3	05/21/97	45	<0.05	NA	NA	
HP-AC3	05/21/97	60	<0.05	NA	NA	
KMW2-25	05/06/06	25	<0.044	<0.044	<0.044	
KMW2-40	05/06/06	40	<0.044	<0.044	<0.044	
KSB1-5	05/07/06	5	<0.043	<0.043	<0.043	
KSB1-25	05/07/06	25	<0.042	<0.042	<0.042	
KSB3-5	05/19/06	5	<0.40	<0.040	<0.040	
KSB3-10	05/19/06	10	0.12	<0.036	<0.036	
KSB2-20	05/20/06	20	<0.035	<0.035	<0.035	
KSB2-40	05/20/06	40	<0.041	<0.041	<0.041	
KSB2-40D	05/20/06	40	<0.040	<0.040	<0.040	DUP

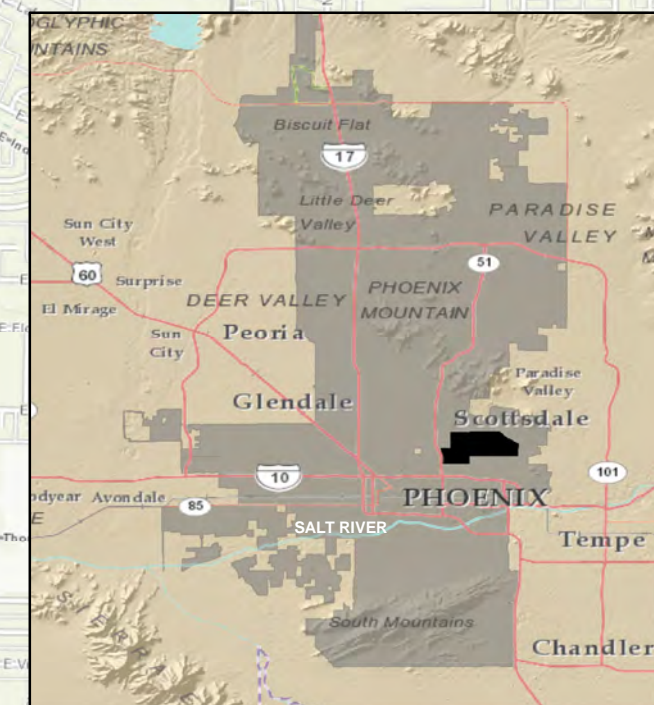
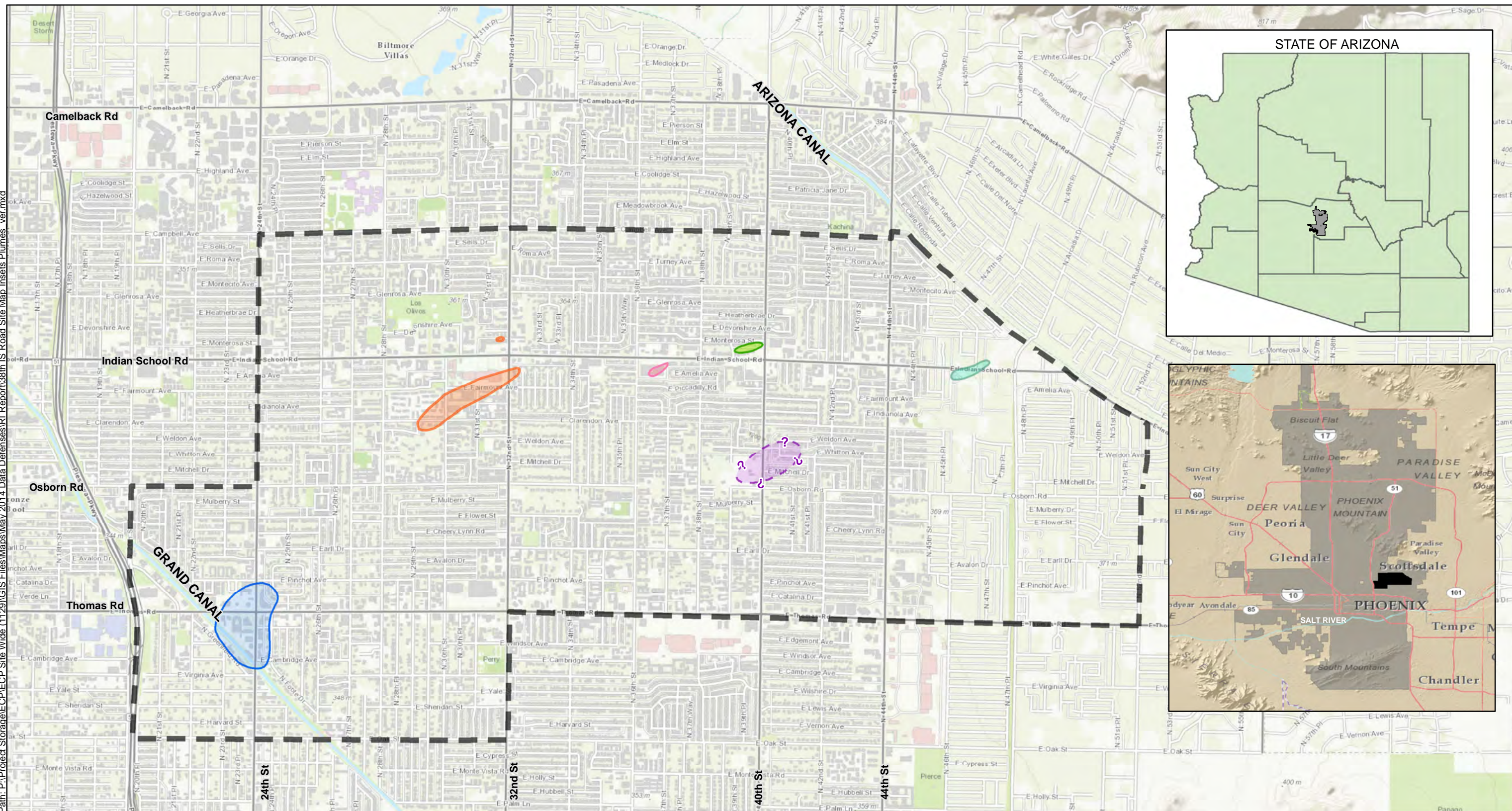
NOTE: Detections are shown in **BOLD** type.

FOOTNOTES

bis = Below land surface	NA = Not analyzed or not available
PCE = Tetrachloroethylene	(<) = Less than; the value is the Limit of Detection for that compound
TCE = Trichloroethylene	DUP = Duplicate sample
cis-1,2-DCE = cis-1,2-Dichloroethylene	

FIGURES

Path: P:\Project Storage\ECP\ECP Site Wide (1129)\GIS Files\Maps\May 2014 Data Defenses\IRI Report\38th IS Road Site Map Insets Plumes ver.mxd



East Central Phoenix WQARF Site Project Community Involvement Area



ECP 24th Street and Grand Canal



ECP 32nd Street and Indian School Road



ECP 38th Street and Indian School Road



ECP 40th Street and Indian School Road



ECP 40th Street and Osborn Road



ECP 48th Street and Indian School Road

Note:
Dashed where inferred, queried where uncertain.

0 2,000
Feet



EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA

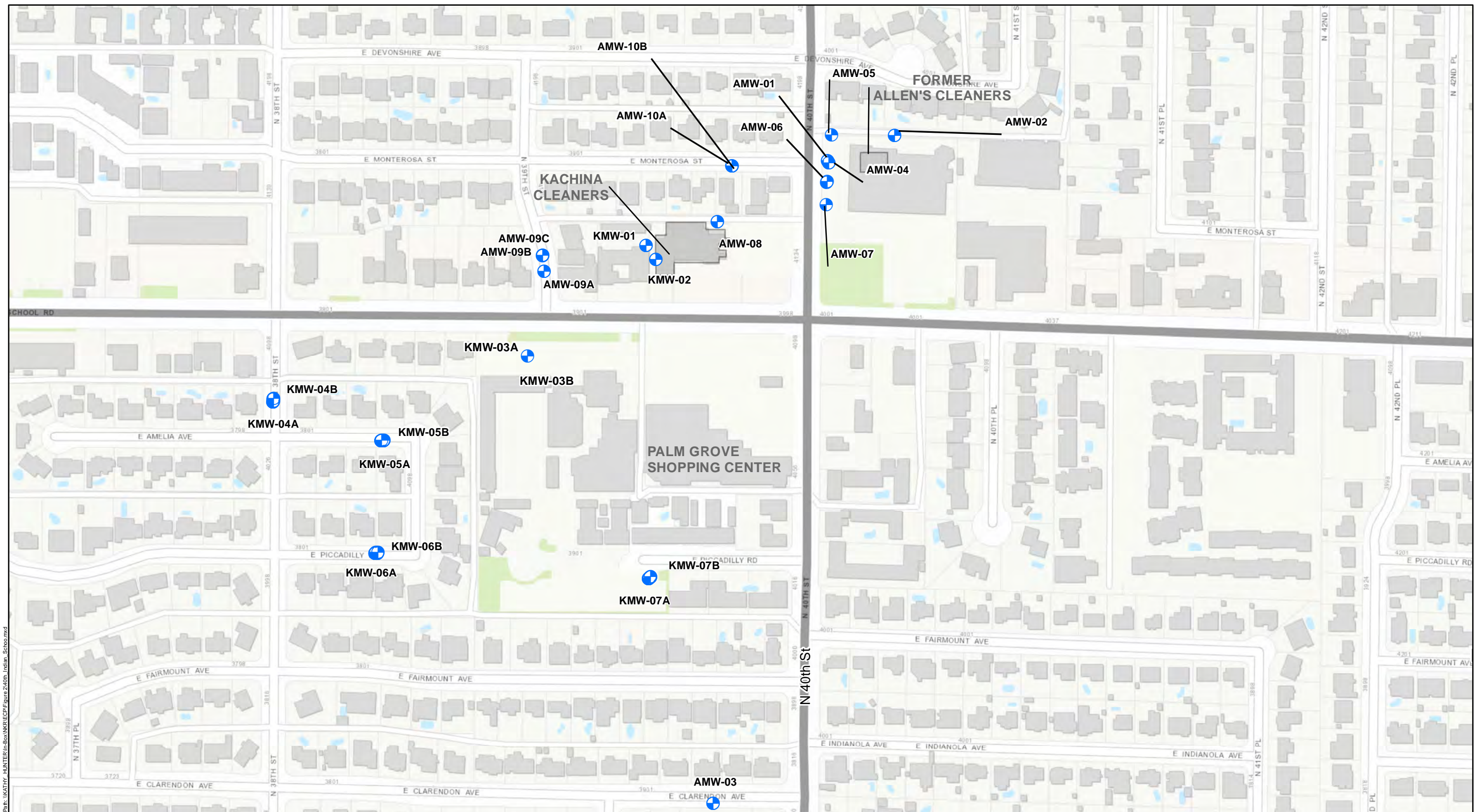
SITE LOCATION MAP



4/16/2015

FIGURE 1

PREP BY JWM/NKR REV BY LLJM RPT NO 1133.31



Monitor Well Locations

0 62.5125 250
Feet



EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA

**40TH STREET AND INDIAN SCHOOL ROAD
SITE MAP**

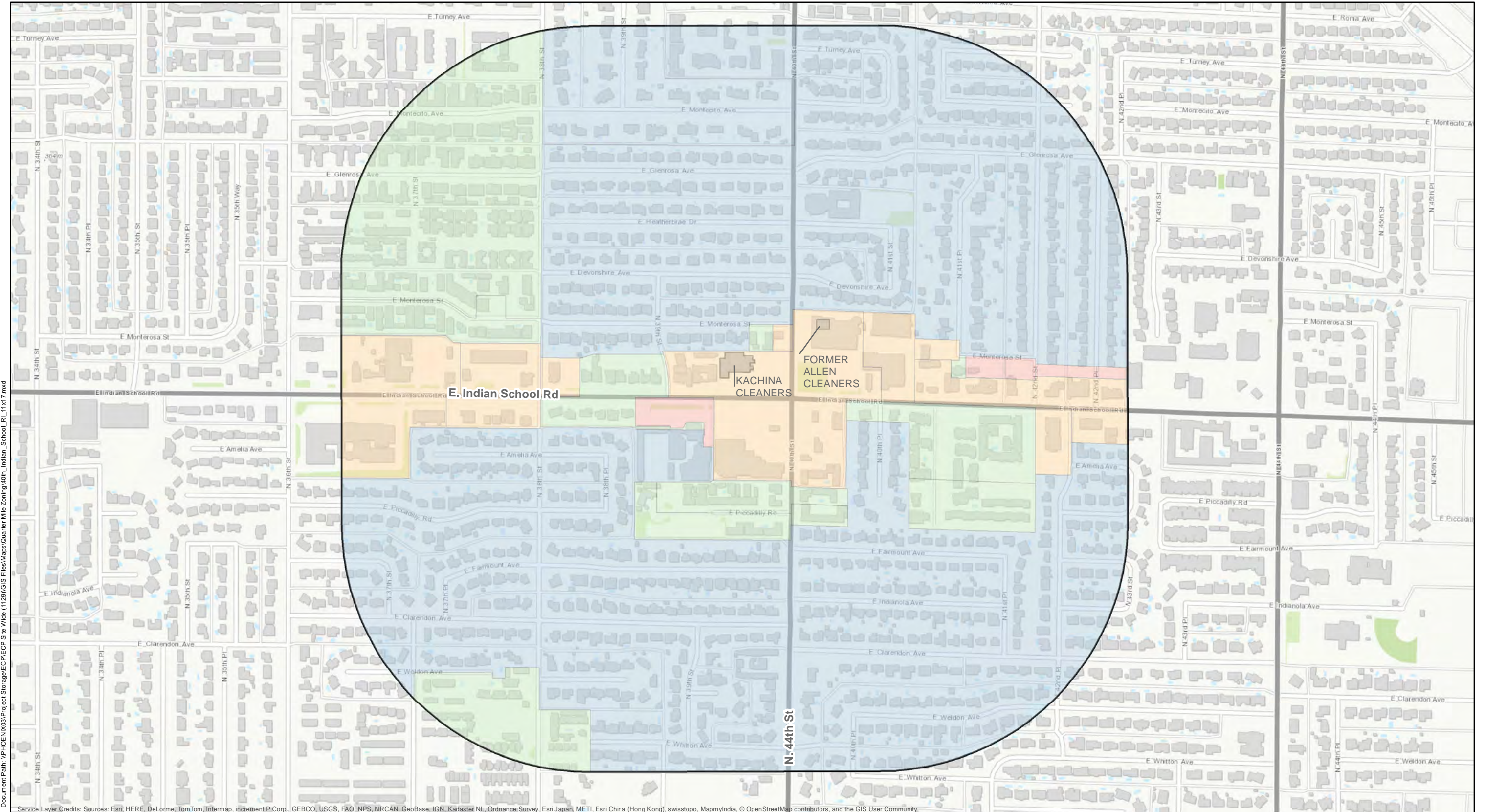


10/1/2014

FIGURE 2

PREP BY NKR REV BY LLJM RPT NO 1134.41


Document Path: \\PHOENIX03\Project Storage\ECPECP Site Wide (1120)\GIS Files\Maps\Quarter Mile Zoning\40th_Indian_School_Rd_11x17.mxd



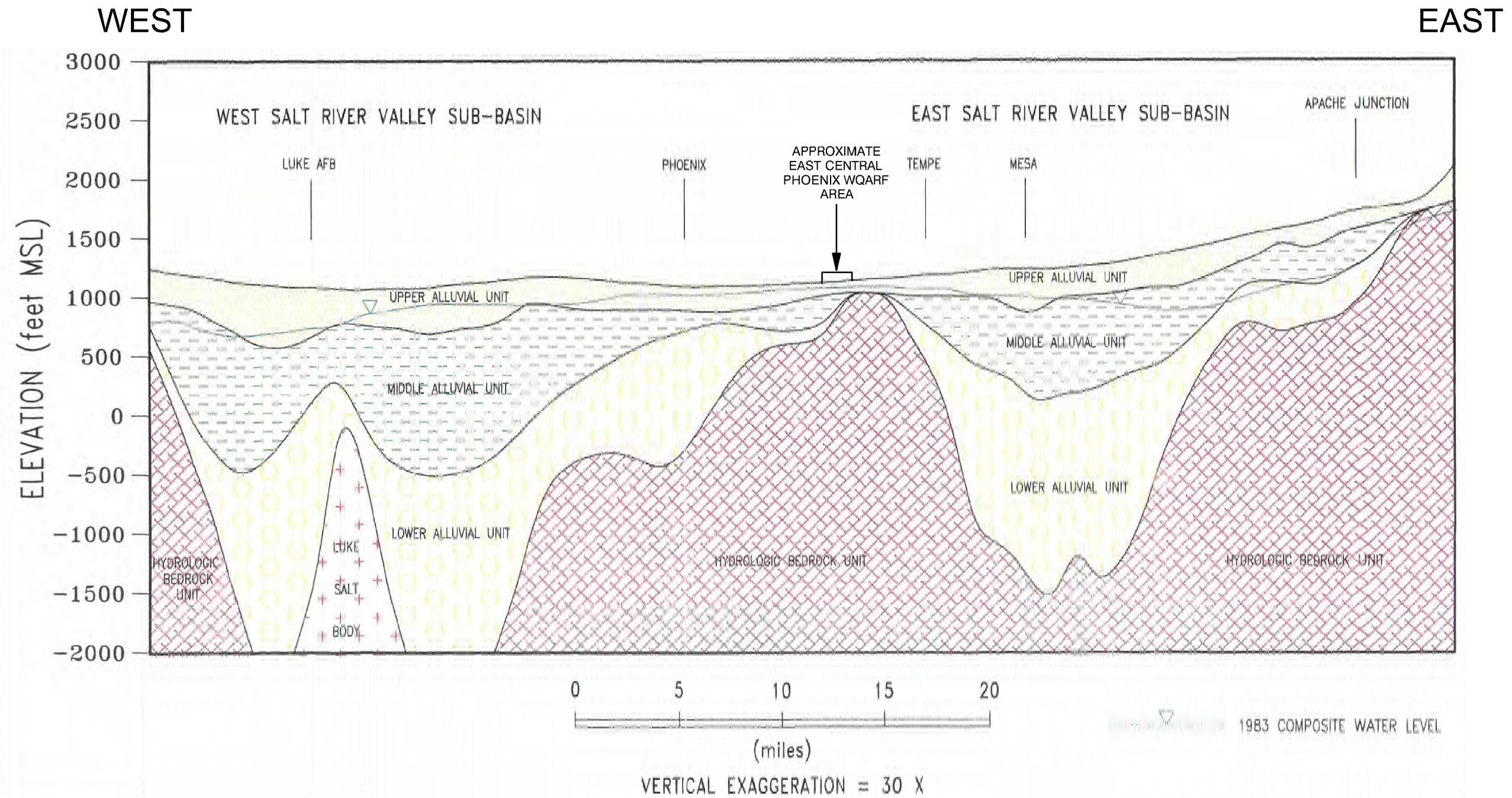
- Commercial
- Parking
- Residential (Multi)
- Residential (Single)
- 0.25mi Buffer Around Site

0 250 500 Feet



EAST CENTRAL PHOENIX WQARF SITE PHOENIX, ARIZONA		
LAND USE & ZONING 40TH STREET AND INDIAN SCHOOL ROAD SITE		
 HARGIS + ASSOCIATES, INC. HYDROGEOLOGY + ENGINEERING	10/1/2014	
	FIGURE 3	
PREP BY NKR	REV BY LLJM	RPT NO 1137.41

Jun 03, 2014 - 11:30am ADH - T:\2014\1100-1199\1133 East Central Phoenix\211 Maroney\X-Sections\310-1249.dwg

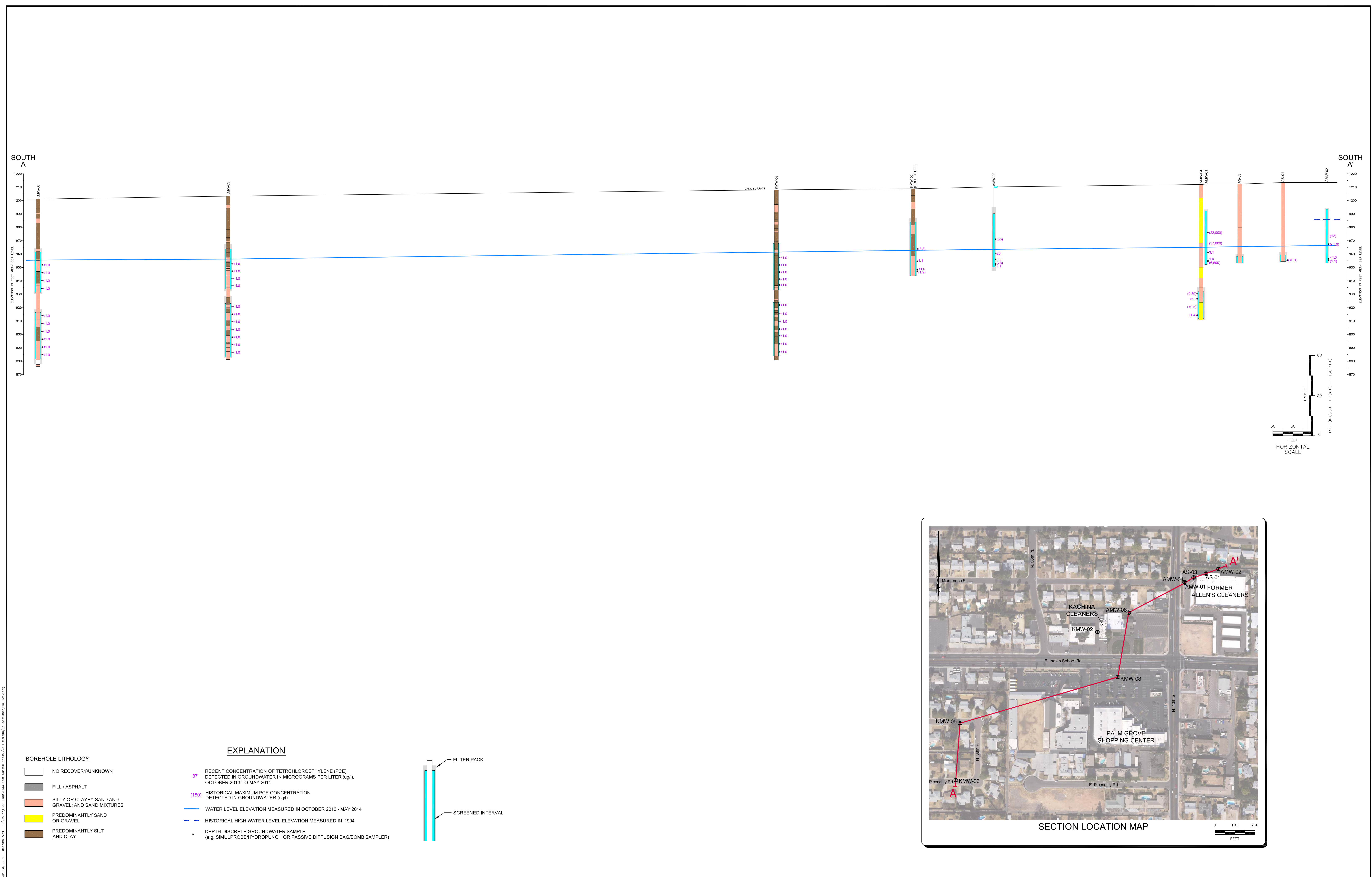


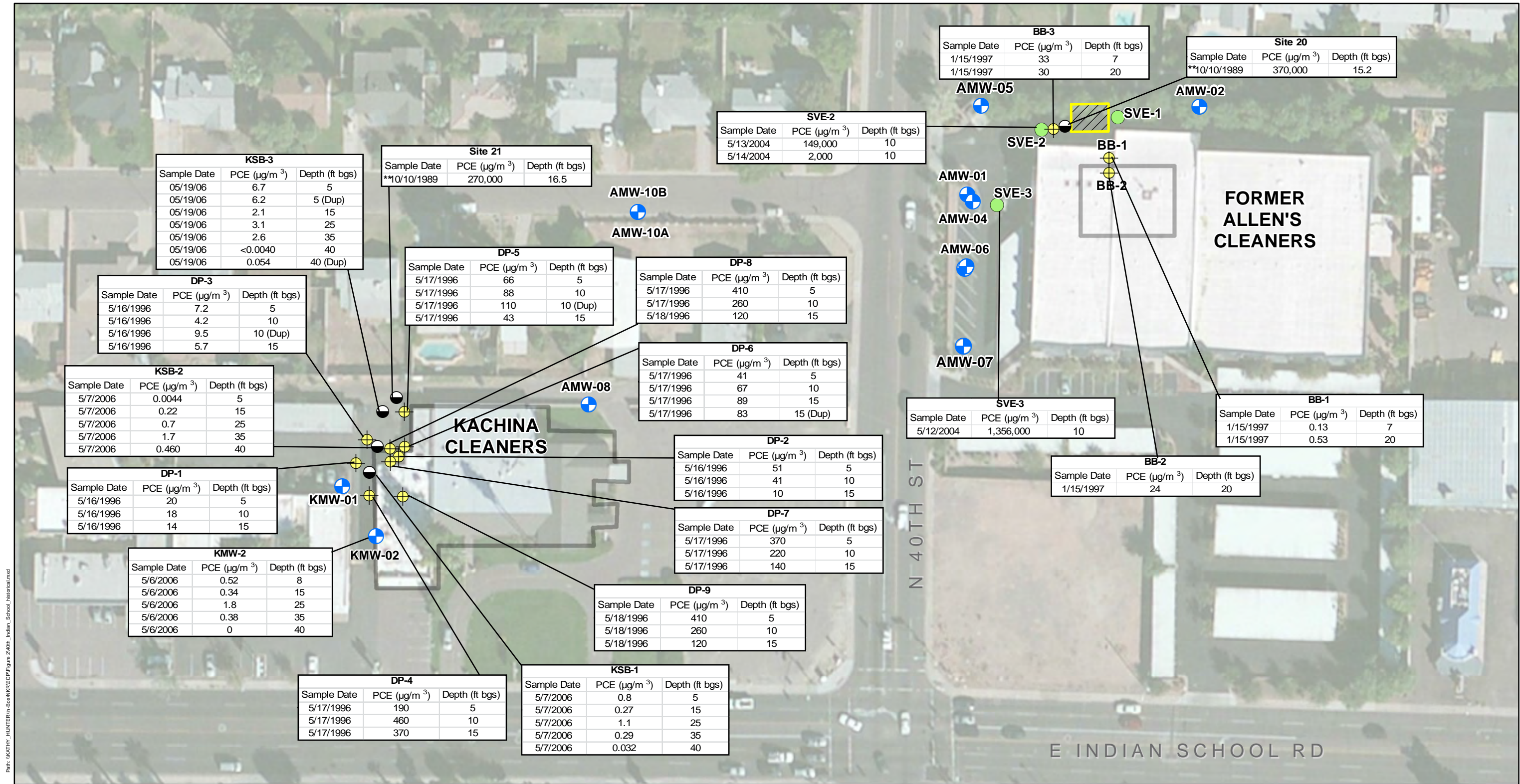
NOTE:
SOURCE: ADWR MODELING REPORT No. 6 "REGIONAL GROUNDWATER FLOW MODEL OF
THE SALT RIVER VALLEY - PHASE I, PHOENIX ACTIVE MANAGEMENT AREA,
HYDROGEOLOGIC FRAMEWORK AND BASIC DATA REPORT" BY CORKHILLET AL, APRIL 1993.



HARGIS + ASSOCIATES, INC.
Hydrogeology/Engineering

FIGURE 4.
CONCEPTUALIZED REGIONAL HYDROGEOLOGIC CROSS SECTION
OF THE SALT RIVER VALLEY





- Groundwater Monitor Well Locations
- Soil Vapor Monitoring Point Locations
- Direct Push Sampling Locations
- Soil Boring Locations
- Former Soil Vapor Extraction System

Note: Soil Vapor Extraction (SVE) system operated from 1994 to 1995.
System decommissioned in 2003.

** Soil vapor sample collected prior to SVE treatment.

ft bgs = feet below ground surface

µg/m³ = micrograms per cubic meter

PCE = Tetrachloroethene


< = less than

0 17.5 35 70
Feet



EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA

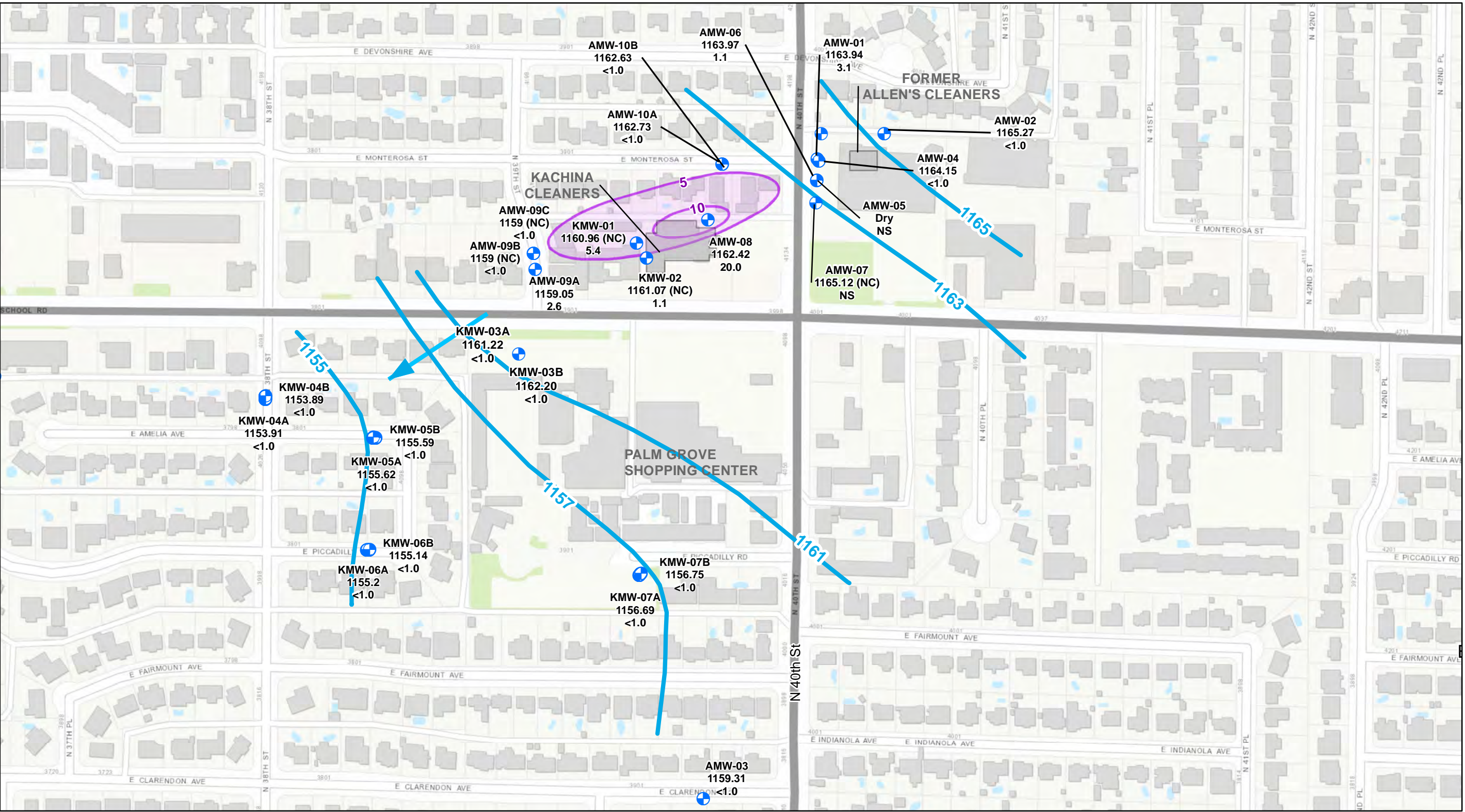
**40TH STREET AND INDIAN SCHOOL
HISTORICAL SOIL VAPOR MONITORING
AND TREATMENT AT SITE**

 **HARGIS + ASSOCIATES, INC.**
HYDROGEOLOGY • ENGINEERING

10/1/2014
FIGURE 6

PREP BY NKR REV BY LLJM RPT NO 1134.41

Path: \\PHOENIX\03\Project Storage\ECF\CP Site Wide (1120)\GIS Files\Map\May 2014 Data\Defenses\40th Street and Indian School Road Site_MayData.mxd



EXPLANATION

- Groundwater Monitor Well Locations
- Water Level Contour
- Direction of Groundwater Flow
- Estimated PCE Plume in Groundwater
- NS -- Not Sampled

1159.31 -- Groundwater elevation (ft above mean sea level) - May 2014

<1.0 -- Recent PCE groundwater concentration (µg/L) (May 2014)

NC -- Data not used in contouring and interpretation of groundwater flow direction; casing elevation measurement is considered suspect.

0 62.5 125 250 Feet



EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA

WATER LEVEL ELEVATION AND
TETRACHLOROETHENE IN GROUNDWATER
40TH STREET AND INDIAN SCHOOL ROAD SITE

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

10/1/2014
FIGURE 7

PREP BY NKR REV BY LLJM RPT NO 1134.41

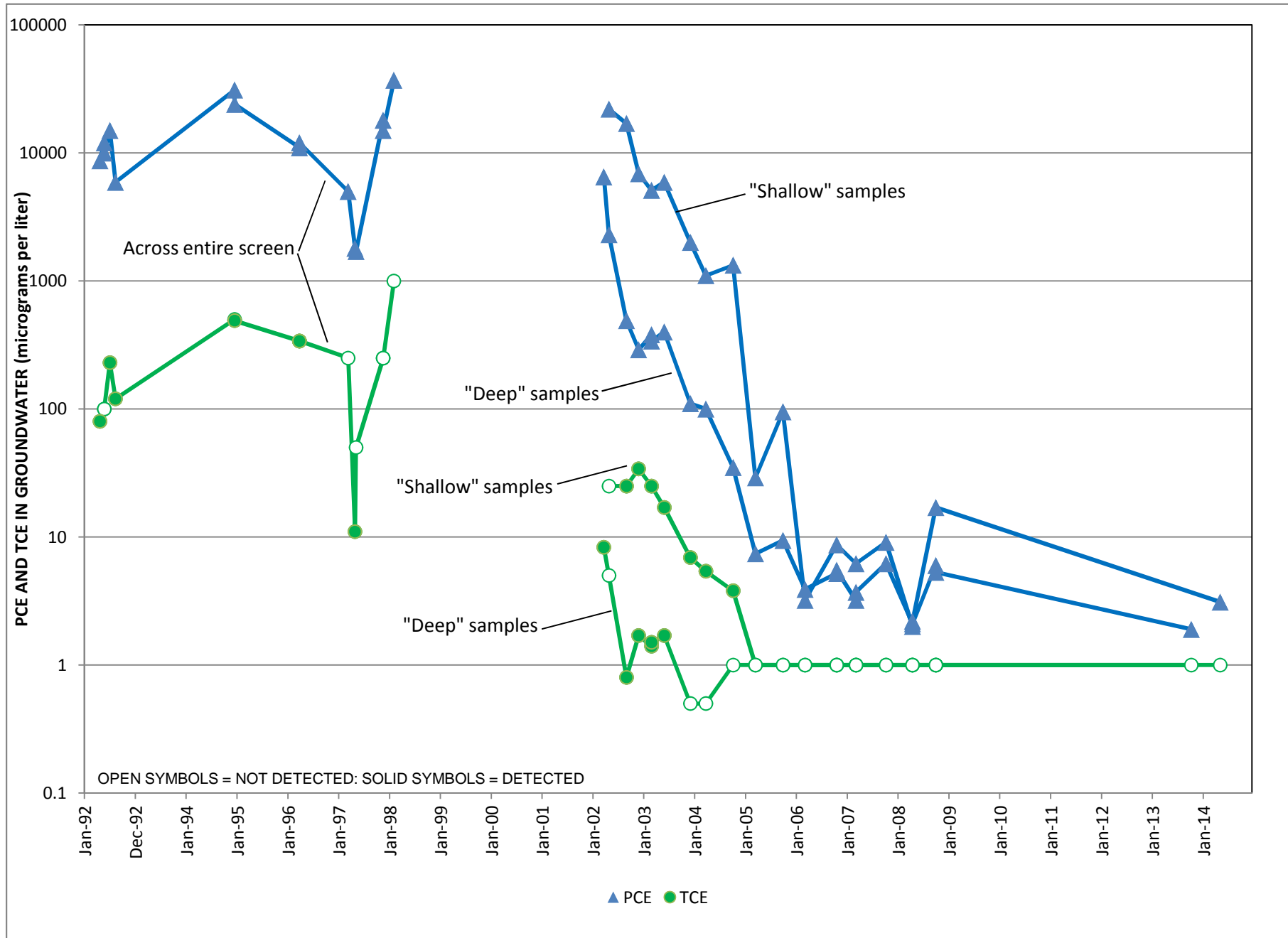


FIGURE 8. TETRACHLOROETHENE AND TRICHLOROETHENE IN AMW-01



HARGIS + ASSOCIATES, INC.

APPENDIX A

HYDROGEOLOGIC, INC.

FINAL LETTER REPORT – REMEDIAL INVESTIGATION

ECP 40TH STREET AND INDIAN SCHOOL ROAD WQARF REGISTRY SITE

CONTRACT NO. 13-048324, ADEQ TASK ASSIGNMENT NO. 14-055490

HGL PROJECT NO. AR8003

MARCH 10, 2014



VIA CLIENT PORTAL

March 10, 2014

Ana I. Vargas, Manager
Remedial Projects Section
Arizona Department of Environmental Quality
1110 W. Washington Street
Phoenix, Arizona 85007

**Re: Final Letter Report – Remedial Investigation
ECP 40th Street and Indian School Road WQARF Registry Site
Contract No. 13-048324, ADEQ Task Assignment No. 14-055490
HGL Project No. AR8003**

Dear Ms. Vargas:

On November 19, 2013, the Arizona Department of Environmental Quality (ADEQ) requested that HydroGeoLogic, Inc. (HGL) support the preparation of the Remedial Investigation report for the East Central Phoenix (ECP) 40th Street and Indian School Road Water Quality Assurance Revolving Fund (WQARF) Registry Site (site). ADEQ tasked HGL to draft a letter report that summarizes the history of the WQARF site, including facilities located within the site boundary and information about their operations, chemical use, waste stream, releases, and regulatory involvement.

This letter report is divided into five sections. The first section provides background on the ECP 40th Street and Indian School Road WQARF site, including the site location and contaminants of concern (COC). The second section provides an operational history of the site. The third section discusses regulatory involvement at the site, and the fourth section provides an overview of the ownership history of the site. A conclusion is provided to summarize operator and owner activities.

Documents used to draft this letter report have been assigned a six-character alpha code according to the source from which they were obtained and have been numbered sequentially within each source. When a document consisted of more than one page, each page rather than each document was numbered. These alpha codes and numbers follow a statement or group of statements and designate the source document(s) from which the information was extracted. The source documents can be found on the enclosed CD-ROM (Enclosure 1).

ECP 40th STREET AND INDIAN SCHOOL ROAD WQARF SITE BACKGROUND

The ECP 40th Street and Indian School Road WQARF site is one of six ECP WQARF sites. The current site plume is bounded by Devonshire Avenue to the north, 40th Street to the east, East Piccadilly Road to the south, and 38th Place to the west [FSDEQW 1].¹ See enclosed Figure 1 for the site location (Enclosure 2).

The original ECP 40th Street and Indian School Road WQARF study area investigation began after the 1989 discovery of tetrachloroethene (PCE) in a soil vapor sample taken north of Kachina Cleaners and Laundry, Inc. (Kachina Cleaners) at 16.5 feet below ground surface (bgs). The concentration of PCE in the soil vapor sample was 270 micrograms per liter ($\mu\text{g/L}$). Another soil vapor sample was taken north of the former Allen's Cleaners and Laundry, Inc. (Allen's Cleaners) at 15.2 feet bgs. PCE was detected in that sample at a concentration of 370 $\mu\text{g/L}$ [FSDEQW 1].

In 1997, groundwater, soil, and soil vapor surveys were conducted at the former Allen's Cleaners. PCE in groundwater was detected at concentrations up to 316 $\mu\text{g/L}$. Soil samples did not contain detectable concentrations of PCE. Soil vapor concentrations of PCE ranged from 0.13 $\mu\text{g/L}$ to 33 $\mu\text{g/L}$. Also in 1997, ADEQ installed four groundwater monitoring wells west of the former Allen's Cleaners. Initial groundwater samples collected from these wells reported a maximum PCE concentration of 1,800 $\mu\text{g/L}$. ADEQ also collected groundwater and soil samples in the vicinity of Kachina Cleaners in 1997. PCE in groundwater was detected with concentrations up to 800 $\mu\text{g/L}$. The soil samples did not contain detectable concentrations of PCE [FSDEQW 2].

In 1998, the ECP 40th Street and Indian School Road study area was placed on the WQARF Registry with a score of 20 out of a possible 120 [FSDEQW 2].

A 2002 ADEQ groundwater sampling event showed the continued presence of PCE above the 5 $\mu\text{g/L}$ Arizona Aquifer Water Quality Standards (AWQS) limit at the site. In 2003, ADEQ installed a groundwater monitoring well in the alley between the former Allen's Cleaners and Kachina Cleaners. ADEQ also installed three soil vapor extraction (SVE) wells and six air sparge (AS) wells at the former Allen's Cleaners as part of an early response action. In 2005, the SVE/AS system was decommissioned and removed from the former Allen's Cleaners. The SVE/AS system had removed approximately 33 pounds of PCE from the vadose zone throughout its operation [FSDEQW 2-3].

In 2007, ADEQ sent out notices per Arizona Revised Statutes § 49-287.03, initiating the Remedial Investigation for the site, and installed an additional groundwater monitoring well on 39th Street, north of Indian School Road. In 2008, ADEQ installed two more groundwater wells: one on 39th Street, north of Indian School Road, and one on Monterosa Street, south of the former Allen's Cleaners. Concentrations of PCE were still detected above the AWQS limit

¹ The plume depicted in Figure 1 has been updated by HGL based on October 2013 sampling data provided by ADEQ. The current groundwater plume extends just to the east of 40th Street, which is noted as the eastern plume boundary on ADEQ's most recent site narrative in July 2012 [FSDEQW 1].

of 5 $\mu\text{g/L}$. From 2009 to 2012, ADEQ did not conduct work at the site [FSDEQW 3]. In October 2013, ADEQ began additional well installation and groundwater sampling activities [FSDEQP 3204-3247].

CONTAMINANTS OF CONCERN

The current contaminants of concern (COCs) at the site are PCE and trichloroethene (TCE) [FSDEQW 4].

OPERATIONAL HISTORY

Kachina Cleaners

The Kachina Cleaners property, located at 3926 East Indian School Road, was purchased by the Tsantilas family in 1955 as vacant land [FSDEQP 2782].² On November 13, 1956, a permit for the site was issued to Alden Tyson for the installation of one dry cleaning unit that used nonflammable solvent [FSFDPX 78]. The nature of Mr. Tyson's connection to Kachina Cleaners has not been determined. Despite a permit for dry cleaning being issued for the 3926 East Indian School Road site in 1956, Kachina Cleaners did not begin dry cleaning operations at the site until 1959, when the main building was constructed [FSDEQP 2782].

Kachina Cleaners was incorporated in Arizona on April 19, 1961, as a public laundry and dry cleaning service as well as a coin-operated laundromat. The business was started in 1959 by James Tsantilas. In 1961, control of the business was ceded to Constantine Tsantilas (chief executive officer and president), Bessie Tsantilas (vice president), and Stella Tsantilas (secretary/treasurer) [FSDEQP 2389-2390].

Dry cleaning equipment was located at the north end of the main building beginning in 1959. In 1964, a second, smaller building was constructed north of the main building to house steam boilers and offices [FSDEQP 2782]. According to a 1992 Dun & Bradstreet report, Kachina Cleaners employed 14 people and occupied 3,200 square feet in a one-story concrete block building owned by the corporate officers [FSDEQP 2389-2390].

According to a June 1996 site characterization report prepared by Earth Tech, Inc. (Earth Tech), Kachina Cleaners reportedly used 40 to 50 gallons of PCE per week.³ Wastewater passed through filters prior to being discharged to the sewer system, which Kachina Cleaners was reportedly connected to in the early 1960s. The spent filters were removed and disposed of by Safety-Kleen Corporation (Safety-Kleen). Waste PCE fluids were distilled for recycling, and leftover amounts of PCE were handled and disposed of by Rinchem Company, Inc. [FSDEQP 2782].

² The source document, a 1996 site characterization report prepared by Earth Tech, Inc., states that the Tsantilas family purchased the Kachina Cleaners property in 1953; however a warranty deed for the property was not signed until 1955 by James and Bessie Tsantilas [FSDEQP 2782; FSNETR 35-36]. HGL will use the deed document date as the date of ownership.

³ The exact time period for which this volume of PCE use applies is unclear.

Before being connected to the sewer system, Kachina Cleaners used two cesspools and a septic tank for wastewater disposal. According to the 1996 site characterization report, the cesspools and septic tank were reportedly no longer in use, but were still present. They were located northwest of the main building. In addition, a lint trap was located just south of the septic tank [FSDEQP 2782].

On February 25, 1975, Kachina Cleaners was issued permit 11921 for the operation of a Class III dry cleaning plant. The permit was signed by Stella Tsantilas [FSFDPX 77].

A January 18, 1985, occupancy activity report from the City of Phoenix Fire Department notes the following 13 fire code violations [FSFDPX 37, 39-40]:

- Failure to complete hazardous materials application form;
- Failure to obtain a revised permit to operate a Class III dry cleaning plant;
- Failure to obtain a permit for the use and storage of hazardous chemicals;
- Failure to obtain a permit for the use and storage of flammable liquids;
- Failure to remove accumulated waste/empty containers from the storage room, properly label containers, and store paint and chemicals on stable shelving;
- Failure to remove stacked combustibles and dust from area surrounding dry cleaning equipment;
- Failure to remove all PCE drums from the interior of the building, as no open containers are allowed inside the building;
- Failure to cover the reclaiming tank behind the dryers with a completely sealed lid;
- Failure to repair a broken electrical outlet behind a vending machine;
- Failure to post National Fire Protection Association fire diamonds on the front of the dry cleaning building and on the fenced storage area containing PCE;
- Failure to label all containers with a product's chemical name;
- Failure to store oxidizers in closed containers and to separate them from other material; and
- Failure to safely store flammables.

On March 2, 1985, permit 38461 was issued by the City of Phoenix Fire Department for the storage and handling of flammable/combustible liquids and for the storage and handling of hazardous chemicals/materials [FSFDPX 36].

Kachina Cleaners filed its first U.S. Environmental Protection Agency (EPA) notification of hazardous waste activity form on April 24, 1986. The facility was listed as a small quantity generator (less than 1,000 kilograms [kg] per month) of hazardous waste (EPA hazardous waste codes F001 and F002) [FSDEQP 2376-2377].⁴

⁴ EPA hazardous waste code F001 represents spent halogenated solvents used in degreasing, including PCE and TCE, among other constituents. EPA hazardous waste code F002 represents spent halogenated solvents, including PCE and 1,1,1-trichloroethane, among other constituents [GDEPAW 2].

On August 26, 1991, Kachina Cleaners submitted an application for a Maricopa County air quality permit to install one dry-to-dry Multimatic mercury dry cleaning machine with a capacity of 15 pounds (lbs). A 30-ton cooling tower, built-in refrigerated coiling coils, and spin filter were part of the dry cleaning machine. In addition, one gas-fueled Western boiler was listed on the permit application [FSMCAQ 154-169].

A September 21, 1998, Maricopa County application for a non-Title V air quality permit indicates that Kachina Cleaners had two pieces of fuel-burning equipment: one Raynak hot water heater installed in 1974, and one horizontal return tubular boiler installed in November 1991. As for dry cleaning equipment, Kachina Cleaners had one Multimatic Shop Star 500 dry-to-dry cleaning machine installed in October 1996. According to the 1998 application, approximately 300 to 400 gallons of PCE per year were being used in the Multimatic Shop Star 500 dry cleaning machine, which has a capacity of 65 lbs. The equipment also had a cooling tower with 10 tons of cooling capacity and built-in refrigerated condensing coils. A handwritten note calculated the emissions of various constituents, including PCE, which was 8,100 lbs per year, or approximately 22.2 lbs per day [FSMCAQ 118, 120, 122, 124].

Maricopa County air quality permit 980665 was issued to Kachina Cleaners on March 9, 1999, with a renewal date of March 31, 2004 [FSMCAQ 135]. Permit conditions indicated that PCE emission limits were 23 lbs per day, or 8,100 lbs per year. Additionally, Kachina Cleaners was limited to consuming 50 gallons of PCE per month, and no more than 600 gallons per year [FSMCAQ 174].

Kachina Cleaners submitted applications to the Maricopa County Air Quality Department to operate and/or construct a dry cleaning operation on July 2, 2003, and January 20, 2006. Both applications list one piece of equipment, a 65-lb capacity Multimatic Shop Star 500 dry cleaning machine installed in October 1996.⁵ The dry cleaning machine was located on the west side of the main building. According to the applications, Kachina Cleaners was a high-volume PCE dry cleaner, using more than 140 gallons of PCE per year, but less than 2,100 gallons per year. Because the equipment was installed after December 9, 1991, gas vapor generated by the equipment was routed through a refrigerated condenser. The July 2, 2003, application lists one Lattner boiler installed in 1991 and one Raytherm boiler installed in 1970. Both boilers were located in the boiler room/office building on the north side of the property. The January 20, 2006, application lists one Lattner “30HP” boiler installed in March 2004 and one Raytherm boiler installed in approximately 1968. The July 2, 2003, application notes that the coin-operated laundry was located in the southwest corner of the main building, next to the restrooms. A store room was located in the northwest corner of the main building, and the production area was located along the eastern half of the main building [FSMCAQ 92-116].

Kachina Cleaners submitted a letter on June 19, 2006, to the Maricopa County Air Quality Department to request that a Union L860 Perc Dry Cleaning machine be added to its air quality permit [FSMCAQ 126]. The permit was revised on January 11, 2011, with a new

⁵ The January 20, 2006, application states that the Multimatic Shop Star 500 was installed in November 1996 [FSMCAQ 94].

renewal date of January 16, 2016. The equipment listed under this permit included one 65-lbs-per-hour Union L860 PCE dry-to-dry cleaning machine, one 65-lbs-per-hour Multimatic Shop Star 500 dry-to-dry cleaning machine, one 1,255,000-British thermal unit (BTU)-per-hour Lattner boiler, and one 749,800-BTU-per-hour Raytherm boiler [FSMCAQ 222, 228].

Hazardous waste manifests from December 5, 2007, to December 4, 2009, indicate that approximately 5,046 lbs of waste PCE (EPA waste codes D039 and F002) were collected by Univar USA, Englund Equipment Co., SLT Express, Univar USA, Inc., and American Trucking, Inc., and taken to either a Systech Environmental Corporation facility in Fredonia, Kansas, or a U.S. Ecology facility in Beatty, Nevada [FSDEQP 2351-2375].⁶

A June 30, 2011, City of Phoenix Fire Department inspection report notes that chemicals were only located in tanks at the dry cleaning machines and that spot removers were located in a metal cabinet. The inspection report states that normal chemicals for dry cleaning were used and that no violations had been found [FSFDPX 35]. As of 2014, Kachina Cleaners is still operating at 3926 East Indian School Road [FSINET 1].

Allen's Cleaners

Allen's Cleaners operated a dry cleaning facility at 4129 North 40th Street from 1969 to 1989. Allen's Cleaners used PCE as a dry cleaning solvent during its operations; however, waste disposal at the facility was not documented until 1987, when Safety-Kleen was retained to transport and dispose of dry cleaning waste products [FSDEQP 2678, 2717].

A December 29, 1993, site assessment and analytical data summary letter from Gulf-Pacific Environmental Engineering, Inc. (Gulf-Pacific) to ADEQ indicates that no aboveground storage tanks were found to exist on the former Allen's Cleaners property. However, an underground vault was located in the northeast corner of the laundry just inside the rear doors. The plumbing in the area of the vault consisted of a 4-inch cast iron sewer service line that passed near the west side of the vault at a depth of 5.5 feet. However, there was no fluid connection between the vault and the sewer. The vault collected drainage from a floor drain connected to a vent pipe located on the east wall of the facility. A second vent line originating in the laundry area ran along the north wall and connected with the vault. This line had no physical connection to the sewer, and the access drains to this line were capped. The vault and plumbing were removed, broken down, and placed in drums by Gulf-Pacific in November 1993 [FSDEQP 2546-2547].

According to the December 29, 1993, letter, the analytical results of the excavated materials suggested the following:

The only evidence of a potential release is from the vault itself. This evidence suggests very low quantities were released and does not support the wide area contamination reported in

⁶ EPA hazardous waste codes D039 represents a waste that contains PCE. EPA hazardous waste code F002 represents spent halogenated solvents, including PCE and TCE, among other constituents [GDEPAW 1-2].

previous studies. A small amount of staining was observed in the matrix of the vault and low levels of contamination was [sic] documented through the analytical results of samples collected [FSDEQP 2547].

Allen's Cleaners operated at the site until 1989. Some additional information regarding operations at Allen's Cleaners is available, but considered privileged at this time and, as a result, is not included in this letter report.

REGULATORY INVOLVEMENT HISTORY

Kachina Cleaners

An October 1988 draft Phase I report prepared by Earth Tech identified Kachina Cleaners as a high potential source of chemical contamination detected in Salt River Project (SRP) Well 17.9E-7.5N because it was located approximately 0.5 mile north of the well and had documented use of PCE.⁷ According to the 1988 Phase I report, the concentration of PCE detected in SRP Well 17.9E-7.5N was 66.0 µg/L, which exceeded the Arizona action level of 1.0 µg/L, making the well a high priority for remedial efforts. The report also identified Kachina Cleaners as a medium potential source of contamination in another well, SRP Well 17E-8N, located approximately 1 mile east of Kachina Cleaners. PCE had been detected in this well at a concentration of 8.7 µg/L. The report notes that during field reconnaissance Earth Tech personnel observed two 55-gallon drums of PCE stored in an enclosed, secured area behind the facility. These drums appeared to be in good condition, with closed lids and clear labels. According to the 1988 Phase I report, 180 to 240 pounds of PCE per month were being transported from this facility to Safety-Kleen for disposal. In addition, the 1988 draft Phase I report notes that there were no records of any Resource Conservation and Recovery Act compliance actions pertaining to Kachina Cleaners [FSDEQP 2396, 2406, 2450-2451, 2527].

In October 1989, a soil gas survey was conducted by Earth Tech in the ECP WQARF study area, and a sample was taken at Kachina Cleaners because of its known PCE use. The soil gas sample was taken at a depth of 16.5 feet bgs on the north side of the facility and PCE was detected at 270 µg/L [FSDEQP 2680; TIDEQP 1305-1306, 1312].

In May 1994, Earth Tech conducted groundwater sampling at seven dry cleaning facilities based on results of the 1989 soil gas sampling.⁸ The monitoring well at Kachina Cleaners (KMW1) was located 40 feet downgradient of the facility on an adjacent property and drilled to a depth of 60 feet bgs. One sample and a duplicate were collected. PCE was detected at 55 µg/L and 58 µg/L, respectively, while TCE was detected at 1.4 µg/L in both samples. The PCE concentrations exceeded the EPA maximum contaminant level (MCL) and AWQS limit

⁷ The source document initially identifies this well as SRP Well 17.4E-7.5N, but then subsequently refers to it as SRP Well 17.9E-7.5N [FSDEQP 2449-2450]. HGL has confirmed that SRP Well 17.9E-7.5N is the well located within the 40th Street and Osborn Road WQARF site [FODEQP 294-303].

⁸ Of the seven facilities, only Kachina Cleaners and Allen's Cleaners are located within the ECP 40th Street and Indian School WQARF site addressed by this report.

of 5.0 $\mu\text{g/L}$, while the TCE concentrations were below the EPA MCL and AWQS limit of 5.0 $\mu\text{g/L}$. [FSDEQP 2888-2899].

In December 1994, groundwater samples were taken at KMW1. PCE was detected at 130 $\mu\text{g/L}$ and TCE was detected at 2.3 $\mu\text{g/L}$ [FSDEQP 2919, 2924-2925]. On March 29, 1996, an access agreement was executed between ADEQ and Kachina Cleaners. The agreement allowed ADEQ access to the Kachina Cleaners property for investigation activities and remedial actions regarding soil and groundwater contamination potentially located at or near the facility [FSDEQP 2880-2884].

During a May 1996 site investigation, Earth Tech advanced eight soil borings to approximately 17 feet bgs in the parking lot north and west of the Kachina Cleaners main building and one inside the building. See Figure 2 (Enclosure 3). Soil vapor samples were collected at 5, 10, and 15 feet bgs. PCE was detected in soil vapor at all depths. In the parking lot borings, PCE was detected at levels ranging from 4.2 $\mu\text{g/L}$ to 460 $\mu\text{g/L}$, with the highest concentrations detected at all depths in the borings located immediately to the west and north of the building. Ten soil samples and one duplicate sample were also collected as part of the site investigation. The samples were collected at 7, 12, or 17 feet bgs. Four soil samples (three collected at 7 feet bgs and one collected at 17 feet bgs) were found to have PCE detections at levels above the laboratory reporting limit of 1 microgram per kilogram ($\mu\text{g/kg}$) (0.001 milligram per kilogram [mg/kg]). These four soil samples coincided with the samples containing the highest soil vapor results for PCE as well as with the sample taken inside the Kachina Cleaners building. PCE in soil ranged from 3.3 to 5.6 $\mu\text{g/kg}$ (0.0033 to 0.0056 mg/kg) in the three samples collected at 7 feet bgs. The fourth soil sample was collected at 17 feet bgs and was found to contain 1.8 $\mu\text{g/kg}$ (0.0018 mg/kg) of PCE. Despite having PCE detections in soil, all PCE sample results were below the non-residential soil remediation level (SRL) of 13 mg/kg and the groundwater protection level (GPL) of 0.80 mg/kg [FSDEQP 2781, 2785-2790; GDDEQW 27, 40].

The May 1996 site characterization investigation suggested that the source of contamination may have been removed. According to the investigation, the origin of the PCE contamination had been the dry cleaning equipment located inside the west wall of the building, the facility sewer line, and the former septic systems at the northwest corner of the building. In addition, the lint trap located near the northwest corner of the building may have been a source of the PCE contamination, according to the site characterization investigation. PCE and TCE contamination had been detected in one monitoring well, KMW1, located west of the facility. However, there was no well upgradient from Kachina Cleaners that could be used to confirm that the PCE and TCE detected in groundwater had originated from the facility [FSDEQP 2793, 2795-2796].

During a May 1997 hydropunch investigation, soil boring HP-AC3 was installed approximately 270 feet west of monitoring well KMW1. Soil samples collected from 45 and 60 feet bgs did not contain PCE at concentrations at or above the method detection limit (MDL) of 0.05 mg/kg . In situ groundwater samples were collected at approximately 30, 75, 90 and 105 feet bgs. Dissolved-phase PCE was detected in the samples collected from 30 feet bgs (800 $\mu\text{g/L}$) and 75 feet bgs (2.42 $\mu\text{g/L}$) [FSDEQP 2680-2681].

Inspections of the two dry cleaning machines were conducted by the Maricopa County Air Quality Department between March 2000 and February 2009. Average use of PCE was reported as being between 25 and 40 gallons per month. No violations were reported during any of the inspections, and the facility was in compliance with all regulations. However, a January 31, 2002, inspection included a “notice to correct” statement asking Kachina Cleaners to conduct weekly maintenance checks instead of biweekly checks [FSMCAQ 136-146, 210-213].

In May 2006, groundwater monitoring well KMW2 and three additional soil borings (KSB1 through KSB3) were installed near the Kachina Cleaners facility to further assess the vertical and lateral extent of PCE and TCE in soil, soil gas, and groundwater. Laboratory analysis detected PCE in soil above the method reporting limit (MRL) in only one sample. The sample from boring KSB3 taken at 10 feet bgs contained 0.12 mg/kg of PCE, which was below the non-residential SRL of 13 mg/kg and the GPL of 0.80 mg/kg. Concentrations of PCE were reported in in situ groundwater samples collected at 52 to 54 feet bgs from all four drilling locations. These PCE concentrations ranged from 1.2 $\mu\text{g/L}$ (in the KMW2 sample) to 400 $\mu\text{g/L}$ (in the KSB3 sample). Soil vapor samples were collected from all four borings, and concentrations of PCE were detected in all samples [FSDEQP 2681; GDDEQW 27, 40].⁹

On March 7, 2006, an environmental access agreement was executed between ADEQ and Constantine and Stella Tsantilas, as trustees of the Constantine Tsantilas and Stella Tsantilas Revocable Trust (owners of Kachina Cleaners). The agreement granted an easement to ADEQ for conducting remedial, response, and corrective actions at the Kachina Cleaners facility. The agreement is described as a covenant running with the property, binding any successive property owners or tenants and terminating upon ADEQ’s discretion [FSDEQP 2538-2545].

An order of abatement by consent regarding permit G03447 was executed on August 8, 2007, between Kachina Cleaners and the Maricopa County Air Quality Department. The order states that on June 20, 2007, the Maricopa County Air Quality Department issued Kachina Cleaners a notice of violation for failure to submit an annual emissions inventory report for 2006. In consideration for not pursuing criminal or civil actions against Kachina Cleaners, the company agreed to pay a one-time fee of \$660 to the Maricopa County Air Quality Department and comply with all Maricopa County Air Pollution Control regulations. Payment of the fee, which occurred on August 8, 2007, constituted appropriate resolution of the violations [FSMCAQ 147-153].

An August 2007 fluid level monitoring report, prepared by SECOR International Inc., provides a summary of groundwater sampling results from 1994 to 2007 for VOCs detected in monitoring wells KMW-1 and KMW-2 near the Kachina Cleaners facility. Table 1 below highlights the PCE and TCE results above AWQS limits. Note that no results exceeding AWQS limits were recorded from well KMW-2 [FSDEQP 2667].

⁹ The source document does not provide further details regarding the concentrations of PCE in the soil vapor samples.

Table 1
PCE and TCE Groundwater Concentrations Exceeding AWQS Limits at
Kachina Cleaners, May 1994 to March 2007*

Monitoring Well	Year	Sample Depth (Feet)	PCE (µg/L)	TCE (µg/L)
AWQS Limit			5	5
KMW1 Historical Sampling	1994	NA	55-130	-
	1996	NA	340	-
	1997	NA	400-540	77
	1998	NA	360	-
KMW1 Shallow Sampling	2002	2	38-50	-
	2003	2	5.3-15	-
	2004	2	8.9	-
	2005	2	9.6-14.0	-
	2006	2	8.5-20.0	-
	2007	2	23.0	-
KMW1 Deep Sampling	2002	23-24	100-420	6.1-9.6
	2003	20-22	36-170	-
	2004	16-18	21-55	-
	2005	14-16	10-61	-
	2006	16	12-26	-
	2007	15	57	-

* = Sampling was not reported for 1995 or for 1999 to 2001.

NA = Not available.

- = Results not detected above AWQS limits.

Ranges of data indicate more than one sampling event occurred in the year.

Allen's Cleaners

In October 1989, a soil gas survey was conducted by Earth Tech in the ECP WQARF study area, and a sample was taken at Allen's Cleaners because of its PCE use. The soil gas sample was taken at a depth of 15.2 feet bgs. PCE was detected at a concentration of 370 µg/L [TIDEQP 1305-1306, 1312].

In April 1992, Earth Tech drilled five soil borings (AB-1 through AB-5) north of the former Allen's Cleaners and one soil boring (AB-6) to the west and downgradient of the facility. Borings AB-1 and AB-2 were drilled by hollow stem auger to a depth of 26 feet bgs. Borings AB-3 and AB-4 were drilled by hand auger to a depth of 13 feet bgs. Boring AB-5 was drilled by hand auger to a depth of 8.5 feet bgs. Boring AB-6 was drilled to a depth of 61 feet bgs and later completed as groundwater monitoring well AMW1 with a screen interval of 20 to 60 feet bgs. See Figure 3 (Enclosure 4) for sampling locations. Soil samples were collected at depths ranging from 5 to 15 feet bgs in AB-1 and AB-2; 4.5 to 8.5 feet in AB-3 through AB-5; and 10 to 30 feet bgs in AB-6. Laboratory analysis of the soil samples identified the presence of PCE in two samples: AB-2 collected at 5 feet bgs with a concentration of 52 µg/kg (0.052 mg/kg); and AB-6 collected at 30 feet bgs with a concentration of 188 µg/kg (0.188 mg/kg). Both of these sample detections were below the non-residential SRL for PCE of 13 mg/kg and

the GPL for PCE of 0.80 mg/kg. A groundwater sample was collected from AMW1 on April 21, 1992. Laboratory analytical results identified dissolved-phase PCE and TCE at concentrations of 8,700 µg/L and 80 µg/L, respectively, well above the AWQS limit of 5 µg/L for both PCE and TCE. A May 22, 1992, groundwater sampling event found PCE in AMW1 at 12,000 µg/L, with 10,000 µg/L in a duplicate sample. TCE was not detected above the laboratory detection limit in the May sampling events, but that limit was set at 100 µg/L [FSDEQP 2682; GDDEQW 27, 40; TIDEQP 1825-1836].

In June 1992, Earth Tech installed a second groundwater monitoring well (AMW2) upgradient from the former Allen's Cleaners and a third groundwater monitoring well (AMW3) 0.25 mile south of the former Allen's Cleaners, approximately 200 feet west of 40th Street on Clarendon Avenue. Both wells were drilled to a depth of 60 feet bgs and screened at 20 to 60 feet bgs [FSDEQP 2682; TIDEQP 1833-1836].¹⁰

Sampling of wells AMW1 through AMW3 occurred in July and August 1992. Analytical results for PCE and TCE concentrations are summarized in Table 2. See Figure 3 (Enclosure 4) for sampling locations [FSDEQP 2919, 2923].

Table 2
Allen's Cleaners Groundwater Sample Results, July and August 1992

Monitoring Well	Date Sampled	PCE (µg/L)	TCE (µg/L)
AWQS Limit		5	5
AMW1	07/02/1992	15,000	230
	08/11/1992	5,900	120
AMW2	07/12/1992	0.5	<0.2
	08/10/1992	3.4	<0.2
AMW3	08/10/1992	<0.2	<0.2

In May 1993, ADEQ conducted a hazardous waste inspection of the former Allen's Cleaners facility. During this inspection, ADEQ identified two deep sump structures located along the east wall of the facility. Based on the presence of solvent-like odors emanating from the sumps, ADEQ collected five sludge samples from the sumps and one background soil sample. The background soil sample was collected in the alley approximately 200 feet northeast of the building. According to ADEQ, four of the six sludge samples contained TCE and "unidentified analytes," and PCE was found in the background sample. The actual concentrations were not provided in the ADEQ hazardous waste inspection report. The sump contents were removed by Chem Waste on June 14, 1993 [FSDEQP 2682-2683].

In the summer and fall of 1993, Gulf-Pacific conducted a series of investigations into the sumps noted above and the sewer line located to the north of the former Allen's Cleaners. Additionally, an SVE system was established in a nested vapor extraction well located near the northernmost sump. Laboratory analysis of a sludge sample collected from the northernmost

¹⁰ Note that AMW3 is not depicted on Figure 3 (Enclosure 4).

sump identified the presence of PCE (977.9 mg/kg), TCE (4.20 mg/kg), and 1,1,1-trichloroethane (1,1,1-TCA) (5.70 mg/kg).¹¹ Following removal of the sump, a soil sample was collected at approximately 6 feet bgs from a boring placed within the excavation. PCE was detected in this sample at a concentration of 2.75 mg/kg. Four borings were advanced along the sewer line to the north of the building. Soil samples were collected at 5.5 and 7 feet bgs. None of the soil samples collected along the sewer line contained PCE above laboratory MRLs. During operation of the SVE system, vapors were extracted from the shallow and intermediate depth wells at a calculated extraction rate of 0.22 pounds of PCE per day. Documents obtained by HGL do not indicate how long the SVE system operated or how much PCE was removed from the soil beneath the former sump structure [FSDEQP 2546, 2548-2549, 2683, 2712, 2724-2725].

A December 1994 groundwater sampling event for monitoring wells AMW1, AMW2, and AMW3 at the former Allen's Cleaners found a range of PCE and TCE concentrations. Table 3 summarizes the sampling results for PCE and TCE. See Figure 3 (Enclosure 4) for sampling locations [FSDEQP 2919, 2923].

Table 3
Allen's Cleaners Groundwater Sample Results, December 16, 1994

Monitoring Well	PCE (µg/L)	TCE (µg/L)
AWQS Limit	5	5
AMW1	31,000*	<500
AMW1D	24,000	490
AMW2	12	<0.50
AMW3	<0.5	<0.50

D = Duplicate sample.

*The table and figure in the source document identifies the PCE concentration at AMW1 as 31,000 µg/L; however, the text identifies the concentration as 34,000 µg/L [FSDEQP 2919, 2921, 2923].

In January 1997, a subsurface soil investigation was conducted at the former Allen's Cleaners. Soil borings BB-1 and BB-2 were located inside the building near the former sumps, and boring BB-3 was located near the northwest corner of the building. Soil samples were collected at depths ranging from 7 to 25 feet bgs. Laboratory analysis did not detect VOC concentrations at or above the MDL in any of the collected soil samples. Soil gas samples were collected for laboratory analysis at depths of 7 and 20 feet bgs. Laboratory analysis identified the presence of PCE in all of the soil gas borings. The maximum concentration of PCE detected (33 µg/L) was in the soil gas sample collected at 7 feet bgs in boring BB-3 [FSDEQP 2683-2684].¹²

¹¹ The non-residential SRL is 13 mg/kg for PCE, 65 mg/kg for TCE, and 1,200 mg/kg for 1,1,1-TCA [GDDEQW 27-28].

¹² Analytical data for all samples and depicted locations of the wells were not provided in the source document.

In April 1997, three groundwater monitoring wells (AMW4, AMW5, AMW6) were installed along the western portion of the former Allen's Cleaners property. In August 1997 a fourth well (AMW7) was installed in the same location. AMW4 was drilled to a depth of 100 feet bgs and screened at 80 to 100 feet bgs. AMW5 through AMW7 were drilled to a depth of approximately 60 feet bgs and screened at 30 to 50 feet bgs. During drilling activities, in situ groundwater samples were taken at various depths between 35 and 98 feet bgs. Samples from AMW4 were collected at 55, 60, 75, 80, 90, and 98 feet bgs. Samples from AMW5 were collected at 40 and 55 feet bgs. Samples from AMW6 were collected at 35, 45, 50, and 60 feet bgs. Samples from AMW7 were collected at 37 feet bgs. Laboratory analysis detected concentrations of dissolved-phase PCE above the AWQS limit of 5 $\mu\text{g/L}$ in the in situ groundwater samples collected from boring AMW4 at 55 feet bgs (7.6 $\mu\text{g/L}$), 90 feet bgs (13 $\mu\text{g/L}$), and 98 feet bgs (7.1 $\mu\text{g/L}$); from boring AMW5 at 40 feet bgs (120 $\mu\text{g/L}$); and from boring AMW6 at 35 feet bgs (8,500 $\mu\text{g/L}$) and 45 feet bgs (23 $\mu\text{g/L}$) [FSDEQP 2684].¹³

Under a separate investigation in May 1997, two soil borings, HP-AC1 and HP-AC2, were drilled downgradient (to the west) of the former Allen's Cleaners. Boring HP-AC1 was drilled to a depth of 124 bgs. Boring HP-AC2 was drilled to a depth of 112 feet bgs. No soil samples were collected for boring HP-AC1, but in situ groundwater samples were collected at the following depths: 33, 48, 63, 78, 105, and 120 feet bgs. Dissolved-phase PCE was detected above the AWQS limit of 5.0 $\mu\text{g/L}$ in groundwater samples collected at 33 feet bgs (44.5 $\mu\text{g/L}$) and 48 feet bgs (316 $\mu\text{g/L}$). Laboratory analysis of groundwater samples collected at depths greater than 48 feet bgs did not contain concentrations of dissolved-phase PCE above the MDL (1.0 $\mu\text{g/L}$). For boring HP-AC2, one soil sample was collected at 70 feet bgs and no PCE was detected. In situ groundwater samples were collected from boring HP-AC2 at the following depths: 30, 45, 75, 90, and 105 feet bgs. Dissolved-phase PCE was detected at levels exceeding the AWQS limit of 5.0 $\mu\text{g/L}$ in the groundwater sample collected at 45 feet bgs (43.2 $\mu\text{g/L}$) [FSDEQP 2684-2685].¹⁴

In December 2003, three SVE and six AS wells were installed at the former Allen's Cleaners. An SVE/AS system was installed and started in November 2004. As of July 8, 2005, the SVE/AS system had removed approximately 33 pounds of PCE and was then decommissioned on that date [FSDEQP 2686].

An August 2007 fluid level monitoring report, prepared by SECOR International Inc., provides a summary of groundwater sampling results from 1992 to 2007 for selected VOCs, including PCE and TCE, detected in monitoring wells AMW1 through AMW8 near the former Allen's Cleaners facility.¹⁵ Table 4 below highlights the PCE and TCE results above AWQS limits. Note that no results exceeding AWQS limits were recorded from well AMW3 and AMW4 [FSDEQP 2662-2666].

¹³ The location of the wells was not provided in the source document.

¹⁴ Analytical data for all samples and depicted locations of the wells was not provided in the source document.

¹⁵ AMW8 appears to have been installed in 2003 as the first sampling event noted is June 13, 2003. The well is located approximately 350 feet southwest of the former Allen's Cleaners property on the west side of 40th Street [FSDEQP 2666, 2670].

Table 4
PCE and TCE Groundwater Concentration Exceeding AWQS Limits at the
Former Allen's Cleaners, April 1992 to March 2007*

Monitoring Well	Year	Sample Depth (Feet)	PCE (µg/L)	TCE (µg/L)
AWQS Limit			5	5
AMW1 Historical Sampling	1992	NA	5,900-15,000	80-230
	1994	NA	24,000-31,000	490
	1996	NA	11,000-12,000	340
	1997	NA	1,700-18,000	11
	1998	NA	37,000	-
AMW1 Shallow Sampling	2002	2	6,900-22,000	25-34
	2003	2	2,000-5,900	6.9-17
	2004	2	1,100-1,330	5.4
	2005	2	29-95	-
	2006	2	8.7	-
	2007	2	6.2	-
AMW1 Deep Sampling	2002	23-24	290-6,500	8.3
	2003	10-22	110-400	-
	2004	16-18	34.9-100	-
	2005	14-16	7.4-9.4	-
	2006	16-17	5.2-5.5	-
	2007	16	-	-
AMW2 Historical Sampling	1994	NA	12	-
AMW5 Historical Sampling	1997	NA	24	-
AMW5 Shallow Sampling	2002	1-2	150-810	-
	2003	2	57-170	-
	2004	< 1	200	-
	2005	1	15	-
	2006	< 1	54	-
	2007	NA	NA	NA
AMW6 Historical Sampling	1997	NA	1,800	35
AMW6 Shallow Sampling	2002	2	28-380	-
	2003	2	38-69	-
	2004	< 1-2	41-377	-
	2005	2	28	-

* = Sampling was not reported for 1993, 1995 or for 1999 to 2001.

NA = Not available.

- = Results not detected above AWQS limits.

Ranges of data indicate more than one sampling event occurred in the year.

Table 4 (concluded)
PCE and TCE Groundwater Concentration Exceeding AWQS Limits at the
Former Allen's Cleaners, April 1992 to March 2007*

Monitoring Well	Year	Sample Depth (Feet)	PCE (µg/L)	TCE (µg/L)
AWQS Limits			5	5
AMW6 Deep Sampling	2002	13-14	70-2,300	15
	2003	10-12	10-47	-
	2004	6-8	36-125	-
	2005	5-7	33	-
AMW7 Historical Sampling	1997	NA	10	-
AMW7 Shallow Sampling	2002	2	6.9	-
	2003	2	6.1	-
AMW7 Deep Sampling	2002	11-12	25	-
	2003	8-10	8.1-10	-
	2005	5	33	-
AMW8 Shallow Sampling	2003	2	14-55	-
	2004	< 1-2	13-25.4	-
	2005	2	7.0-7.9	-
AMW8 Deep Sampling	2003	20-21	49-75	-
	2004	16-18	16.5-23	-
	2005	15-17	5.6-37.0	-
	2006	16-17	9.1-78.0	-
	2007	16	62.0	-

* = Sampling was not reported for 1993, 1995 or for 1999 to 2001.

NA = Not available.

- = Results not detected above AWQS limits.

Ranges of data indicate more than one sampling event occurred in the year.

OWNERSHIP HISTORY

Kachina Cleaners

Kachina Cleaners has operated on Parcel 170-32-099D at 3926 East Indian School Road from 1959 to present. This parcel is currently owned by Constantine and Stella Tsantilas, as trustees of the Constantine and Stella Tsantilas Revocable Trust, and comprises approximately 12,060 square feet [FSMCTA 1-2]. Table 5 below lists the owners of Parcel 170-32-099D during the time PCE was used on the property. The complete conveyances for this parcel are shown in the title tree enclosed as Figure 4 (Enclosure 5).

Table 5
List of Owners for Parcel 170-32-099D

Owner	Date
James and Bessie Tsantilas	1955–1973
Bessie Tsantilas	1973–1988
Constantine and Stella Tsantilas	1973–1999
Constantine and Stella Tsantilas Revocable Trust	1999–Present

Parcel 170-32-099D was purchased by the Tsantilas family in 1955 as vacant land [FSDEQP 2782].¹⁶ PCE use at the property is assumed to have started in 1959 when dry cleaning operations began. Kachina Cleaners is currently operating on the site and is believed to still use PCE, though it is only used in the dry cleaning machines and not stored on site [FSDEQP 2351-2375, 2782; FSFDPX 35].

Allen's Cleaners

Allen's Cleaners operated on Parcel 171-26-061G at 4129 North 40th Street from 1969 to 1989.¹⁷ The current parcel owner is Verde SPE I, LLC, a Delaware corporation. Table 6 below lists the owners for Parcel 171-26-061G during the time PCE was used on the property. The complete conveyances for this parcel are shown in the title tree enclosed as Figure 5 (Enclosure 6).

Table 6
List of Owners for Parcel 171-26-061G

Owner	Date
Herbert and Norma Potthoff	1958–1977
Harris Trust Company and Rose Morgan, Co-trustees of the Herbert Potthoff Revocable Trust	1977–1984
Palm Grove Redevelopers	1984–1999

Allen's Cleaners operated on Parcel 171-26-061G from 1969 to 1989. Allen's Cleaners used PCE dry cleaning solvent during its operations; however, the exact period of use is not documented, though it is assumed that the company used PCE throughout its entire period of operations [FSDEQP 2678].

¹⁶ The source document, a 1996 site characterization report prepared by Earth Tech, states that the Tsantilas family purchased the property in 1953; however, a warranty deed for the property was not signed until 1955 by James and Bessie Tsantilas [FSDEQP 2782; FSNETR 35-36]. HGL will use the deed document date as the date of ownership.

¹⁷ Parcel 171-26-061G was created in 2007 when Parcels 171-26-061E and 171-26-061F were merged.

CONCLUSION

Results of industrial survey and site investigation research for the ECP 40th Street and Indian School WQARF site provide evidence of the presence and possible release of PCE at the WQARF site due to dry cleaning operations at the facilities described in Table 7.

Table 7
Dry Cleaners at ECP 40th Street and Indian School WQARF Site

Facility Name	Address	Operational Period
Kachina Cleaners	3926 East Indian School Road	1959–Present
Allen's Cleaners	4129 North 40 th Street	1969–1989

Kachina Cleaners began operating at 3926 East Indian School Road in 1959 and is currently operating at that location. Kachina Cleaners reportedly used approximately 40 to 50 gallons of PCE each week during its operations.¹⁸ The waste PCE was collected and taken to off-site facilities for disposal. Wastewater from dry cleaning operations was filtered and discharged into the sewer system as of the 1960s. Prior to that two cesspools and a septic tank were used at the facility [FSDEQP 2782]. An October 1988 draft Phase I report identified Kachina Cleaners as a high potential source of chemical contamination for SRP well 17.9E-7.5N because of the company's proximity to the well and its documented use of PCE. This SRP well had the highest level of PCE contamination in the ECP WQARF study area [FSDEQP 2396, 2450-2451]. Several sampling events have occurred at Kachina Cleaners and have identified elevated levels of PCE in the soil and groundwater. PCE was found as high as 540 µg/L in a 1997 groundwater sampling event, as high as 460 µg/L in a 1996 soil vapor sampling event, and as high as 5.6 µg/kg (0.0056 mg/kg) in a 1996 soil sampling event [FSDEQP 2667, 2781, 2788].¹⁹

Allen's Cleaners operated at 4129 North 40th Street from 1969 to 1989. Allen's Cleaners used PCE as its primary dry cleaning solvent. PCE was initially detected in soil gas during an October 1989 soil gas survey. PCE was detected at 370 µg/L at a depth of 15.2 feet bgs [TIDEQP 1305-1306, 1311-1312]. In 1993, two sumps at the former Allen's Cleaners were removed, and PCE was found in soil samples taken from the excavation. A sludge sample taken from one of the sumps at Allen's Cleaners has a PCE concentration of 977.9 mg/kg [FSDEQP 2682-2683, 2724]. Elevated levels of PCE and TCE were found in groundwater samples collected both downgradient and cross-gradient from the facility on December 16, 1994. Monitoring well AMW1, located 50 feet downgradient of the facility, had the highest concentration of PCE at 37,000 µg/L (1998) and the highest concentration of TCE at 490 µg/L (1994) [FSDEQP 2662, 2919, 2923].²⁰ In December 2003, SVE and AS wells were installed at the former Allen's Cleaners and were operational until July 8, 2005 [FSDEQP 2686].

¹⁸ The exact time period for which this volume of PCE use applies is unclear.

¹⁹ The highest detection of PCE reported near Kachina Cleaners was 800 µg/L, but that detection occurred in an in situ sample collected during a 1997 hydropunch investigation [FSDEQP 2680-2681].

²⁰ The TCE detection came from a duplicate sample taken at AMW1 [FSDEQP 2919, 2923]. These concentrations exceed the AWQS limits of 5.0 µg/L for both PCE and TCE [FSDEQP 2668].

Ms. Vargas
March 10, 2014
Page 18 of 18

If you have any questions about this letter report, please contact me by telephone at (602) 476-5310 or by email at kclower@hgl.com.

Sincerely,

A handwritten signature in cursive script that reads "Kimberly Clower".

Kimberly Clower
Project Manager

Enclosures (6)

cc: Chris Roman, HGL (w/ enclosures)

ENCLOSURE 1

**SOURCE DOCUMENTS
(PROVIDED ON CD)**

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Enclosure 1

Source Documents



**ADEQ Contract No.
13-048324
ADEQ Task Assignment
No. 14-055490**

Final Letter Report – Remedial Investigation

**East Central Phoenix
40th Street and Indian School Road
WQARF Registry Site, Phoenix, Arizona**

March 2014

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ENCLOSURE 2

**FIGURE 1
SITE LOCATION**

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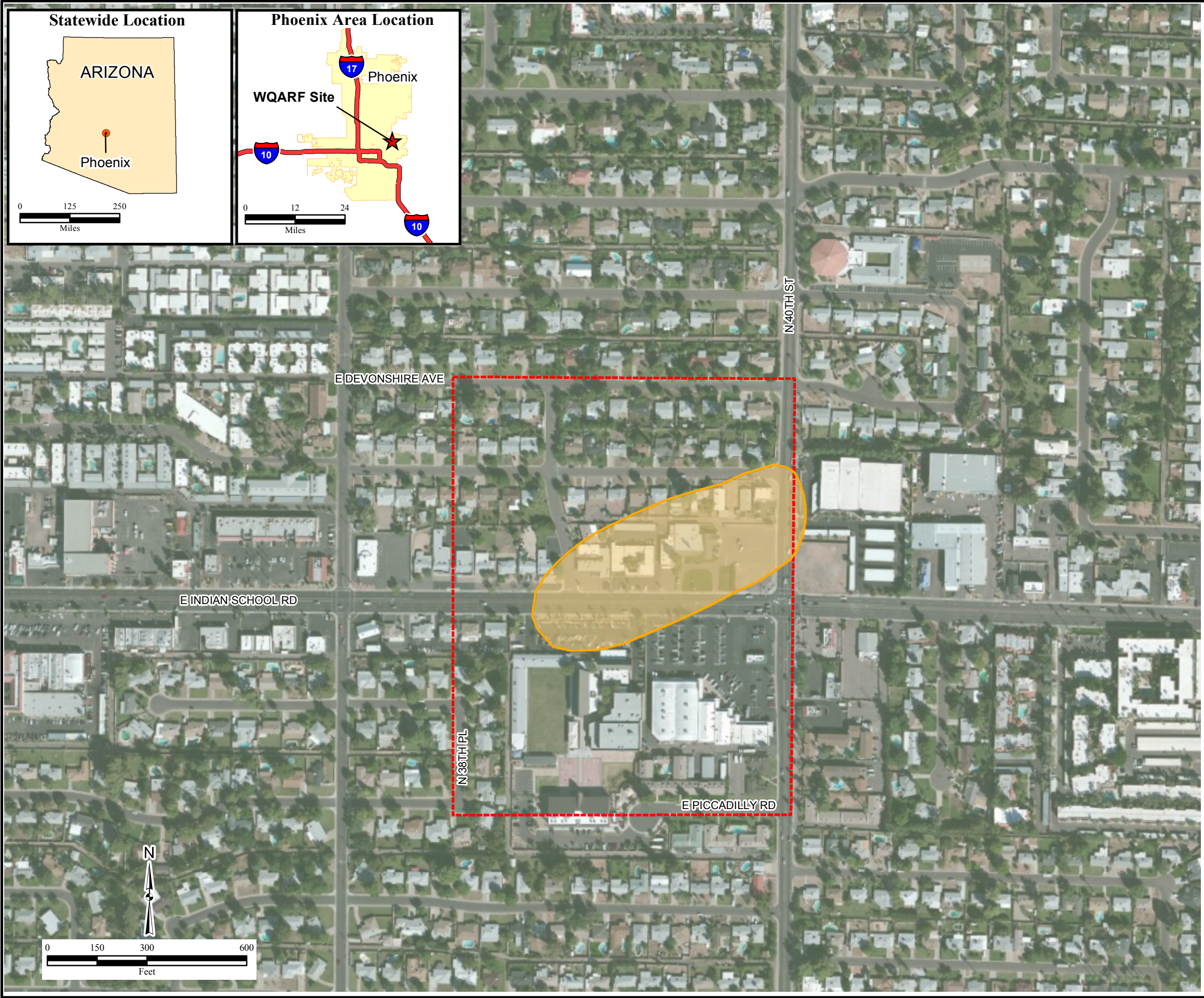


Figure 1
Site Location
ECP 40th Street and
Indian School Road
WQARF Registry Site

Legend

- WQARF Site Boundary
- Interstate
- Estimated Groundwater Plume Area, October 2013

Note:
WQARF=Water Quality Assurance Revolving Fund

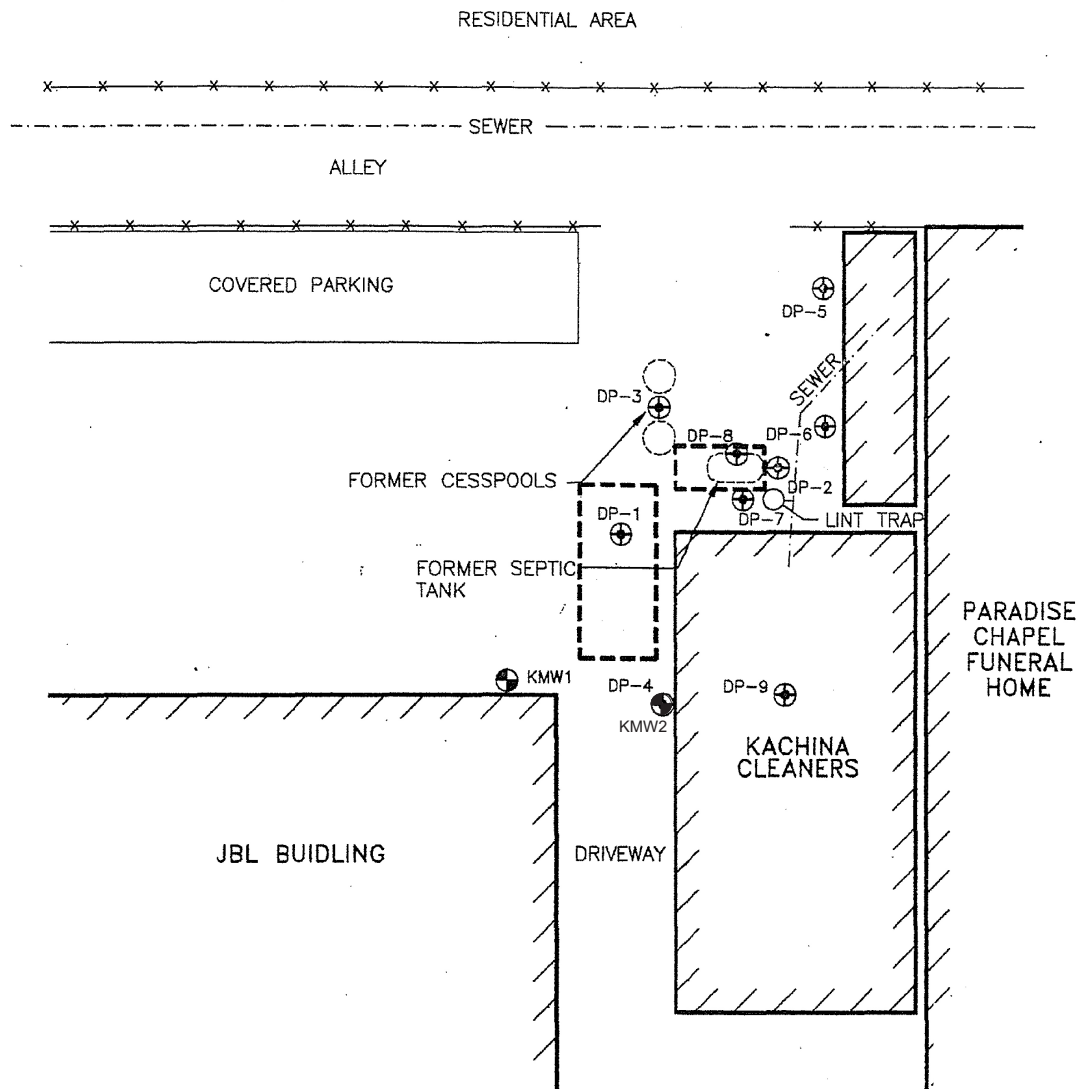
\\Gst-srv-01\HGLGIS\East Central Phoenix\40th_Street_Indian_School\RI Letter Report\
(1)Site_Loc.mxd
1/31/2014 RB
Source: ADEQ, ESRI
ArcGIS Online Imagery

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ENCLOSURE 3

**FIGURE 2
KACHINA CLEANERS AND LAUNDRY, INC.
SAMPLING LOCATIONS**

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- LEGEND
- APPROXIMATE EXTENT OF ASPHALT PATCH
 - *-* FENCE
 - [Hatched Box] EXISTING BUILDING
 - ⊕ EXISTING GROUNDWATER MONITOR WELL LOCATION
 - ⊕ LOCATION OF DIRECT PUSH SAMPLING



Figure Not to Scale

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40th_Street_Indian_School\IS\2)Kachina_Facility_Layout.cdr
01/31/2014 RB
Source: FSDEQP 2787

Figure 2
Kachina Cleaners and Laundry, Inc.
Sampling Locations

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ENCLOSURE 4

**FIGURE 3
ALLEN'S DRY CLEANERS AND LAUNDRY, INC.
SAMPLING LOCATIONS**

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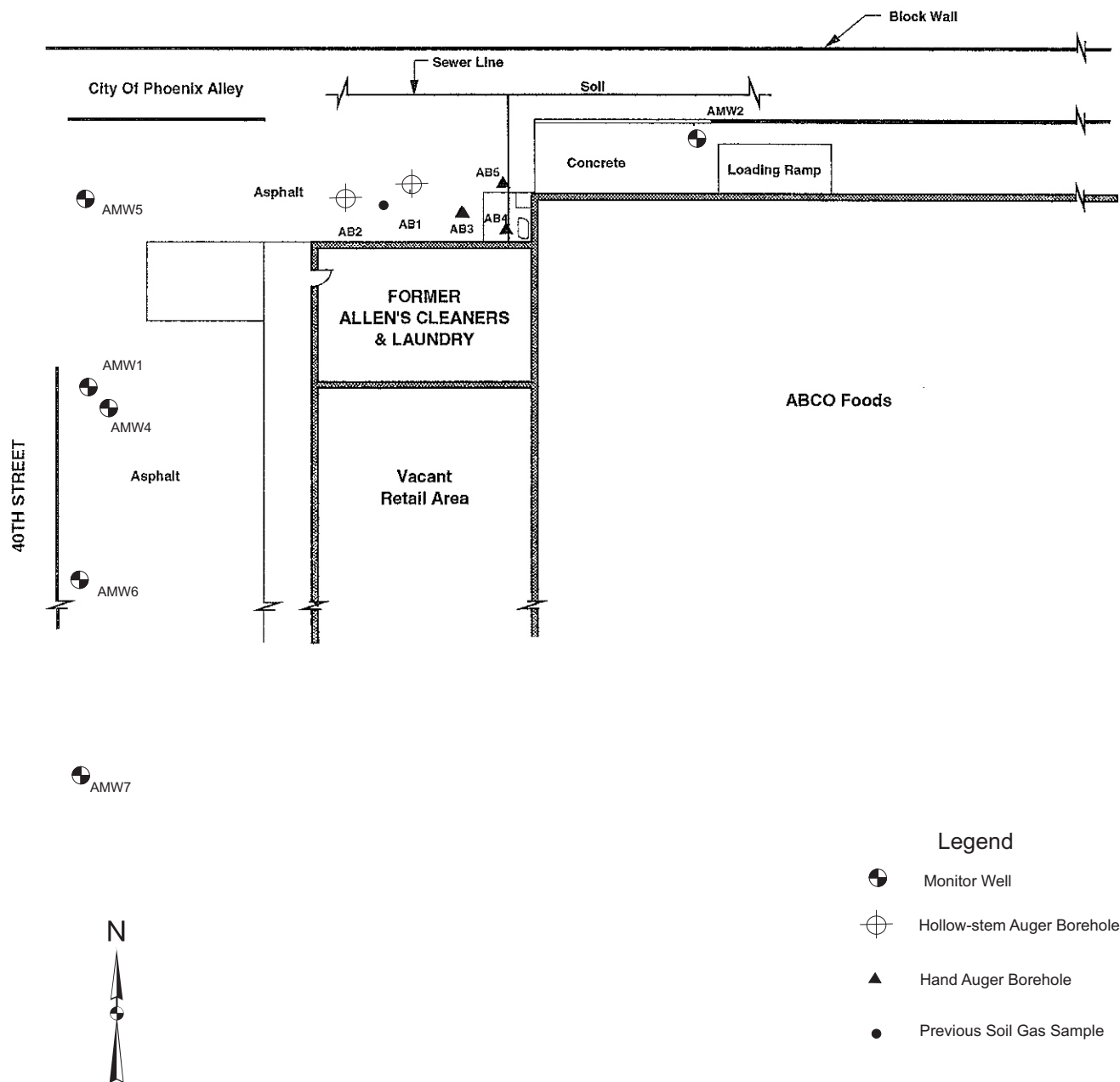


Figure Not to Scale

* Monitoring wells AMW3 and AMW8 are not located at the former Allen's Cleaners facility and therefore are not shown in this figure

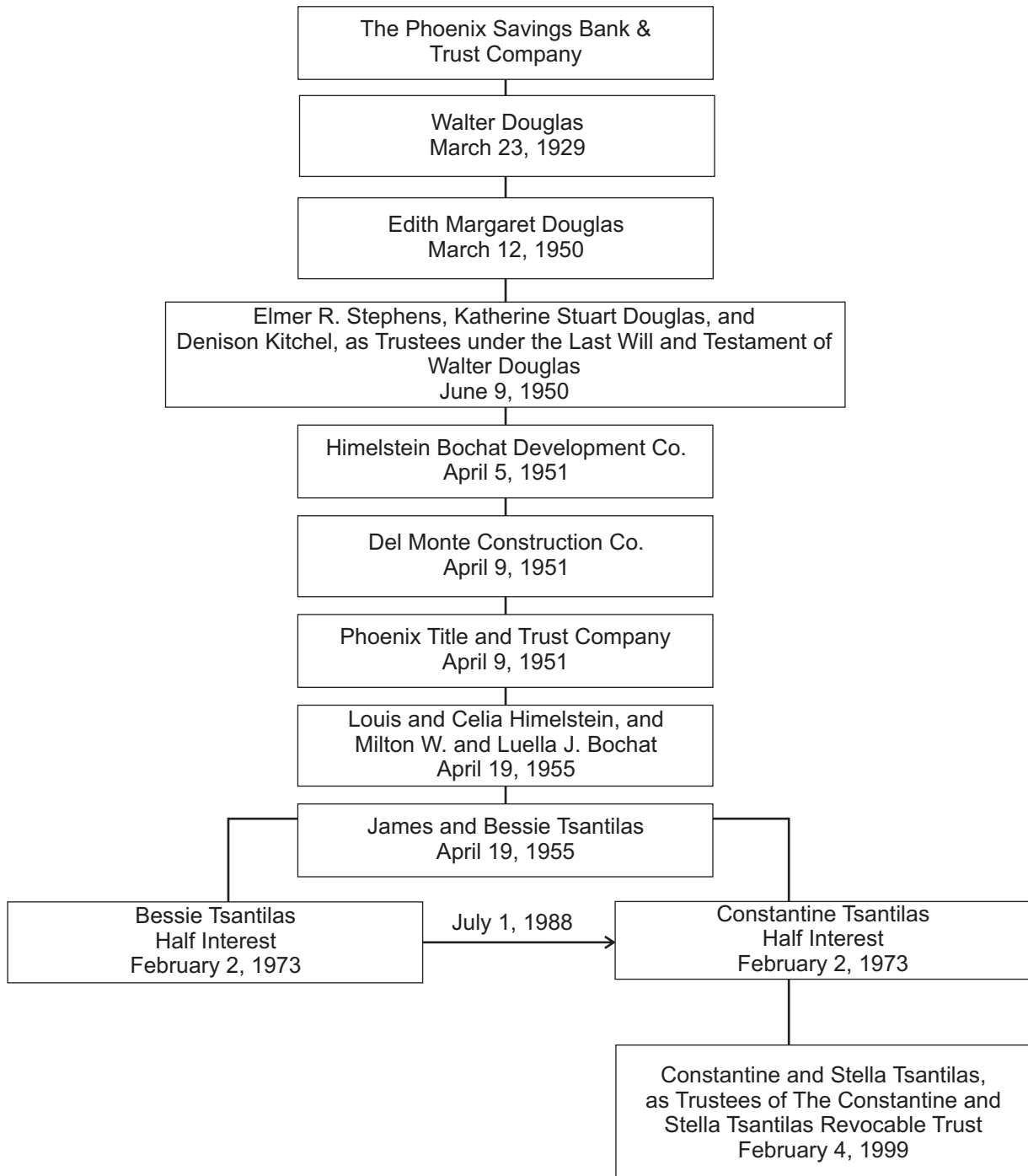
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40th_Street_Indian_School\IS\3\Allens_Facility_Layout.cdr
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Source: FSDEQP 1828

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ENCLOSURE 5

**FIGURE 4
PARCEL 170-32-099D
TITLE TREE**

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\\Gst-srv-01\HGLGIS\East Central Phoenix\40th_Street_Indian_School\RI_Letter_Report\
(4)Kachina_Parcel_17032099D.cdr
02/03/14 RB
Source: NETR 2014

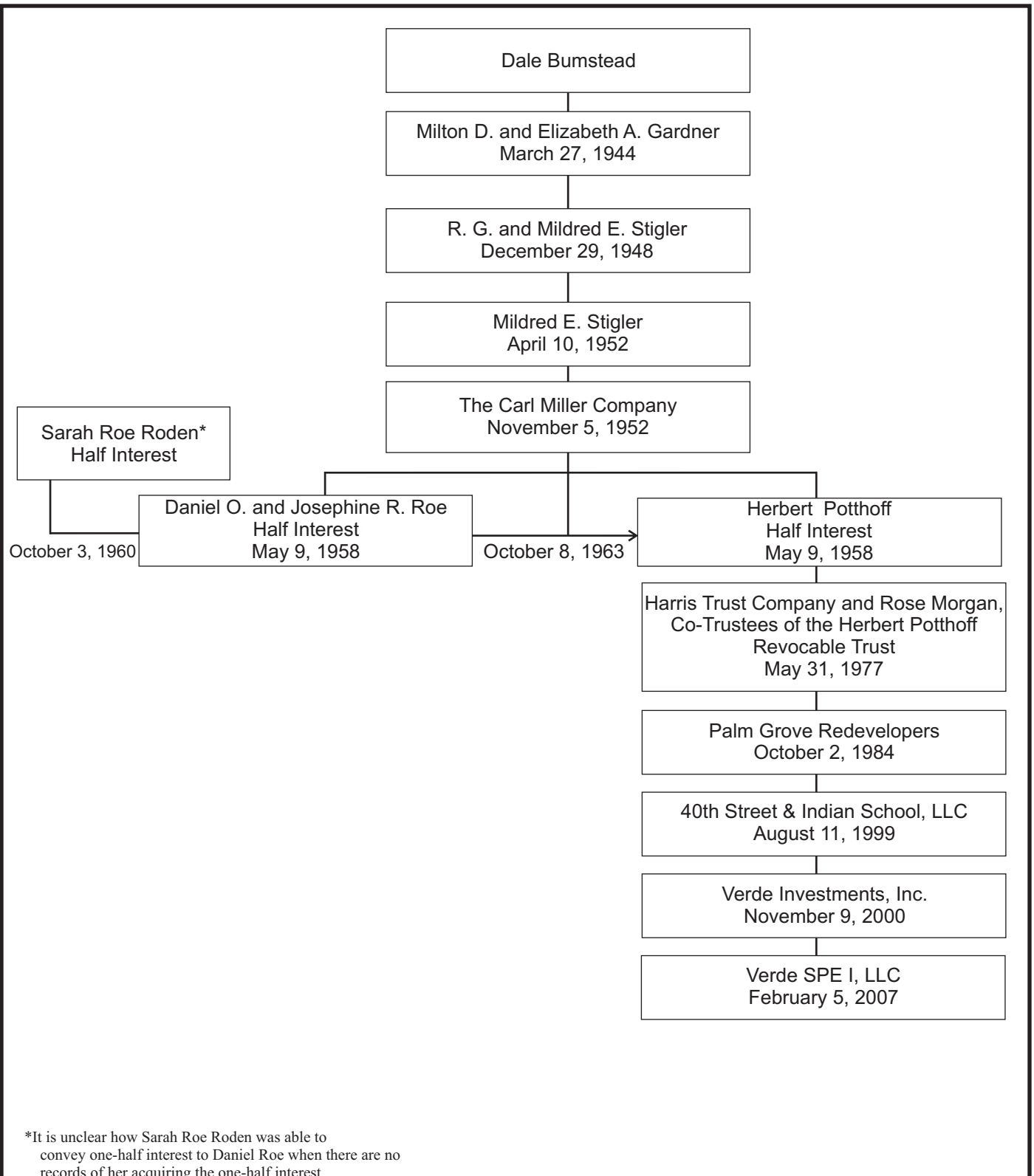
Figure 4
Parcel 170-32-099D
Title Tree

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ENCLOSURE 6

**FIGURE 5
PARCEL 171-26-061G
TITLE TREE**

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*It is unclear how Sarah Roe Roden was able to convey one-half interest to Daniel Roe when there are no records of her acquiring the one-half interest.

\\Gst-srv-01\HGLGIS\East Central Phoenix\38th_Street_Indian_School\RI_Letter_Report\
(4)Allens_Parcel_17126061E_F.cdr
01/03/14 RB
Source: NETR 2014

Figure 5
Parcel 171-26-061G
Title Tree

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HARGIS + ASSOCIATES, INC.

APPENDIX B

HISTORICAL ANALYTICAL RESULTS AND SOIL BORING LOCATIONS
SECOR INTERNATIONAL INCORPORATED & THE EARTH TECHNOLOGY CORPORATION

APPENDIX B

HISTORICAL ANALYTICAL RESULTS AND SOIL BORING LOCATIONS
SECOR INTERNATIONAL INCORPORATED & THE EARTH TECHNOLOGY CORPORATIONTABLE OF CONTENTSTABLES

Table

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| 1 | HISTORICAL CONCENTRATIONS OF SELECTED VOCs DETECTED IN SOIL VAPOR |
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Table 1
Historical Concentrations of Selected VOCs Detected in Soil Vapor Samples
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Sample Location	Sample Date	Depth (feet)	Laboratory Analysis	PCE	TCE	cis-1,2-DCE
				Concentrations in µg/L		
Site ID No. 20	10/10/89	15.2	EPA 601	370	0.92	NA
Site ID No. 21	10/10/89	16.5	EPA 601	270	<0.5	NA
DP-1	05/16/96	5	EPA 8010	20	<1	NA
DP-1	05/16/96	10	EPA 8010	18	<1	NA
DP-1	05/16/96	15	EPA 8010	14	<1	NA
DP-2	05/16/96	5	EPA 8010	51	<1	NA
DP-2	05/16/96	10	EPA 8010	41	<1	NA
DP-2	05/16/96	15	EPA 8010	10	<1	NA
DP-3	05/16/96	5	EPA 8010	7.2	<1	NA
DP-3	05/16/96	10	EPA 8010	4.2	<1	NA
DP-3 (d)	05/16/96	10	EPA 8010	9.5	<1	NA
DP-3	05/16/96	15	EPA 8010	5.7	<1	NA
DP-4	05/17/96	5	EPA 8010	190	<1	NA
DP-4	05/17/96	10	EPA 8010	460	<1	NA
DP-4	05/17/96	15	EPA 8010	370	<1	NA
DP-5	05/17/96	5	EPA 8010	66	<1	NA
DP-5	05/17/96	10	EPA 8010	88	<1	NA
DP-5 (d)	05/17/96	10	EPA 8010	110	<1	NA
DP-5	05/17/96	15	EPA 8010	43	<1	NA
DP-6	05/17/96	5	EPA 8010	41	<1	NA
DP-6	05/17/96	10	EPA 8010	67	<1	NA
DP-6	05/17/96	15	EPA 8010	89	<1	NA
DP-6 (d)	05/17/96	15	EPA 8010	83	<1	NA
DP-7	05/17/96	5	EPA 8010	370	<5	NA
DP-7	05/17/96	10	EPA 8010	220	<5	NA
DP-7	05/17/96	15	EPA 8010	140	<1	NA
DP-8	05/17/96	5	EPA 8010	410	<1	NA
DP-8	05/17/96	10	EPA 8010	260	<1	NA
DP-8	05/18/96	15	EPA 8010	120	<1	NA
DP-9	05/18/96	5	EPA 8010	160	<1	NA
DP-9	05/18/96	10	EPA 8010	180	<1	NA
DP-9	05/18/96	12	EPA 8010	250	<1	NA

Table 1
Historical Concentrations of Selected VOCs Detected in Soil Vapor Samples
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Sample Location	Sample Date	Depth (feet)	Laboratory Analysis	PCE	TCE	cis-1,2-DCE
				Concentrations in µg/L		
BB-1-7	01/15/97	7	EPA 8010/8020	0.13	<0.10	NA
BB-1-20	01/15/97	7	EPA 8010/8020	0.53	<0.10	NA
BB-2-7	01/15/97	7	EPA 8010/8020	31 (1)	<0.10	NA
BB-2-20	01/15/97	20	EPA 8010/8020	24 (1)	<0.10	NA
BB-3-7	01/15/97	7	EPA 8010/8020	33	<0.10	NA
BB-3-20	01/15/97	20	EPA 8010/8020	30	<5.0	NA
KMW2-8 (2)	05/06/06	8	EPA TO-15	0.52	<0.0080	<0.0080
KMW2-15 (2)	05/06/06	15	EPA TO-15	0.34	<0.0080	<0.0080
KMW2-25 (2)	05/06/06	25	EPA TO-15	1.8	0.017	<0.0080
KMW2-35 (2)	05/06/06	35	EPA TO-15	0.38	<0.0080	<0.0080
KMW2-40 (2)	05/06/06	40	EPA TO-15	0.29	<0.0080	<0.0080
KSB1-5 (2)	05/07/06	5	EPA TO-15	0.8	0.013	<0.0080
KSB1-15 (2)	05/07/06	15	EPA TO-15	0.27	<0.0080	<0.0080
KSB1-25 (2)	05/07/06	25	EPA TO-15	1.1	0.016	<0.0080
KSB1-35 (2)	05/07/06	35	EPA TO-15	0.29	<0.0080	<0.0080
KSB1-40 (2)	05/07/06	40	EPA TO-15	0.03	<0.0080	<0.0080
KSB3-5 (2)	05/19/06	5	EPA TO-15	6.7	0.045	<0.0080
KSB3-5D (d, 2)	05/19/06	5	EPA TO-15	6.2	0.038	<0.0080
KSB3-15 (2)	05/19/06	15	EPA TO-15	2.1	0.039	<0.0040
KSB3-25 (2)	05/19/06	25	EPA TO-15	3.1	0.08	<0.0080
KSB3-35 (2)	05/19/06	35	EPA TO-15	2.6	0.07	<0.0240
KSB3-40 (2)	05/19/06	40	EPA TO-15	<0.0040	<0.0040	<0.0040
KSB3-40D (d, 2)	05/19/06	40	EPA TO-15	0.054	<0.0120	<0.0120
KSB2-5 (2)	05/20/06	5	EPA TO-15	0.0044	<0.0032	<0.0032
KSB2-15 (2)	05/20/06	15	EPA TO-15	0.22	<0.0512	<0.0512
KSB2-25 (2)	05/20/06	25	EPA TO-15	0.7	<0.500	<0.500
KSB2-35 (2)	05/20/06	35	EPA TO-15	1.7	<1.280	<1.280
KSB2-40 (2)	05/20/06	40	EPA TO-15	0.46	0.0075	<0.0020

Notes:

PCE = Tetrachloroethene

TCE = Trichloroethene

cis-1,2-DCE = cis-1,2-Dichloroethene

VOCs = Volatile organic compounds

µg/L = Micrograms per liter

ppmV = parts per million by volume (or volumetric)

NA = Not analyzed or not available.

(d) = Duplicate sample.

(1) = Sample dilution required.

(2) = Sample results reported as ppmV on laboratory report.

Table 2
Historical Concentrations of Selected VOCs Detected in Groundwater Samples
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Sample Date	Sample Depth (Feet) ¹	ADEQ Aquifer Water Quality Standards in micrograms per Liter (µg/L)										Notes	
					PCE	TCE	1,1,1-TCA	Benzene	Toluene	Ethylbenzene	Total xylenes	cis-1,2-Dichloroethene	MTBE			
					5	5	200	5	1,000	700	10,000	70	NE			
AMW1	ADEQ	533299	04/21/92	NA	8,700	80	NA	NA	NA	NA	NA	NA	NA	NA	1	
	Historical		05/22/92	NA	12,000	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
			05/22/92	NA	10,000	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,2
			07/02/92	NA	15,000	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
			08/11/92	NA	5,900	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
			12/16/94	NA	31,000	<500	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
			12/16/94	NA	24,000	490	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,2
			03/28/96	NA	11,000	340	NA	NA	420	NA	540	NA	NA	NA	NA	1,3
			03/28/96	NA	12,000	340	NA	NA	360	NA	1,150	NA	NA	NA	NA	1,2
			03/13/97	NA	5,000	<250	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
			05/01/97	NA	1,800	11	<10	<10	<10	<10	<10	<10	NA	NA	NA	1
			05/08/97	NA	1,700	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
			11/20/97	NA	18,000	<250	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
			11/20/97	NA	15,000	<250	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,2
			02/05/98	NA	37,000	<1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
AMW1	Shallow	05/03/02	2	22,000	<25	<25	<25	<150	<100	<150	<25	<100				
		09/06/02	2	17,000	25	<0.50	<0.50	<3.0	<2.0	<3.0	3.8	<2.0				
		12/02/02	2	6,900	34	<25	<25	<150	<100	<150	<25	<100				
		03/05/03	2	5,100	<25	<25	<25	<150	<100	<150	<25	<100				
		06/04/03	2	5,900	17	<10	<10	<60	<40	<60	<10	<40				
		12/10/03	2	2,000	6.9	<2.5	<2.5	<15	<10	<15	<2.5	<10				
		03/30/04	2	1,100	5.4	<0.50	0.98	<3.0	<2.0	<3.0	0.74	<2.0				
		10/12/04	2	1,330	3.8	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8				
		03/22/05	2	29	<1.0	<1.0	1.7	<5.0	<1.0	<3.0	<1.0	<1.0				
		10/06/05	2	95.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0				
		03/14/06	2	3.2	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0				
		10/27/06	2	8.7	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0				
		03/15/07	2	6.2	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0				
		AMW1	Deep	03/27/02	24	6,500	8.3	<0.50	0.60	<3.0	<2.0	<3.0	1.5	<2.0		
				05/03/02	24	2,300	<5.0	<5.0	<5.0	<30	<20	<30	<5.0	<20		
09/06/02	23			490	0.80	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0				
12/02/02	23			290	1.7	<1.0	<1.0	<6.0	<4.0	<6.0	<1.0	<4.0				
03/05/03	22			380	1.4	<1.0	<1.0	<6.0	<4.0	<6.0	<1.0	<4.0				
03/05/03	22			340	1.5	<1.0	<1.0	<6.0	<4.0	<6.0	<1.0	<4.0	2			
06/04/03	21			400	1.7	<1.0	<1.0	<6.0	<4.0	<6.0	<1.0	<4.0				
12/10/03	10			110	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0				
03/30/04	18			100	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0				
10/12/04	16			34.9	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8				
03/22/05	14			7.4	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0				
10/06/05	16			9.4	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0				
03/14/06	16			3.9	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0				
10/27/06	17			5.2	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0				
10/27/06	17			5.5	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	2			
03/15/07	16	3.2	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0						
03/15/07	16	3.7	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	2					

Table 2
Historical Concentrations of Selected VOCs Detected in Groundwater Samples
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Sample Date	Sample Depth (Feet) ¹	PCE	TCE	1,1,1-TCA	Benzene	Toluene	Ethylbenzene	Total xylenes	cis-1,2-Dichloroethene	MTBE	Notes
					ADEQ Aquifer Water Quality Standards in micrograms per Liter (ug/L)									
					5	5	200	5	1,000	700	10,000	70	NE	
AMW2	ADEQ	535791	07/12/92	NA	0.5	<0.2	NA	NA	NA	NA	NA	NA	NA	1
			08/10/92	NA	3.4	<0.2	NA	NA	NA	NA	NA	NA	NA	1
			12/16/94	NA	12	<0.5	NA	NA	NA	NA	NA	NA	NA	1
			03/21/96	NA	2.4	<0.5	NA	NA	NA	NA	NA	NA	NA	1
			03/12/97	NA	1.0	<0.5	NA	NA	NA	NA	NA	NA	NA	1
			05/07/97	NA	<0.50	<0.50	NA	NA	NA	NA	NA	NA	NA	1
			11/18/97	NA	1.4	<0.5	NA	NA	NA	NA	NA	NA	NA	1
			02/03/98	NA	<1.0	<1.0	NA	NA	NA	NA	NA	NA	NA	1
AMW2	Shallow		05/02/02	2	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			09/05/02	2	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/02/02	2	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/05/03	2	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	2	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/10/03	2	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/22/05	2	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/06/05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
AMW2	Deep		03/26/02	24	1.1	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			05/02/02	24	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			09/05/02	23	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/02/02	23	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/05/03	22	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	21	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/30/04	18	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			10/12/04	16	<0.4	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	
			10/12/04	16	<0.4	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	2
			10/12/04	16	<0.4	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	2
			10/06/05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
			03/14/06	16	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/27/06	17	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	16	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
AMW3	ADEQ	535793	08/10/92	NA	<0.2	<0.2	NA	NA	NA	NA	NA	NA	NA	1
			12/12/94	NA	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	1
			03/29/96	NA	<0.5	<0.5	NA	NA	1.0	NA	NA	NA	NA	1
			03/11/97	NA	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	1
			05/06/97	NA	<0.50	<0.50	NA	NA	NA	NA	NA	NA	NA	1
			11/17/97	NA	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	1
			02/02/98	NA	<1.0	<1.0	NA	NA	NA	NA	NA	NA	NA	1
			03/25/02	30	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			09/06/02	2	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			09/06/02	29	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	

Table 2
Historical Concentrations of Selected VOCs Detected in Groundwater Samples
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Sample Date	Sample Depth (Feet) ¹	PCE	TCE	1,1,1-TCA	Benzene	Toluene	Ethylbenzene	Total xylenes	cis-1,2-Dichloroethene	MTBE	Notes	
					ADEQ Aquifer Water Quality Standards in micrograms per Liter (µg/L)										
					5	5	200	5	1,000	700	10,000	70	NE		
AMW4	Verde	560710	05/01/97	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	1	
	Shallow		05/02/02	48	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			09/05/02	47	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			12/02/02	47	0.89	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			03/05/03	46	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			06/04/03	45	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
AMW4	Deep		03/25/02	64	0.99	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			05/02/02	64	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			09/05/02	63	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			12/02/02	63	1.4	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			03/05/03	62	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			06/04/03	61	0.65	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			12/10/03	60	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			03/30/04	58	<0.50	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			10/12/04	56	0.5	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8		
			03/22/05	54	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0		
			10/06/05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
			03/14/06	56	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0		
			10/27/06	57	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0		
			03/15/07	56	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0		
AMW5	Verde	560711	05/01/97	NA	24	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	1	
			03/25/02	1	810	3.2	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			05/03/02	2	460	2.3	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			09/05/02	2	720	3.4	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			12/02/02	2	150	2.1	<0.50	0.76	<3.0	<2.0	<3.0	<0.50	<2.0		
			03/05/03	2	170	1.6	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			06/04/03	2	110	0.91	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			12/10/03	2	57	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			03/30/04	<1	200	0.92	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0		
			10/12/04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
			03/22/05	1	15	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0		
			10/06/05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
			03/14/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
			10/27/06	<1	54	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0		
			03/15/07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	

Table 2
Historical Concentrations of Selected VOCs Detected in Groundwater Samples
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Sample Date	Sample Depth (Feet) ¹	PCE	TCE	1,1,1-TCA	Benzene	Toluene	Ethylbenzene	Total xylenes	cis-1,2-Dichloroethene	MTBE	Notes
					ADEQ Aquifer Water Quality Standards in micrograms per Liter (µg/L)									
					5	5	200	5	1,000	700	10,000	70	NE	
AMW6	Verde	560712	05/01/97	NA	1,800	35	<10	<10	<10	<10	<10	<10	NA	1
	Shallow		05/02/02	2	210	2.2	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			09/06/02	2	380	2.5	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/02/02	2	37	0.72	<0.50	0.82	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/02/02	2	28	0.68	<0.50	0.69	<3.0	<2.0	<3.0	<0.50	<2.0	2
			03/05/03	2	38	0.70	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	2	48	0.89	<0.50	0.58	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	2	51	0.94	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	2
			12/10/03	2	69	1.7	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/30/04	2	41	0.90	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/30/04	2	41	0.82	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	2
			10/12/04	<1	377	2.2	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	
			03/22/05	2	28	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/06/05	2	4.5	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
AMW6	Deep		05/02/02	14	2,300	15	<2.5	<2.5	<15	<10	<15	<2.5	<10	
			09/06/02	13	70	1.0	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/02/02	14	97	3.2	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/05/03	12	29	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	11	17	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/10/03	10	10	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/10/03	10	47	1.6	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	2
			03/30/04	8	36	0.73	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			10/12/04	6	125	3.1	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	
			03/22/05	5	33	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/06/05	7	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/06/05	7	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	2
			03/14/06	6	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/27/06	7	1.5	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	6	1.7	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	

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40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Sample Date	Sample Depth (Feet) ¹	PCE	TCE	1,1,1-TCA	Benzene	Toluene	Ethylbenzene	Total xylenes	cis-1,2-Dichloroethene	MTBE	Notes
					ADEQ Aquifer Water Quality Standards in micrograms per Liter (µg/L)									
					5	5	200	5	1,000	700	10,000	70	NE	
AMW7	Verde	560713	09/05/97	NA	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	1
	Shallow		05/02/02	2	3.3	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			05/02/02	2	3.1	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	2
			09/05/02	2	3.6	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/02/02	2	6.9	<0.50	<0.50	0.86	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/05/03	2	6.1	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	2	4.6	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/23/05	2	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
AMW7	Deep		05/02/02	12	2.7	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			09/05/02	11	3.2	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/02/02	12	25	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/05/03	10	10	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	9	8.1	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/10/03	8	2.9	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/30/04	6	3.7	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			10/12/04	4	2.9	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	
			03/22/05	5	33	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/06/05	4	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/14/06	3	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/27/06	4	1.2	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	3	1.1	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
AMW8	ADEQ	598110	06/13/03	2	55	0.80	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
	Shallow		12/10/03	2	14	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/30/04	2	13	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			10/12/04	<1	25.4	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	
			03/22/05	2	7.9	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/06/05	2	7.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/14/06	2	3.9	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/14/06	2	4.1	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	2
AMW8	Deep		06/13/03	21	75	1.1	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/10/03	20	49	0.93	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/30/04	18	23	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			10/12/04	16	16.5	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	
			03/22/05	15	5.6	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			3/22/05	15	4.8	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	2
			10/06/05	17	37.0	1.8	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/14/06	16	9.1	<1.0	<1.0	1.2	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/14/06	16	13.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	2
			10/27/06	17	78.0	2.3	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	16	62.0	1.3	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	

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Phoenix, Arizona

Well ID	Owner	ADWR 55#	Sample Date	Sample Depth (Feet) ¹	PCE	TCE	1,1,1-TCA	Benzene	Toluene	Ethylbenzene	Total xylenes	cis-1,2-Dichloroethene	MTBE	Notes
					ADEQ Aquifer Water Quality Standards in micrograms per Liter (µg/L)									
KMW1	ADEQ	543425	05/19/94	NA	55	1.4	NA	NA	NA	NA	NA	NA	NA	
			05/19/94	NA	58	1.4	NA	NA	NA	NA	NA	NA	NA	2
			12/15/94	NA	130	2.3	NA	NA	NA	NA	NA	NA	NA	
			03/21/96	NA	340	4.6	NA	NA	NA	NA	NA	NA	NA	
			03/13/97	NA	540	<25	NA	NA	NA	NA	NA	NA	NA	
			05/07/97	NA	400	<13	NA	NA	NA	NA	NA	NA	NA	
			11/19/97	NA	500	77	NA	NA	NA	NA	NA	NA	NA	
			02/04/98	NA	360	<10	NA	NA	NA	NA	NA	NA	NA	
KMW1	Shallow		05/02/02	2	50	0.99	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			09/06/02	2	46	0.67	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/02/02	2	38	0.99	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/06/03	2	15	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	2	5.3	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/10/03	2	6	<0.50	<0.50	0.67	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/30/04	2	3.4	<0.50	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			10/12/04	<1	8.9	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	
			03/22/05	2	9.6	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/06/05	2	14.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/06	2	8.5	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/27/06	2	20.0	1.3	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
KMW1	Deep		03/15/07	2	23.0	1.4	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/26/02	24	310	7.3	<0.50	<0.50	<3.0	<2.0	<3.0	1.2	<2.0	
			03/26/02	24	340	7.5	<0.50	<0.50	<3.0	<2.0	<3.0	1.1	<2.0	2
			05/02/02	24	420	9.6	<0.50	<0.50	<3.0	<2.0	<3.0	0.88	<2.0	
			09/06/02	23	250	6.2	<0.50	<0.50	<3.0	<2.0	<3.0	0.63	<2.0	
			09/06/02	23	250	6.1	<0.50	<0.50	<3.0	<2.0	<3.0	0.6	<2.0	2
			12/02/02	23	100	4.7	<0.50	0.72	<3.0	<2.0	<3.0	0.68	<2.0	
			02/19/03	22	170	2.9	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/06/03	22	38	1.1	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			06/04/03	20	58	1.7	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	2
			06/04/03	21	63	1.8	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			12/10/03	20	36	1.3	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			03/30/04	18	55	2.1	<0.50	<0.50	<3.0	<2.0	<3.0	<0.50	<2.0	
			10/12/04	16	21	<1.0	<0.9	<0.6	<0.7	<0.6	<1.8	<0.5	<0.8	
			03/22/05	14	11	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			3/22/05	14	10	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	2
			10/06/05	16	61	1.6	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/06	16	12.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			10/27/06	16	26.0	1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	15	57.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	

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Well ID	Owner	ADWR 55#	Sample Date	Sample Depth (Feet) ¹	PCE	TCE	1,1,1-TCA	Benzene	Toluene	Ethylbenzene	Total xylenes	cis-1,2-Dichloroethene	MTBE	Notes
					ADEQ Aquifer Water Quality Standards in micrograms per Liter (ug/L)									
					5	5	200	5	1,000	700	10,000	70	NE	
KMW2	ADEQ	904765	06/16/06	2	1.4	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	4
	Shallow		10/27/06	2	1.8	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	2	2.2	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
	Deep		06/16/06	16	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	4
			10/27/06	14	1.4	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	19	1.5	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
MW5	ARCO	543929	12/02/02	2	2.2	<1.0	<1.0	150	<6.0	69	360	<1.0	240	6
			03/05/03	2	<1.0	<1.0	<1.0	150	13	14	230	<1.0	530	6
			06/04/03	2	<1.0	<1.0	<1.0	62	<6.0	12	140	<1.0	340	6
AS-1	ADEQ		04/18/06	16	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
Equipment Blank			10/27/06	NA	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	NA	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
Trip Blank			10/27/06	NA	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	
			03/15/07	NA	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0	<1.0	<1.0	

Notes:

Well ID = Well identification.

ADWR = Arizona Department of Water Resources

PCE = Tetrachloroethene

TCE = Trichloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

VOCs = Volatile organic compounds

MTBE = Methyl tert-butyl ether

ADEQ = Arizona Department of Environmental Quality

NA = Not analyzed; or not available; or not applicable, as appropriate

NE = Aquifer Water Quality Standard not established

ND = Concentration reported as non-detect; detection limit unknown

BOLD = Laboratory results exceed AWQS

(1) Sample depth is approximate feet below the measured water table surface. Term "NA" indicates that sample was collected from submersible pump inlet.

(2) = Duplicate sample

(3) Indicated m- and p-xylenes

(4) Samples collected following well installation

(5) Well was not sampled due to insufficient water in water column in well casing

(6) Historical tabulated data for ARCO well MW5 was focused on gasoline constituents; PCE and TCE may have been found, but they were not tabulated on ARCO const.

Table 3
Well Construction Details, Historical Groundwater Elevations, and Field Parameter Data¹
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Screen Int. (feet bsg)	MPE (feet amsl)	Date	DTW (feet)	GW Elev. (feet amsl)	pH	Temp. (Celsius)	D.O. (mg/L)	Cond. (mS/cm)	Notes
AMW1	ADEQ	533299	20-60	1212.30	04/21/92	31.47	1180.83	NM	NM	NM	NM	
					05/22/92	31.12	1181.18	NM	NM	NM	NM	
					07/02/92	30.65	1181.65	NM	NM	NM	NM	
					08/11/92	29.93	1182.37	NM	NM	NM	NM	
					01/20/94	27.08	1185.22	NM	NM	NM	NM	
					12/16/94	27.65	1184.65	NM	NM	NM	NM	
					03/28/96	28.19	1184.11	NM	NM	NM	NM	
					02/20/97	28.49	1183.81	NM	NM	NM	NM	
					03/10/97	28.75	1183.55	NM	NM	NM	NM	
					04/14/97	29.06	1183.24	NM	NM	NM	NM	
					05/08/97	29.25	1183.05	NM	NM	NM	NM	
					09/05/97	28.39	1183.88	NM	NM	NM	NM	2
					11/20/97	27.97	1184.30	NM	NM	NM	NM	
					12/17/97	28.13	1184.14	NM	NM	NM	NM	
					01/17/98	28.15	1184.12	NM	NM	NM	NM	
					02/05/98	28.65	1183.62	NM	NM	NM	NM	
					03/02/98	28.38	1183.89	NM	NM	NM	NM	
					03/21/02	33.87	1178.40	8.26	32.0	7.99	2.41	
					05/03/02	34.24	1178.03	8.35	23.4	NM	6.4	
					09/04/02	34.70	1177.57	8.78	29.7	NM	2.16	
					11/18/02	34.59	1177.68	NM	19.1	4.15	NM	
					02/19/03	35.85	1176.42	NM	NM	NM	NM	
					05/20/03	36.68	1175.59	5.72	25.6	4.33	20	
					12/10/03	38.29	1173.98	8.15	23.8	4.96	1.951	
					03/30/04	39.55	1172.72	5.17	22.0	3.37	5.43	
					10/12/04	41.86	1170.41	7.36	25.9	3.12	39.90	1
					03/22/05	43.55	1168.72	4.34	22.8	0.14	NM	1
					10/06/05	41.63	1170.64	8.28	27.4	6.69	2.69	1
					03/14/06	42.55	1169.72	8.44	23.8	2.48	2.70	1
					10/27/06	40.99	1171.28	8.96	26.3	7.7	2.45	1
					02/26/07	42.29	1169.98	8.77	25.1	6.97	2.46	1
					04/11/07	42.85	1169.42	NM	NM	NM	NM	14
					06/22/07	44.06	1168.21	NM	NM	NM	NM	
AMW2	ADEQ	535791	20-60	1213.59	07/02/92	30.89	1182.70	NM	NM	NM	NM	
					08/10/92	30.21	1183.38	NM	NM	NM	NM	
					01/19/94	27.24	1186.35	NM	NM	NM	NM	
					02/03/94	27.47	1186.12	NM	NM	NM	NM	
					12/16/94	27.83	1185.76	NM	NM	NM	NM	
					03/21/96	28.35	1185.24	NM	NM	NM	NM	
					02/20/97	28.65	1184.94	NM	NM	NM	NM	
					03/10/97	28.87	1184.72	NM	NM	NM	NM	
					04/14/97	29.22	1184.27	NM	NM	NM	NM	
					05/07/97	29.44	1184.05	NM	NM	NM	NM	
					09/05/97	28.50	1184.99	NM	NM	NM	NM	2
					11/18/97	28.12	1185.37	NM	NM	NM	NM	
					12/17/97	28.34	1185.15	NM	NM	NM	NM	
					01/07/98	28.27	1185.22	NM	NM	NM	NM	
					02/03/98	28.65	1184.84	NM	NM	NM	NM	
					03/02/98	28.18	1185.31	NM	NM	NM	NM	
					03/21/02	34.06	1179.43	8.37	24.3	8.22	2.25	
					05/02/02	34.39	1179.10	8.20	31.5	NM	0.10	
					09/04/02	34.84	1178.65	8.59	29.4	NM	2.67	
					11/18/02	34.78	1178.71	NM	20.9	2.81	NM	
					02/19/03	35.96	1177.53	4.73	31.4	3.35	1.94	
					05/20/03	36.81	1176.68	5.28	26.3	2.76	30	
					12/10/03	38.43	1175.06	7.78	21.3	4.44	3	
					03/30/04	39.66	1173.83	4.91	23.9	3.61	4.7	
					10/12/04	41.94	1171.55	4.74	31.4	3.43	41.80	1
					03/22/05	43.34	1170.15	3.91	19.2	0.18	NM	1
					10/06/05	NM	NM	NM	NM	NM	NM	
					03/15/06	42.41	1171.08	8.36	25.8	1.75	2.21	
					10/27/06	40.86	1172.63	8.13	26.3	2.9	2.15	
					02/26/07	42.12	1171.37	7.86	26.8	2.62	2.09	1
					04/11/07	42.78	1170.71	NM	NM	NM	NM	14
					06/22/07	43.92	1169.57	NM	NM	NM	NM	

Table 3
Well Construction Details, Historical Groundwater Elevations, and Field Parameter Data¹
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Screen Int. (feet bsg)	MPE (feet amsl)	Date	DTW (feet)	GW Elev. (feet amsl)	pH	Temp. (Celsius)	D.O. (mg/L)	Cond. (mS/cm)	Notes
AMW3	ADEQ	535793	20-60	1200.42	08/10/92	23.30	1177.12	NM	NM	NM	NM	
					01/18/94	20.55	1179.87	NM	NM	NM	NM	
					12/12/94	21.22	1179.20	NM	NM	NM	NM	3
					03/29/96	21.94	1178.48	NM	NM	NM	NM	
					02/20/97	22.27	1178.15	NM	NM	NM	NM	
					03/11/97	22.34	1178.08	NM	NM	NM	NM	
					04/14/97	22.58	1177.84	NM	NM	NM	NM	
					05/06/97	22.70	1177.72	NM	NM	NM	NM	
					11/17/97	21.80	1178.62	NM	NM	NM	NM	3
					12/17/97	22.00	1178.42	NM	NM	NM	NM	
					01/07/98	21.93	1178.49	NM	NM	NM	NM	
					02/02/98	22.34	1178.08	NM	NM	NM	NM	
					03/02/98	21.89	1178.53	NM	NM	NM	NM	
					03/21/02	27.86	1172.56	8.01	28.34	8.32	1.53	
AMW4	Verde	560710	80-100	1212.23	09/05/97	28.39	1183.84	NM	NM	NM	NM	
					03/21/02	33.91	1178.32	8.49	25.1	8.27	1.90	
					05/02/02	34.26	1177.97	8.48	27.1	NM	5.90	
					09/04/02	34.72	1177.51	8.97	26.5	NM	1.99	
					11/18/02	34.60	1177.63	NM	21.1	3.03	NM	
					02/19/03	35.87	1176.36	5.16	28.2	3.52	2.21	
					05/20/03	36.70	1175.53	5.70	25.2	3.37	20	
					12/10/03	38.32	1173.91	8.50	22.4	2.78	1.7	
					03/30/04	39.58	1172.65	4.96	24.9	3.2	5.0	
					10/12/04	41.88	1170.35	7.99	25.4	3.64	1.85	1
					03/22/05	43.40	1168.83	4.79	21.4	0.4	NM	1
					10/06/05	NM	NM	NM	NM	NM	NM	
					03/14/06	42.32	1169.91	11.56	27.3	1.94	0.97	
					10/27/06	40.76	1171.47	11.37	26.6	4.3	0.65	
AMW5	Verde	560711	30-50	1212.39	09/05/97	28.46	1183.93	NM	NM	NM	NM	
					03/21/02	33.85	1178.54	NM	NM	NM	NM	4
					05/03/02	34.27	1178.12	8.18	20.6	NM	6.30	7
					09/04/02	34.71	1177.68	8.52	31.1	18.33	8.20	
					11/18/02	34.61	1177.78	NM	21.3	2.51	NM	
					02/19/03	35.85	1176.54	4.84	23.0	2.45	4.29	
					05/20/03	36.68	1175.71	5.32	25.9	2.48	30	
					12/10/03	38.3	1174.09	7.77	22.7	5.25	3.3	
					03/30/04	39.57	1172.82	5.09	79.7	6.17	7.1	
					10/12/04	40.86	1171.53	NM	NM	NM	NM	1
					03/22/05	40.85	1171.54	4.17	23.0	0.13	NM	1
					10/06/05	41.14	1171.25	NM	NM	NM	NM	
					03/14/06	NM	NM	NM	NM	NM	NM	11
					10/27/06	40.78	1171.61	8.02	25.1	3.0	3.10	
AMW6	Verde	560712	30-50	1211.97	09/05/97	28.22	1183.75	NM	NM	NM	NM	
					03/21/02	NM	NM	NM	NM	NM	NM	5
					05/02/02	34.12	1177.85	8.71	31.9	NM	6.00	
					09/04/02	34.58	1177.39	8.96	27.0	NM	1.34	
					11/18/02	34.38	1177.59	NM	19.9	6.18	NM	
					02/19/03	35.72	1176.25	5.21	27.2	4.59	NM	
					05/20/03	36.54	1175.43	5.75	26.9	2.3	30	
					12/10/03	38.15	1173.82	8.36	22.3	6.19	1.6	
					03/30/04	39.42	1172.55	5.35	21.4	4.51	14.4	
					10/12/04	41.73	1170.24	4.94	28.8	6.56	21.7	1
					03/22/05	42.99	1168.98	4.53	22.1	0.35	NM	1
					10/06/05	41.32	1170.65	8.45	26.5	6.88	2.09	1
					03/14/06	42.24	1169.73	8.66	25.6	2.64	2.39	1
					10/27/06	40.69	1171.28	8.77	25.5	8.5	2.12	
					02/26/07	41.99	1169.98	8.86	22.3	7.69	1.89	1
					04/11/07	NM	NM	NM	NM	NM	NM	13
					06/22/07	43.75	NM	NM	NM	NM	NM	

Table 3
Well Construction Details, Historical Groundwater Elevations, and Field Parameter Data¹
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Screen Int. (feet bsg)	MPE (feet amsl)	Date	DTW (feet)	GW Elev. (feet amsl)	pH	Temp. (Celsius)	D.O. (mg/L)	Cond. (mS/cm)	Notes
AMW7	Verde	560713	30-50	1211.81	09/05/97	28.13	1183.68	NM	NM	NM	NM	
					03/21/02	NM	NM	NM	NM	NM	NM	6
					05/02/02	34.18	1177.63	8.08	30.5	NM	6.50	7
					09/04/02	34.63	1177.18	8.71	28.2	NM	2.00	
					11/18/02	34.44	1177.37	NM	21.0	5.29	NM	
					02/19/03	35.79	1176.02	5.12	26.7	3.72	NM	
					05/20/03	36.60	1175.21	5.34	26.7	3.37	30	
					12/10/03	38.20	1173.61	7.05	23.1	3.71	2.1	
					03/30/04	39.47	1172.34	5.20	21.4	4.67	13.3	
					10/12/04	41.75	1170.06	5.63	29.6	3.6	15.50	1
					03/22/05	43.30	1168.51	6.10	23.2	1.05	NM	1
					10/06/05	41.41	1170.40	8.20	27.2	2.69	2.23	1
					03/14/06	42.35	1169.46	8.18	27.4	1.51	2.28	
					10/27/06	40.80	1171.01	8.67	25.7	3.1	1.90	
AMW8	ADEQ	598110	20-60	1210.22	02/26/07	42.08	1169.73	8.81	22.5	3.31	1.91	1
					04/12/07	42.68	1169.13	NM	NM	NM	NM	14
					06/22/07	43.83	1167.98	NM	NM	NM	NM	
					06/13/03	37.00	1173.22	7.86	27.3	3.21	1.33	
					12/10/03	38.05	1172.17	7.04	23.2	5.12	2.04	
					03/30/04	39.33	1170.89	4.56	23.9	5.35	7.33	
					10/12/04	41.69	1168.53	4.60	30.0	10.48	70.10	1
					03/22/05	43.23	1166.99	4.62	22.9	0.32	NM	1
					10/06/05	41.21	1169.01	7.71	27.7	5.04	1.40	1
					03/14/06	42.18	1168.04	7.88	25.3	2.19	1.50	1
					10/27/06	40.59	1169.63	8.03	23.8	6.5	1.52	
					02/26/07	41.91	1168.31	7.67	26.2	5.71	1.54	1
					04/11/07	42.51	1167.71	NM	NM	NM	NM	14
					06/22/07	43.74	1166.48	NM	NM	NM	NM	
KMW1	ADEQ	543425	20-60	1209.07	05/19/94	27.79	1181.28	NM	NM	NM	NM	
					12/15/94	27.54	1181.53	NM	NM	NM	NM	
					03/21/96	27.99	1181.08	NM	NM	NM	NM	
					02/20/97	28.33	1180.74	NM	NM	NM	NM	
					03/10/97	28.63	1180.44	NM	NM	NM	NM	
					04/14/97	28.88	1180.19	NM	NM	NM	NM	
					05/07/97	29.05	1180.02	NM	NM	NM	NM	
					11/19/97	27.83	1181.24	NM	NM	NM	NM	
					12/17/97	28.02	1181.05	NM	NM	NM	NM	
					01/07/98	28.00	1181.07	NM	NM	NM	NM	
					02/04/98	28.49	1180.58	NM	NM	NM	NM	
					03/02/98	28.08	1180.99	NM	NM	NM	NM	
					03/21/02	33.87	1175.20	8.02	24.7	11.79	2.08	
					05/02/02	34.25	1174.82	8.17	30.2	NM	6.40	
					09/04/02	34.62	1174.45	8.46	29.5	NM	1.86	
					11/18/02	34.50	1174.57	7.09	21.9	3.51	1.10	
					02/19/03	35.91	1173.16	5.70	22.5	3.52	NM	
					05/20/03	36.68	1172.39	5.49	25.1	3.19	70	
					12/10/03	38.31	1170.76	7.73	24.0	4.13	1.5	
					03/30/04	39.90	1169.17	4.91	27.3	4.19	11.3	
					10/12/04	41.98	1167.09	4.63	28.9	3.78	37.0	1
					03/22/05	43.64	1165.43	4.46	23.9	1.48	NM	1
					10/06/05	41.49	1167.58	7.60	28.3	4.55	1.7	1
					03/15/06	42.49	1166.58	7.51	24.2	1.98	1.72	1
					10/27/06	40.86	1168.21	8.13	23.4	5.8	1.57	1
					02/26/07	42.21	1166.86	7.85	26.0	5.21	1.57	1
					04/11/07	42.77	1166.30	NM	NM	NM	NM	14
					06/22/07	44.01	1165.06	NM	NM	NM	NM	
KMW2	ADEQ	904765	25-65	1208.83	06/02/06	41.51	1167.32	NM	NM	NM	NM	12
					10/27/06	40.53	1168.30	8.21	22.5	5.9	1.02	1
					02/26/07	41.85	1166.98	7.68	26.2	4.59	1.13	1
					04/11/07	42.42	1166.41	NM	NM	NM	NM	14
					06/22/07	43.62	1165.21	NM	NM	NM	NM	

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40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Well ID	Owner	ADWR 55#	Screen Int. (feet bsg)	MPE (feet amsl)	Date	DTW (feet)	GW Elev. (feet amsl)	pH	Temp. (Celsius)	D.O. (mg/L)	Cond. (mS/cm)	Notes
MW5	ARCO	543929	21-40	1208.83	07/15/94	27.10	1181.73	NM	NM	NM	NM	8
					12/23/94	26.09	1182.74	NM	NM	NM	NM	
					03/22/95	26.48	1182.35	NM	NM	NM	NM	
					05/16/95	26.36	1182.47	NM	NM	NM	NM	
					08/09/95	25.91	1182.92	NM	NM	NM	NM	
					11/14/95	24.96	1183.87	NM	NM	NM	NM	
					02/29/96	26.66	1182.17	NM	NM	NM	NM	
					05/22/96	26.94	1181.89	NM	NM	NM	NM	
					08/08/96	26.57	1182.26	NM	NM	NM	NM	
					10/23/96	25.88	1182.95	NM	NM	NM	NM	
					04/14/98	28.35	1180.48	NM	NM	NM	NM	
					09/16/98	26.30	1182.53	NM	NM	NM	NM	
					01/21/99	25.98	1182.85	NM	NM	1.34	NM	
					07/15/99	28.86	1179.97	NM	NM	1.15	NM	
					02/24/00	29.85	1178.98	NM	NM	2.17	NM	
					08/04/00	30.89	1177.94	NM	NM	1.04	NM	
					02/13/01	30.71	1178.12	NM	NM	7.8	NM	
					09/07/01	31.53	1177.30	NM	NM	16	NM	
					02/13/02	31.95	1176.88	NM	NM	NM	NM	
					09/17/02	33.32	1175.51	NM	NM	NM	NM	
					11/18/02	33.04	1175.79	NM	22.8	2.37	NM	
					02/19/03	34.64	1174.19	NM	NM	NM	NM	
					05/20/03	35.47	1173.36	4.37	26.5	1.2	130	
					12/10/03	NM	NM	NM	NM	NM	NM	9
					03/30/04	NM	NM	NM	NM	NM	NM	9
					10/12/04	NM	NM	NM	NM	NM	NM	10
					03/22/05	NM	NM	NM	NM	NM	NM	10
					10/06/05	NM	NM	NM	NM	NM	NM	10
					03/15/06	NM	NM	NM	NM	NM	NM	10
					02/26/07	NM	NM	NM	NM	NM	NM	10
					04/11/07	NM	NM	NM	NM	NM	NM	
					06/22/07	NM	NM	NM	NM	NM	NM	

Notes:

Well ID = Well identification

ADWR = Arizona Department of Water Resources

ADEQ = Arizona Department of Environmental Quality

Screen Int. = Well screen interval

bsg = Below surface grade

MPE = Measuring point elevation

amsl = Above mean sea level

Depth to water measurements from 1992 thru 1998 from Fluor Daniel GTI, Inc. (FD GTI) *Groundwater Sampling Report, 1st Quarter 1998, East Central Phoenix WQARF Project Area*, dated 3/26/98 (except where noted).

(1) Field parameters collected on date well was sampled and tabulated for uppermost sample when sampling at multiple intervals.

(2) Hydro Geo Chem, Inc. *Results of Groundwater Investigation, Former Allen's Cleaners Facility*, dated 2/17/98. FD GTI calculated groundwater elevations at AMW1 and AMW2 corrected to most recent MPE.

(3) FD GTI measured DTW suspect; measurements indicated have been adjusted by SECOR based on available data.

(4) On 3/21/02, a blockage was measured at ~34.7 feet below MPE. On 4/24/02, air injection was utilized to clear the well to ~42 feet bsg.

(5) On 3/21/02, a blockage was measured at ~31.2 feet below MPE. On 4/24/02, air injection was utilized to clear the well to 50 feet bsg.

(6) On 3/21/02, a blockage was measured at ~26.6 feet below MPE. On 4/24/02, air injection was utilized to clear the well to ~47 feet bsg.

(7) On 4/24/02, a 2-inch diameter well was installed inside the existing 4-inch diameter well due to a suspected casing break.

(8) Depth to water measurements from ARCO wells collected by Delta Environmental Consultants, Inc. through 1998.

(9) Former ARCO 5282 was undergoing demolition during the sampling event.

(10) MW5 at former ARCO 5282 was dry.

(11) Insufficient water, less than 2 feet of water in well. No PDBS hung.

(12) Well gauging information from installation.

(13) Unable to open well cover.

(14) Wells were gauged to examine the influence of pumping the SRP well located at 32nd Street and Indian School Road.

DTW = Measured depth to water

GW Elev. = Calculated groundwater elevation

D.O. = Dissolved oxygen

Cond. = Conductivity

mg/L = Milligrams per liter

mS/cm = MilliSiemens per centimeter

NM = Not measured

Table 4
Historical Concentrations of Selected VOCs Detected in Soil Samples
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Sample Location	Sample Date	Depth (feet)	Laboratory Analysis	PCE (mg/kg)	TCE (mg/kg)	cis-1,2-DCE (mg/kg)
ADEQ Minimum Groundwater Protection Limits (mg/kg)				1.3	0.61	1.0
ADEQ residential Soil Remediation Levels (10^{-6} , mg/kg)				0.051	3.0	NE
AB-1	04/07/92	5	EPA 8010	<0.020	<0.020	NA
AB-1	04/07/92	10	EPA 8010	<0.0005	<0.0005	NA
AB-1	04/07/92	15	EPA 8010	<0.0005	<0.0005	NA
AB-2	04/07/92	5	EPA 8010	0.052	<0.020	NA
AB-2	04/07/92	10	EPA 8010	<0.020	<0.020	NA
AB-2	04/07/92	15	EPA 8010	<0.020	<0.020	NA
AB-3	04/07/92	4.5	EPA 8010	<0.020	<0.020	NA
AB-3	04/07/92	8.5	EPA 8010	<0.020	<0.020	NA
AB-4	04/07/92	5	EPA 8010	<0.020	<0.020	NA
AB-4	04/07/92	8.5	EPA 8010	<0.020	<0.020	NA
AB-5	04/07/92	4.5	EPA 8010	<0.020	<0.020	NA
AB-5	04/07/92	8.5	EPA 8010	<0.020	<0.020	NA
AB-6	04/07/92	10	EPA 8010	<0.020	<0.020	NA
AB-6	04/07/92	20	EPA 8010	<0.020	<0.020	NA
AB-6	04/07/92	30	EPA 8010	0.188	<0.020	NA
Boring 2	06/15/93	6	EPA 8240	2.750	NA	NA
CA001A	08/19/93	5.5	EPA 8240	<0.005	NA	NA
CA001C	08/19/93	7	EPA 8240	<0.005	NA	NA
CA002A	08/19/93	5.5	EPA 8240	<0.005	NA	NA
CA002C	08/19/93	7	EPA 8240	<0.005	NA	NA
CA003A	08/20/93	5.5	EPA 8240	<0.005	NA	NA
CA003C	08/20/93	7	EPA 8240	<0.005	NA	NA
CA004A	08/20/93	5.5	EPA 8240	<0.005	NA	NA
CA004C	08/20/93	7	EPA 8240	<0.005	NA	NA
VA1-A	08/20/93	7	EPA 8240	<0.005	NA	NA
VA1-C	08/20/93	9	EPA 8240	<0.005	NA	NA
VA1-E	08/20/93	11	EPA 8240	<0.005	NA	NA
VA1-G	08/20/93	13	EPA 8240	0.040	NA	NA
VA1-H (1)	08/20/93	15	EPA 8240	<0.005	NA	NA
VA1-J	08/21/93	27.5	EPA 8240	<0.005	NA	NA
V1-S@3	08/20/93	3	EPA 8240	0.390	NA	NA
V1-N@5	08/20/93	5	EPA 8240	<0.005	NA	NA
V1-S@5	08/20/93	5	EPA 8240	<0.005	NA	NA
V1-E	08/20/93	5	EPA 8240	0.215	NA	NA
V1-W	08/20/93	5	EPA 8240	0.160	NA	NA
DP-1	05/16/96	12	EPA 8010	<0.001	<0.001	<0.001
DP-2	05/16/96	7	EPA 8010	<0.001	<0.001	<0.001
DP-2	05/16/96	12	EPA 8010	<0.001	<0.001	<0.001
DP-2 (d)	05/16/96	12	EPA 8010	<0.001	<0.001	<0.001
DP-3	05/16/96	17	EPA 8010	<0.001	<0.001	<0.001
DP-4	05/17/96	7	EPA 8010	0.0033	<0.001	<0.001
DP-5	05/17/96	7	EPA 8010	<0.001	<0.001	<0.001

Table 4
Historical Concentrations of Selected VOCs Detected in Soil Samples
40th Street and Indian School Road WQARF Site
Phoenix, Arizona

Sample Location	Sample Date	Depth (feet)	Laboratory Analysis	PCE (mg/kg)	TCE (mg/kg)	cis-1,2-DCE (mg/kg)
ADEQ Minimum Groundwater Protection Limits (mg/kg)				1.3	0.61	1.0
ADEQ residential Soil Remediation Levels (10^{-6} , mg/kg)				0.051	3.0	NE
DP-6	05/17/96	12	EPA 8010	<0.001	<0.001	<0.001
DP-7	05/17/96	17	EPA 8010	0.0018	<0.001	<0.001
DP-8	05/18/96	7	EPA 8010	0.0056	<0.001	<0.001
DP-9	05/18/96	7	EPA 8010	0.0045	<0.001	<0.001
BB-1-7	01/15/97	7	EPA 8010/8020	<0.025	<0.025	<0.025
BB-1-10	01/15/97	10	EPA 8010/8020	<0.025	<0.025	<0.025
BB-1-15	01/15/97	15	EPA 8010/8020	<0.025	<0.025	<0.025
BB-1-20	01/15/97	20	EPA 8010/8020	<0.025	<0.025	<0.025
BB-2-7	01/15/97	7	EPA 8010/8020	<0.025	<0.025	<0.025
BB-2-15	01/15/97	15	EPA 8010/8020	<0.025	<0.025	<0.025
BB-2-20	01/15/97	20	EPA 8010/8020	<0.025	<0.025	<0.025
BB-3-7	01/15/97	7	EPA 8010/8020	<0.025	<0.025	<0.025
BB-3-20	01/15/97	20	EPA 8010/8020	<0.025	<0.025	<0.025
BB-3-25	01/15/97	25	EPA 8010/8020	<0.025	<0.025	<0.025
HP-AC2	05/19/97	70	EPA 8010/8020	<0.05	NA	NA
HP-AC3	05/21/97	45	EPA 8010/8020	<0.05	NA	NA
HP-AC3	05/21/97	60	EPA 8010/8020	<0.05	NA	NA
KMW2-25	05/06/06	25	8260B	<0.044	<0.044	<0.044
KMW2-40	05/06/06	40	8260B	<0.044	<0.044	<0.044
KSB1-5	05/07/06	5	8260B	<0.043	<0.043	<0.043
KSB1-25	05/07/06	25	8260B	<0.042	<0.042	<0.042
KSB3-5	05/19/06	5	8260B	<0.40	<0.040	<0.040
KSB3-10	05/19/06	10	8260B	0.12	<0.036	<0.036
KSB2-20	05/20/06	20	8260B	<0.035	<0.035	<0.035
KSB2-40	05/20/06	40	8260B	<0.041	<0.041	<0.041
KSB2-40D	05/20/06	40	8260B	<0.040	<0.040	<0.040

Notes:

PCE = tetrachloroethene

TCE = trichloroethene

cis 1,2-DCE = cis 1,2-dichloroethene

VOCs = Volatile organic compounds

mg/kg = milligrams per kilogram or parts per million

ADEQ = Arizona Department of Environmental Quality

NE = Not established

NA = not analyzed

(d) = duplicate sample

(1) Sample listed in laboratory analytical report as V1-H

BOLD = detected concentration exceeds GPL or residential SRL (10^{-6} level)

Table 5
Historical Concentrations of Selected VOCs Detected in *In Situ* Groundwater
Samples Collected Using Hydropunch or SimulProbe Sampler
40th Street and Indian School WQARF Site
Phoenix, Arizona

Sample Location	Sample Date	Depth (feet)	Laboratory Analysis	PCE (µg/L)	TCE (µg/L)	cis-1,2-dichloroethene (µg/L)
				ADEQ Aquifer Water Quality Standards µg/L		
				5	5	70
AMW-4	04/21/97	55	UNK	7.6	<5	<5
AMW-4	04/21/97	60	UNK	<5	<5	<5
AMW-4	04/21/97	75	UNK	<5	<5	<5
AMW-4	04/22/97	80	UNK	<5	<5	<5
AMW-4	04/22/97	90	UNK	13 (1)	<5	<5
AMW-4	04/22/97	98	UNK	7.1 (1)	<5	<5
AMW-5	04/24/97	40	UNK	120	<5	<5
AMW-5	04/25/97	55	UNK	<5	<5	<5
AMW-6	04/23/97	35	UNK	8500	<5	<5
AMW-6	04/23/97	45	UNK	23	<5	<5
AMW-6	04/23/97	50	UNK	<5	<5	<5
AMW-6	04/23/97	60	UNK	<5	<5	<5
AMW-7A	08/28/97	37	EPA 502.2	4.9	<0.5	<0.5
AMW-7B	08/28/97	37	EPA 502.2	4.0	<0.5	<0.5
HP-AC1	05/03/97	33	EPA 601/602	44.5	NA	NA
HP-AC1	05/03/97	48	EPA 601/602	316	NA	NA
HP-AC1	05/03/97	63	EPA 601/602	<1.0	NA	NA
HP-AC1	05/03/97	78	EPA 601/602	<1.0	NA	NA
HP-AC1 (d)	05/03/97	78	EPA 601/602	<1.0	NA	NA
HP-AC1	05/03/97	105	EPA 601/602	<1.0	NA	NA
HP-AC1	05/04/97	120	EPA 601/602	<1.0	NA	NA
HP-AC2	05/19/97	30	EPA 601/602	<1.0	NA	NA
HP-AC2	05/19/97	45	EPA 601/602	43.2	NA	NA
HP-AC2	05/20/97	75	EPA 601/602	<1.0	NA	NA
HP-AC2	05/20/97	90	EPA 601/602	<1.0	NA	NA
HP-AC2 (d)	05/20/97	90	EPA 601/602	<1.0	NA	NA
HP-AC2	05/20/97	105	EPA 601/602	<1.0	NA	NA
HP-AC3	05/21/97	30	EPA 601/602	800	NA	NA
HP-AC3	05/21/97	75	EPA 601/602	1.59	NA	NA
HP-AC3 (d)	05/21/97	75	EPA 601/602	2.42	NA	NA
HP-AC3	05/22/97	90	EPA 601/602	<1.0	NA	NA
HP-AC3	05/22/97	105	EPA 601/602	<1.0	NA	NA
KMW2-52	05/07/06	52	EPA 8260B	1.2	<1.0	<1.0
KSB1-52	05/07/06	52	EPA 8260B	71	<1.0	<1.0
KSB2-54	05/21/06	54	EPA 8260B	7.2	<1.0	<1.0
KSB3-54	05/20/06	54	EPA 8260B	400	1.8	<1.0
KSB3-54D (d)	05/20/06	54	EPA 8260B	79	1.9	<2.0

Notes:

PCE = Tetrachloroethene

TCE = Trichloroethene

µg/L = Micrograms per liter or parts per billion.

ADEQ = Arizona Department of Environmental Quality

UNK = Unknown.

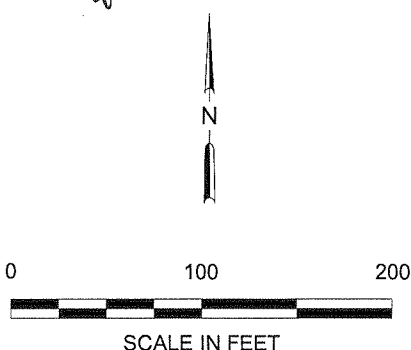
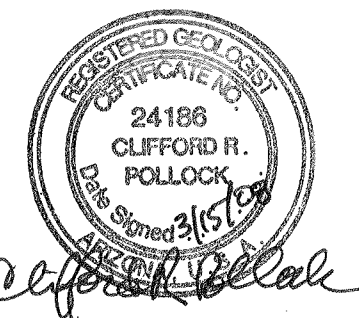
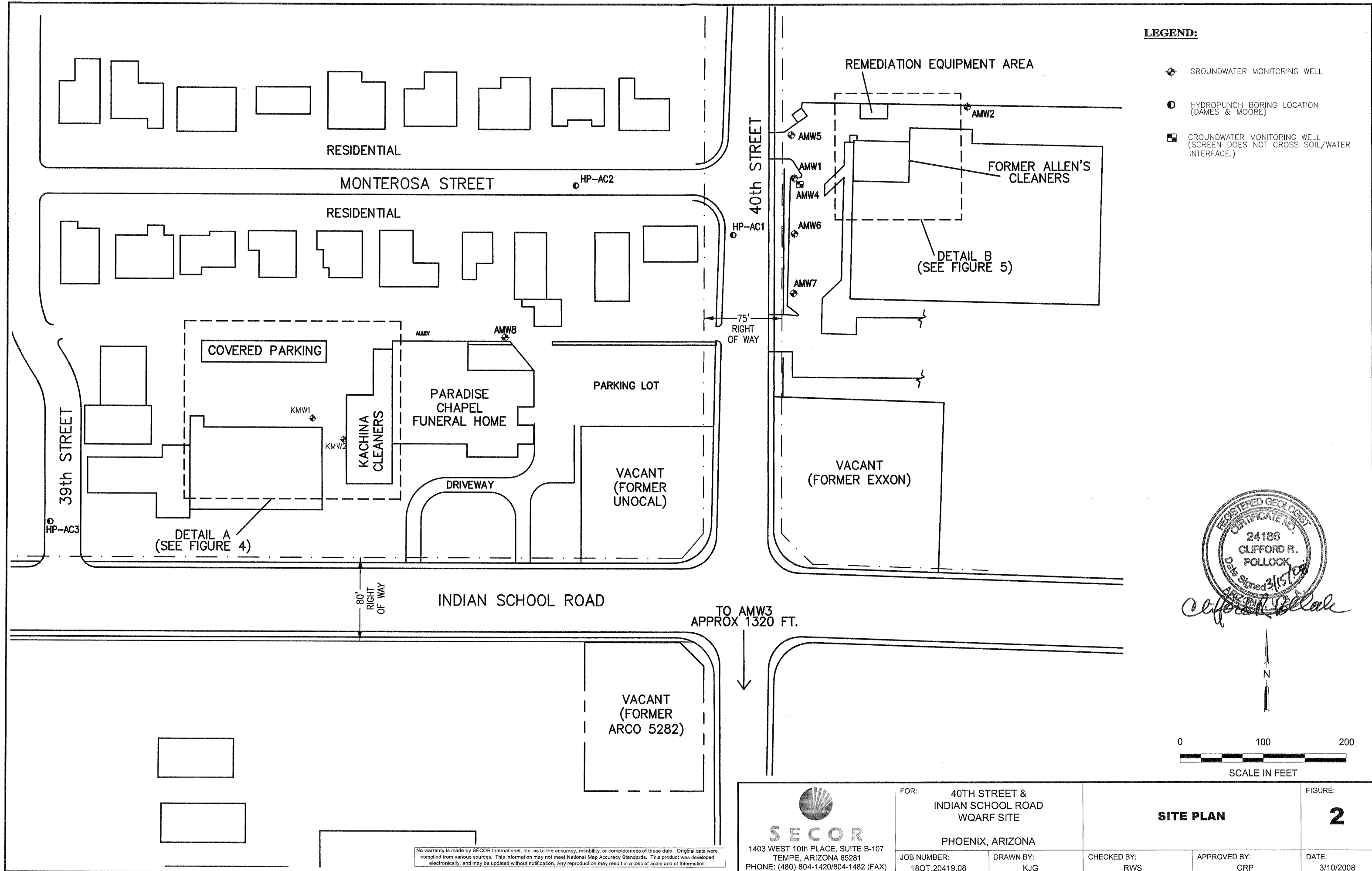
(1) Results likely due to borehole leakage from overlying horizons (Hydro Geo Chem, 1998).


(d) = Duplicate sample.

BOLD = detected concentration equals or exceeds ADEQ AWQS

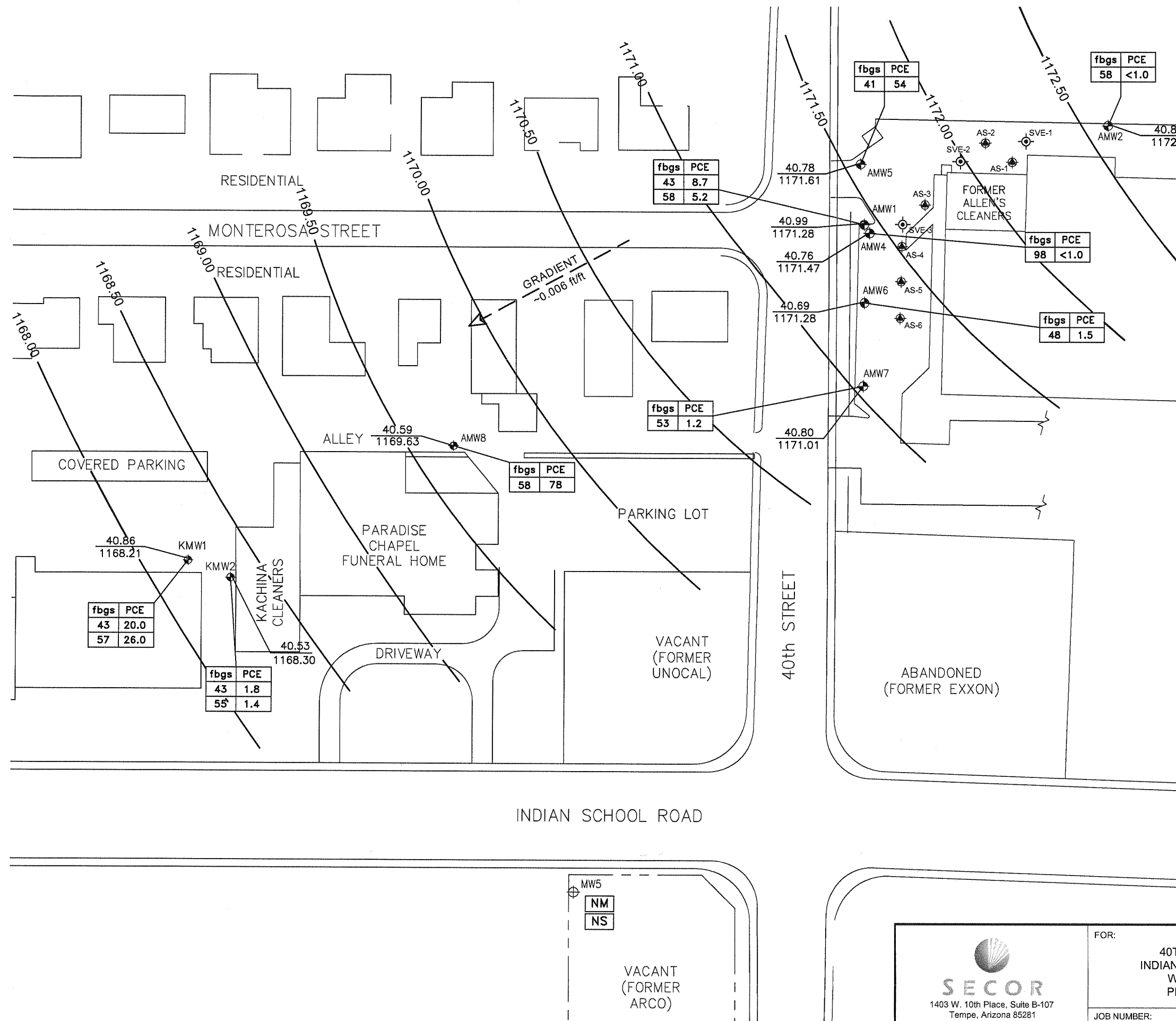
LEGEND:

- ⊕ GROUNDWATER MONITORING WELL
- HYDROPUNCH BORING LOCATION (DAMES & MOORE)
- GROUNDWATER MONITORING WELL (SCREEN DOES NOT CROSS SOIL/WATER INTERFACE.)

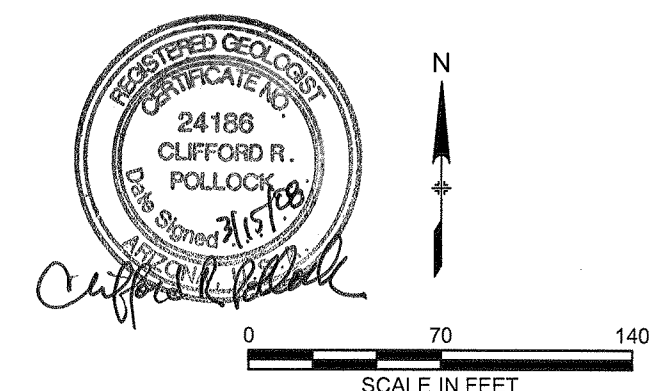


 SECOR 1403 WEST 10th PLACE, SUITE B-107 TEMPE, ARIZONA 85281 PHONE: (480) 804-1420/804-1482 (FAX)	FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, ARIZONA		SITE PLAN		FIGURE: 2
	JOB NUMBER: 18OT.20419.08	DRAWN BY: KJG	CHECKED BY: RWS	APPROVED BY: CRP	DATE: 3/10/2008


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- LEGEND:**
- EXISTING AIR SPARGE WELL
 - EXISTING SOIL VAPOR EXTRACTION WELL
 - GROUNDWATER MONITORING WELL
 - DEPTH TO GROUNDWATER (FEET BELOW GROUND SURFACE)
 - STATIC GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
 - DISSOLVED PHASE PCE ANALYTICAL RESULTS IN $\mu\text{g/L}$ <0.5 COMPOUND NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT.
 - PCE = TETRACHLOROETHENE
 - $\mu\text{g/L}$ = MICROGRAMS PER LITER OR PARTS PER BILLION
 - NM NOT MEASURED
 - NS NOT SAMPLED
 - fbgs SAMPLE COLLECTION DEPTH (FEET BELOW GROUND SURFACE)



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 1403 W. 10th Place, Suite B-107 Tempe, Arizona 85281 Phone: 480-804-1420 Fax: 480-804-1482	FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, AZ		GROUNDWATER ELEVATION MAP OCTOBER 27, 2006		FIGURE 3
	JOB NUMBER: 18OT.20419.02	DRAWN BY: KJG	CHECKED BY: RWS	APPROVED BY: CRP	DATE: 12/8/06

LEGEND:

- GROUNDWATER MONITORING WELL
- DIRECT PUSH SAMPLING LOCATION, EARTH TECH 1996
- SOIL GAS SAMPLE, EARTH TECH 1989
- SOIL BORING, SECOR 2006

APPROXIMATE LOCATION
OF SEWER LINE

COVERED
PARKING

SUSPECTED
FORMER
CESSPOOLS

SUSPECTED
FORMER
SEPTIC TANK

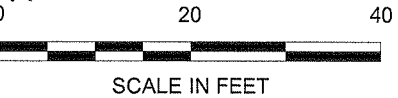
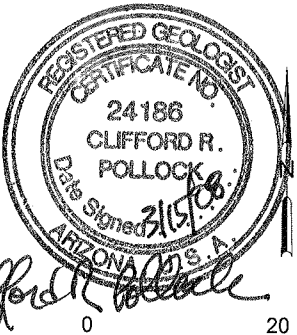
SITE 21

ALLEY

PARADISE
CHAPEL
FUNERAL
HOME


JBL BUILDING

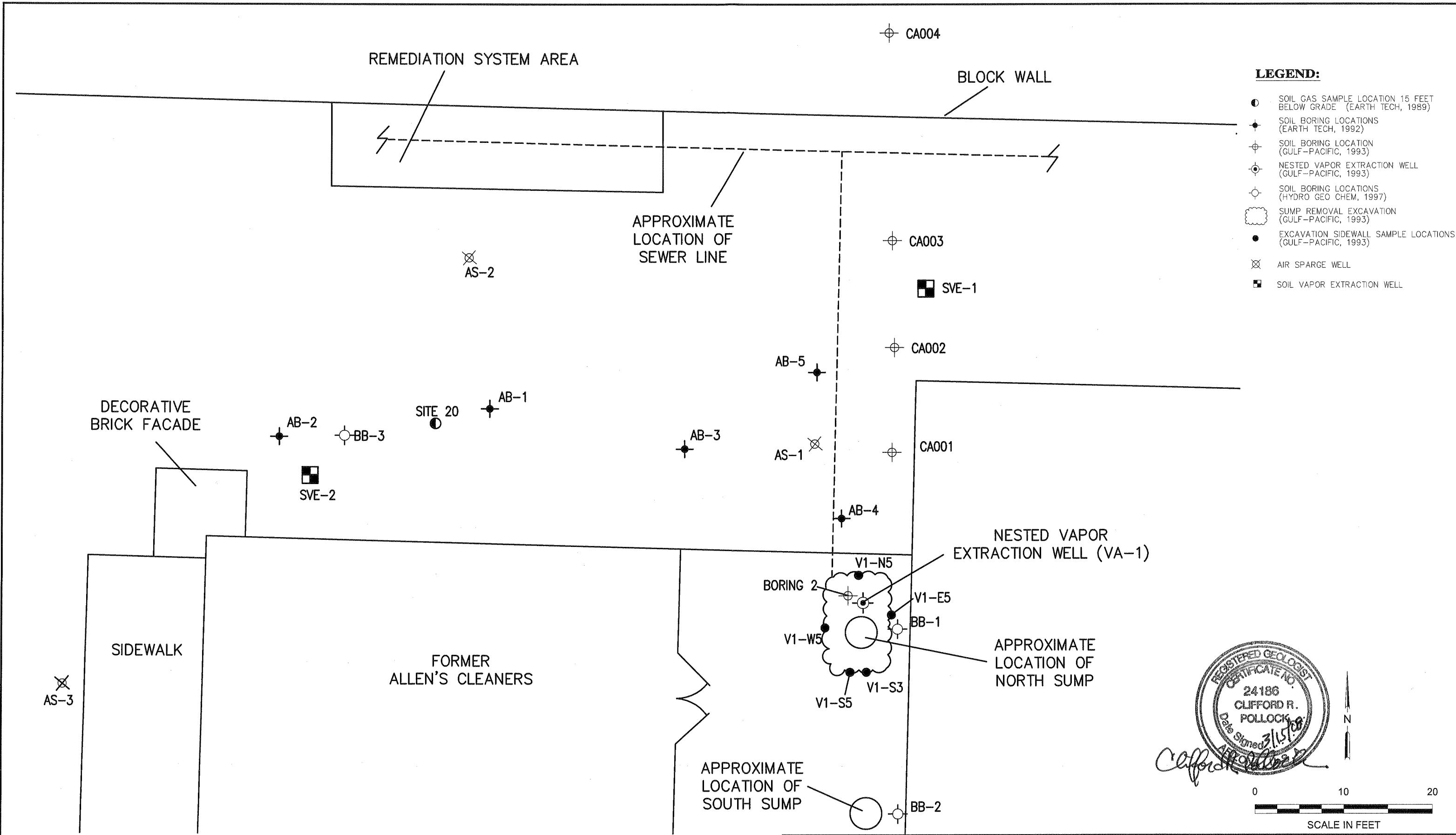
KACHINA
CLEANERS




SCALE IN FEET

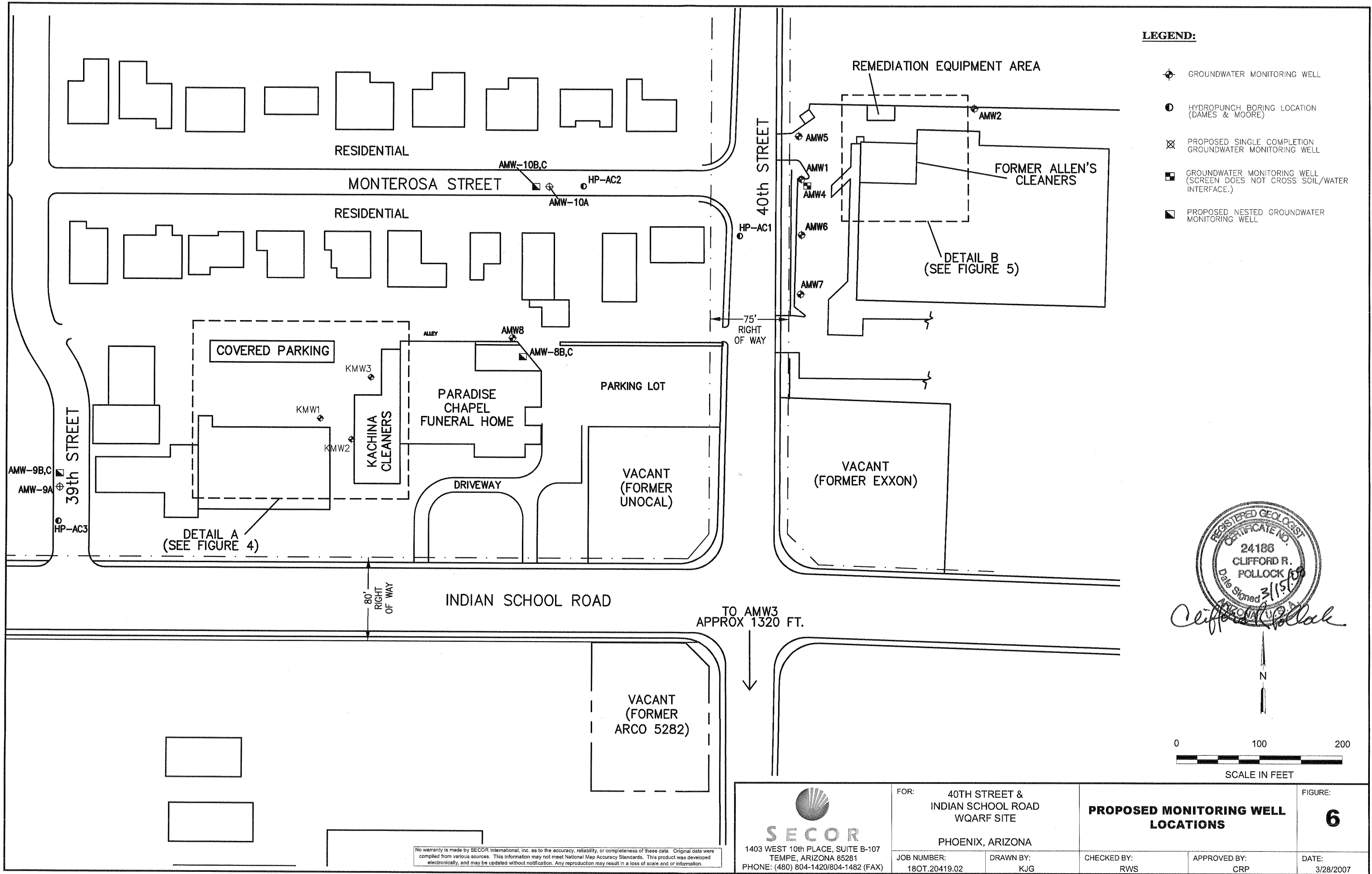
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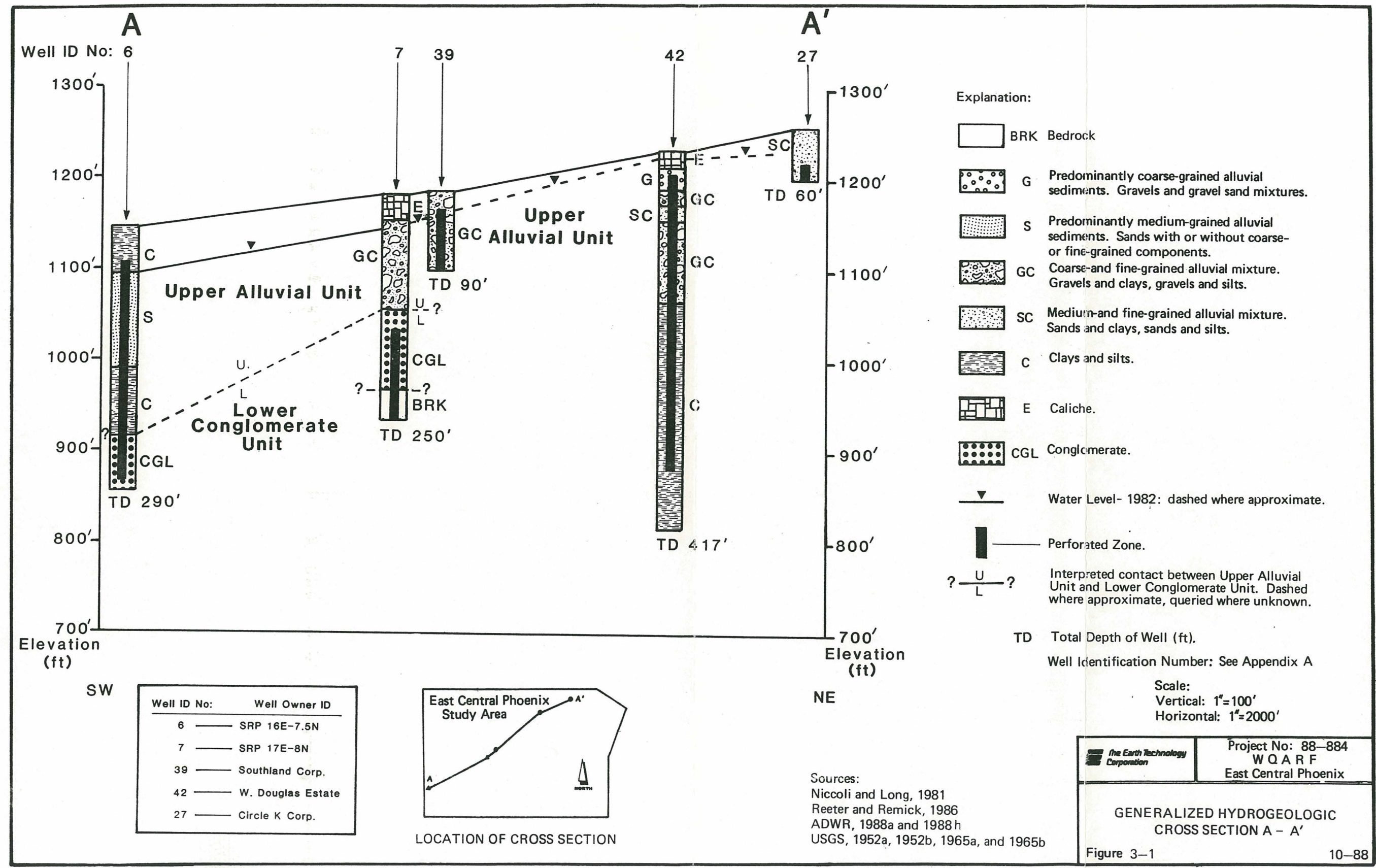
 SECOR 1403 WEST 10th PLACE, SUITE B-107 TEMPE, ARIZONA 85281 PHONE: (480) 804-1420/804-1482 (FAX)	FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, ARIZONA		DETAIL A - KACHINA CLEANERS SOIL & SOIL GAS SAMPLING LOCATIONS		FIGURE: 4
	JOB NUMBER: 18OT.20419.02	DRAWN BY: KJG	CHECKED BY: RWS	APPROVED BY: CRP	DATE: 3/16/2007

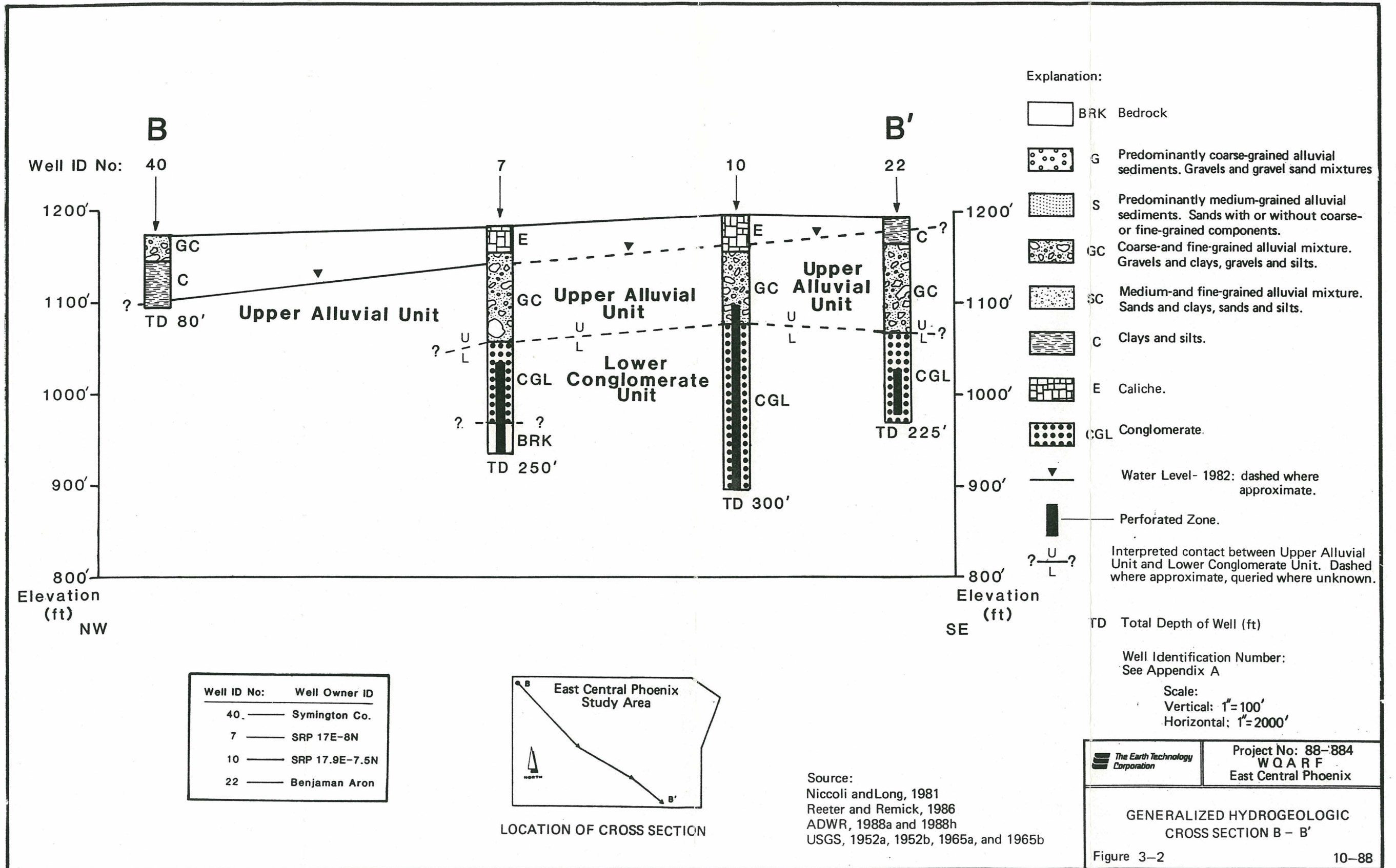


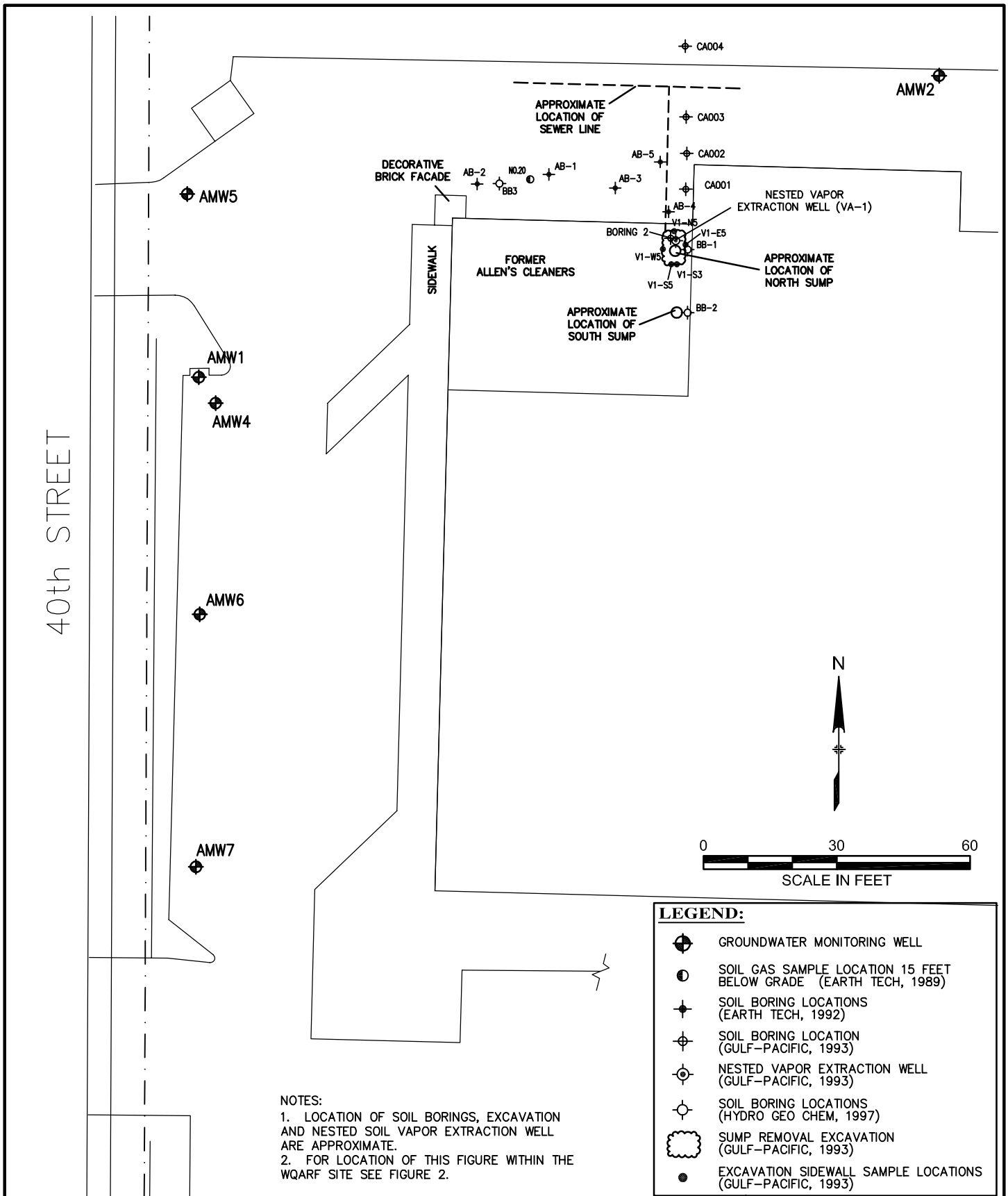
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 SECOR 1403 WEST 10th PLACE, SUITE B-107 TEMPE, ARIZONA 85281 PHONE: (480) 804-1420/804-1482 (FAX)		FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, ARIZONA		DETAIL B - FORMER ALLEN'S CLEANERS SOIL, SOIL GAS, & EXCAVATION SAMPLING LOCATIONS		FIGURE: 5
JOB NUMBER: 180T.20419.02		DRAWN BY: KJG		CHECKED BY: RWS	APPROVED BY: CRP	DATE: 4/2/2007









DRAWN BY: BDF
 CHECKED:
 APPROVED:
 DATE: 01/10/05
 JOB No.: 18OT.20412.51
 CAD FILE: See Footer

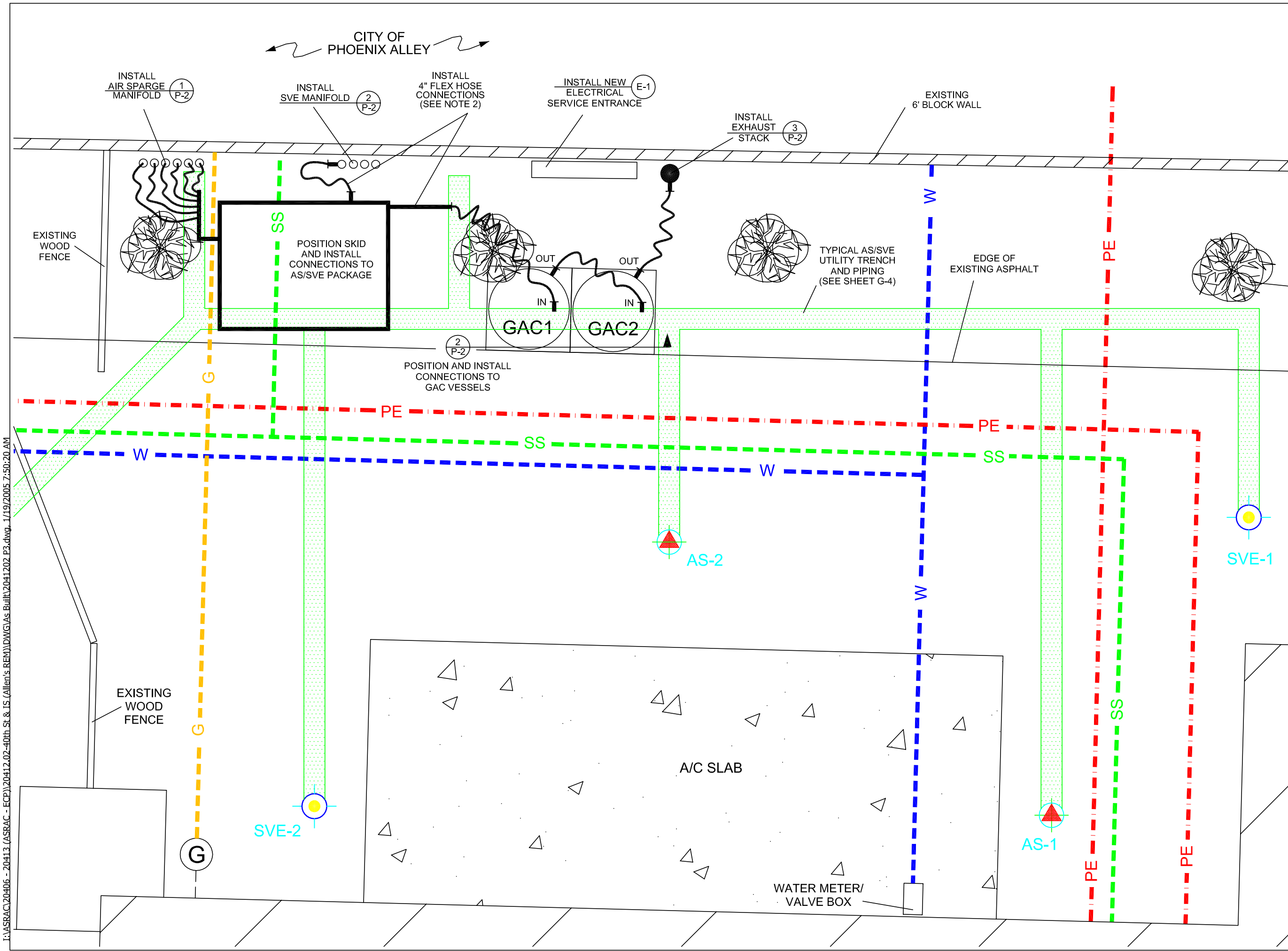
PREPARED BY:

SECOR
 1403 WEST 10th PLACE, SUITE B-107
 TEMPE, ARIZONA 85281

PREPARED FOR:
 ARIZONA DEPARTMENT OF
 ENVIRONMENTAL QUALITY
 REMEDIAL PROJECTS SECTION
 1110 WEST WASHINGTON STREET
 PHOENIX, ARIZONA 85007

FIGURE 2
 SITE PLAN WITH
 WELL LOCATIONS
 FORMER ALLEN'S CLEANERS
 4020 EAST INDIAN SCHOOL ROAD
 PHOENIX, ARIZONA 85018

I:\ASRAC\20406 - 20413 (ASRAC - ECP)\20412.02-40th St. & IS (Allen's REM)\DWG\As Built\2041202 P3.dwg, 1/19/2005 7:50:20 AM



LEGEND:

◆ AMW-1	EXISTING GROUNDWATER MONITORING WELL
◆ AS-1	EXISTING AIR SPARGE WELL
◆ SVE-1	EXISTING SOIL VAPOR EXTRACTION WELL
— G —	EXISTING NATURAL GAS LINE
— E —	SRP UNDERGROUND ELECTRIC LINE
— PE —	PRIVATE UNDERGROUND ELECTRIC LINE
— SS —	SANITARY SEWER LINE
— W —	UNDERGROUND WATER LINE
— AS/SVE —	AS/SVE PIPING TRENCH
▲	OVERHEAD PARKING LIGHT
GAC2	GRANULAR ACTIVATED CARBON VESSEL

NOTES:

① SVE MOUNTED AS/SVE PACKAGE SHALL BE FURNISHED BY CONSULTANT.

② CONTRACTOR SHALL PURCHASE AND INSTALL 4" INDUSTRIAL-GRADE PVC OR APPROVED EQUAL FLEX HOSE WITH ALUMINUM CAMLOCK FITTINGS AND COMPLY WITH HOSE REQUIREMENTS BASED ON MANUFACTURER'S SCHEMATICS AND REVIEW WITH CONSULTANT.

N

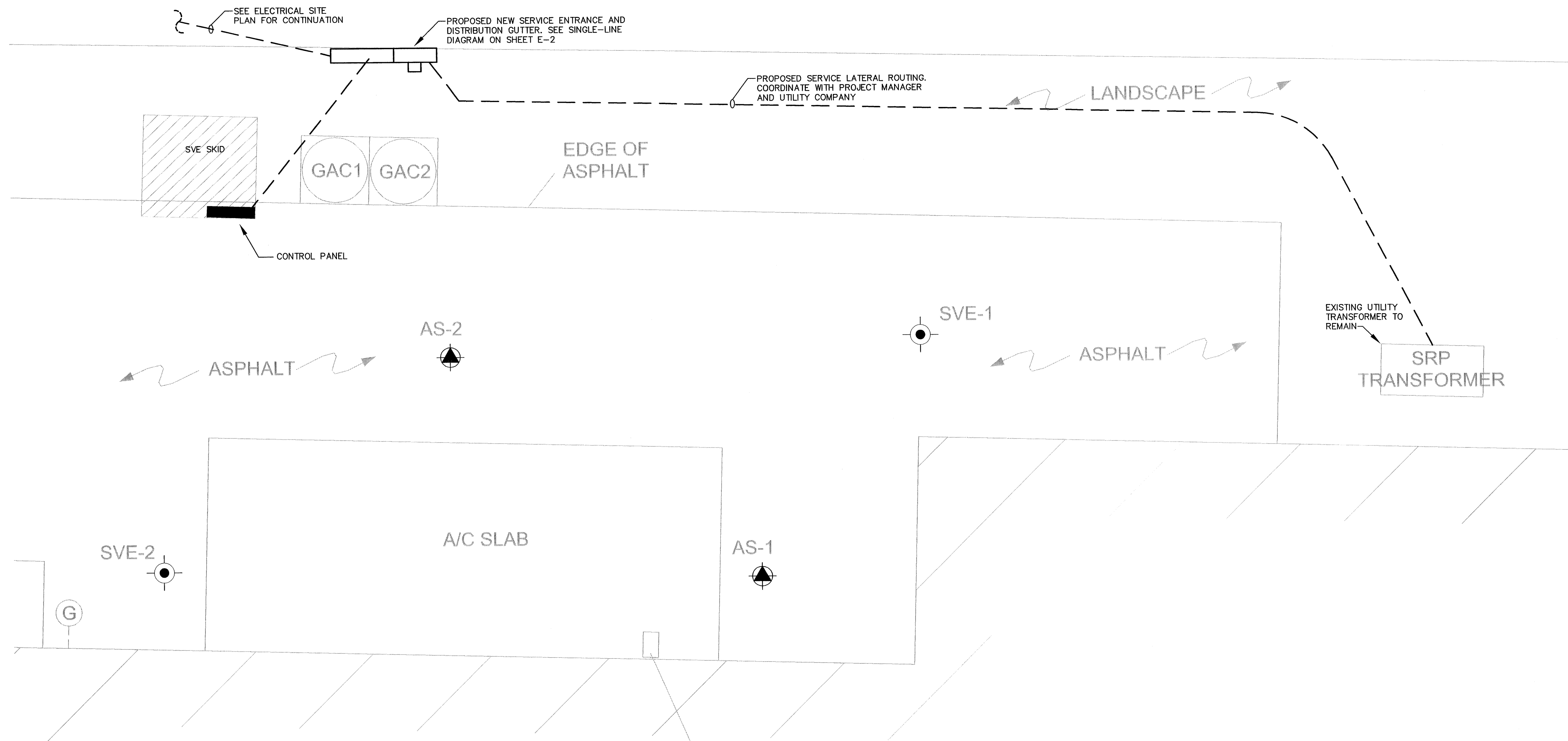
0 2 4

SCALE IN FEET

AS BUILT	
SIGNATURE	DATE
REVIEW ENGINEER: Jeff Rackow	07/01/04
PROJECT ENGINEER: Melissa Lawrence	06/15/04
PROJECT MANAGER: Duncan Aeppli	
CLIENT: ADEQ	
PREPARED BY:	
 1403 WEST 10th PLACE, SUITE B-107 TEMPE, ARIZONA	
PREPARED FOR:	
Arizona Department of Environmental Quality Remedial Projects Section	
1110 West Washington Street Phoenix, Arizona 85007-2935	
TITLE:	
EQUIPMENT LAYOUT	
FORMER ALLEN'S CLEANERS 4020 EAST INDIAN SCHOOL ROAD PHOENIX, ARIZONA 85018	
DESIGNED BY: JWR/MSL	DRAWN BY: BDF/JDD
DATE: 01/10/05	CAD FILE: See Footer
PROJECT NO.: 180T.20414.02	DRAWING SCALE: AS SHOWN
FIGURE NO.:	P-3

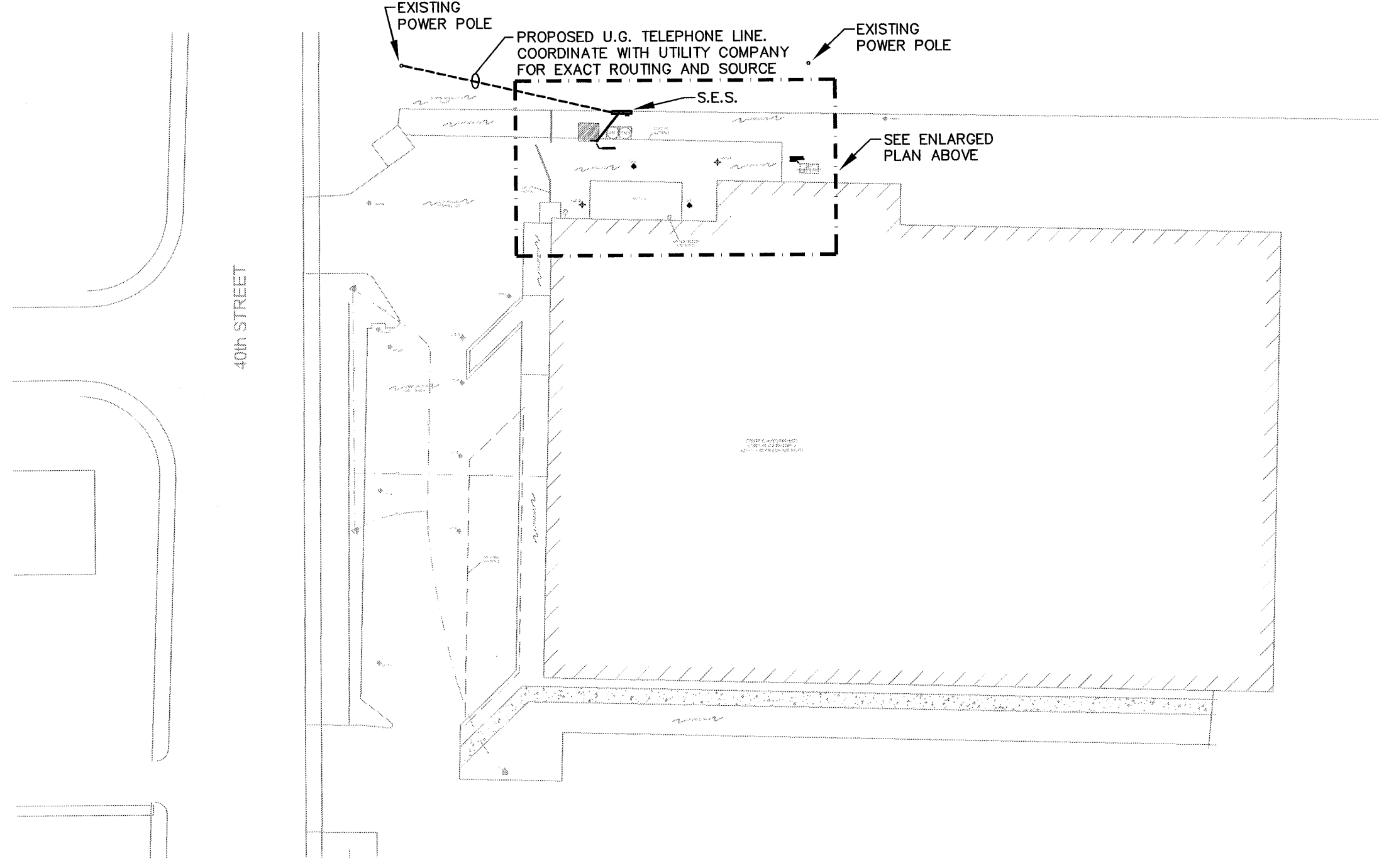
ELECTRICAL SYMBOLS LIST

- WALL MOUNTED LIGHTING FIXTURE; SUPERScript INDICATES TYPE.
- DUPLEX RECEPTACLE, NEMA 5-20R, 18" A.F.F., UNLESS NOTED OTHERWISE.
- SIMPLEX RECEPTACLE, NEMA 5-20R, 18" A.F.F., UNLESS NOTED OTHERWISE.
- WALL MOUNTED DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER; 20A., 125V., 3 WIRE, GROUNDED, NEMA 5-20R, MTD. @ +40" A.F.F. (U.N.O.). "HUBBEL" #GF-5362-1, OR EQUAL & SHALL BE ON ALL RECEPTS. WITHIN 6' OF SINKS.
- SPECIAL OUTLET, VERIFY NEMA CONFIGURATION WITH EQUIP.
- DATA/COMPUTER OUTLET, +18" A.F.F. (U.N.O.).
- TELEPHONE OUTLET, +18" A.F.F. (U.N.O.).
- JUNCTION BOX, SIZE PER N.E.C.
- JUNCTION BOX IN ACCESSIBLE LOCATION WITH FLEXIBLE CONDUIT CONNECTION TO LIGHTING FIXTURE OR EQUIPMENT AS NOTED.
- SINGLE POLE, SINGLE THROW 20A. ROCKER LIGHT SWITCH.
- H.P. RATED MANUAL MOTOR DISCONNECT SWITCH WITH THERMAL OVERLOADS (WEATHERPROOF WHERE OUTSIDE).
- U.L. LISTED H.P. RATED MANUAL DISCONNECTING MEANS, TYPE AND SIZE AS NOTED. (WEATHERPROOF WHERE OUTSIDE).
- MOTOR (SIZE AS INDICATED IN DRAWINGS)
- PANELBOARD
- DISCONNECT SWITCH, SIZE AND POLES AS SHOWN (i.e., 30/3); FUSED WITH BUSSMANN, LPWRK TYPE.
- COMBINATION STARTER AND DISCONNECT SWITCH. SIZE AND FUSES PER MANUFACTURER'S RECOMMENDATION. (WEATHERPROOF WHERE OUTSIDE).
- STARTER PER N.E.C. (MIN. SIZE = 0) SUPPLIED BY OTHERS.
- STARTER PER N.E.C. (MIN. SIZE = 0) SUPPLIED THIS CONTRACT
- TELEPHONE HOMERUN TO CABINET
- STUB-OUT ABOVE CEILING, INSTALL INSULATED BUSHING TYPE AS REQUIRED.
- EQUIPMENT CONNECTION
- INDICATES CIRCUIT IN CONDUIT CONCEALED IN OR UNDER FLR. CONSTRUCTION OR BELOW GRADE.
- INDICATES CIRCUIT IN CONDUIT CONCEALED IN WALL OR CEILING SPACE.
- INDICATES HOMERUN TO PANELBOARD OR AS NOTED. HASH MARKS INDICATES NUMBER OF CONDUCTORS. DETAIL INDICATES (2) PHASE CONDUCTORS, (1) NEUTRAL, (1) ISOLATED GROUND. EQUIPMENT GROUNDING CONDUCTOR NOT SHOWN. IF NO HASH MARKS PROVIDE 2 CONDUCTORS #12 A.W.G. MINIMUM. #12 A.W.G. CU. BOND, 3/4" CONDUIT MINIMUM.
- E - EXISTING TO REMAIN
- ER - EXISTING TO BE RELOCATED
- R - RELOCATED
- X - EXISTING TO BE REMOVED
- N - NEW
- N.L. - NIGHT LIGHT
- WP - WEATHERPROOF
- S.E.S. - SERVICE ENTRANCE SECTION
- A.F.F. - ABOVE FINISHED FLOOR
- EM - EMERGENCY LIGHTING
- E.D.F. - ELECTRIC DRINKING FOUNTAIN
- N.E.C. - NATIONAL ELECTRICAL CODE
- C - CONDUIT
- M.L.O. - MAIN LUGS ONLY
- M.C.B. - MAIN CIRCUIT BREAKER
- GND. - GROUND
- U.N.O. - UNLESS NOTED OTHERWISE
- Q.R. - QUARTZ RESTRIKE OPTION
- mm - MILLIMETERS



ENLARGED POWER PLAN

SCALE: 1/4" = 1'-0"



ELECTRICAL SITE PLAN

SCALE: 1" = 40'

- LEGEND:**
- AMW-1 EXISTING GROUNDWATER MONITORING WELL
 - AS-1 EXISTING AIR SPARGE WELL
 - SVE-1 EXISTING SOIL VAPOR EXTRACTION WELL
 - G - NATURAL GAS LINE
 - E - SRP UNDERGROUND ELECTRIC LINE
 - PE - PRIVATE UNDERGROUND ELECTRIC LINE
 - SS - SANITARY SEWER LINE
 - W - UNDERGROUND WATER LINE
 - OVERHEAD PARKING LIGHT
 - GAC2 GRANULAR ACTIVATED CARBON VESSEL

NOTE:


SEE SHEET G-3 AND G-4 FOR EXISTING UNDERGROUND SITE UTILITIES. CARE MUST BE TAKEN TO AVOID EXISTING SITE UTILITIES. COORDINATE WITH PROJECT MANAGER FOR ALL SITE WORK.

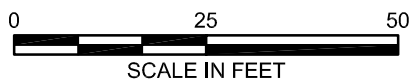
UTILITY CO. CUSTOMER REP.	TELEPHONE CO. CUSTOMER REP.
CO. NAME SALT RIVER PROJECT	CO. NAME QWEST COMMUNICATIONS
NAME BECKY THOMAS	NAME TINA ARMENTA
TELEPHONE NO. (602) 238-8833	TELEPHONE NO. (602) 630-3716
SITE UTILITIES NOTE: THE ELECTRICAL CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE WITH UTILITY COMPANY AND TELEPHONE SERVICE. W/TELEPHONE COMPANY. ROUTING OF INCOMING SERVICES SHOWN ON THE DRAWING ARE FOR BIDDING PURPOSES AND MAY VARY FROM ACTUAL REQUIREMENTS. THE CONTRACTOR SHALL COMPLY WITH UTILITY COMPANY AND TELEPHONE COMPANY REQUIREMENTS, WITHOUT ADDITIONAL CHARGES TO THE OWNER.	

EDI
ELECTRICAL DESIGNS
INCORPORATED

4045 E. McDOWELL RD.
Suite B
Phoenix, Arizona 85008
602-275-4365

DATE: 01-23-04
JOB # 03397

SIGNATURE		DATE
REVIEW ENGINEER:	Phil Schneider	12/23/03
PROJECT ENGINEER:	Jeff Rackow	12/23/03
PROJECT MANAGER:	Jeff Rackow	12/23/03
CLIENT:	ADEQ-SPS	
PREPARED BY:		
 SECOR 1830 W. UNIVERSITY DRIVE, SUITE 106 TEMPE, ARIZONA		
PREPARED FOR:		
Arizona Department of Environmental Quality Superfund Programs Section 1110 West Washington Street Phoenix, Arizona 85007-2935		
TITLE:		
ELECTRICAL PLAN FORMER ALLEN'S CLEANERS SITE 4020 EAST INDIAN SCHOOL ROAD PHOENIX, AZ		
DESIGNED BY:	DRAWN BY:	CHECKED BY:
ROC	MM	
DATE:	01/23/04	CAD FILE:
PROJECT No.:	180T.20412.02	DRAWING SCALE:
		AS SHOWN
E-1		



PREPARED BY:



SECOR

1403 WEST 10th PLACE, SUITE B-107
TEMPE, ARIZONA 85281

FIGURE 2
SITE PLAN

FORMER ALLEN'S CLEANERS
4020 EAST INDIAN SCHOOL ROAD
PHOENIX, ARIZONA 85018



DRAWN BY: BDF
CHECKED: DOB
APPROVED: DOB
DATE: 03/09/05
JOB No.: 180T.20412.51
CAD FILE: See Footer

PREPARED BY:



SECOR

1403 WEST 10th PLACE, SUITE B-107
TEMPE, ARIZONA 85281

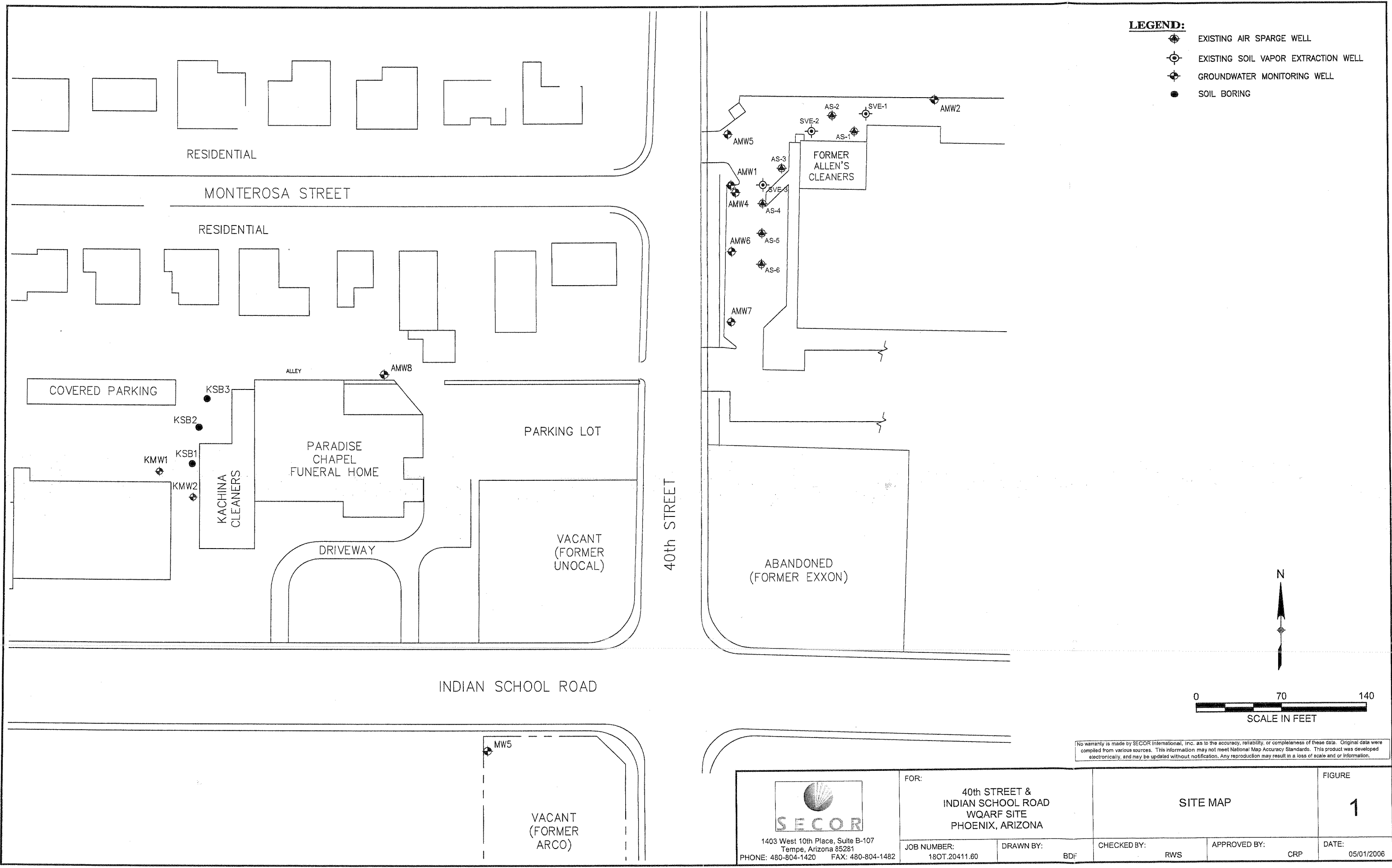
PREPARED FOR:

**FORMER
ALLEN'S CLEANERS**


4020 East Indian School Road
Phoenix, Arizona 85018

FIGURE 2

SITE PLAN



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 1403 West 10th Place, Suite B-107 Tempe, Arizona 85281 PHONE: 480-804-1420 FAX: 480-804-1482		FOR: 40th STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, ARIZONA		SITE MAP		FIGURE 1
JOB NUMBER: 18OT.20411.60	DRAWN BY: BDF	CHECKED BY: RWS	APPROVED BY: CRP	DATE: 05/01/2006		

LEMME DATA

Project : 04-110 6-16-04

User name	Mark	Date & Time	1:17:18 PM 7/11/2006
Coordinate System	US State Plane 1983	Zone	Arizona Central 0202
Project Datum	(WGS 84)	Geoid Model	geoid99
Vertical Datum			
Coordinate Units	International feet		
Distance Units	US survey feet		
Height Units	International feet		

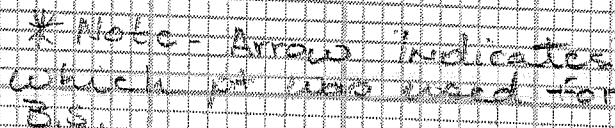
Name	Northing	Easting	Elevation	Latitude	Longitude	DESCRIPTION
100	907701.6761ft	673313.0911ft	1198.7621ft	33°29'42.587"N	112°00'15.147"W	10203640300
101	904599.1741ft	673273.4681ft	1183.2321ft	33°29'11.891"N	112°00'15.584"W	
230	896221.9751ft	674875.0601ft	1154.0001ft	33°27'49.018"N	111°59'56.595"W	NAIL 60D
301	904599.1291ft	673273.4981ft	1183.0891ft	33°29'11.890"N	112°00'15.584"W	NAIL
302	907701.6861ft	673313.0741ft	1199.7941ft	33°29'42.588"N	112°00'15.148"W	10203640300
303	908083.0031ft	676043.2891ft	1215.1141ft	33°29'46.382"N	111°59'42.910"W	NAIL CP 1
304	907906.2331ft	676028.8631ft	1213.6431ft	33°29'44.633"N	111°59'43.079"W	NAIL CP 2
305	907523.9581ft	670691.6161ft	1186.0851ft	33°29'40.806"N	112°00'46.103"W	NAIL CP 3
306	907524.4871ft	670792.8041ft	1187.2801ft	33°29'40.812"N	112°00'44.908"W	NAIL CP 3
307	907459.2521ft	670786.6341ft	1186.4071ft	33°29'40.167"N	112°00'44.980"W	VCMW-1
308	907383.6771ft	670694.2091ft	1185.5701ft	33°29'39.418"N	112°00'46.071"W	VCMW-2
10203640300	907701.7311ft	673313.1071ft	1199.5671ft	33°29'42.588"N	112°00'15.147"W	6651
1CG1	896221.9731ft	674875.0601ft	1154.0001ft	33°27'49.018"N	111°59'56.595"W	BASE
N474	918017.5291ft	663579.0971ft	1218.0741ft	33°31'24.557"N	112°02'10.237"W	CONTROL

04-110 6-16-04

Back to top

1CG1 → 101 → 304

1ST TRIP



CLIENT _____
TRACT NUMBER _____

SURVEYED BY _____
CHECKED BY _____

Fixed width point coordinate listing

Project : 04-110 7-10-06

User name	Surveyor	Date & Time	12:29:10 PM 7/10/2006
Coordinate System	US State Plane 1983	Zone	Arizona Central 0202
Project Datum	NAD 1983 (Conus)		
Vertical Datum		Geoid Model	GEOID99 (Conus)
Coordinate Units	International feet		
Distance Units	International feet		
Height Units	International feet		

Point listing

Name	Northing	Easting	Elevation	Feature Code
100	907701.676	673313.091	1198.762	10203640300
101	904599.174	673273.468	1183.232	
102	907830.191	675605.552	1211.125	Kmw-2
230	896221.975	674875.060	1154.000	NAIL 60D
301	904599.129	673273.498	1183.089	NAIL
302	907701.686	673313.074	1199.794	10203640300
303	908083.003	676043.289	1215.114	NAIL CP 1
304	907906.233	676028.863	1213.543	NAIL CP 2
305	907523.958	670691.616	1186.085	NAIL CP 3
306	907524.487	670792.804	1187.280	NAIL CP 3
307	907459.252	670786.634	1186.407	VCMW-1
308	907383.677	670694.209	1185.570	VCMW-2
10203640300	907701.731	673313.107	1199.567	6651
1CG1	896221.973	674875.060	1154.000	BASE
N474	918017.529	663579.097	1218.074	CONTROL

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Fixed width point lat/long/height listing

Project : 04-110 7-10-06

User name	Surveyor	Date & Time	12:30:01 PM 7/10/2006
Coordinate System	US State Plane 1983	Zone	Arizona Central 0202
Project Datum	NAD 1983 (Conus)		
Vertical Datum		Geoid Model	GEOID99 (Conus)
Coordinate Units	International feet		
Distance Units	International feet		
Height Units	International feet		

Point listing

Name	Latitude	Longitude	Height	Feature Code
N474	33°31'24.55730"N	112°02'10.23697"W	1120.801	CONTROL
10203640300	33°29'42.58801"N	112°00'15.14731"W	1102.192	6651
1CG1	33°27'49.01836"N	111°59'56.59458"W	1056.555	BASE
230	33°27'49.01838"N	111°59'56.59459"W	1056.555	NAIL 60D
100	33°29'42.58747"N	112°00'15.14750"W	1101.387	10203640300
101	33°29'11.89061"N	112°00'15.58447"W	1085.814	
301	33°29'11.89018"N	112°00'15.58412"W	1085.671	NAIL
302	33°29'42.58757"N	112°00'15.14769"W	1102.419	10203640300
303	33°29'46.38197"N	111°59'42.90984"W	1117.784	NAIL CP 1
304	33°29'44.63288"N	111°59'43.07862"W	1116.310	NAIL CP 2
305	33°29'40.80617"N	112°00'46.10269"W	1088.669	NAIL CP 3
306	33°29'40.81232"N	112°00'44.90777"W	1089.865	NAIL CP 3
307	33°29'40.16682"N	112°00'44.97992"W	1088.991	VCMW-1
308	33°29'39.41823"N	112°00'46.07054"W	1088.152	VCMW-2
102	33°29'43.87731"N	111°59'48.07687"W	1113.785	Kmw-2

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LEGEND:

- GROUNDWATER MONITORING WELL
- DIRECT PUSH SAMPLING LOCATION, EARTH TECH 1996
- SOIL GAS SAMPLE, EARTH TECH 1989
- SOIL BORING, SECOR 2006

APPROXIMATE LOCATION
OF SEWER LINE

COVERED
PARKING

SUSPECTED
FORMER
CESSPOOLS

SUSPECTED
FORMER
SEPTIC TANK

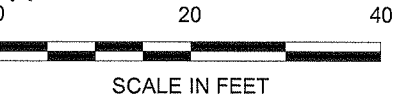
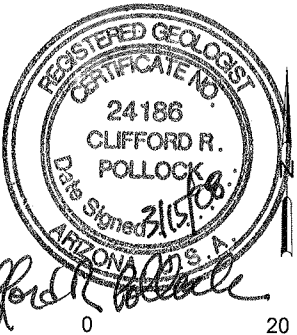
SITE 21

ALLEY

PARADISE
CHAPEL
FUNERAL
HOME


JBL BUILDING

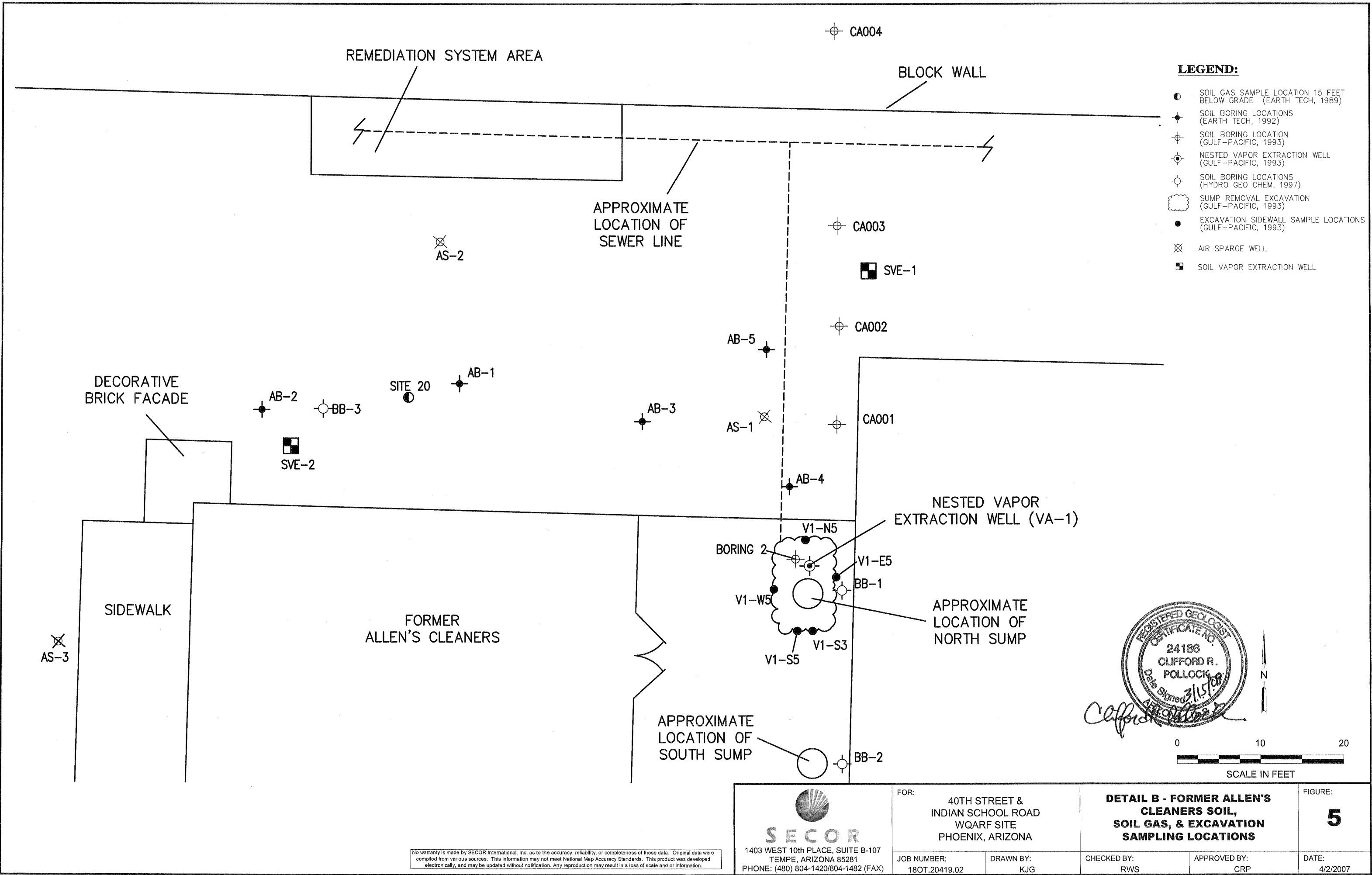
KACHINA
CLEANERS

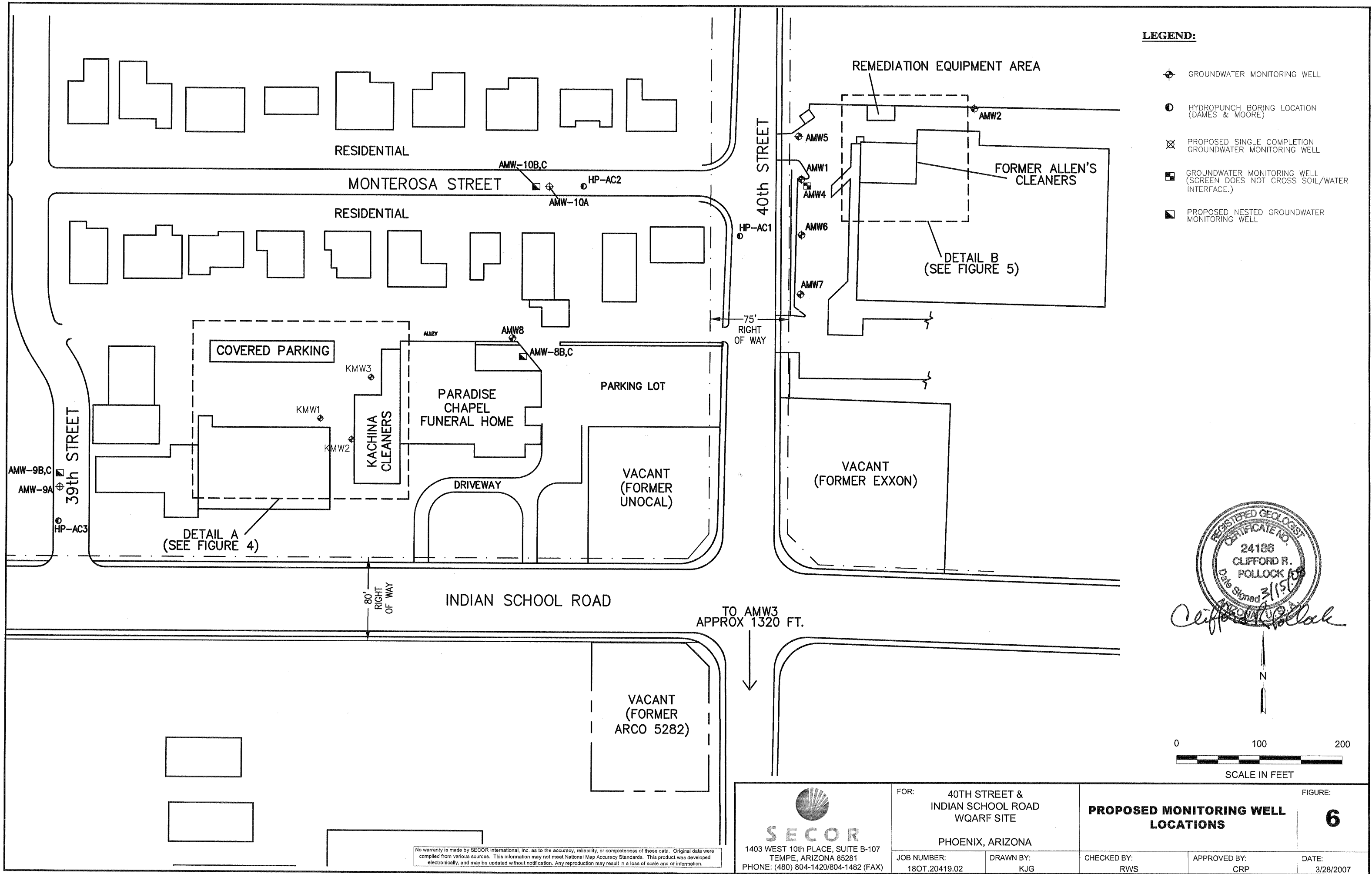


SCALE IN FEET

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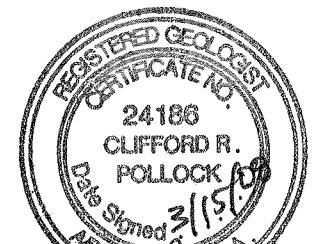
 SECOR 1403 WEST 10th PLACE, SUITE B-107 TEMPE, ARIZONA 85281 PHONE: (480) 804-1420/804-1482 (FAX)	FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, ARIZONA		DETAIL A - KACHINA CLEANERS SOIL & SOIL GAS SAMPLING LOCATIONS		FIGURE: 4
	JOB NUMBER: 18OT.20419.02	DRAWN BY: KJG	CHECKED BY: RWS	APPROVED BY: CRP	DATE: 3/16/2007



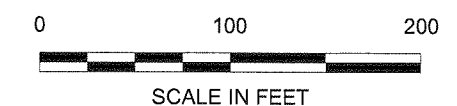
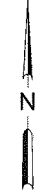


LEGEND:


- ⊕ GROUNDWATER MONITORING WELL
- HYDROPUNCH BORING LOCATION (DAMES & MOORE)
- ⊗ PROPOSED SINGLE COMPLETION GROUNDWATER MONITORING WELL
- ⊕ GROUNDWATER MONITORING WELL (SCREEN DOES NOT CROSS SOIL/WATER INTERFACE.)
- ⊙ PROPOSED NESTED GROUNDWATER MONITORING WELL



Clifford R. Pollock



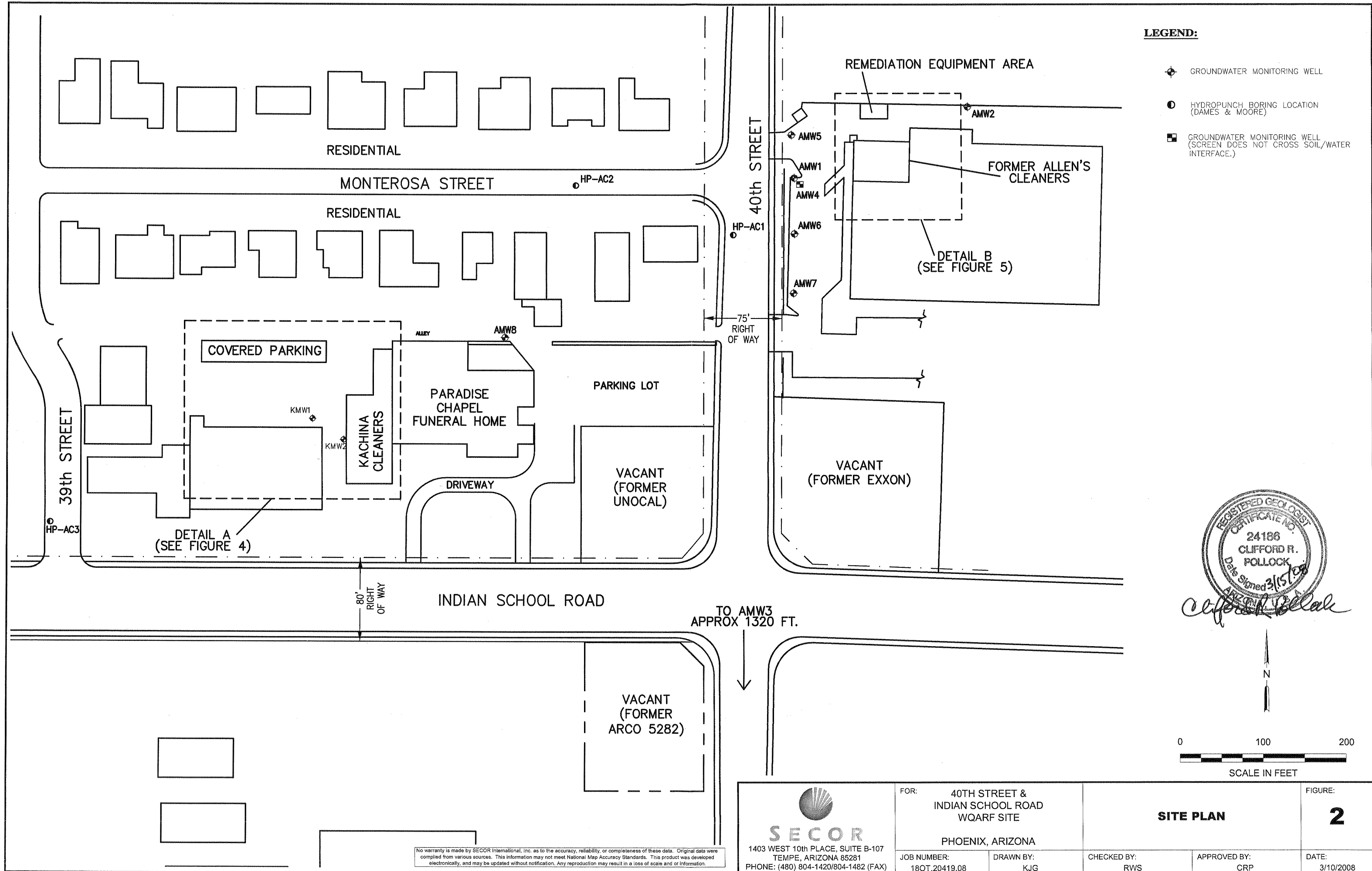
SCALE IN FEET

 1403 WEST 10th PLACE, SUITE B-107 TEMPE, ARIZONA 85281 PHONE: (480) 804-1420/804-1482 (FAX)		FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, ARIZONA		PROPOSED MONITORING WELL LOCATIONS		FIGURE: 6
JOB NUMBER: 18OT.20419.02		DRAWN BY: KJG		CHECKED BY: RWS	APPROVED BY: CRP	DATE: 3/28/2007

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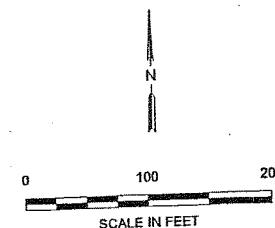
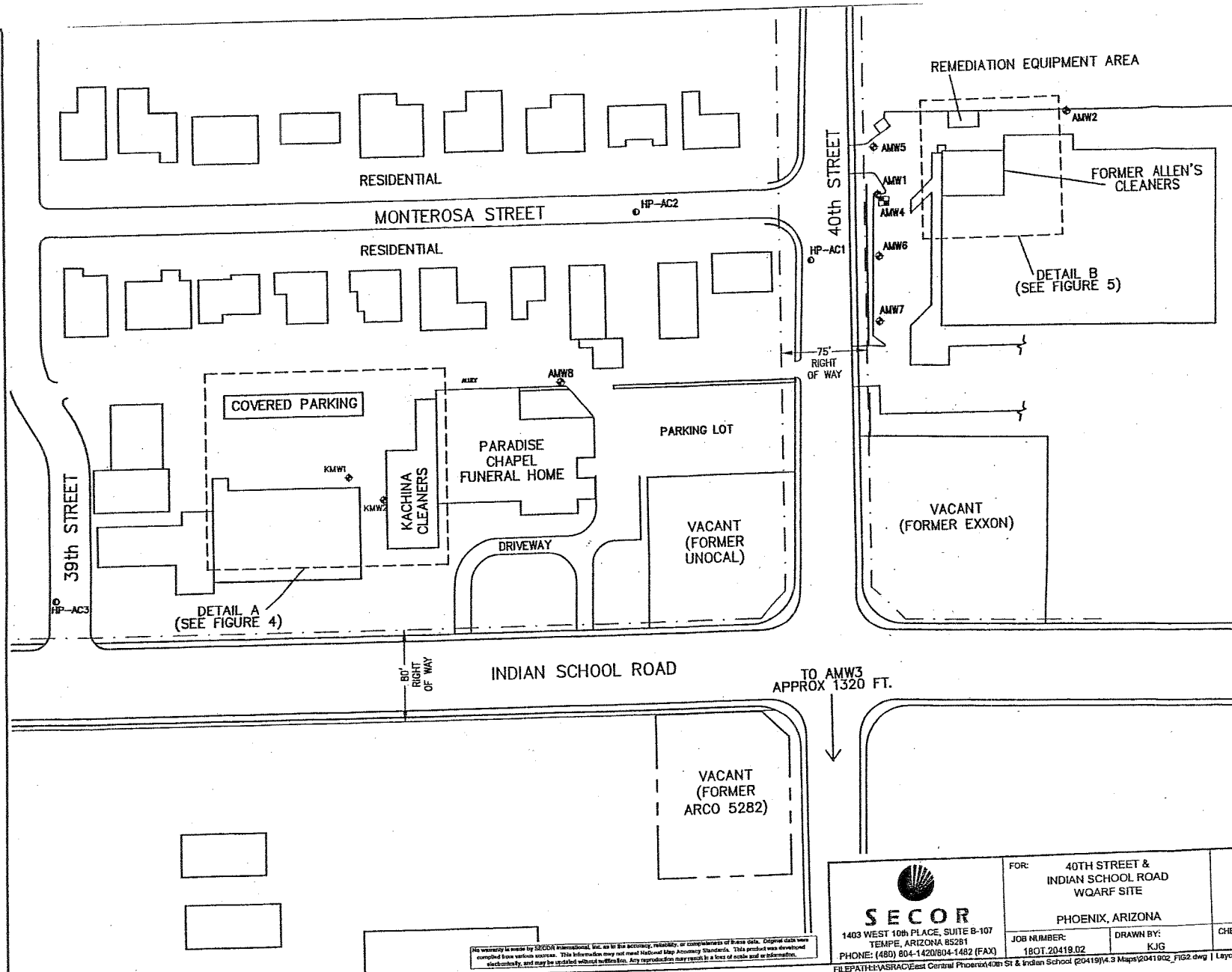
LEGEND:

- ⊕ GROUNDWATER MONITORING WELL
- HYDROPUNCH BORING LOCATION (DAMES & MOORE)
- GROUNDWATER MONITORING WELL (SCREEN DOES NOT CROSS SOIL/WATER INTERFACE.)

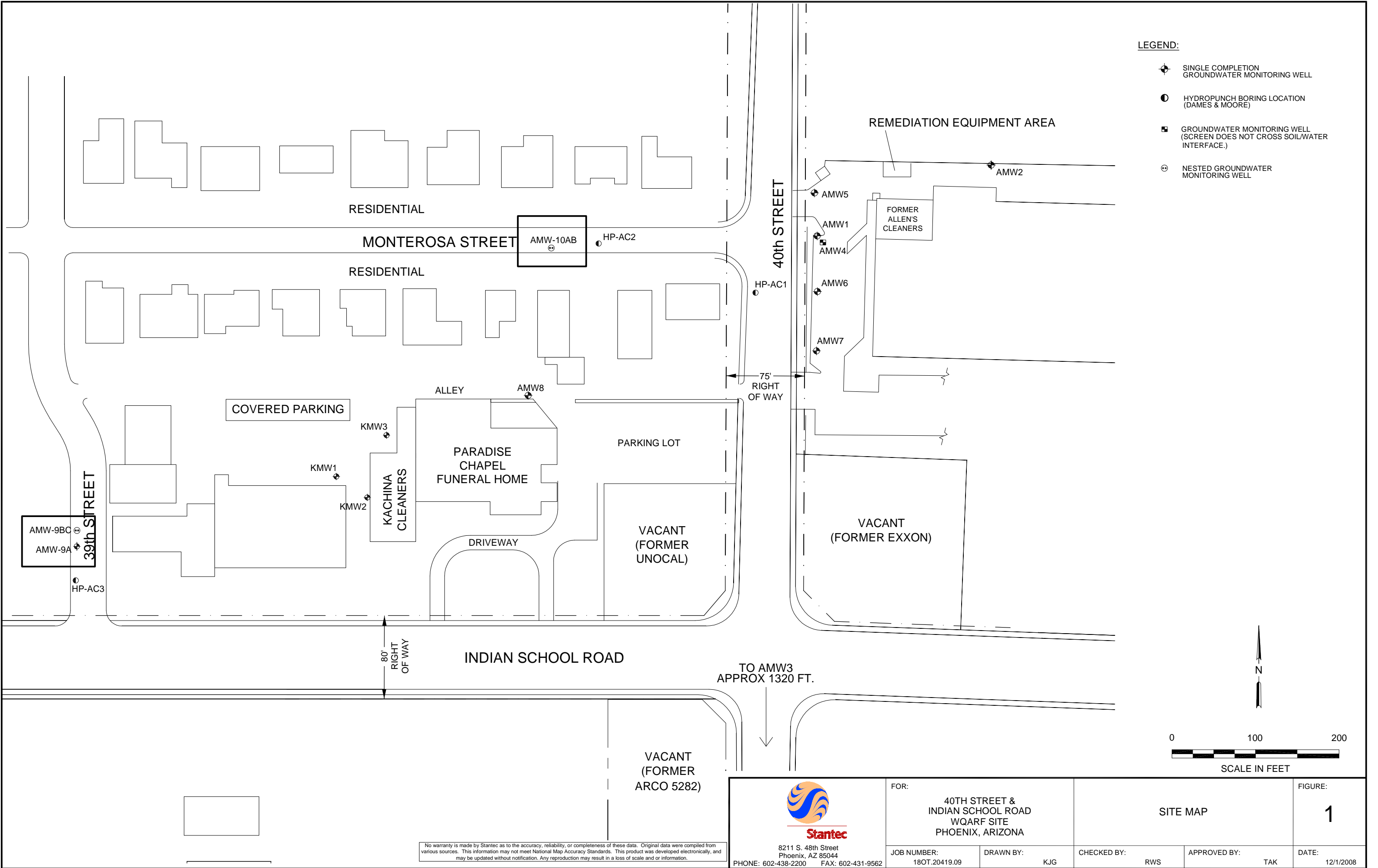


LEGEND:

- ◆ GROUNDWATER MONITORING WELL
- HYDROPUNCH BORING LOCATION (DAMES & MOORE)
- ⊠ PROPOSED GROUNDWATER MONITORING WELL
- ⊕ CONTINGENT GROUNDWATER MONITORING WELL
- ⊞ GROUNDWATER MONITORING WELL (SCREEN DOES NOT CROSS SOIL/WATER INTERFACE.)



<p>SECOR 1403 WEST 10th PLACE, SUITE 8-107 TEMPE, ARIZONA 85281 PHONE: (480) 804-1420/804-1482 (FAX)</p>	<p>FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE</p> <p>PHOENIX, ARIZONA</p>	<p>SITE PLAN</p>		<p>FIGURE: 2</p>
	<p>JOB NUMBER: 180T.20418.02</p> <p>DRAWN BY: KJG</p>	<p>CHECKED BY: RWS</p> <p>APPROVED BY: CRP</p>	<p>DATE: 3/28/2007</p>	



LEMME - SURVEY

Project : 08-337

User name	Surveyor	Date & Time	3:35:35 PM 1/3/2008
Coordinate System	US State Plane 1983	Zone	Arizona Central 0202
Project Datum	(WGS 84)	Geoid Model	GEOID99 (Conus)
Vertical Datum	International feet		
Coordinate Units	International feet		
Distance Units	International feet		
Height Units	International feet		

Name	Northing	Easting	Elevation	Latitude	Longitude	DESCRIPTION
1CG1	896221.9721ft	674875.0591ft	1153.9991ft	33°27'49.018"N	111°59'56.595"W	Top of casing
1	904976.9251ft	678458.2781ft	1207.6711ft	33°29'15.667"N	111°59'14.366"W	60D NAIL
3	907642.8891ft	680409.5321ft	1238.8861ft	33°29'42.057"N	111°58'51.345"W	SM W4 PVC = 1236.51
4	907801.0001ft	675324.5221ft	1209.1011ft	33°29'43.586"N	111°59'51.395"W	AM W9 105 = 1207.18
5	896221.9581ft	674875.0741ft	1153.9441ft	33°27'49.018"N	111°59'56.594"W	CK 1CG1 140 = 1207.15

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LEMME - SURVEY

Project : 08-337 4-9-08

User name	Surveyor	Date & Time	12:24:10 PM 4/9/2008
Coordinate System	US State Plane 1983	Zone	Arizona Central 0202
Project Datum	(WGS 84)	Geoid Model	GEOID99 (Conus)
Vertical Datum	International feet		
Coordinate Units	International feet		
Distance Units	International feet		
Height Units	International feet		

Name	Northing	Easting	Elevation	Latitude	Longitude	DESCRIPTION
1CG1	896221.9721ft	674875.0591ft	1153.991ft	33°27'49.018"N	111°59'56.595"W	TOP OF CASING (PVC)
1	904976.9251ft	678458.2781ft	1207.574ft	33°29'15.667"N	111°59'14.366"W	60D NAIL
3	907642.8891ft	680409.5321ft	1238.083ft	33°29'42.057"N	111°58'51.345"W	SM W4
4	907801.0001ft	675324.5221ft	1209.011ft	33°29'43.586"N	111°59'51.395"W	AM W9
5	896221.9581ft	674875.0741ft	1153.991ft	33°27'49.018"N	111°59'56.594"W	CK 1CG1
7	907801.1361ft	675324.5051ft	1209.011ft	33°29'43.588"N	111°59'51.396"W	ck4 amw9
8	907791.3261ft	675325.3561ft	1209.011ft	33°29'43.491"N	111°59'51.385"W	amw9c
9	907531.1101ft	673932.5641ft	1200.904ft	33°29'40.905"N	112°00'07.830"W	rmw2c
10	907750.0111ft	680411.9771ft	1239.5421ft	33°29'43.117"N	111°58'51.317"W	smw5

ELEV = 1207.25
ELEV = 1198.68
ELEV = 1237.54

AMW 9A

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Expiration Date 12-31-09

LEMME ENGINEERING, INC
3608 W. BETHANY HOME RD
PHOENIX, AZ

STANTEC WELL PROJECT
LEI 08-337

FEATURE ID	FEATURE DESCRIPTION	NORTHING	EASTING	LATITUDE	LONGITUDE	FEATURE TYPE	ASSIGNED PT#	ASSIGNED DESCRIPTION	ACTUAL ELEV. CASING A	ACTUAL ELEV. CASING B	DATE LOGGED	GIS ELEV. (+/-1') LID
1	WELL	905009.5895	675779.8865	33 29 15.97127 N	111 59 45.99265 W	MON. WELL	1	bmw1 rim	1191.93		6/10/2008	1194.339
2	WELL	905849.8677	676235.8483	33 29 24.28851 N	111 59 40.61807 W	MON. WELL	2	bmw2rim	1197.98	1198.01	6/10/2008	1200.174
3	WELL	905648.167	676745.4744	33 29 22.29660 N	111 59 34.59647 W	MON. WELL	3	bmw3rim	1199.44	1199.45	6/10/2008	1201.048
5	WELL	908067.4815	675796.8984	33 29 46.22655 N	111 59 45.81938 W	MON. WELL	5	amw-10rim	1210.80	1210.42	6/10/2008	1212.792
6	WELL	907530.5317	674224.3923	33 29 40.90162 N	112 00 04.38424 W	MON. WELL	6	cmw1rim	1199.92		6/10/2008	1202.273
8	WELL	907026.7602	669944.7566	33 29 35.87990 N	112 00 54.91677 W	MON. WELL	8	vcmw4rim	1176.01	1176.06	6/10/2008	1180.840
4	SURVEY CNTL	896222.1411	674874.9556	33 27 49.02002 N	111 59 56.59582 W	CNTL PT	4	1cg1	1154.00		6/10/2008	1153.710

↑
NAD83
↑
STATE PLANE
AZ CENTRAL ZONE

↑
NGVD 29

↑
NAVD88

LEGEND:

- EXISTING AIR SPARGE WELL
- EXISTING SOIL VAPOR EXTRACTION WELL
- GROUNDWATER MONITORING WELL
- NESTED GROUNDWATER MONITOR WELL

2.2 DISSOLVED PHASE PCE ANALYTICAL RESULTS IN $\mu\text{g/L}$. <1.0 COMPOUND NOT DETECTED AT OR ABOVE THE LABORATORY METHOD REPORTING LIMIT.

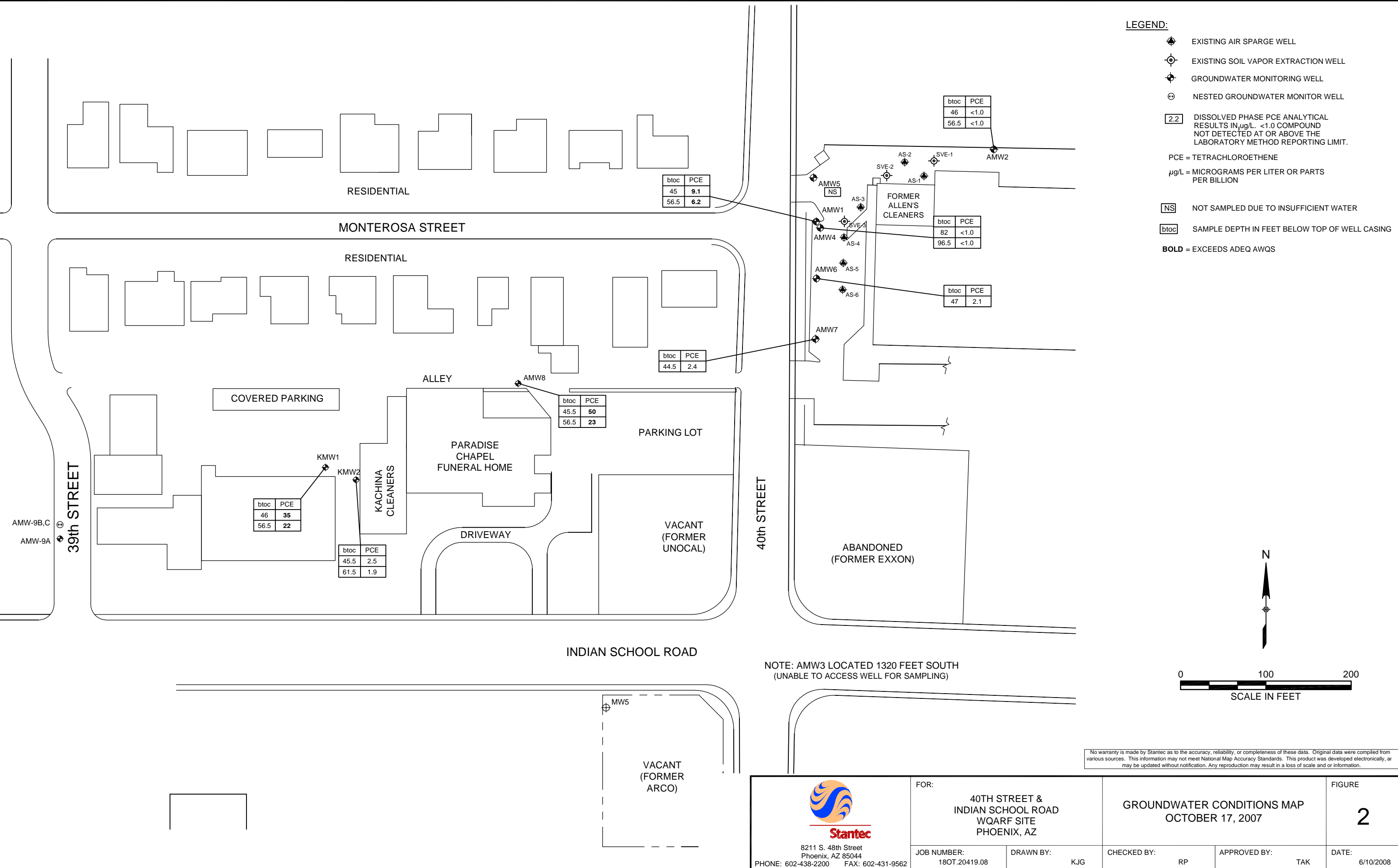
PCE = TETRACHLOROETHENE

$\mu\text{g/L}$ = MICROGRAMS PER LITER OR PARTS PER BILLION

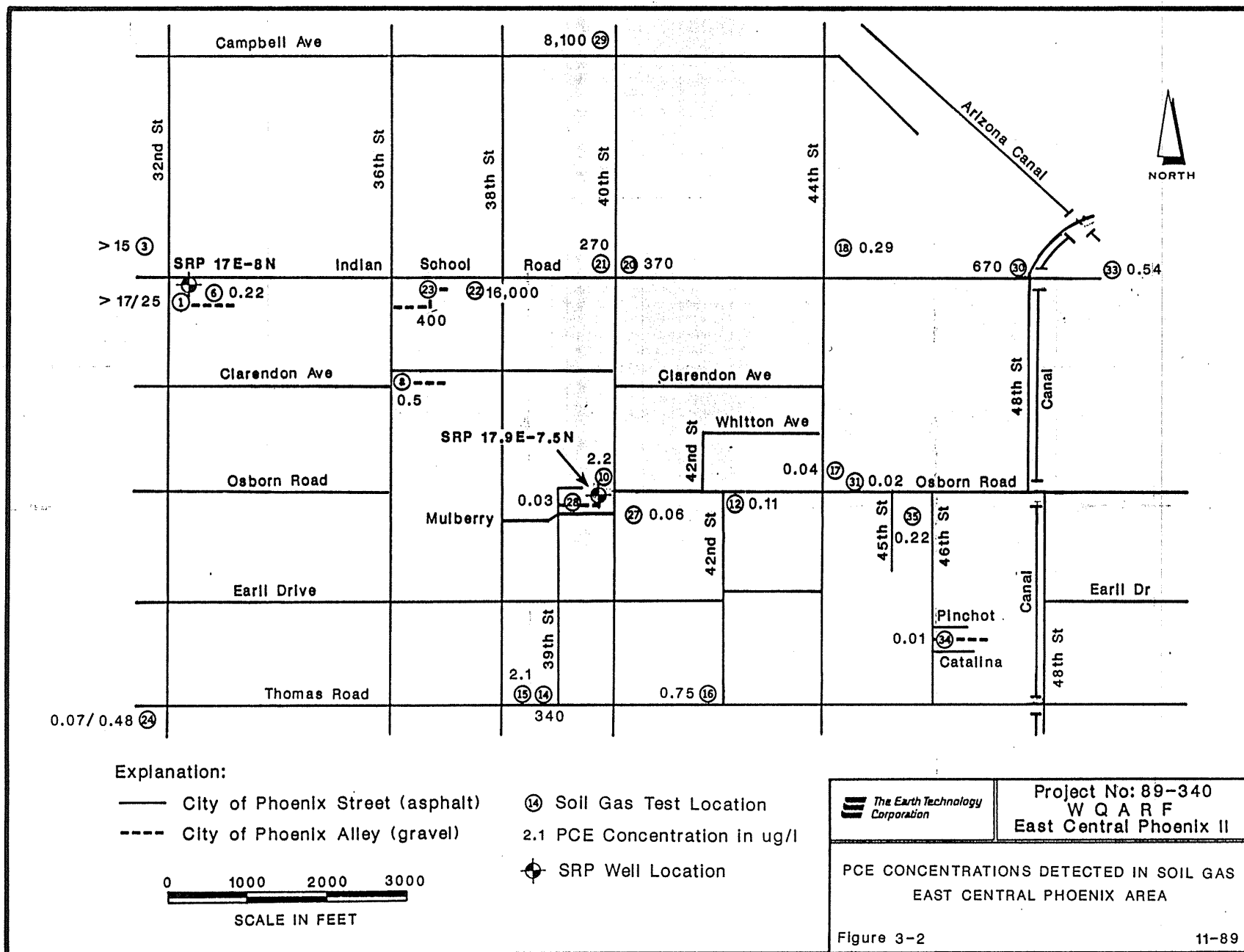
NS NOT SAMPLED DUE TO INSUFFICIENT WATER

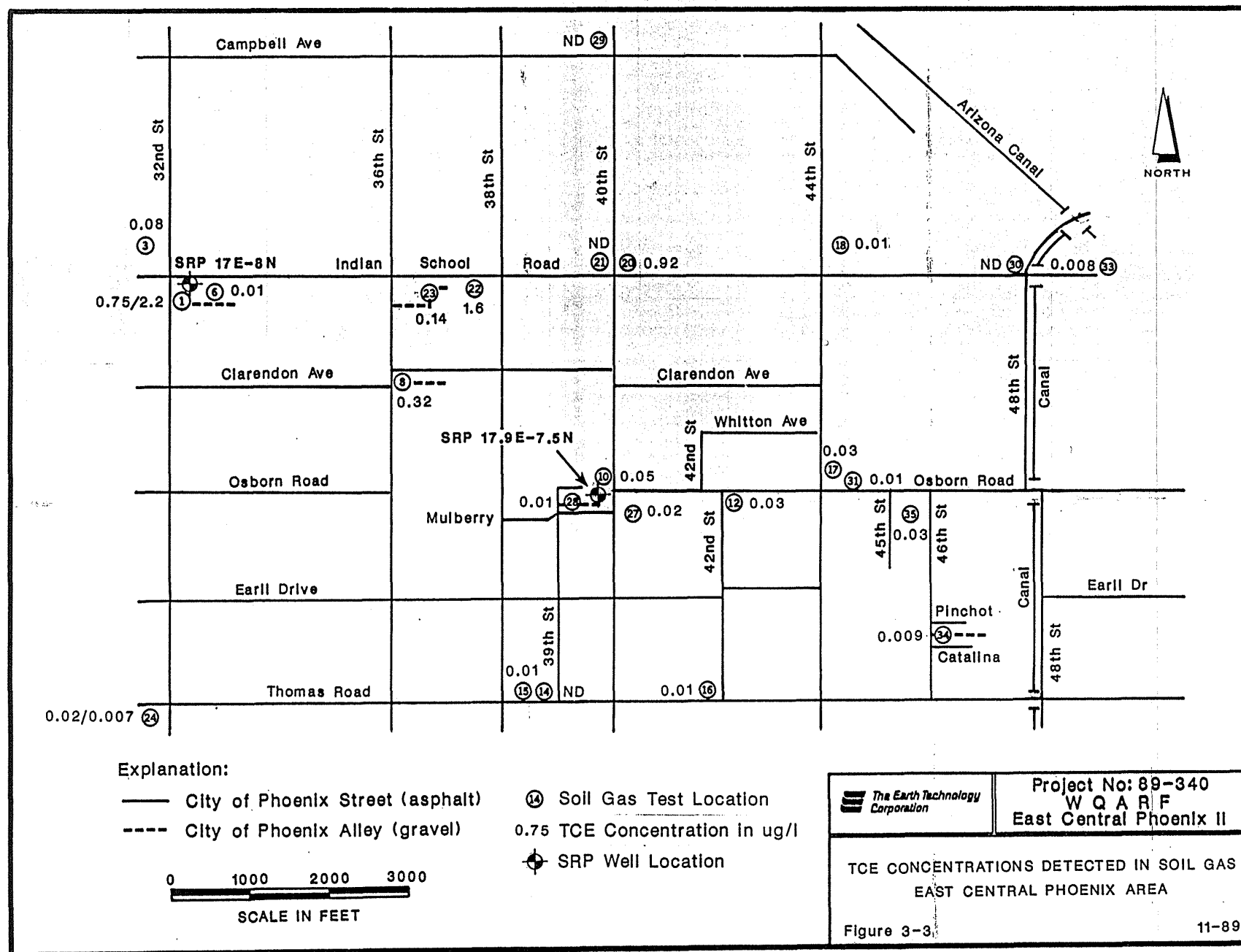
btoc SAMPLE DEPTH IN FEET BELOW TOP OF WELL CASING

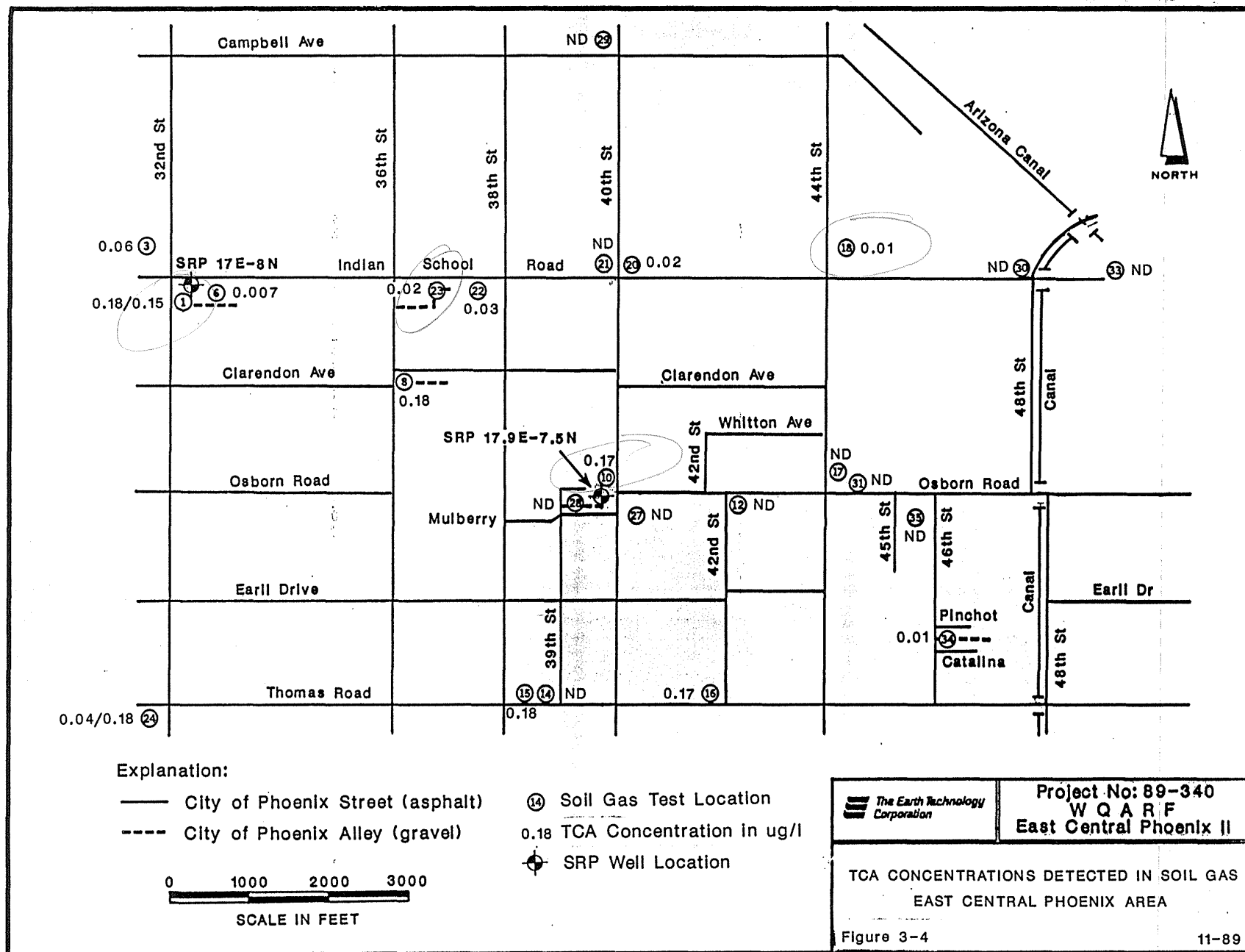
BOLD = EXCEEDS ADEQ AWQS



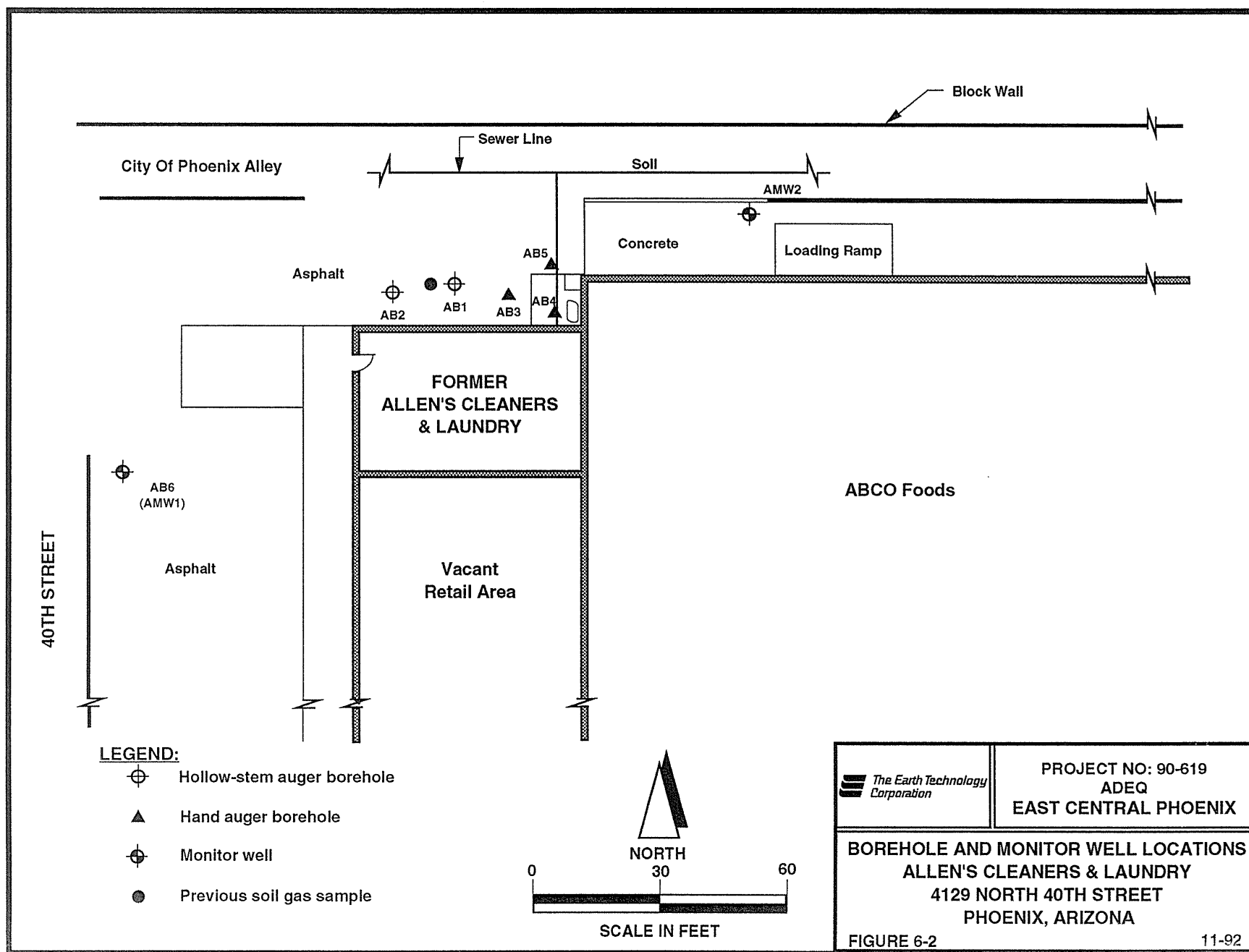
 8211 S. 48th Street Phoenix, AZ 85044 PHONE: 602-438-2200 FAX: 602-431-9562	FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, AZ		GROUNDWATER CONDITIONS MAP OCTOBER 17, 2007		FIGURE 2
	JOB NUMBER: 18OT.20419.08	DRAWN BY: KJG	CHECKED BY: RP	APPROVED BY: TAK	DATE: 6/10/2008



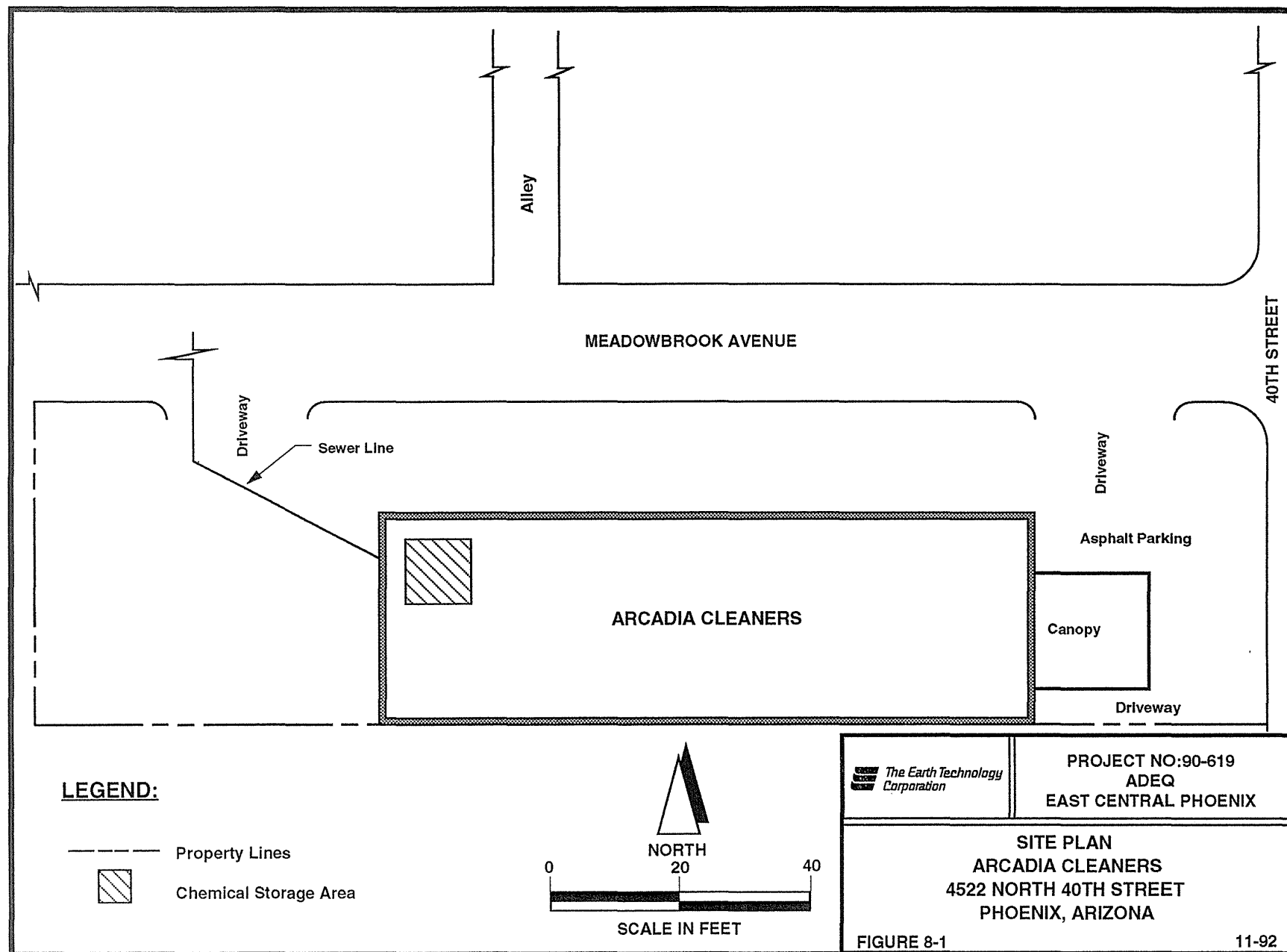


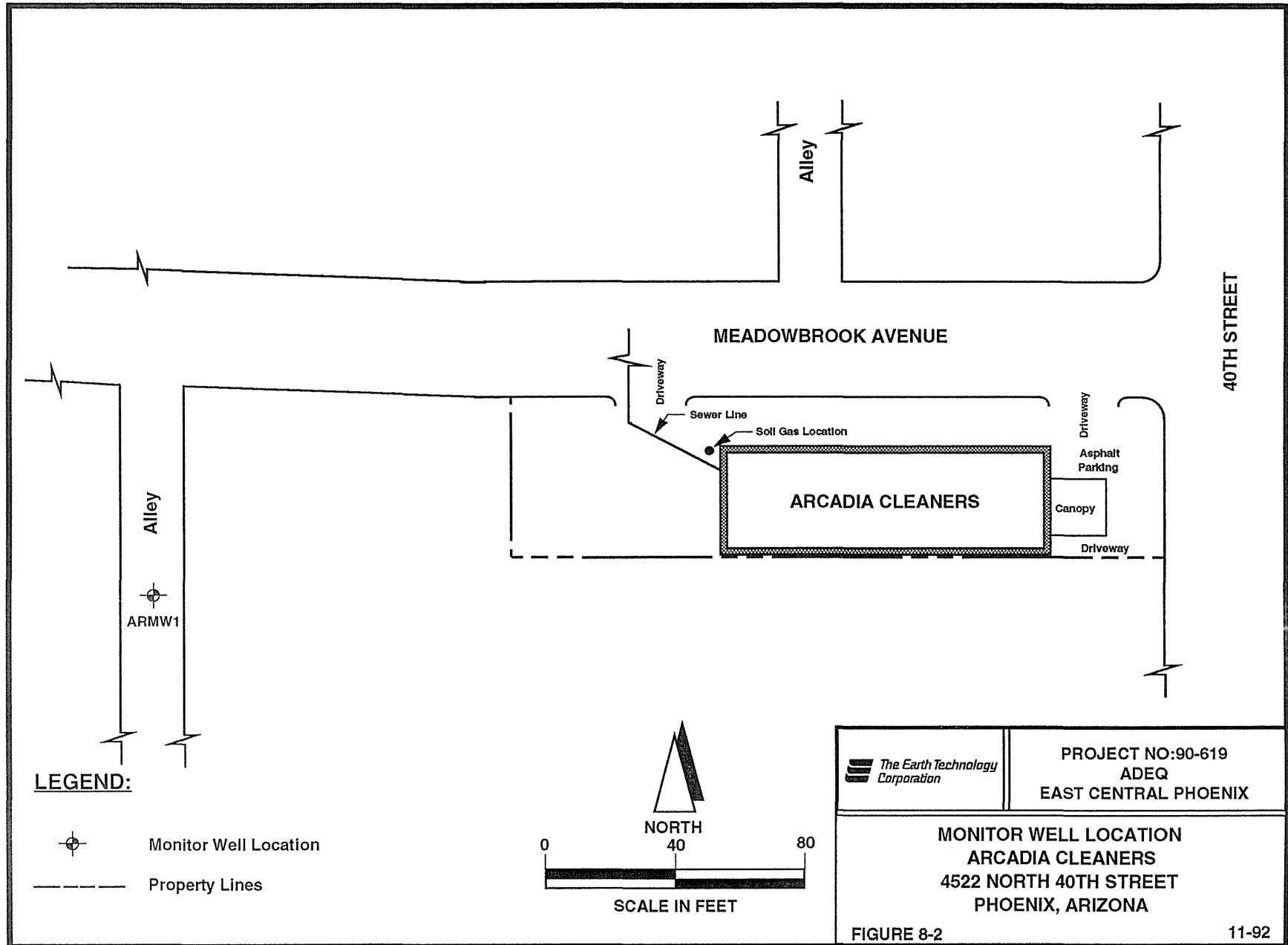


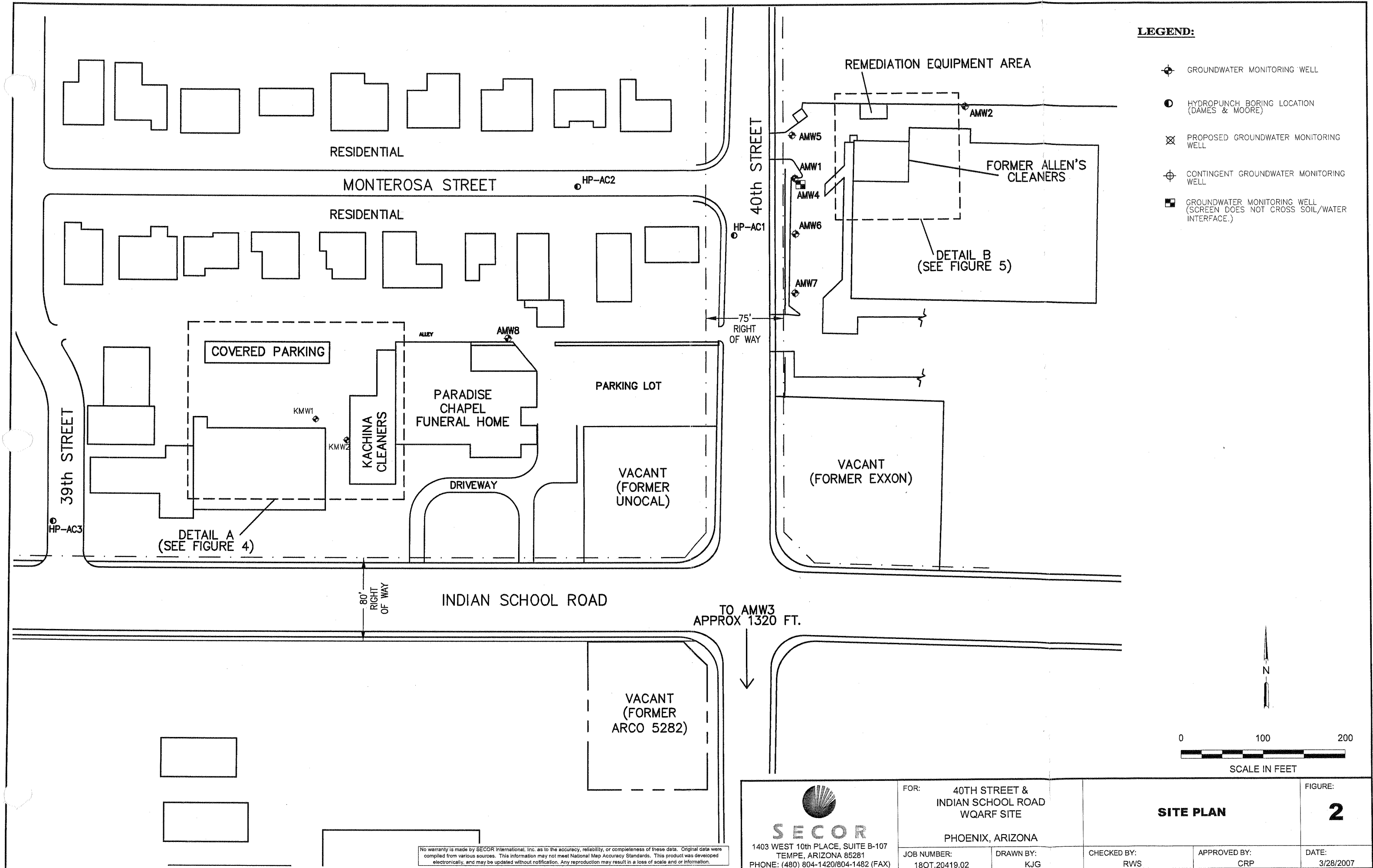
6-4




8-2

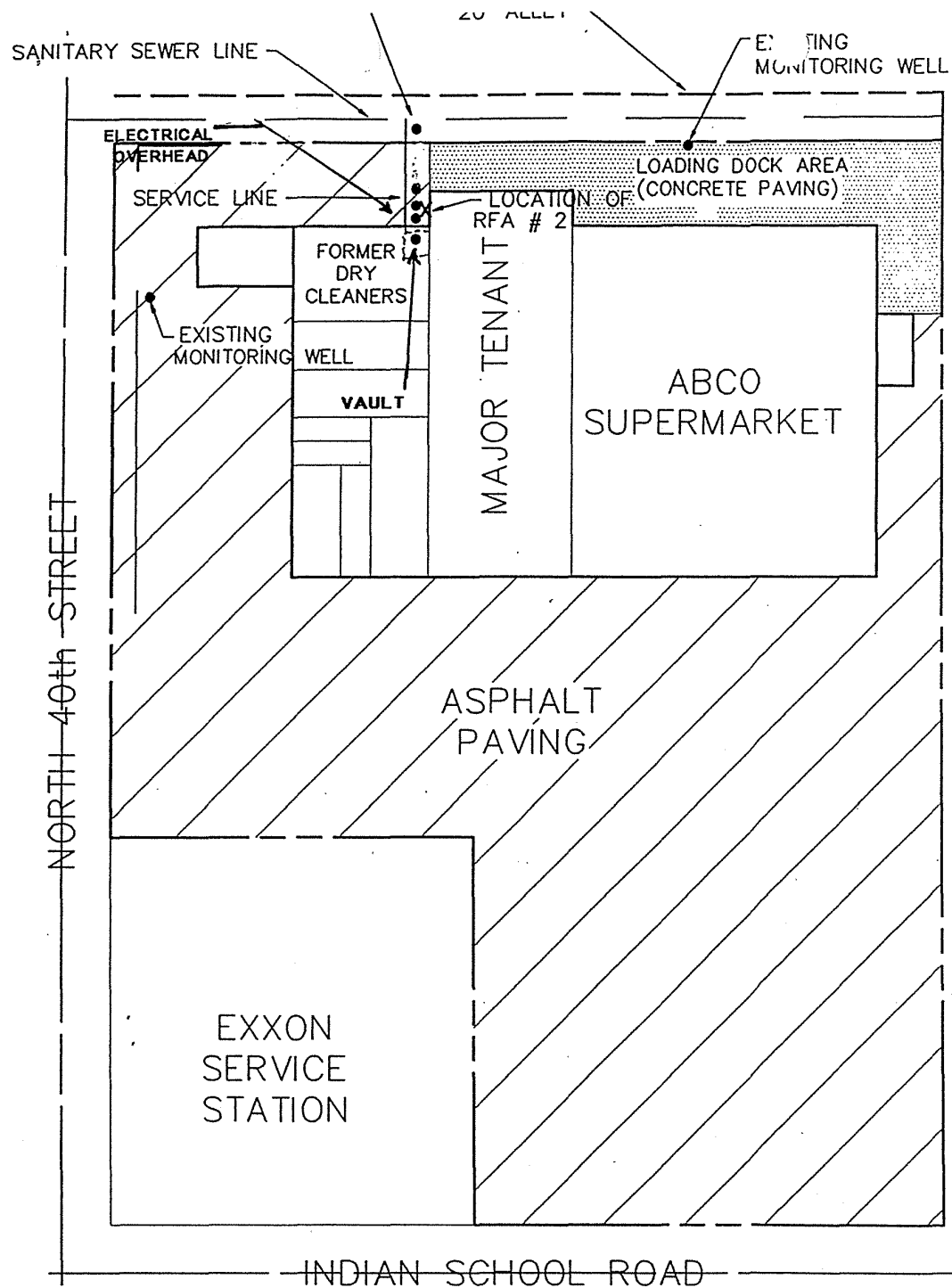






No warranty is made by SECOR International, Inc. as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed electronically, and may be updated without notification. Any reproduction may result in a loss of scale and/or information.

 SECOR 1403 WEST 10th PLACE, SUITE B-107 TEMPE, ARIZONA 85281 PHONE: (480) 804-1420/804-1482 (FAX)	FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, ARIZONA		SITE PLAN		FIGURE: 2
	JOB NUMBER: 18OT.20419.02	DRAWN BY: KJG	CHECKED BY: RWS	APPROVED BY: CRP	DATE: 3/28/2007



SOURCE: GULF-PACIFIC ENVIRONMENTAL ENGINEERING, INC

SCALE: 1" = 70

GULF-PACIFIC
ENVIRONMENTAL
ENGINEERING, INC.

EXHIBIT NO. 4

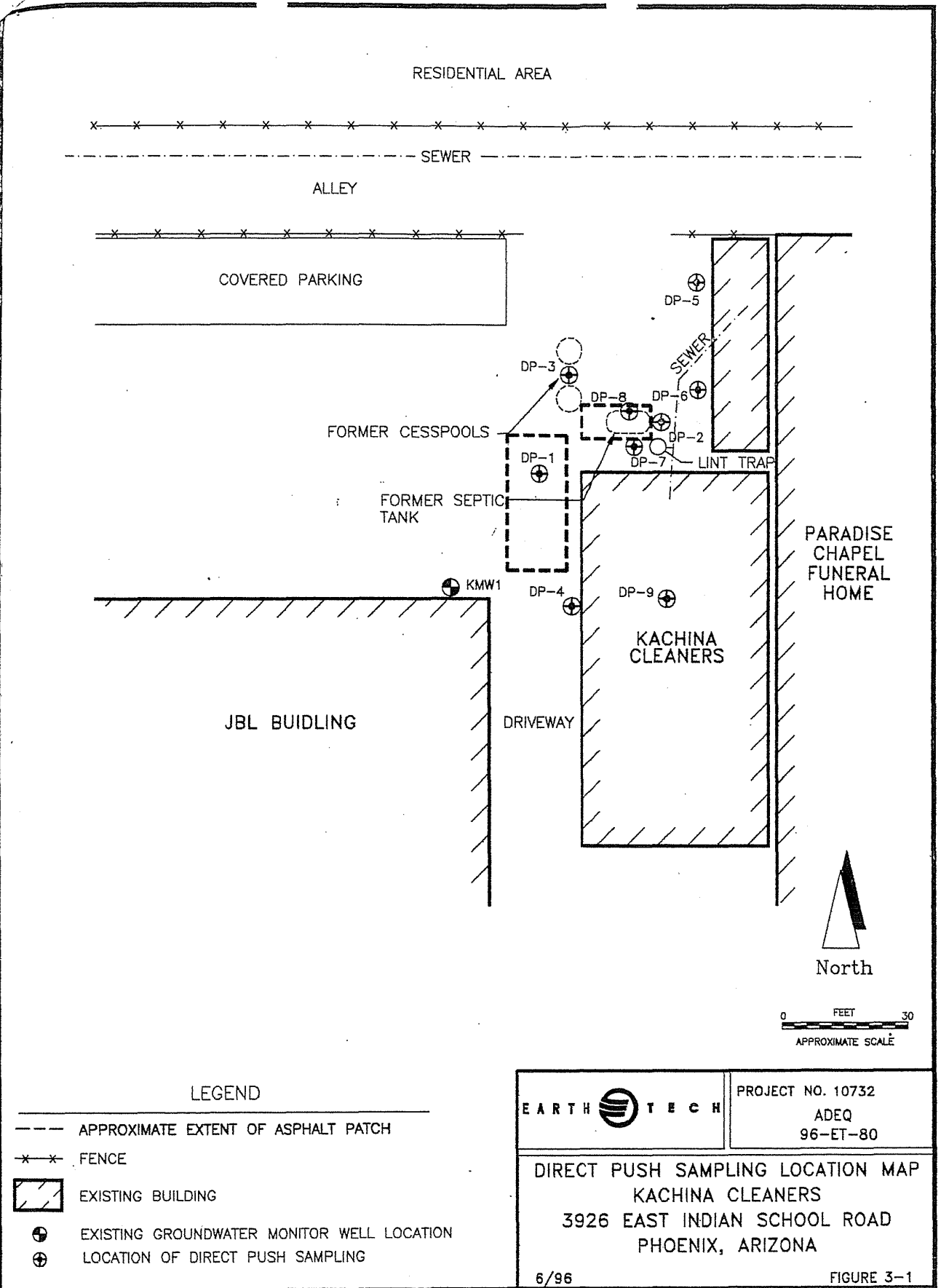
MONITORING WELL LOCATION MAP

Plot Scale: 1"=30'

File Name: C:\ET\1996\963045\BOREACT.DWG

Last Date Revised: 6-24-96

Drawn By: BDE

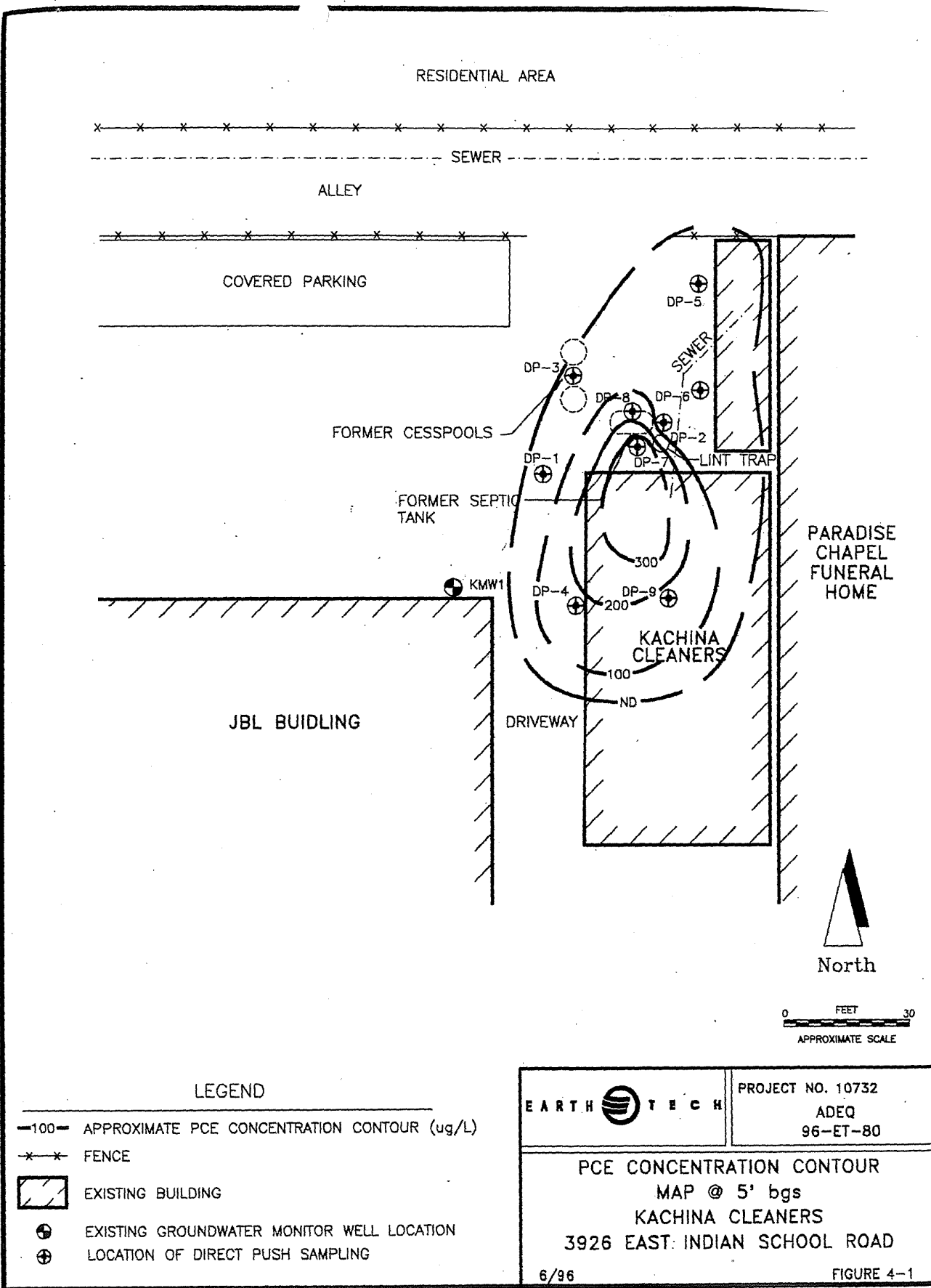


Plot Scale: 1=30

File Name: C:\ET\1996\963045\PCF_MAP.DWG

Last Date Revised: 6-24-96

Drawn By: BDE



LEGEND

- 100— APPROXIMATE PCE CONCENTRATION CONTOUR (ug/L)
- * * * FENCE
- EXISTING BUILDING
- EXISTING GROUNDWATER MONITOR WELL LOCATION
- LOCATION OF DIRECT PUSH SAMPLING

EARTH TECH

PROJECT NO. 10732

ADEQ
96-ET-80

PCE CONCENTRATION CONTOUR
MAP @ 5' bgs
KACHINA CLEANERS
3926 EAST INDIAN SCHOOL ROAD

6/96

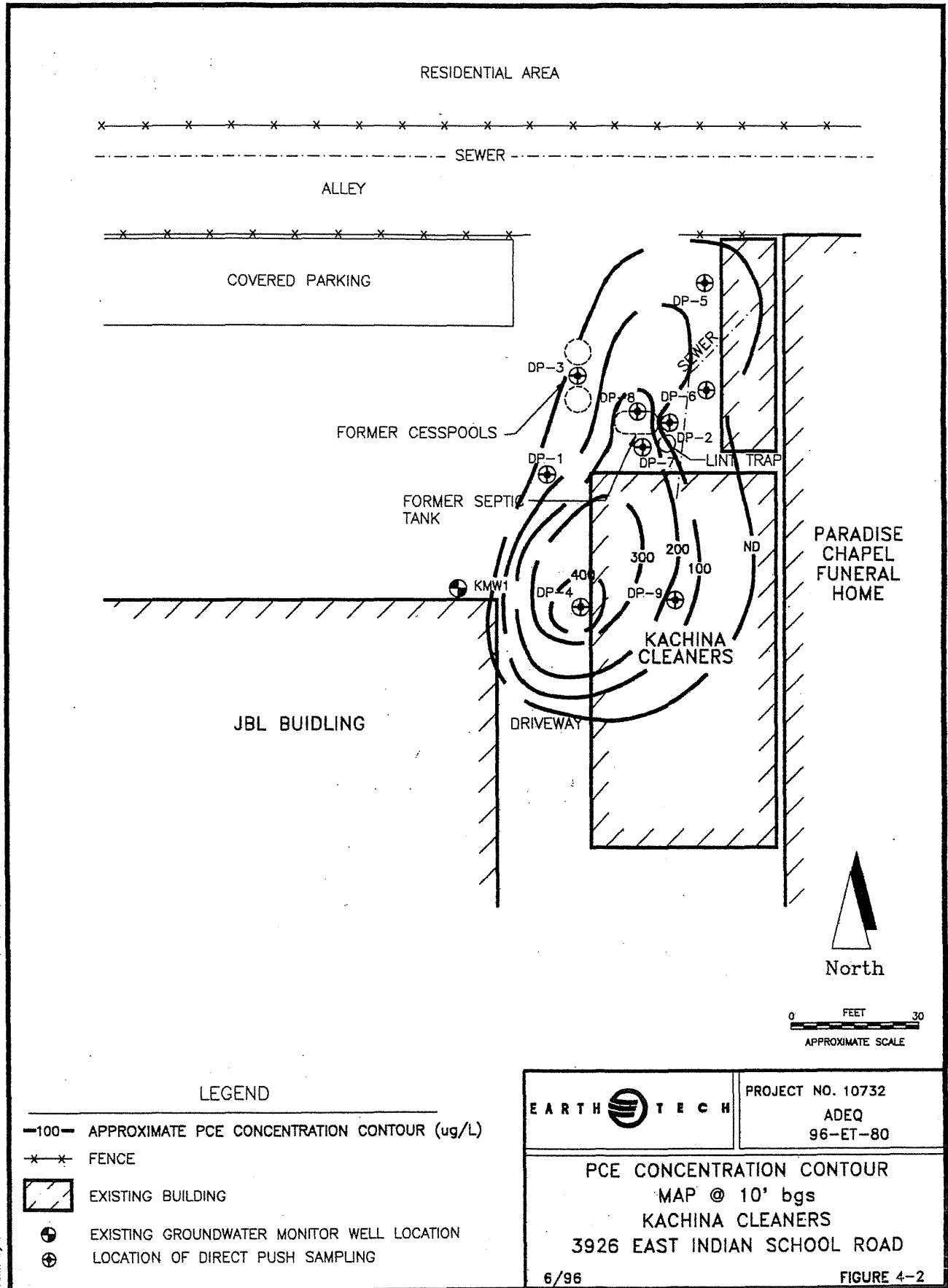
FIGURE 4-1

Plot Scale: 1"=30'

File Name: C:\ET\1998\963045\PCF_MAP.DWG

Last Date Revised: 6-24-96

Drawn By: BDE



EARTH TECH	PROJECT NO. 10732 ADEQ 96-ET-80
	PCE CONCENTRATION CONTOUR MAP @ 10' bgs KACHINA CLEANERS 3926 EAST INDIAN SCHOOL ROAD 6/96

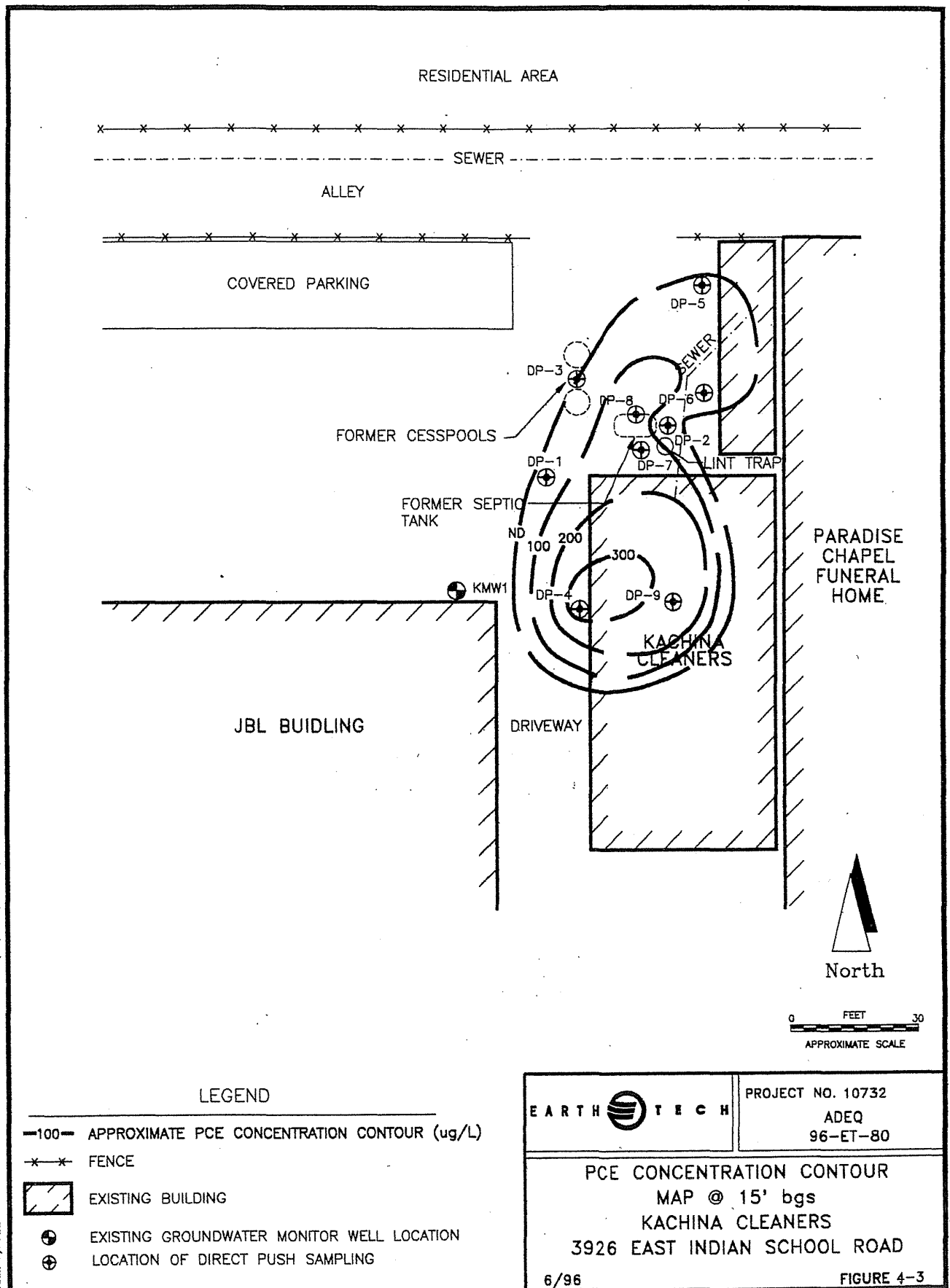
FIGURE 4-2

Plot Scale: 1=30

File Name: C:\ET\1998\963045\PCF_MAP.DWG

Last Date Revised: 6-24-96

Drawn By: BDE





MARICOPA COUNTY
ENVIRONMENTAL SERVICES DEPARTMENT
AIR QUALITY DIVISION
1001 North Central Avenue
Phoenix, Arizona 85004
(602) 506-6094
FAX (602) 506-6985

DATE RECEIVED

7.25.03

LOG NUMBER

603447

VER 6/9/00

**APPLICATION FOR THE AUTHORITY TO OPERATE AND/OR CONSTRUCT
A DRY CLEANING OPERATION UNDER THE GENERAL PERMIT**

(As required by A.R.S. 49-480 and Maricopa County Air Pollution Control Regulations, Rule 200)

READ INSTRUCTIONS FIRST. ALL APPLICANTS MUST COMPLETE ITEMS 1 THROUGH 15. ALSO COMPLETE EACH APPLICABLE SECTION A AND B.

9. BUSINESS NAME:	KACHINA DRY CLEANERS			DO NOT WRITE IN THIS SPACE C DC 603447 9/22/03
10. ADDRESS OF SITE:	3926 E INDIAN SCHOOL ROAD PHX AZ ZIP: 85018			
11. CONTACT AT SITE	STACY TSANTILAS			3a. TELEPHONE AT SITE (602) 955-5540
12. TYPE OF OWNERSHIP:	<input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Owner <input type="checkbox"/> Other - Specify: <input type="checkbox"/> Partnership <input type="checkbox"/> Government			
13. NAME AND MAILING ADDRESS OF OWNERSHIP:	CONSTANTINE + STACY TSANTILAS 4405 E PASEO VERDE DRIVE PHX. AZ 85018			KACHINA DRY CLEANERS
6. TELEPHONE OF OWNERSHIP:	(602) 840-3104			6a. CONTACT AT OWNERSHIP CONSTANTINE
7. SEND ALL CORRESPONDENCE INCLUDING INVOICE AND PERMIT TO:	COMPANY NAME: KACHINA DRY CLEANERS ADDRESS: 3926 E INDIAN SCHOOL CITY: PHOENIX STATE: AZ ZIP CODE: 85018 ATTN: STACY TSANTILAS			
8. SIC (STANDARD INDUSTRIAL CLASSIFICATION) CODE(S):	7216			9. EXISTING AIR POLLUTION CONTROL PERMIT NUMBER FOR THIS SITE, IF ANY: 980665
10. PROVIDE A BRIEF DESCRIPTION OF BUSINESS/PROCESS AT SITE:	DRY CLEANING + Laundry Service and coin operated laundry			
11. OPERATING SCHEDULE	HOURS PER DAY	DAYS PER WEEK	WEEKS PER YEAR	
	8-10	6	52	
12. PROJECTED DATE OF COMPLETION (IF NEW EQUIPMENT)				

13. THE AUTHORIZED CONTACT PERSON REGARDING THIS APPLICATION IS:

NAME STACY TSANTILAS TELEPHONE 602.955.5540
TITLE Mrs. COMPANY KACHINA DRY CLEANERS

14. I CERTIFY THAT I AM FAMILIAR WITH THE OPERATIONS AND EQUIPMENT REPRESENTED ON THIS APPLICATION AND THE STATEMENTS AND INFORMATION PROVIDED HEREIN ARE TRUE, ACCURATE, AND COMPLETE BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY.

TYPE OR PRINT NAME AND TITLE
OF RESPONSIBLE OFFICIAL

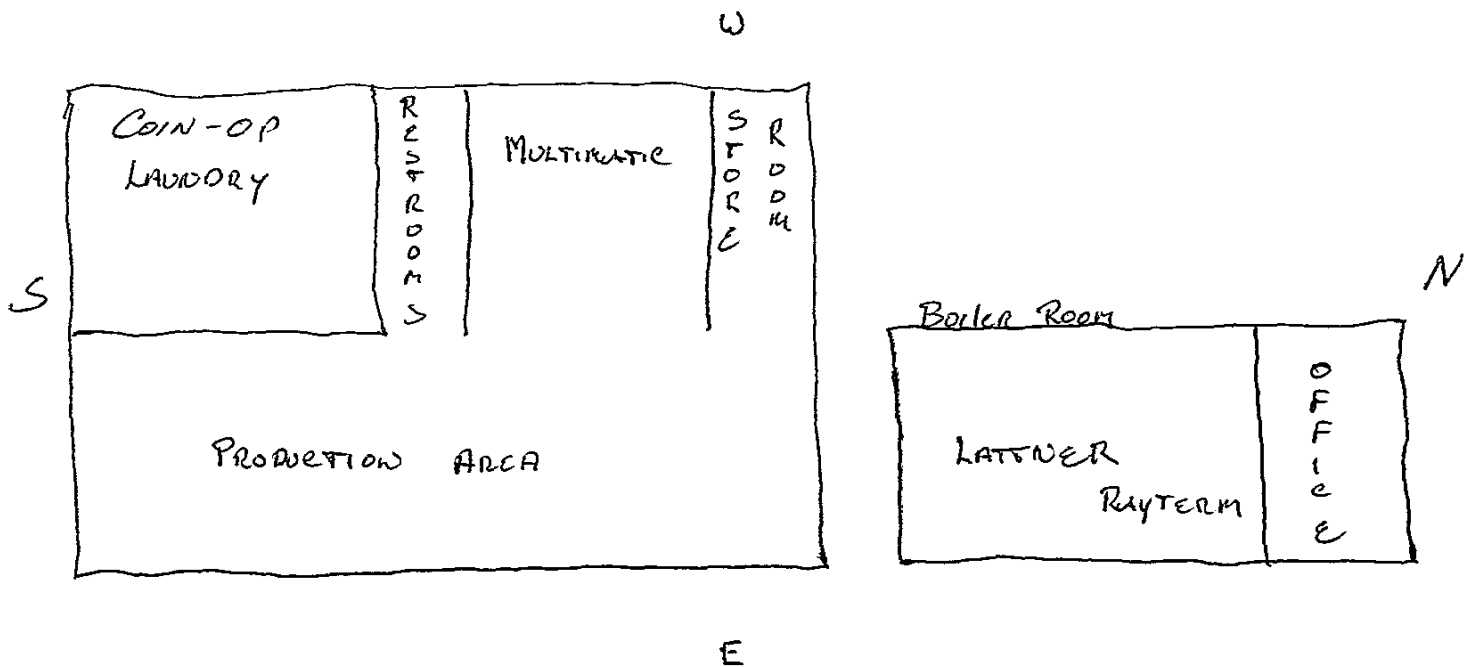
STACY TSANTILAS

DATE 7/2/03

SIGNATURE OF OWNER OR
RESPONSIBLE OFFICIAL OF BUSINESS

[Signature]

15 SITE DIAGRAM: DRAW A SITE LAYOUT OR ATTACH A DRAWING OF EQUIPMENT LOCATIONS AT THE SITE WITH APPROXIMATE DISTANCES TO PROPERTY LINES. SPECIFICALLY SHOW THE LOCATION OF DRY CLEANING MACHINES AND FUEL BURNING EQUIPMENT.



PERMIT APPLICATION

 *
 * MARICOPA COUNTY DEPARTMENT OF HEALTH SERVICES *
 * ENVIRONMENTAL SERVICES *
 * P. O. Box 2111 *
 * PHOENIX, AZ 85001 *
 * BUREAU OF AIR POLLUTION CONTROL 258-6381 *
 *

05

CONSTANTINE TSANTILAS FUEL BURN-COMM
 KACHINA CLEANERS & LAUNDRY DRY CLEANER
 3926 E INDIAN SCHOOL
 PHOENIX AZ 85018

3926 E INDIAN SCHOOL PX

Your ANNUAL OPERATING permit NO. A8500499 expires on 30-Nov-1990.
 Please check the information shown above, enter any changes in the space allocated, sign this application and return it to the above address with payment in the amount of \$74.00 .

This application, properly executed and accompanied by the correct fee (\$74.00), must be received by _____. There is a penalty for late payment of fees, and you will be subject to legal action if this application and proper fees are not received by the date due.

=====

ENTER ANY NEEDED CORRECTIONS BELOW. IF THERE HAS BEEN A CHANGE OF OWNERSHIP AND/OR MANAGEMENT COMPANY, OR IF THIS COMPANY IS NO LONGER IN BUSINESS, PLEASE CALL 258-6381, EXT 372 TO AVOID FURTHER CORRESPONDENCE TO YOU.

=====

Owner Name/Mgmt Co: Constantine Tsantilas

Business Name: Kachina Dry Cleaners

Mailing Address: 3926 E Indian School

City: Phx State: AZ Zip: 85018

Business Phone: 602 - 955 - 5540 Home Phone: 602 - 840 - 3104

I/We assume complete responsibility for the business to be conducted at the premises for which I/We are making application for an operating permit.
 I/We certify that the said business at the premises will be operated in full compliance with all applicable environmental regulations duly adopted and all other Local, County and State Rules, Ordinances and Regulations pertaining thereto. I/We understand that I/We are responsible for knowing the contents of the applicable regulations as they pertain to said business.

COPY OF APPLICABLE REGULATIONS AVAILABLE AT ENVIRONMENTAL SERVICES OFFICE AT 1845 E ROOSEVELT, PHOENIX

SIGN APPLICATION HERE Sty Tsantilas DATE 2/6/91



RECEIVED

AUG 27 1991

App'd. 1483

APPLICATION FOR INSTALLATION PERMIT

Office of Environmental Services
Bureau of Air Pollution Control
1845 East Roosevelt, Phoenix
P. O. Box 2111
Phoenix, Arizona 85001
(602) 258-6381

READ INSTRUCTIONS FIRST. ALL APPLICANTS MUST COMPLETE ITEMS 1 THROUGH 17. COMPLETE PERTINENT SECTIONS A THROUGH Z. DO NOT BEGIN CONSTRUCTION OR INSTALLATION OF EQUIPMENT BEFORE THIS APPLICATION IS APPROVED.

1. BUSINESS NAME: <u>Kachina Cleaners & Laundry Inc.</u>	DO NOT WRITE IN THIS SPACE DATE REC'D _____ LOG # _____
2. ADDRESS OF INSTALLATION SITE: <u>3926 E. Indian School Rd.</u> <u>Phoenix, AZ 85018</u>	DATE CARD SENT _____
3. TELEPHONE AT SITE: (602) <u>955-5540</u>	PNUM _____ SITE LOCATION _____
4. TYPE OF OWNERSHIP: <input checked="" type="checkbox"/> CORPORATION <input type="checkbox"/> SOLE OWNER <input type="checkbox"/> OTHER--SPECIFY: <input checked="" type="checkbox"/> PARTNERSHIP <input type="checkbox"/> GOVERNMENT	DISTRICT ("INSP") _____ <input type="checkbox"/> NONATTAINMENT AREA <input type="checkbox"/> ATTAINMENT AREA FEE _____
5. NAME AND MAILING ADDRESS OF OWNERSHIP: <u>Kachina Cleaners & Laundry Inc.</u> <u>3926 E. Indian School Rd.</u> <u>Phoenix, Arizona 85018</u>	<input type="checkbox"/> APPROVED <input type="checkbox"/> DENIED <input type="checkbox"/> CANCELLED BY: _____
6. TELEPHONE OF OWNERSHIP: (602) <u>955-5540</u>	("INSDATE") DATE _____
7. BRIEF DESCRIPTION OF BUSINESS/PROCESS AT SITE: <u>Dry cleaning and laundry of clothes</u>	CDS _____ UNIT <u>B</u> SOURCES _____ DATES NOTICE PUBLISHED: FIRST _____ SECOND _____
8. STANDARD INDUSTRIAL CLASSIFICATION (S.I.C.) CODE(S), IF KNOWN: _____	PUBLIC HEARING: NOTICE DATE _____ HEARING DATE _____
9. EXISTING AIR POLLUTION CONTROL PERMIT TO OPERATE NUMBER FOR THIS SITE, IF ANY: <u>A8500499</u> EXPIRATION DATE: <u>Nov. 1991</u>	DISPOSITION AFTER INSTALLATION PERMIT APPROVAL DATE _____
10. BRIEF DESCRIPTION OF EQUIPMENT/PROCESSES COVERED BY THIS APPLICATION: <u>Dry to dry dry cleaning machine</u>	<input type="checkbox"/> APPROVED PERMIT-OPERATE PNUM _____ <input type="checkbox"/> CANCELLED <input type="checkbox"/> EXPIRED
11. OPERATING SCHEDULE: HOURS PER DAY <u>8</u> DAYS PER WEEK <u>6</u> WEEKS PER YEAR <u>52</u>	
12. PROJECTED DATE OF COMPLETION: <u>Oct. 1, 1991</u>	

13. THE FOLLOWING PERSON/COMPANY HAS BEEN AUTHORIZED TO SERVE ON OUR BEHALF:

☐ CONSULTANT ☒ INSTALLER
NAME OF PERSON/COMPANY

Bill Chesbro

BUSINESS ADDRESS

1801 N. APACHE DR.

CHANDLER, AZ 85224

TELEPHONE 899-5329

14. THE AUTHORIZED CONTACT PERSON REGARDING THIS APPLICATION IS:

NAME Constantine Tsantilas

TELEPHONE (602) 955-5540

TITLE President

COMPANY Kachina Cleaners & Laundry Inc.

15. I CERTIFY THAT I AM FAMILIAR WITH THE OPERATIONS AND EQUIPMENT REPRESENTED ON THIS APPLICATION AND THE INFORMATION PROVIDED HEREIN IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DATE August 26 1991 SIGNATURE OF OWNER OR OFFICIAL OF BUSINESS

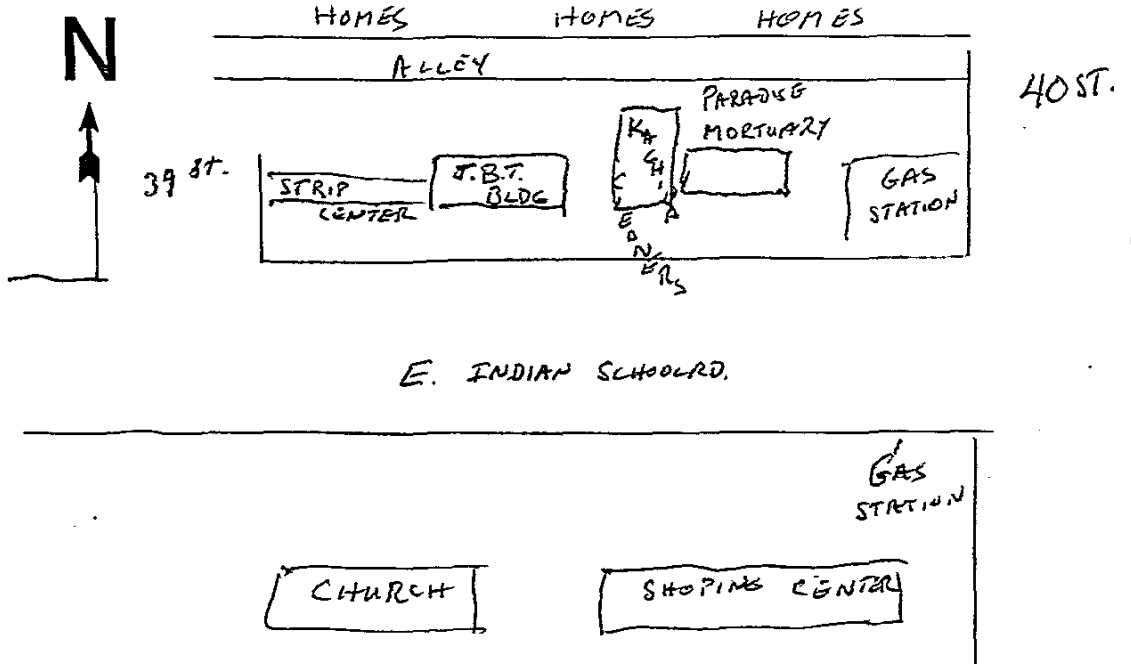
Constantine Tsantilas, Pres.

TYPE OR PRINT NAME AND TITLE Constantine Tsantilas, President Kachina Cleaners

DATE _____ SIGNATURE OF PREPARER IF DIFFERENT FROM ABOVE

TYPE OR PRINT NAME, TITLE AND COMPANY

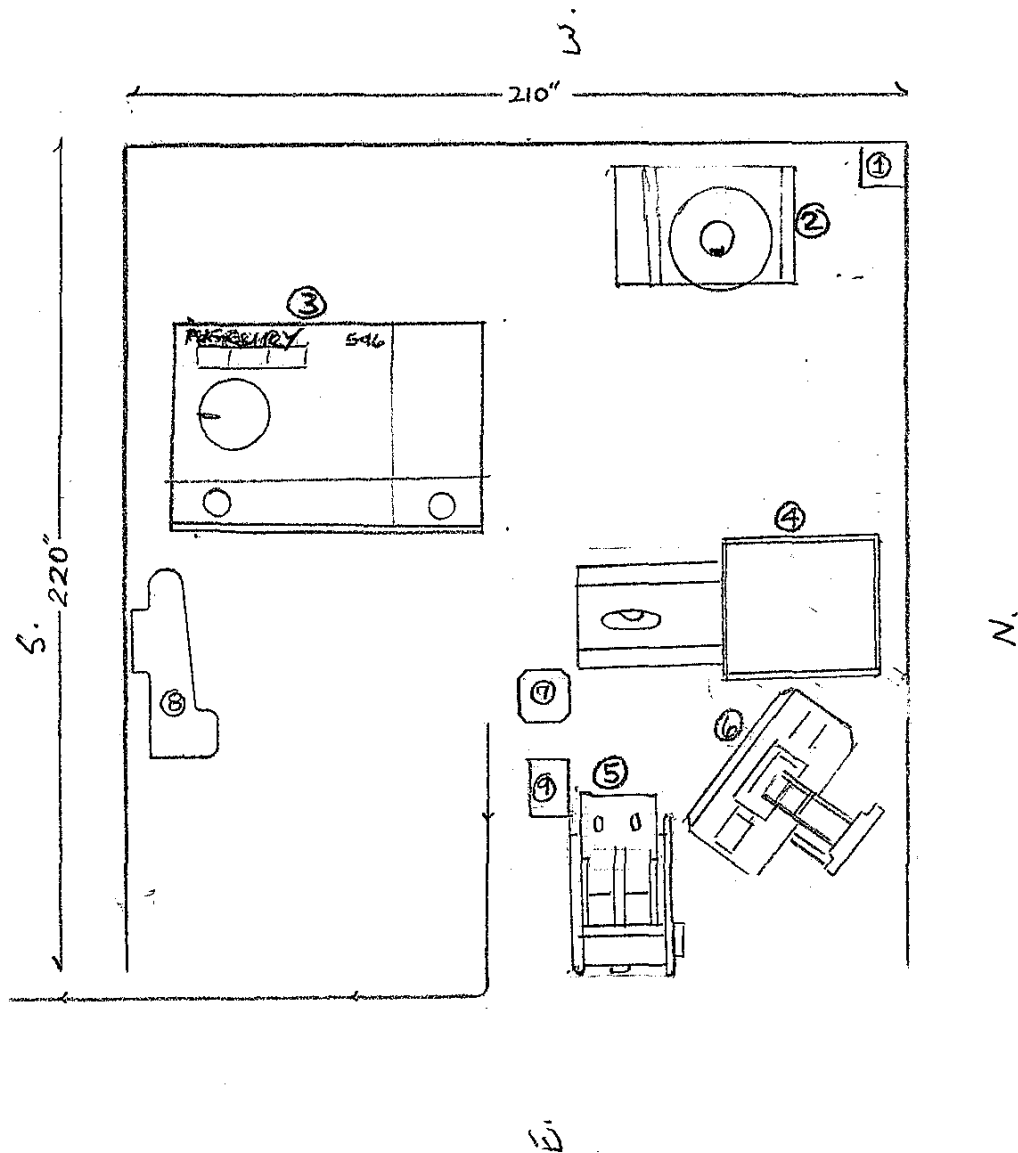
16. PLOT PLAN OF SURROUNDING AREA SHOWING STREETS, INTERSECTIONS AND TYPES OF NEIGHBORS IN EACH DIRECTION.



17. LAYOUT OF INSTALLATION SITE SHOWING EQUIPMENT, CONTROLS, DUCTS, STACKS AND EMISSION POINTS. ALSO SHOW STORAGE AREAS FOR FUELS, RAW MATERIALS, CHEMICALS, FINISHED PRODUCTS, WASTE MATERIALS, ETC. ATTACH ADDITIONAL SHEETS, IF NECESSARY.

- 1/ SUMP TANK DRAIN
- 2/ WASCOMAT
- 3/ MULTIMATIC MERCURY

- 4/ } SHIRT LAUNDRY PRESS
- 5/ }
- 6/ }



APPENDIX C

BORING LOGS/WELL CONSTRUCTION DIAGRAMS

APPENDIX C
BORING LOGS/WELL CONSTRUCTION DIAGRAMS

TABLE OF CONTENTS

Boring Log/Diagram

AMW1	The Earth Technology Corporation, April 1992
AMW-04	HydroGeoChem, Inc., April 1997
AMW-9A	Secor International, Inc., April 2008
AMW-9A	Stantec, Groundwater Monitoring Well AMW-9A As-Built Construction Diagram, December 2008
AMW-9BC	Secor International, Inc., December 2007
AMW-9BC	Stantec, Groundwater Monitoring Well AMW-9BC As-Built Construction Diagram, December 2008
AMW-10AB	Secor International, Inc., May 2008
AMW-10AB	Stantec, Groundwater Monitoring Well AMW-10AB As-Built Construction Diagram, December 2008
AS-1	Secor International, Inc., December 2003
AS-2	Secor International, Inc., December 2003
AS-3	Secor International, Inc., December 2003
AS-4	Secor International, Inc., December 2003
AS-5	Secor International, Inc., December 2003
AS-6	Secor International, Inc., December 2003
KMW1	The Earth Technology Corporation, Monitor Well Design Detail KMW1, East Central Phoenix Project Area, June 1994

TABLE OF CONTENTS (continued)Boring Log/Diagram

KMW2	Secor International, Inc., May 2006
KSB1	Secor International, Inc., May 2006
KSB2	Secor International, Inc., May 2006
KSB3	Secor International, Inc., May 2006
SVE-1	Secor International, Inc., December 2003
SVE-2	Secor International, Inc., December 2003
SVE-3	Secor International, Inc., December 2003
KMW-03A	Hargis + Associates, Inc., May 2014
KMW-03B	Hargis + Associates, Inc., May 2014
KMW-04A	Hargis + Associates, Inc., February 2014
KMW-04B	Hargis + Associates, Inc., February 2014
KMW-05A	Hargis + Associates, Inc., February 2014
KMW-05B	Hargis + Associates, Inc., February 2014
KMW-06A	Hargis + Associates, Inc., February 2014
KMW-06B	Hargis + Associates, Inc., February 2014
KMW-07A	Hargis + Associates, Inc., January 2014
KMW-07B	Hargis + Associates, Inc., January 2014

WELL COMPLETION LOG

PROJECT NAME: East Central Phoenix/ Allen's Cleaners

WELL NUMBER: AMW1

PROJECT NUMBER: 90-0619-06

WELL LOCATION: Approximately 60 feet west of Allen's Cleaners, along west edge of property; A(2-4) 19ccc

WELL REGISTRATION NUMBER: 55-533299

DEPTH TO WATER (FEET FTOC): 31

DRILLING CO.: Heber Mining and Exploration

DRILLER: Randy Wilder

RIG TYPE: CME HD75

DRILLING METHOD: Hollow Stem Auger

DRILLING FLUID: None

BOREHOLE DIAMETER (INCHES): 10-1/4

TOTAL DEPTH DRILLED (FEET): 60

CASING TYPE: 4-inch Schedule 40 PVC

CASING DIAMETER (INCHES O.D.): 4

SCREEN TYPE: Schedule 40 PVC

SLOT SIZE (INCHES): 0.010

SCREENED INTERVAL (FEET): 20 TO 60

CASING INTERVAL (FEET): 0 TO 20

FILTER PACK: Sand CSSI Silica Sand - 10/20

FILTER INTERVAL (FEET): 19 TO 60

TYPE OF SEAL: Bentonite pellets - 1/4"

SEALED INTERVAL (FEET): 16 TO 19

GROUT TYPE: Neat cement

PERCENT BENTONITE IN GROUT:

GROUT INTERVAL (FEET): 0 TO 16

GROUND ELEVATION: 1212.71 feet AMSL

TOP OF CASING ELEVATION: 1212.30 feet AMSL

COMMENTS:

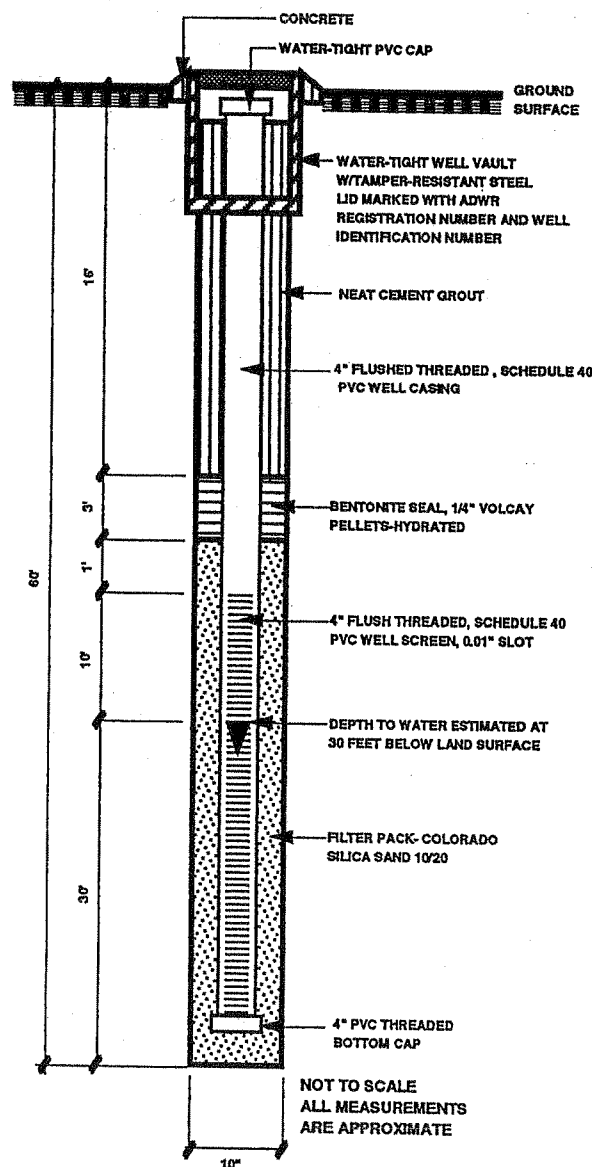
WELL NUMBER: AMW1

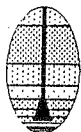
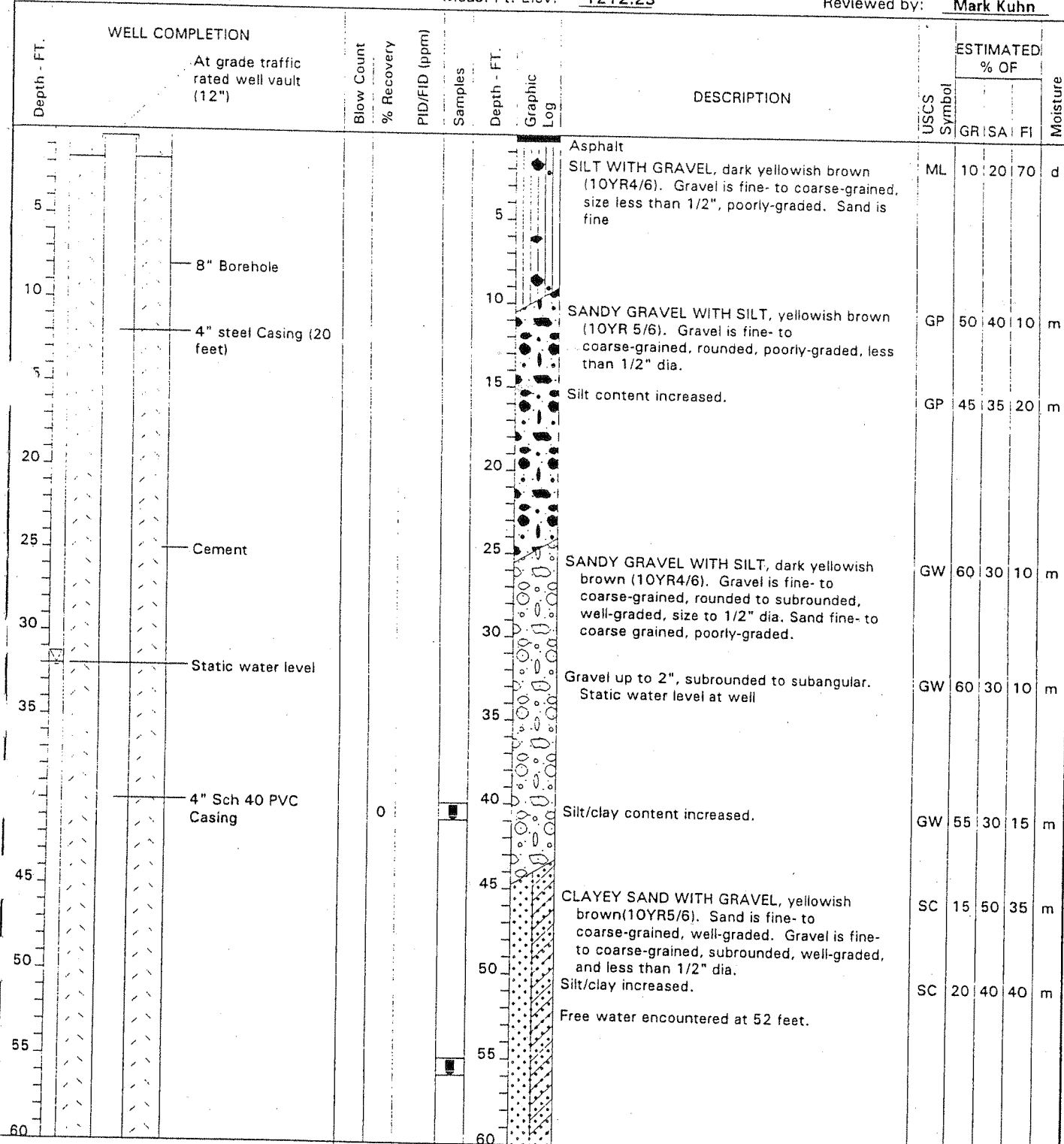
DRILLING & WELL COMPLETION
PROGRESS:

START FINISH

DATE: 4/7/92 4/7/92

WELL SKETCH
(DEPTH IN FEET)
CONSTRUCTION GEOLOGIC



Project: Palm Grove - PhoenixBoring: AMW-04Pg. 1 of 2Drilling Co: H-F Drilling, Inc.Drilling Method: Dual Wall TUBEX (RT1800) Date Started: 04/21/97Location: West of BuildingSampler: CuttingsDate Completed: 04/22/97Desc. of Meas Pt: Top of CasingLogged by: Jinshan TangLand Surf. Elev: 1212.8Meas. Pt. Elev: 1212.23Reviewed by: Mark Kuhn

**HYDRO
GEO
CHEM, INC.**

Lithologic Log and Well Construction Details of AMW-04

Former Allen's Cleaners Facility
4129 N 40th Street, Phoenix, AZ

Approved
Mark Kuhn

Date
9/26/97

Revised

Date

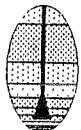
Reference:

FIG.

A.2 a

Project: Palm Grove - PhoenixBoring: AMW-04Pg. 2 of 2Drilling Co: H-F Drilling, Inc.Drilling Method: Dual Wall TUBEX (RT1800) Date Started: 04/21/97Location: West of BuildingSampler: Cuttings Date Completed: 04/22/97Desc. of Meas Pt: Top of Casing Logged by: Jinshan TangLand Surf. Elev: 1212.8Meas. Pt. Elev: 1212.23Reviewed by: Mark Kuhn

Depth - FT.	WELL COMPLETION	Blow Count	% Recovery	PID/FID (ppm)	Samples	Depth - FT.	Graphic Log	DESCRIPTION	USCS Symbol	ESTIMATED % OF				Moisture
										GR	SA	FI		
65						65		SANDY GRAVEL WITH LITTLE SILT, yellowish brown (10YR5/6). Gravel is fine- to coarse grained, rounded to subrounded, well-graded, and less than 1" dia. Sand is fine- to coarse-grained and well-graded. Gravel increased and size less than 1/2" dia.	GW	60	30	10		s
70						70			GW	70	25	5		s
75						75		SANDY GRAVEL WITH CLAY, dark yellowish brown (10YR4/6). Gravel is fine- to coarse-grained, subrounded, well-graded, and less than 1/4" dia. Sand is fine to coarse, poorly-graded.	GW	50	30	20		s
80						80		CLAYEY GRAVEL WITH SAND, dark yellowish brown (10YR4/4). Gravel is fine- to coarse-grained, subrounded, well-graded, and less than 1/4". Sand is medium.	GW	40	30	30		s
85						85		CLAYEY SAND WITH GRAVEL, yellowish brown (10YR5/6). Sand is fine- to coarse-grained and well-graded. Gravel is fine- to coarse-grained, subrounded to subangular, well-graded, and less than 1/2" dia.	SW SC	15	50	35		s
90						90		SANDY GRAVEL WITH LITTLE OR NO FINES, dark yellowish brown (10YR4/6). Gravel is fine- to coarse-grained, subrounded to subangular, well-graded, and less than 1/2" dia. Sand is coarse-grained. A lot of water in borehole	GW	55	40	5		s
95						95								
100						100		Clay content increased	GW	50	35	15		s
								Boring terminated at 101 feet.						



**HYDRO
GEO
CHEM, INC.**

Lithologic Log and Well Construction Details of AMW-04

Former Allen's Cleaners Facility
4129 N 40th Street, Phoenix, AZ

Approved	Date	Revised	Date	Reference:	FIG.
Mark Kuhn	9/26/97				A.2 b

PROJECT: 40th St. and Indian School Road WQARF Site
 LOCATION: 39th St. and Indian School Road, Phoenix, AZ
 PROJECT NUMBER: 18OT.20419.08

WELL / PROBEHOLE / BOREHOLE NO:

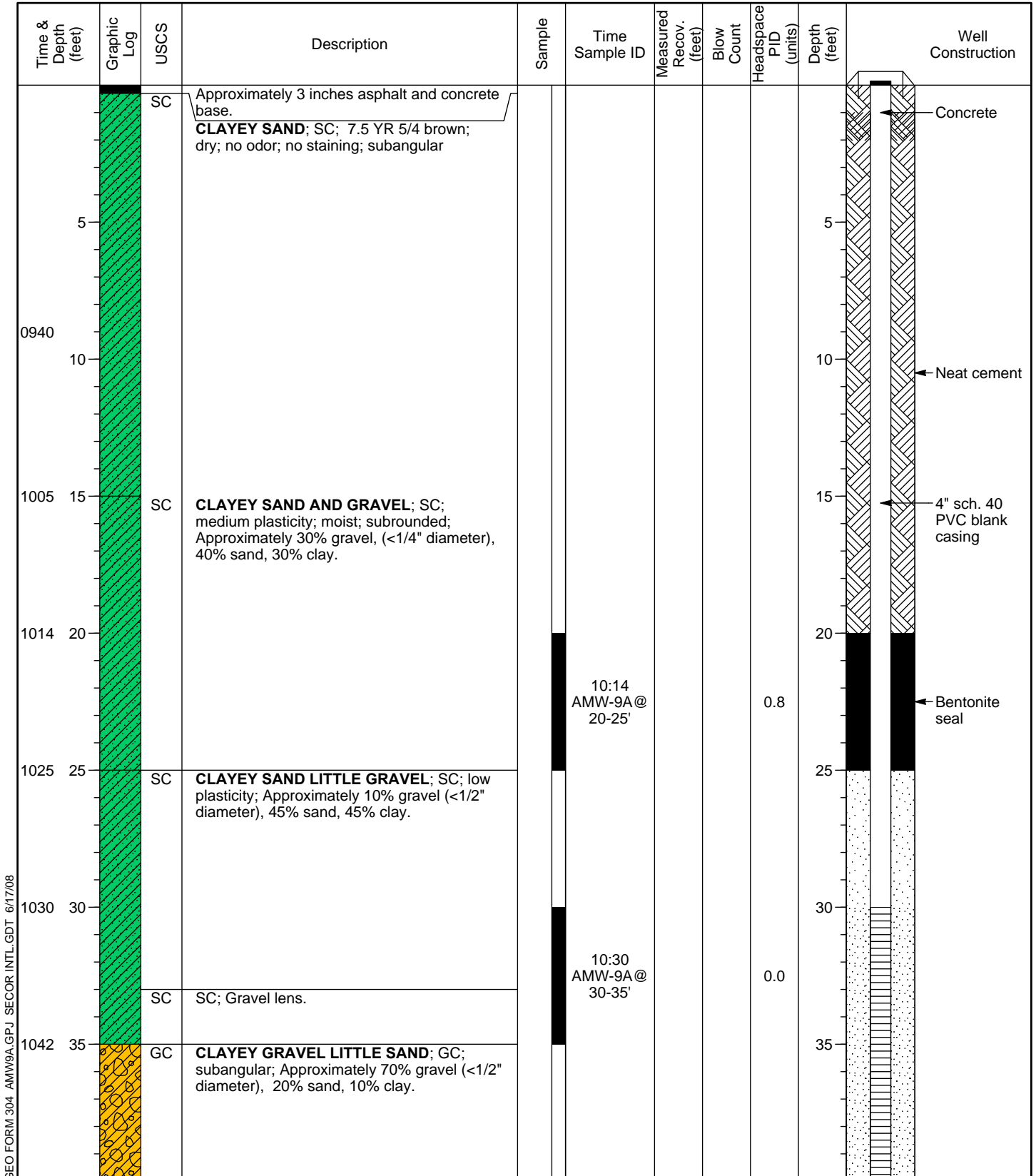
AMW-9A PAGE 1 OF 2



SECOR

DRILLING: STARTED 4/7/08 COMPLETED: 4/7/08
 INSTALLATION: STARTED 4/7/08 COMPLETED: 4/7/08
 DRILLING COMPANY: Geomechanics Southwest
 DRILLING EQUIPMENT: CME-75
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING EQUIPMENT: None

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): 45.0 4/7/08
 STATIC DTW (ft):
 WELL CASING DIAMETER (in): 4
 LOGGED BY: P. Padmore
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 WELL DEPTH (ft): 75.0
 BOREHOLE DEPTH (ft): 76.0
 BOREHOLE DIAMETER (in): 10
 CHECKED BY:



PROJECT: 40th St. and Indian School Road WQARF Site
 LOCATION: 39th St. and Indian School Road, Phoenix, AZ
 PROJECT NUMBER: 18OT.20419.08

WELL / PROBEHOLE / BOREHOLE NO:

AMW-9A PAGE 2 OF 2



SECOR

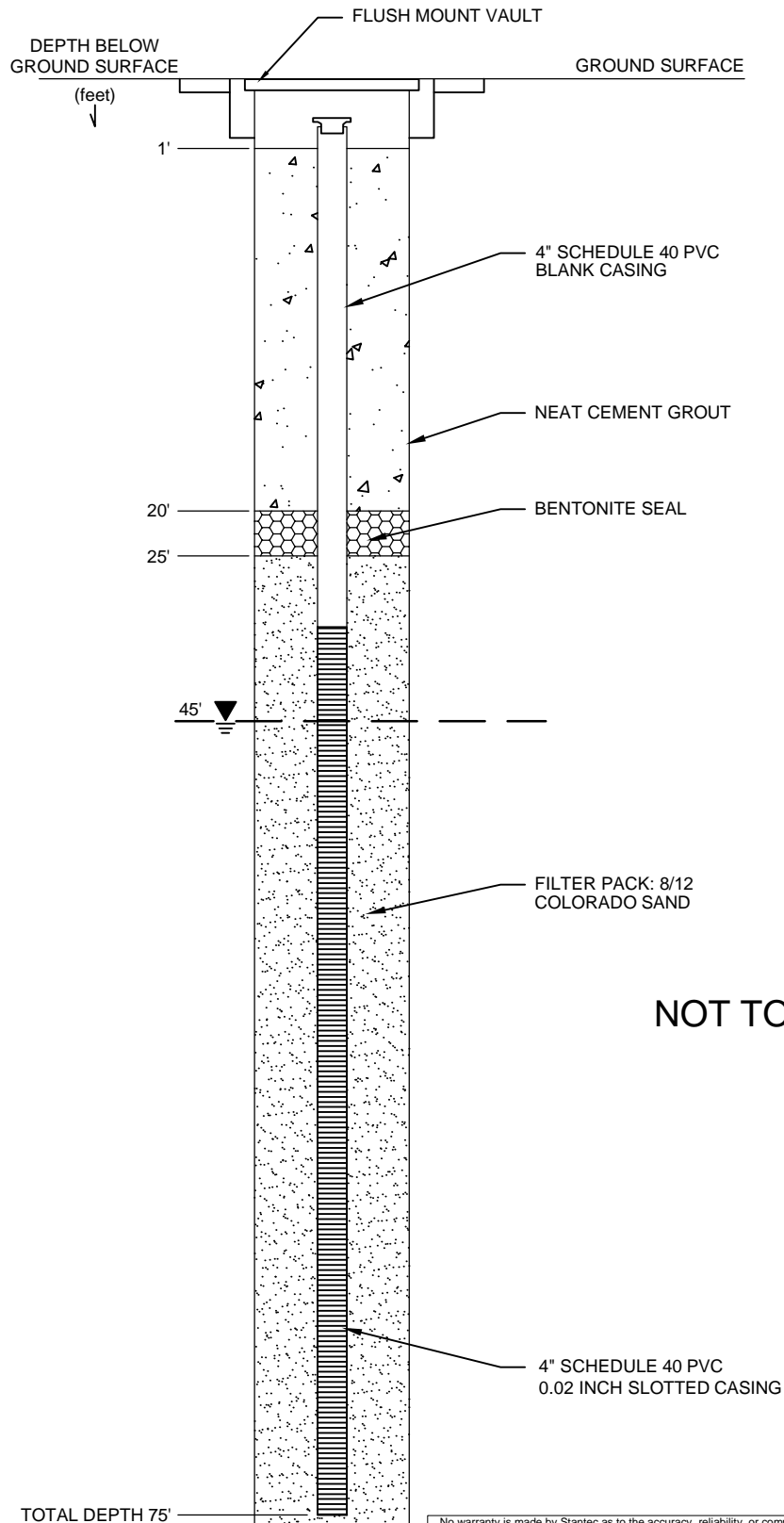
DRILLING: STARTED 4/7/08 COMPLETED: 4/7/08
 INSTALLATION: STARTED 4/7/08 COMPLETED: 4/7/08
 DRILLING COMPANY: Geomechanics Southwest
 DRILLING EQUIPMENT: CME-75
 DRILLING METHOD: Hollow Stem Auger
 SAMPLING EQUIPMENT: None

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): 45.0 4/7/08 BOREHOLE DEPTH (ft): 75.0
 STATIC DTW (ft): WELL DEPTH (ft): 76.0
 WELL CASING DIAMETER (in): 4 BOREHOLE DIAMETER (in): 10
 LOGGED BY: P. Padmore CHECKED BY:

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
1107		SC	CLAYEY SAND TRACE GRAVEL; SC; subrounded; Aproximately 5% gravel, (<1.0" in diameter)75% sand, 20% clay.							
1125 45									45	
1133 50		SC	CLAYEY SAND LITTLE GRAVEL; SC; medium plasticity; saturated; Approximately 10% gravel (<1/2" diameter), 50% sand, 40% clay.		11:25 AMW-9A@ 45-50'		23.0		50	
1145 55									55	
1157 60		CL	CLAY LITTLE SAND; CL; medium plasticity; saturated; Approximately 10% sand, 90% clay.		11:45 AMW-9A@ 55-60'		9.2		60	
1210 65									65	
1238 70	CL	SANDY CLAY; CL; medium plasticity; saturated; Approximately 20% sand, 80% clay							70	
75					12:38 AMW-9A@ 70-75'			0.0	75	
1303			Hole terminated at 76 feet.							

GEO FORM 304 AMW9A.GPJ SECOR INTL.GDT 6/17/08

8/12 Colorado silica sand
 4" diameter sch. 40 PVC 0.020" slotted screen



NOT TO SCALE

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8211 S. 48th Street
Phoenix, AZ 85044
PHONE: 602-438-2200 FAX: 602-431-9562

FOR:
40TH STREET & INDIAN SCHOOL ROAD
WQARF SITE
PHOENIX, ARIZONA

JOB NUMBER:
18OT.20419.09

DRAWN BY:
PMP

GROUNDWATER MONITORING
WELL AMW-9A AS-BUILT
CONSTRUCTION DIAGRAM

CHECKED BY:
RP

APPROVED BY:
TAK

FIGURE:

2

DATE:
12/1/2008

PROJECT: 40th St and Indian School WQARF
 LOCATION: 39th St and Indian School Phoenix, AZ
 PROJECT NUMBER: 18OT.20419.08

WELL / PROBEHOLE / BOREHOLE NO:

AMW-9BC PAGE 1 OF 4



DRILLING: STARTED 12/12/07 COMPLETED: 12/14/07
 INSTALLATION: STARTED 12/17/07 COMPLETED: 12/18/07
 DRILLING COMPANY: Boart Longyear
 DRILLING EQUIPMENT: Sonic Rig 1521
 DRILLING METHOD: Sonic 6x8 core
 SAMPLING EQUIPMENT: SimulProbe

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): 45 12/12/07 WELL DEPTH (ft): 140.5
 STATIC DTW (ft): NM 12/17/07 BOREHOLE DEPTH (ft): 145.0
 WELL CASING DIAMETER (in): 2 BOREHOLE DIAMETER (in): 8
 LOGGED BY: K. McCormick CHECKED BY: C. Pollock

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		SC	Approximately 3 inches asphalt and concrete base CLAYEY SAND ; SC; 7.5 YR 6/4 light brown; fine to coarse-grained; dry; no odor; no staining; well graded; approximately 70% sand, 30% clay, trace gravel							
5		GW SC	GRAVEL ; GW; coarse-grained; maximum diam. 1 inch CLAYEY SAND ; SC; approximately 50% sand, 40% clay, 10% gravel		0934 ---				5	
10		GW SC	GRAVEL ; GW; coarse-grained; maximum diam. 2 inches CLAYEY SAND ; SC; approximately 50% sand, 40% clay, 10% gravel Approximately 60% sand, 40% clay		0941 ---				10	Neat Cement
15			10 YR 8/2 very light brown; approximately 60% sand, 40% clay		0947 ---				15	2-inch sch. 40 PVC blank casing
20			7.5 YR 6/4 light brown 10 YR 8/2 very light brown		1025 ---				20	2-inch sch. 40 PVC blank casing
25			7.5 YR 6/4 light brown							
30			Well graded; approximately 50% sand, 45% clay, 5% gravel; increase amount coarse sand		1042 ---				25	
35			Moist; approximately 60% sand, 40% clay, trace gravel		1054 ---				30	Bentonite/ cement slurry
					1114 ---					
					1207 ---				35	

PROJECT: 40th St and Indian School WQARF
 LOCATION: 39th St and Indian School Phoenix, AZ
 PROJECT NUMBER: 18OT.20419.08

WELL / PROBEHOLE / BOREHOLE NO:

AMW-9BC PAGE 2 OF 4



SECOR

DRILLING: STARTED 12/12/07 COMPLETED: 12/14/07
 INSTALLATION: STARTED 12/17/07 COMPLETED: 12/18/07
 DRILLING COMPANY: Boart Longyear
 DRILLING EQUIPMENT: Sonic Rig 1521
 DRILLING METHOD: Sonic 6x8 core
 SAMPLING EQUIPMENT: SimulProbe

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): 45 12/12/07
 STATIC DTW (ft): NM 12/17/07
 WELL CASING DIAMETER (in): 2
 LOGGED BY: K. McCormick
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 WELL DEPTH (ft): 140.5
 BOREHOLE DEPTH (ft): 145.0
 BOREHOLE DIAMETER (in): 8
 CHECKED BY: C. Pollock

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace P/D (units)	Depth (feet)	Well Construction
45		SC	CLAYEY SAND ; 7.5 YR 4/6 brown; fine to coarse-grained; moist; no odor; no staining; well graded; approximately 70% sand, 30% clay, trace gravel		1220 ---				45	
			Approximately 60% sand, 30% clay, 10% coarse gravel							
			Wet							
			Approximately 80% coarse sand, 20% clay							
			Approximately 50% sand, 45% clay, 5% coarse gravel with maximum diam. 3 inches							
55					1312 ---	1.5			55	← Bentonite/ cement slurry
					1430 AMW9-56.6					
60					1448 ---				60	
					1615 ---	1.5			65	
65										
					1635 AMW9-66.5				70	
70										
					1651 ---	1.5			75	← Bentonite pellet seal
75										

← Bentonite/ cement slurry

← Bentonite pellet seal

PROJECT: 40th St and Indian School WQARF
 LOCATION: 39th St and Indian School Phoenix, AZ
 PROJECT NUMBER: 18OT.20419.08

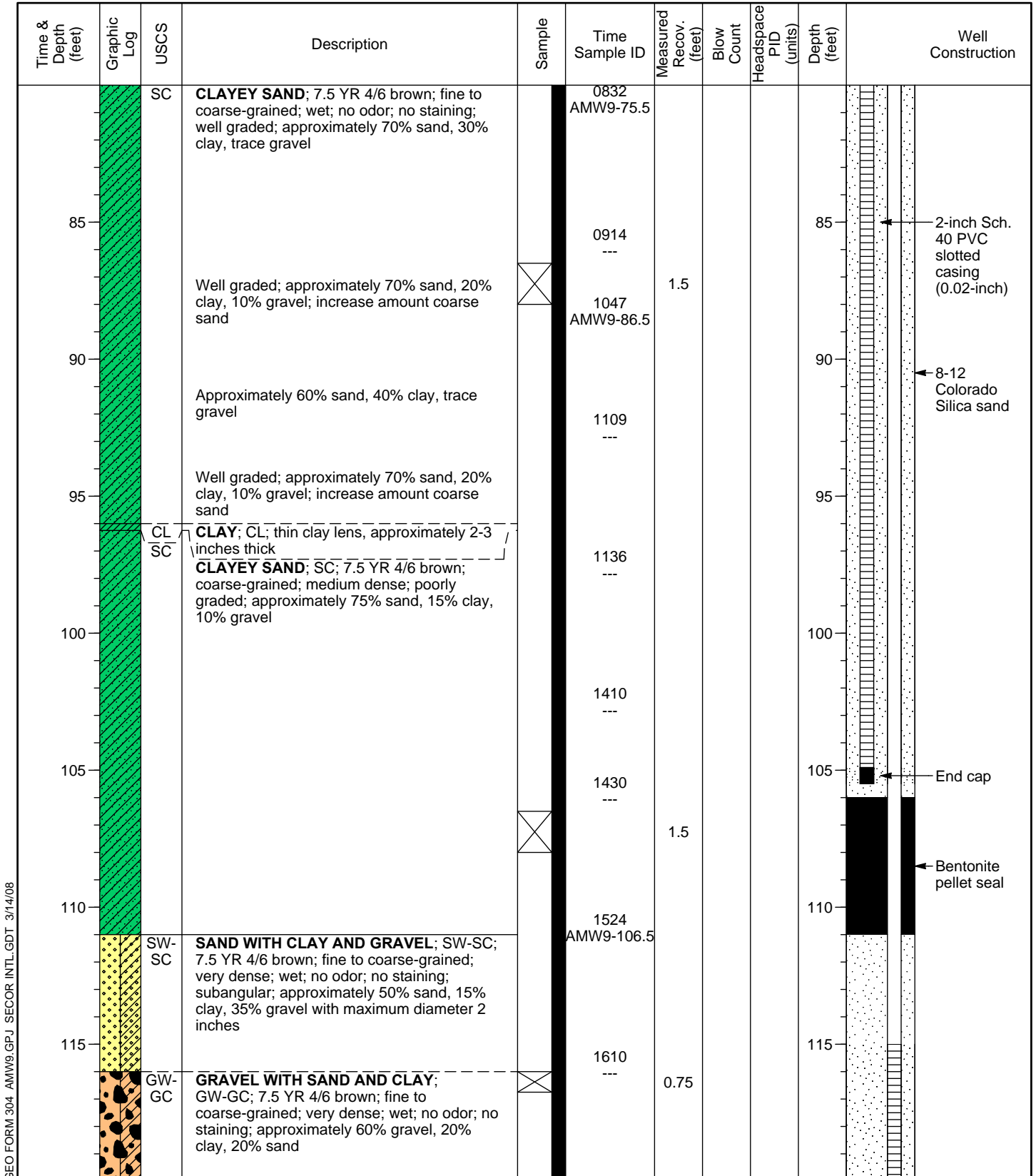
WELL / PROBEHOLE / BOREHOLE NO:

AMW-9BC PAGE 3 OF 4



DRILLING: STARTED 12/12/07 COMPLETED: 12/14/07
 INSTALLATION: STARTED 12/17/07 COMPLETED: 12/18/07
 DRILLING COMPANY: Boart Longyear
 DRILLING EQUIPMENT: Sonic Rig 1521
 DRILLING METHOD: Sonic 6x8 core
 SAMPLING EQUIPMENT: SimulProbe

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): 45 12/12/07 WELL DEPTH (ft): 140.5
 STATIC DTW (ft): NM 12/17/07 BOREHOLE DEPTH (ft): 145.0
 WELL CASING DIAMETER (in): 2 BOREHOLE DIAMETER (in): 8
 LOGGED BY: K. McCormick CHECKED BY: C. Pollock



PROJECT: 40th St and Indian School WQARF
 LOCATION: 39th St and Indian School Phoenix, AZ
 PROJECT NUMBER: 18OT.20419.08

WELL / PROBEHOLE / BOREHOLE NO:

AMW-9BC PAGE 4 OF 4

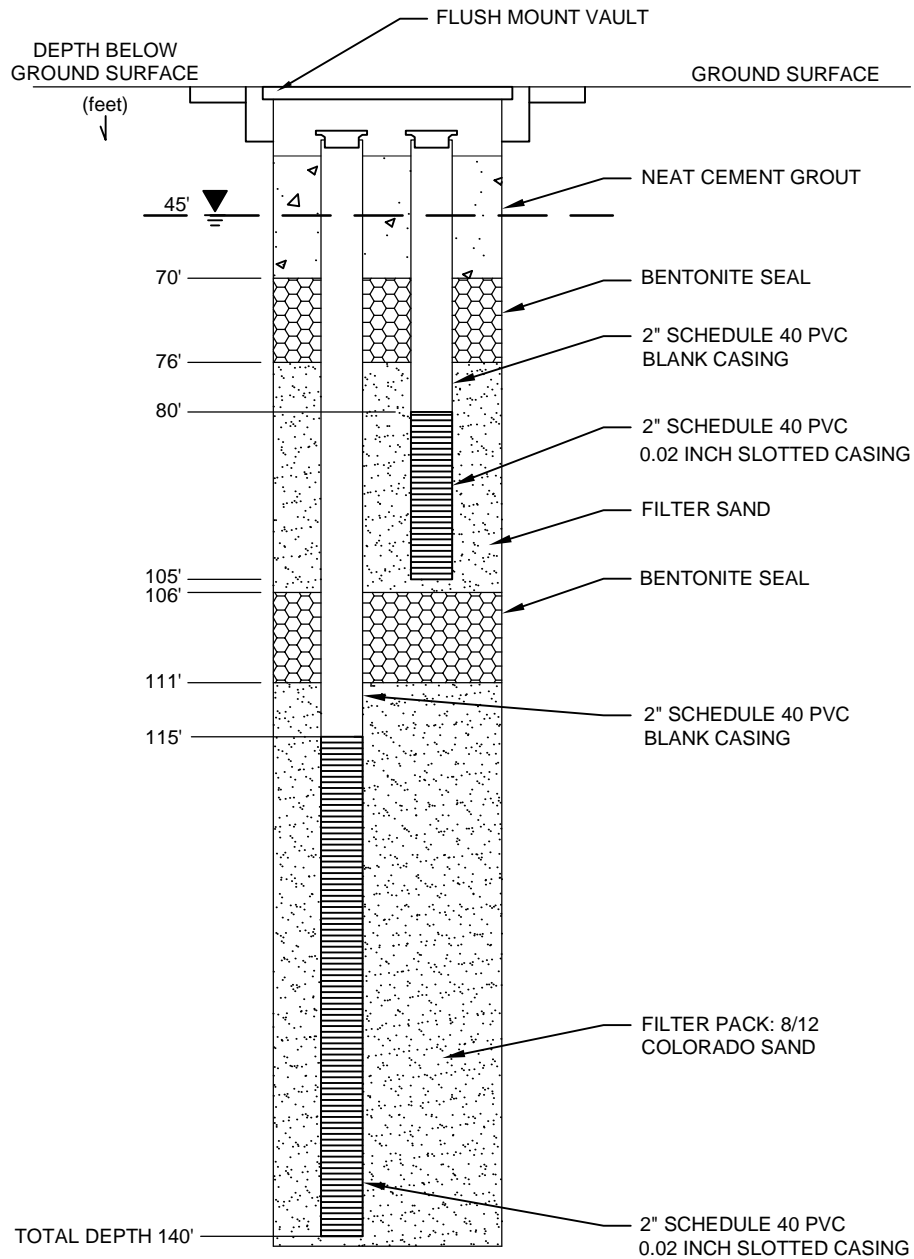


SECOR

DRILLING: STARTED 12/12/07 COMPLETED: 12/14/07
 INSTALLATION: STARTED 12/17/07 COMPLETED: 12/18/07
 DRILLING COMPANY: Boart Longyear
 DRILLING EQUIPMENT: Sonic Rig 1521
 DRILLING METHOD: Sonic 6x8 core
 SAMPLING EQUIPMENT: SimulProbe

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): 45 12/12/07 WELL DEPTH (ft): 140.5
 STATIC DTW (ft): NM 12/17/07 BOREHOLE DEPTH (ft): 145.0
 WELL CASING DIAMETER (in): 2 BOREHOLE DIAMETER (in): 8
 LOGGED BY: K. McCormick CHECKED BY: C. Pollock

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
125		GW-GC	GRAVEL WITH SAND AND CLAY; 7.5 YR 4/3 brown; fine to coarse-grained; very dense; wet; no odor; no staining; approximately 60% gravel, 20% clay, 20% sand		1729 AMW9-116.5				125	2-inch Sch. 40 PVC slotted casing (0.02-inch)
			Angular							8-12 Colorado Silica sand
130			Approximately 60% gravel, 20% clay, 20% sand		0817 ---				130	
135			Caliche, very hard 125-132 feet		1048 ---				135	
140					1143 ---				140	End cap
145			Hole terminated at 145.0 feet.		1235 ---				145	
150					1259 ---				150	
155									155	



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8211 S. 48th Street
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PHONE: 602-438-2200 FAX: 602-431-9562

FOR:
40TH STREET & INDIAN SCHOOL ROAD
WQARF SITE
PHOENIX, ARIZONA

JOB NUMBER:
18OT.20419.09

DRAWN BY:
KJG

GROUNDWATER MONITORING
WELL AMW-9BC AS-BUILT
CONSTRUCTION DIAGRAM

CHECKED BY:
RP

APPROVED BY:
TAK

FIGURE:
3
DATE:
12/1/2008

PROJECT: 40th St. & Indian School WQARF Site
 LOCATION: 40th St & Monterosa
 PROJECT NUMBER: 18OT.20419.08

WELL / PROBEHOLE / BOREHOLE NO:

AMW-10AB PAGE 1 OF 3



SECOR

DRILLING: STARTED 5/16/08 COMPLETED: 5/20/08
 INSTALLATION: STARTED 5/20/08 COMPLETED: 5/21/08
 DRILLING COMPANY: Geomechanics Southwest, Inc.
 DRILLING EQUIPMENT: CME-95
 DRILLING METHOD: Hollow-Stem Auger
 SAMPLING EQUIPMENT: Split-Barrel Sampler, Contin. Core

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): 41 5/16/08 BOREHOLE DEPTH (ft): 106.0
 STATIC DTW (ft): WELL DEPTH (ft): 105.0
 WELL CASING DIAMETER (in): 2/2 BOREHOLE DIAMETER (in): 10
 LOGGED BY: M. Newton CHECKED BY: C. Pollock

GEO FORM 304 AMW10AB.GPJ SECOR INTL.GDT 6/16/08

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		SC	Asphalt 3 inches thick CLAYEY SAND ; SC; 7.5YR 5/4 brown; fine to coarse-grained; medium dense; dry; no odor; no staining; well graded; Approx. 68% sand, 30% clay, trace gravel (2%)							concrete
5		CL	SANDY CLAY WITH GRAVEL ; CL; 7.5YR 4/4 brown; low plasticity; very stiff; dry; no odor; no staining; Approx. 50% clay, 30% fine sand, 20% fine gravel	X	1222 ---	1.5	5 9 11	0.3	5	2-inch Sch. 80 PVC blank casing
10			Stiff	X	1230 ---	1.5	9 8 3	0.2	10	
15			Very stiff	X	1242 ---	1.5	10 14 12	0.3	15	neat cement grout
20			Hard	X	1250 ---	1.5	6 16 18	0.2	20	2-inch Sch. 80 PVC blank casing
25		SC	CLAYEY SAND WITH GRAVEL ; SC; 7.5YR 5/4 brown; fine to medium-grained; medium dense; dry; no odor; no staining; subrounded; poorly graded; Approx. 50% sand, 30% clay, 20% fine to coarse gravel	X	1257 ---	1.5	10 14 12		25	
30		CL	SANDY CLAY WITH GRAVEL ; CL; 7.5YR 4/4 brown; low plasticity; very stiff; dry; no odor; no staining; Approx. 50% clay, 30% fine sand, 20% fine gravel	X	1306 ---	1.5	17 9 8	0.2	30	1/4-inch uncoated bentonite pellets
35			Hard	X	1319 ---	1.5	29 39 33	0.4	35	8-12 silica sand
		GC	CLAYEY GRAVEL WITH SAND ; GC; 7.5YR 5/4 brown; fine-grained; dense; moist; no odor; no staining; subangular; poorly graded; Approx. 50% fine gravel, 30% clay, 20% fine	X		3	NR			2-inch Sch. 80 PVC 0.020-inch slotted casing
		CL		X	1410					

PROJECT: 40th St. & Indian School WQARF Site
 LOCATION: 40th St & Monterosa
 PROJECT NUMBER: 18OT.20419.08

WELL / PROBEHOLE / BOREHOLE NO:

AMW-10AB PAGE 2 OF 3



DRILLING: STARTED 5/16/08 COMPLETED: 5/20/08
 INSTALLATION: STARTED 5/20/08 COMPLETED: 5/21/08
 DRILLING COMPANY: Geomechanics Southwest, Inc.
 DRILLING EQUIPMENT: CME-95
 DRILLING METHOD: Hollow-Stem Auger
 SAMPLING EQUIPMENT: Split-Barrel Sampler, Contin. Core

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): 41 5/16/08 BOREHOLE DEPTH (ft): 106.0
 STATIC DTW (ft): WELL DEPTH (ft): 105.0
 WELL CASING DIAMETER (in): 2/2 BOREHOLE DIAMETER (in): 10
 LOGGED BY: M. Newton CHECKED BY: C. Pollock

GEO FORM 304 AMW10AB.GPJ SECOR INTL.GDT 6/16/08

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		CL	sand		---			0.4		
		SC	SANDY CLAY ; CL; 7.5YR 4/4 brown; low plasticity; stiff; moist; no odor; no staining; Approx. 70% clay, 30% fine sand		---					
		CL	CLAYEY SAND ; SC; 7.5YR 4/4 brown; fine to medium-grained; medium dense; wet; no odor; no staining; subangular; poorly graded; Approx. 60% sand, 30% clay, 10% fine gravel		---	3.5	NR			
45			SANDY CLAY WITH GRAVEL ; CL; 7.5YR 4/4 brown; low plasticity; stiff; moist; no odor; no staining; Approx. 70% clay, 15% fine sand, 15% fine gravel		1438			0.2	45	2-inch Sch. 80 PVC 0.020-inch slotted casing
					1520 AMW10-48	3.0	NR			
50		SC	CLAYEY SAND ; SC; 7.5YR 4/4 brown; medium to coarse-grained; medium dense to dense; wet; no odor; no staining; subangular; poorly graded; Approx. 60% sand, 30% clay, 10% fine gravel		1515		9	0.2	50	8-12 silica sand
					1558 AMW10-52	3	10 17 16, 14, 19			
			Hydropunch sample @ 52'		---	2.0	NR			
55		CL	SANDY CLAY ; CL; 7.5YR 5/4 brown; low plasticity; stiff; moist; no odor; no staining; Approx. 70% clay, 30% fine to medium sand		0755			0.0	55	
		CL	SANDY CLAY WITH GRAVEL ; CL; 7.5YR 5/4 brown; low plasticity; stiff; moist; no odor; no staining; 56-58 water bearing zone. Approx 60% clay, 20% fine to medium sand, 20% fine gravel		---	3.0	NR			2-inch Sch. 80 PVC blank casing
60			Soft; 56-58 water bearing zone. Approx 60% clay, 20% fine to medium sand, 20% fine gravel		0819		7	0.0	60	
			SANDY CLAY ; CL; 7.5YR 5/4 brown; low plasticity; stiff; moist; no odor; no staining; Approx. 70% clay, 30% fine to medium sand		0900 AMW10-62	3	13 22 27, 34, 42			
		CL	Hydropunch sample @ 62'		---	2.0	NR			
65			SANDY CLAY WITH GRAVEL ; CL; 7.5YR 5/4 brown; low plasticity; stiff; moist; no odor; no staining; 63-67.5 water bearing zone. Approx 60% clay, 20% fine to medium sand, 20% fine gravel		0920			1.5	65	
			Stiff; 63-67.5 water bearing zone. Approx 60% clay, 20% fine to medium sand, 20% fine gravel		---	3.0	NR			
70		CL	SANDY CLAY ; CL; 7.5YR 5/4 brown; low plasticity; stiff; moist; no odor; no staining; Approx. 70% clay, 30% fine to medium sand		0945		10 14 19	0.0	70	
					1029 AMW10-72	3	25, 33, 36			1/4-inch coated (TR30) bentonite pellets
			Hydropunch sample @ 72'		---	2.0	NR			
75					1045			0.6	75	
		SC	CLAYEY SAND WITH GRAVEL ; SC; 7.5YR 4/4 brown; fine to coarse-grained; dense; wet; no odor; no staining; subangular; well graded; Approx. 50% sand, 30% clay, 20% fine gravel		1115	3.0	NR			8-12 silica sand

PROJECT: 40th St. & Indian School WQARF Site
 LOCATION: 40th St & Monterosa
 PROJECT NUMBER: 18OT.20419.08

WELL / PROBEHOLE / BOREHOLE NO:

AMW-10AB PAGE 3 OF 3

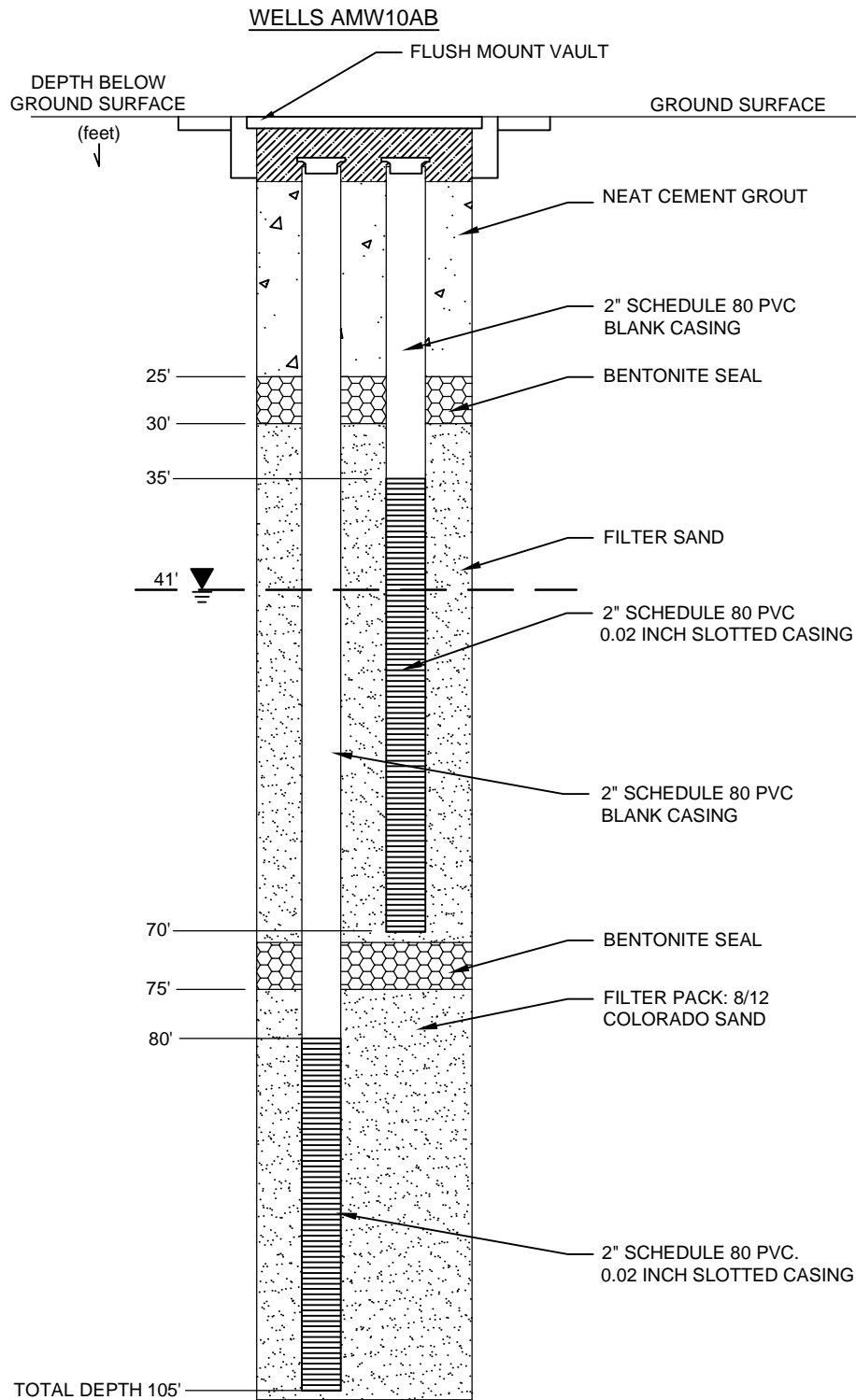


SECOR

DRILLING: STARTED 5/16/08 COMPLETED: 5/20/08
 INSTALLATION: STARTED 5/20/08 COMPLETED: 5/21/08
 DRILLING COMPANY: Geomechanics Southwest, Inc.
 DRILLING EQUIPMENT: CME-95
 DRILLING METHOD: Hollow-Stem Auger
 SAMPLING EQUIPMENT: Split-Barrel Sampler, Contin. Core

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): 41 5/16/08 BOREHOLE DEPTH (ft): 106.0
 STATIC DTW (ft): WELL DEPTH (ft): 105.0
 WELL CASING DIAMETER (in): 2/2 BOREHOLE DIAMETER (in): 10
 LOGGED BY: M. Newton CHECKED BY: C. Pollock

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Well Construction
		SC			---		11 18 30 40, 37, 22	1.5		
			Very dense; Hydropunch sample @ 82'		1204 AMW10-82	3				
					1230 AMW10-84	2.0	NR	0.0		
85		CL	SANDY CLAY ; CL; 7.5YR 5/4 brown; low plasticity; stiff; moist; no odor; no staining; Approx. 60% clay, 30% fine to medium sand, 10% fine gravel						85	
		SC	CLAYEY SAND WITH GRAVEL ; SC; 7.5YR 4/4 brown; fine to coarse-grained; dense; wet; no odor; no staining; subangular; well graded; Approx. 50% sand, 30% clay, 20% fine gravel			3.0	NR			
90					1256 ---		9 15 20 26, 27, 78	0.4	90	← 8-12 silica sand
			Very dense; Hydropunch sample @ 92'		1349 AMW10-92	3				
					1420 ---	2.0	NR	0.0	95	← 2-inch Sch. 80 PVC 0.020-inch slotted casing
95					0705 AMW10-98	3.0	NR	0.0		
		CL	SANDY CLAY WITH GRAVEL ; CL; 7.5YR 5/4 brown; low plasticity; hard; moist; no odor; no staining; Approx. 60% clay, 20% fine to medium sand, 20% fine to medium gravel				12 25 34 41, 46, 49		100	
100			Hydropunch sample @ 102'		0744 AMW10-102	3				
					0810 ---	2.0	NR	0.0	105	
105			Hydropunch sample @ 106'		0857 AMW10-106	1.7	24 40 43 50/4"			
			Hole terminated at 106 feet.							
110									110	
115									115	



NOT TO SCALE

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8211 S. 48th Street
Phoenix, AZ 85044
PHONE: 602-438-2200 FAX: 602-431-9562

FOR:
40TH STREET AND INDIAN SCHOOL ROAD
WQARF SITE
PHOENIX, ARIZONA

JOB NUMBER:
18OT.20419.09

DRAWN BY:
KJG

GROUNDWATER MONITORING
WELL AMW-10AB AS-BUILT
CONSTRUCTION DIAGRAM

CHECKED BY:
RP

APPROVED BY:
TAK

FIGURE:

4

DATE:
12/1/2008

SECOR INTERNATIONAL

Incorporated

LOG OF BORING AS-1

(Page 1 of 1)

East Central Phoenix WQARF-Allen's Cleaners
4129 N. 40th Street
Phoenix, Arizona

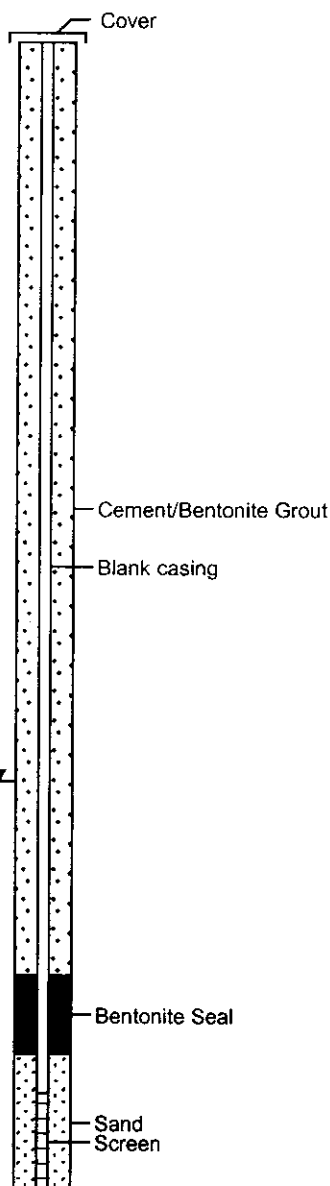
Start Date : December 18, 2003
End Date : December 19, 2003
Drilling Company : Yellow Jacket Drilling
Drilling Method : Hollow Stem Auger
SECOR Rep on-site : Chris Gamache

Well Casing Diameter : 2-inch SS and PVC
Slot Size : 0.020-inch
ADWR No. :
Drill Angle : 30 degrees

Project #: 18OT.20412.02

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	FID ppm
0			Approximately 6-inches of asphalt	
5			SILTY SAND, fine to medium sand, moderate brown (5YR 4/4), fine gravel up to 0.5-inches in diameter, subrounded to subangular, approximately 30% fines, trace caliche, loose, low plasticity, dry to damp	0.0
10			Dark yellowish orange (10YR 6/6)	0.0
15				0.0
20	SM			0.0
25				0.0
30				0.0
35	CL		SANDY CLAY, light brown (5YR 5/6) to moderate brown (5YR 4/4), fine grained sand, damp to moist, medium density, medium to high plasticity.	0.0
40			CLAYEY SAND, fine to medium grained sand, approximately 30-40% fines, moderate brown (5YR 3/4), <10% fine gravel up to 0.25-inches in diameter, moist, med dense, low plasticity.	0.0
45				0.0
50	SC			0.0
55				0.0
60				0.0
65			Boring terminated at approximately 59 feet bgs.	

Well: AS-1
Elev.: ~1300 ft amsl



02-23-2004 I:\ASRAC\20402\1-140THST-1.RDW\06\ALL-1\BORING-1\AS-1.BOR

**SECOR
INTERNATIONAL**
Incorporated

LOG OF BORING AS-2

(Page 1 of 1)

East Central Phoenix WQARF-Allen's Cleaners
4129 N. 40th Street
Phoenix, Arizona

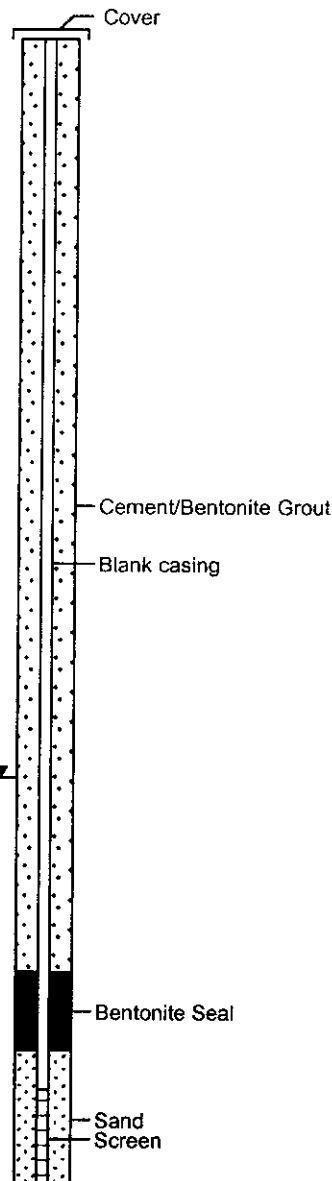
Start Date : December 9, 2003
End Date : December 10, 2003
Drilling Company : Yellow Jacket Drilling
Drilling Method : Hollow Stem Auger
SECOR Rep on-site : Chris Gamache

Well Casing Diameter : 2-inch SS and PVC
Slot Size : 0.020-inch
ADWR No. :

Project #: 18OT.20412.02

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	FID ppm
0			Approximately 6-inches of asphalt	
5			SILTY SAND, fine to medium sand, moderate brown (5YR 4/4), fine gravel up to 0.5-inches in diameter, subrounded to subangular, approximately 30% fines, trace caliche, loose, low plasticity, dry to damp	0.0
10			Dark yellowish orange (10YR 6/6)	0.0
15	SM			0.0
20				0.0
25				0.0
30				0.0
35	CL		SANDY CLAY, light brown (5YR 5/6) to moderate brown (5YR 4/4), fine grained sand, damp to moist, medium density, medium to high plasticity.	11.2
40			CLAYEY SAND, fine to medium grained sand, approximately 30-40% fines, moderate brown (5YR 3/4), <10% fine gravel up to 0.25-inches in diameter, moist, med dense, low plasticity.	10.7
45	SC			1.0
50				0.0
55				0.0
60				0.0
65			Boring terminated at approximately 59 feet bgs.	0.0

Well: AS-2
Elev.: ~1300 ft amsl



**SECOR
INTERNATIONAL**
Incorporated

LOG OF BORING AS-3

(Page 1 of 1)

East Central Phoenix WQARF-Allen's Cleaners
4129 N. 40th Street
Phoenix, Arizona

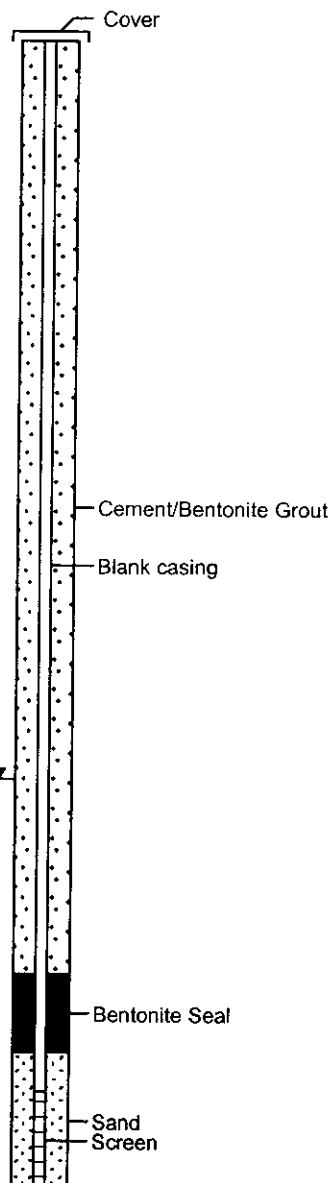
Start Date : December 17, 2003
End Date : December 18, 2003
Drilling Company : Yellow Jacket Drilling
Drilling Method : Hollow Stem Auger
SECOR Rep on-site : Chris Gamache

Well Casing Diameter : 2-inch SS and PVC
Slot Size : 0.020-inch
ADWR No. :

Project #: 18OT.20412.02

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	FID ppm
0			Approximately 6-inches of asphalt	
5			SILTY SAND, fine to medium sand, moderate brown (5YR 4/4), fine gravel up to 0.5-inches in diameter, subrounded to subangular, approximately 30% fines, trace caliche, loose, low plasticity, dry to damp	0.0
10			Dark yellowish orange (10YR 6/6)	0.0
15				0.0
20	SM			0.0
25				0.0
30				0.0
35	CL		SANDY CLAY, light brown (5YR 5/6) to moderate brown (5YR 4/4), fine grained sand, damp to moist, medium density, medium to high plasticity.	0.0
40			CLAYEY SAND, fine to medium grained sand, approximately 30-40% fines, moderate brown (5YR 3/4), <10% fine gravel up to 0.25-inches in diameter, moist, med dense, low plasticity.	0.0
45				0.0
50	SC			0.0
55				0.0
60				0.0
65			Boring terminated at approximately 59 feet bgs.	

Well: AS-3
Elev.: ~1300 ft amsl



**SECOR
INTERNATIONAL**
Incorporated

LOG OF BORING AS-4

(Page 1 of 1)

East Central Phoenix WQARF-Allen's Cleaners
4129 N. 40th Street
Phoenix, Arizona

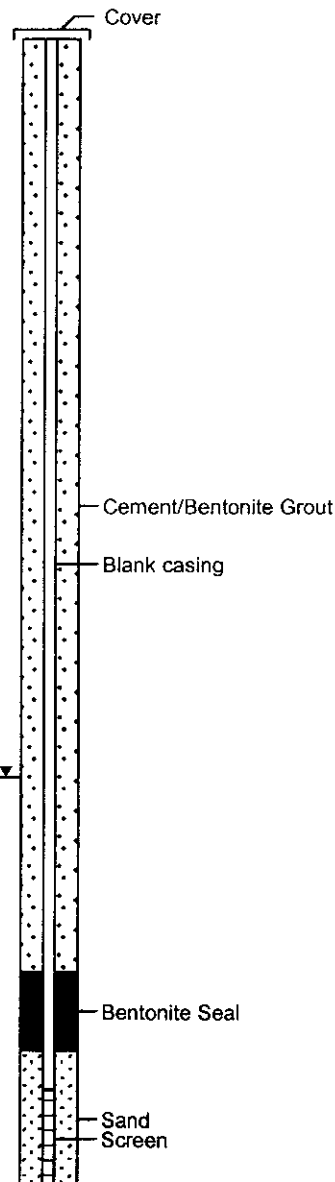
Start Date : December 17, 2003
End Date : December 18, 2003
Drilling Company : Yellow Jacket Drilling
Drilling Method : Hollow Stem Auger
SECOR Rep on-site : Chris Gamache

Well Casing Diameter : 2-inch SS and PVC
Slot Size : 0.020-inch
ADWR No. :

Project #: 18OT.20412.02

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	FID ppm
0			Approximately 6-inches of asphalt	
5			SILTY SAND, fine to medium sand, moderate brown (5YR 4/4), fine gravel up to 0.5-inches in diameter, subrounded to	0.0
10			subangular, approximately 30% fines, trace caliche, loose, low plasticity, dry to damp	0.0
15			Dark yellowish orange (10YR 6/6)	0.0
20	SM			0.0
25				0.0
30				0.0
35	CL		SANDY CLAY, light brown (5YR 5/6) to moderate brown (5YR 4/4), fine grained sand, damp to moist, medium density, medium to high plasticity.	0.0
40			CLAYEY SAND, fine to medium grained sand, approximately 30-40% fines, moderate brown (5YR 3/4), <10% fine gravel up to 0.25-inches in diameter, moist, med dense, low plasticity.	0.0
45	SC			0.0
50				0.0
55				0.0
60				0.0
65			Boring terminated at approximately 59 feet bgs.	

Well: AS-4
Elev.: ~1300 ft amsl



02-23-2004 I:\ASRAC\20402\(-1\40THST-1.RDW\06\ALL-1\BORING-1\AS-4.BOR

**SECOR
INTERNATIONAL**
Incorporated

LOG OF BORING AS-5

(Page 1 of 1)

East Central Phoenix WQARF-Allen's Cleaners
4129 N. 40th Street
Phoenix, Arizona

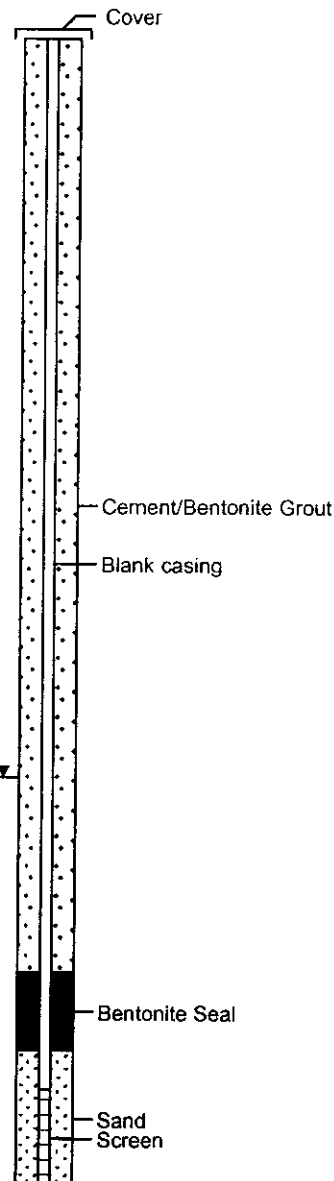
Start Date : December 18, 2003
End Date : December 19, 2003
Drilling Company : Yellow Jacket Drilling
Drilling Method : Hollow Stem Auger
SECOR Rep on-site : Chris Gamache

Well Casing Diameter : 2-inch SS and PVC
Slot Size : 0.020-inch
ADWR No. :

Project #: 18OT.20412.02

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	FID ppm
0			Approximately 6-inches of asphalt	
5			SILTY SAND, fine to medium sand, moderate brown (5YR 4/4), fine gravel up to 0.5-inches in diameter, subrounded to subangular, approximately 30% fines, trace caliche, loose, low plasticity, dry to damp	0.0
10			Dark yellowish orange (10YR 6/6)	0.0
15	SM			0.0
20				0.0
25				0.0
30				0.0
35	CL		SANDY CLAY, light brown (5YR 5/6) to moderate brown (5YR 4/4), fine grained sand, damp to moist, medium density, medium to high plasticity.	0.0
40			CLAYEY SAND, fine to medium grained sand, approximately 30-40% fines, moderate brown (5YR 3/4), <10% fine gravel up to 0.25-inches in diameter, moist, med dense, low plasticity.	0.0
45	SC			0.0
50				0.0
55				0.0
60				0.0
65			Boring terminated at approximately 59 feet bgs.	

Well: AS-5
Elev.: ~1300 ft amsl



**SECOR
INTERNATIONAL**
Incorporated

LOG OF BORING AS-6

(Page 1 of 1)

East Central Phoenix WQARF-Allen's Cleaners
4129 N. 40th Street
Phoenix, Arizona

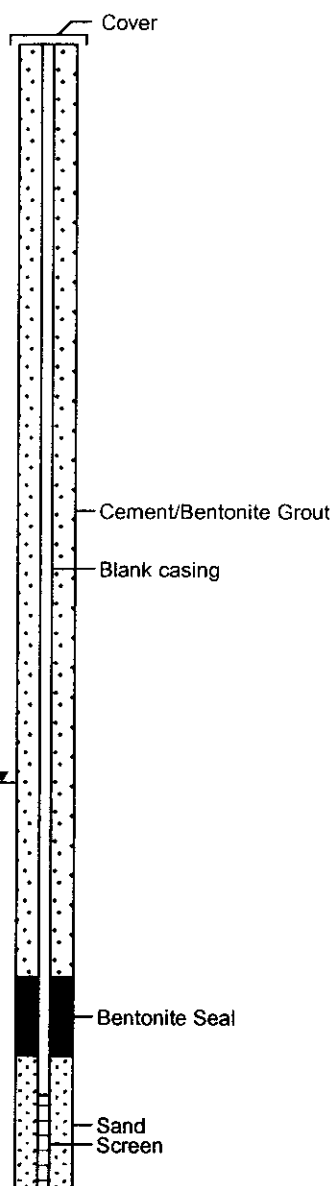
Start Date : December 18, 2003
End Date : December 19, 2003
Drilling Company : Yellow Jacket Drilling
Drilling Method : Hollow Stem Auger
SECOR Rep on-site : Chris Gamache

Well Casing Diameter : 2-inch SS and PVC
Slot Size : 0.020-inch
ADWR No. :

Project #: 18OT.20412.02

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	FID ppm
0			Approximately 6-inches of asphalt	
5			SILTY SAND, fine to medium sand, moderate brown (5YR 4/4), fine gravel up to 0.5-inches in diameter, subrounded to	0.0
10			subangular, approximately 30% fines, trace caliche, loose, low plasticity, dry to damp	0.0
15			Dark yellowish orange (10YR 6/6)	0.0
20	SM			0.0
25				0.0
30				0.0
35	CL		SANDY CLAY, light brown (5YR 5/6) to moderate brown (5YR 4/4), fine grained sand, damp to moist, medium density, medium to high plasticity.	0.0
40			CLAYEY SAND, fine to medium grained sand, approximately 30-40% fines, moderate brown (5YR 3/4), <10% fine gravel up to 0.25-inches in diameter, moist, med dense, low plasticity.	0.0
45	SC			0.0
50				0.0
55				0.0
60				0.0
65			Boring terminated at approximately 59 feet bgs.	

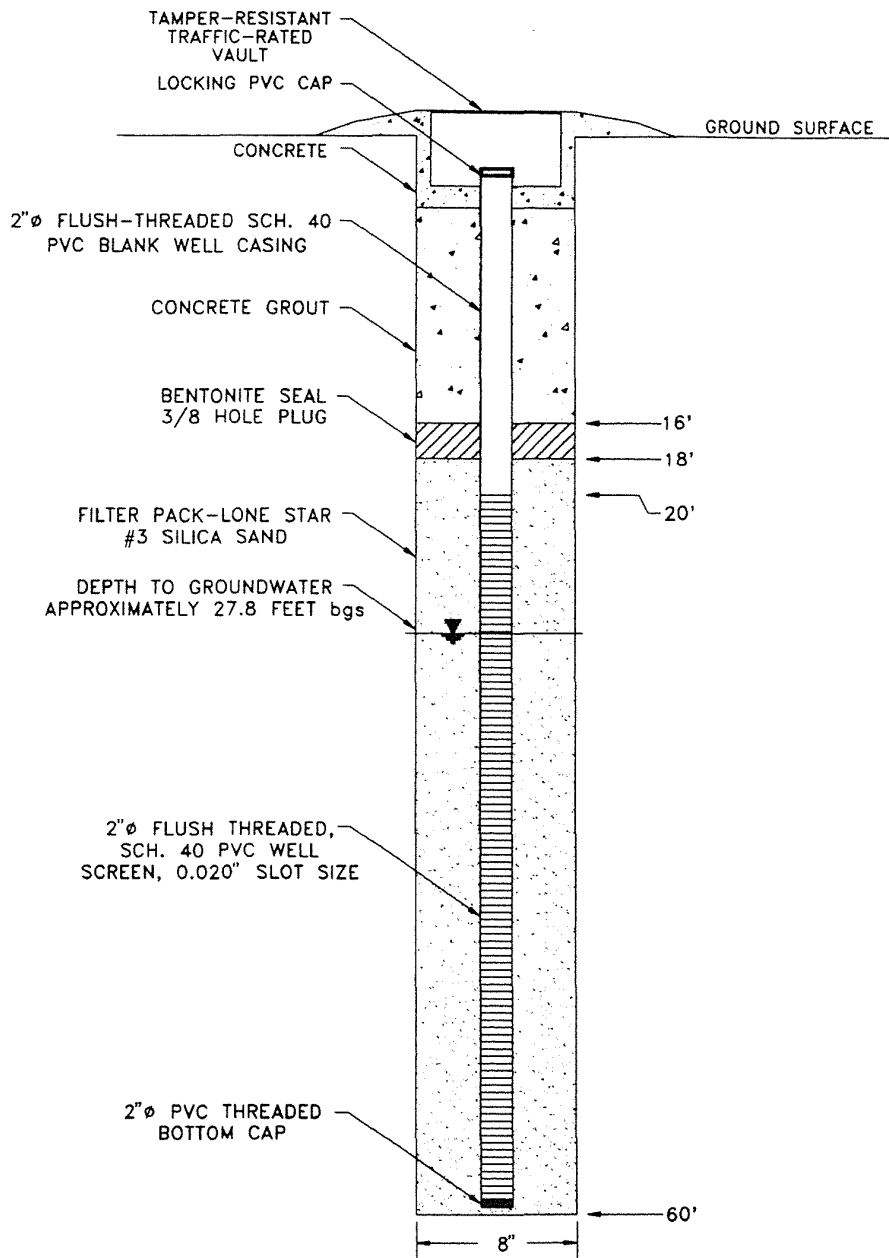
Well: AS-6
Elev.: ~1300 ft amsl



MW-KMW1.DWG

frame base hatch gw txt dim

1992 The Earth Technology Corporation 4-26-94 Drafted By TOTMM Graphics: J. Olson
Rev. Info: Date: 6-17-94 By: J.O. Desc.: 01:02 Std Upd



VERTICAL SCALE: 1"=10'
HORIZONTAL SCALE EXAGGERATED FOR CLARITY

 The Earth Technology Corporation

PROJECT NO. 942934-0208
ADEQ
EAST CENTRAL PHOENIX

MONITOR WELL DESIGN DETAIL
KMW1
EAST CENTRAL PHOENIX
PROJECT AREA

FIGURE 4

6-94

PROJECT: **Kachina 20411**
 LOCATION: **40th Street and Indian School Road, Phoenix**
 PROJECT NUMBER: **18OT.20411.61.3600**

WELL / PROBEHOLE / BOREHOLE NO:

KMW2 PAGE 1 OF 1



DRILLING: STARTED **5/6/06** COMPLETED: **5/7/06**
 INSTALLATION: STARTED **5/6/06** COMPLETED: **5/7/06**
 DRILLING COMPANY: **Yellow Jacket Drilling**
 DRILLING EQUIPMENT: **BK-81**
 DRILLING METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon Sampler**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **65.0**
 STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **8.0**
 LOGGED BY: **D. Kenyon** CHECKED BY: **C. Pollock**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		CL	Asphalt surface approximately four inches thick							Flush Surface
5		CL	SILTY CLAY TRACE SAND ; CL; 5YR 5/6 light brown; low plasticity; medium stiff; dry; no odor; boring post hole dug to five feet	1102 KMW2-5	1.5	29 42 43	2.0		5	
10		ML	SILTY CLAY WITH SAND ; CL; 5YR 4/4 brown; low plasticity; hard; dry; no odor; approximately 60% clay, 20% silt, 20% fine to coarse-grained sand	1112 KMW2-10	1.5	10 10 18	0.0		10	
15		CL	SANDY SILT WITH CLAY ; ML; 10YR 5/4 yellowish brown; non plastic; stiff; dry; no odor; approximately 60% silt, 25% fine to coarse-grained sand, 15% clay	1149 KMW2-15	1.5	23 50/3"	1.2		15	2 inch PVC
20			SILTY CLAY WITH SAND ; CL; 5YR 4/4 brown; low plasticity; hard; moist; no odor; approximately 65% clay, 25% silt, 10% fine to medium-grained sand	1156 KMW2-20	1.5	25 30 30	0.0		20	
25			Less clay; increase of silt	1308 KMW2-25	1.5	27 40 30	3.0		25	
30		SM	SILTY SAND ; SM; 10YR 5/4 yellowish brown; fine to coarse-grained; dense; moist; no odor; subangular; well graded; approximately 75% sand; 20% silt; 5% fine, subangular gravel	1315 KMW2-30	1.5	10 29 26	0.0		30	
35		CL	SANDY CLAY WITH SILT ; CL; 5YR 4/4 brown; medium plasticity; dense; moist; no odor; approximately 60% clay, 25% fine to medium-grained sand, 15% silt	1339 KMW2-35	1.5	16 50	0.0		35	
40			Saturated	1404 KMW2-40	1.5	8 24 50/5"	0.0		40	
45			Wet; less silt and clay; increase of sand						45	
50		SC	CLAYEY SAND ; SC; 5YR 4/4 brown; fine to coarse-grained; very dense; wet; no odor; subrounded; well graded; approximately 60% sand, 40% clay	0850 KMW2-52	1.5	4 5 50/4"	0.0		50	
55			Trace of fine gravel			13 18 25			55	
60			Fine to medium-grained	0927 KMW2-60	1.5	20 50/6"	0.0		60	
65			Hole terminated at 65 feet.	0945 KMW2-65	1.5	15 25 40	0.0		65	

PROJECT: **Kachina 20411**
 LOCATION: **40th Street and Indian School Road, Phoenix**
 PROJECT NUMBER: **18OT.20411.61.3600**

WELL / PROBEHOLE / BOREHOLE NO:

KSB1

PAGE 1 OF 1



DRILLING: STARTED **5/7/06** COMPLETED: **5/7/06**
 INSTALLATION: STARTED **5/7/06** COMPLETED: **5/7/06**
 DRILLING COMPANY: **Yellow Jacket Drilling**
 DRILLING EQUIPMENT: **BK-81**
 DRILLING METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **Split Spoon Sampler**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **NE**
 STATIC DTW (ft): **NE**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **D. Kenyon**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **52.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **8.0**
 CHECKED BY: **C. Pollock**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
5		CL	Asphalt surface approximately three inches thick SANDY CLAY TRACE SAND ; CL; 5YR 4/4 brown; low plasticity; hard; dry; no odor; approximately 70% clay, 20% fine to coarse-grained sand, 10% silt		1654 KSB1-5	1.5	23 26 36	4.1	5	No well set; boring was grouted
10		ML	SANDY SILT WITH CLAY ; ML; 10YR 5/4 yellowish brown; medium plasticity; hard; dry; no odor; approximately 60% silt, 30% fine to coarse grained sand, 10% clay		1700 KSB1-10	1.5	13 26 31	0.0	10	
15			10YR 6/2 pale yellowish brown; approximately 70% silt, 30% fine to coarse-grained sand		1721 KSB1-15			0.0	15	
20		CL	SILTY CLAY WITH SAND ; CL; 5YR 6/4 light brown; low plasticity; hard; dry; no odor; approximately 60% clay, 30% silt, 10% fine to coarse-grained sand		1734 KSB1-20	1.5	28 30 50/6"	0.0	20	
25			Trace of sand		1759 KSB1-25	1.5	30 50	0.0	25	
30		SM	SILTY SAND ; SM; 5YR 4/4 brown; fine to coarse-grained; very dense; moist; no odor; subrounded; well graded; approximately 60% sand, 40% silt, trace fine to coarse gravel		1812 KSB1-30	1.5	23 30 40	0.0	30	
35			Approximately 60% sand, 30% silt, 10% clay; no gravel		1903 KSB1-35	1.5	60/5"	0.0	35	
40					1930 KSB1-40	1.5	26 41 50/4"	0.0	40	
45		CL	SANDY CLAY WITH SILT ; CL; 5YR 4/4 brown; low plasticity; hard; saturated; no odor; approximately 70% clay, 20% fine-grained sand, 10% silt						45	
50			Wet Hole terminated at 52 feet.						50	

PROJECT: **Kachina 20411**
 LOCATION: **40th Street and Indian School Road, Phoenix**
 PROJECT NUMBER: **18OT.20411.61.3600**

WELL / PROBEHOLE / BOREHOLE NO:

KSB2 PAGE 1 OF 1



DRILLING: STARTED **5/20/06** COMPLETED:
 INSTALLATION: STARTED **5/20/06** COMPLETED:
 DRILLING COMPANY: **Yellow Jacket Drilling**
 DRILLING EQUIPMENT: **BK-66**
 DRILLING METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **CASS**

NORTHING (ft): EASTING (ft):
 LATITUDE: LONGITUDE:
 GROUND ELEV (ft): TOC ELEV (ft):
 INITIAL DTW (ft): **NE** BOREHOLE DEPTH (ft): **55.0**
 STATIC DTW (ft): **NE** WELL DEPTH (ft): **---**
 WELL CASING DIAMETER (in): **---** BOREHOLE DIAMETER (in): **8.0**
 LOGGED BY: **D. Hovis** CHECKED BY: **C. Pollock**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
5		CL	SANDY CLAY WITH SILT ; CL; 5YR 5/4 brown; fine to medium-grained; low plasticity; hard; dry; no odor; approximately 60% clay, 25% sand, 15% silt		1120 KSB2-5	0.5	50/4"	0.0	5	No well set; boring was grouted
10		ML	SANDY SILT WITH CLAY ; ML; 5YR 5/4 brown; non plastic; hard; dry; no odor		1205 KSB2-10	0.5	50/5"	0.0	10	
15			No recovery; sampler clean inside		1350 KSB2-15	0	100/2"		15	
20		CL	SILTY CLAY WITH SAND ; CL; 5YR 5/4 brown; fine to medium-grained; hard; dry; approximately 60% clay, 25% silt, 15% sand		1420 KSB2-20	0.75	40 50/4"	11.1	20	
25					1500 KSB2-25	0.5	50/6" 50/3"	1.9	25	
30		SM	SILTY SAND ; SM; 5YR 4/4 brown; very dense; dry; approximately 60% sand, 40% silt; trace fine to coarse gravel		1510 KSB2-30	0.5	50/6"	11.1	30	
35		CL	SANDY CLAY WITH SILT ; CL; 5YR 5/4 brown; medium plasticity; hard; dry; approximately 65% clay, 20% sand, 15% silt		1540 KSB2-35	0.25	30/6" 50/2"	11.4	35	
40			5YR 4/4 brown; low plasticity; moist; approximately 65% clay, 20% sand, 15% silt		1610 KSB2-40	1.0	40 50/4"	13.3	40	
45									45	
50			Moist to wet		1650 KSB2-50	1.0	30 50/5"		50	
55			Saturated						55	
			Hole terminated at 55 feet.							

PROJECT: **Kachina 20411**
 LOCATION: **40th Street and Indian School Road, Phoenix**
 PROJECT NUMBER: **18OT.20411.61.3600**











WELL / PROBEHOLE / BOREHOLE NO:

KSB3 PAGE 1 OF 1



DRILLING: STARTED **5/19/06** COMPLETED: **5/20/06**
 INSTALLATION: STARTED **5/19/06** COMPLETED: **5/20/06**
 DRILLING COMPANY: **Yellow Jacket Drilling**
 DRILLING EQUIPMENT: **CME-55**
 DRILLING METHOD: **Hollow Stem Auger**
 SAMPLING EQUIPMENT: **CASS/ SimulProbe**

NORTHING (ft):
 LATITUDE:
 GROUND ELEV (ft):
 INITIAL DTW (ft): **NE**
 STATIC DTW (ft): **NE**
 WELL CASING DIAMETER (in): ---
 LOGGED BY: **D. Hovis**
 EASTING (ft):
 LONGITUDE:
 TOC ELEV (ft):
 BOREHOLE DEPTH (ft): **54.0**
 WELL DEPTH (ft): ---
 BOREHOLE DIAMETER (in): **8.0**
 CHECKED BY: **C. Pollock**

Time & Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Measured Recov. (feet)	Blow Count	Headspace PID (units)	Depth (feet)	Borehole Backfill
		CL	SANDY CLAY WITH SILT ; CL; 5YR 5/4 reddish brown; fine to medium-grained; low plasticity; stiff; dry; approximately 70% clay, 20% sand, 10% silt							No well set; boring was grouted
5					1105 KSB3-5	0.5		23.2	5	
10		ML	SANDY SILT WITH CLAY ; ML; 10YR 5/4 yellowish brown; low plasticity; very stiff; dry; approximately 65% silt, 20% fine to coarse sand, 15% clay		1135 KSB3-10	0.5	6 10 14	16.5	10	
15			Moist; approximately 60% silt, 20% sand, 15% clay, 5% caliche gravel		1210 KSB3-15	1.0	3 4 11	10.4	15	
20		CL	SILTY CLAY WITH SAND ; CL; 5YR 5/4 reddish brown; fine to medium-grained; low plasticity; hard; moist; 60% clay, 30% silt, 10% sand		1315 KSB3-20	1.0	5 16 22	12.6	20	
25			5YR 5/3 reddish brown; fine to coarse-grained; low plasticity; hard; dry; caliche gravel		1345 KSB3-25		20 35 47	10.2	25	
30		CL	SANDY CLAY ; CL; 5YR 5/3 reddish brown; fine to coarse-grained; low plasticity; hard; dry; 85% fine-grained; lensed with small, solid clay balls and caliche		1450 KSB3-30	1.5	9 11 14	5.7	30	
35					1530 KSB3-35	1.5	17 48 50/3"		35	
40		CL	SANDY CLAY WITH SILT ; CL; 5YR 5/4 reddish brown; fine to medium-grained; low plasticity; hard; moist; homogeneous; 95% fine-grained; approximately 65% clay, 20% sand, 15% silt		1650 KSB3-40		11 28		40	
45							9 5 29		45	
50			Wet						50	
Hole terminated at 54 feet.										

(Page 1 of 1)

Well Casing Diameter : 4-inch PVC
Slot Size : 0.020-inch
ADWR No. :

SECOR Rep on-site : Chris Gamache

The diagram illustrates a vertical well casing assembly. At the top, a 'Cover' is shown. Below it, the casing is filled with 'Cement/Bentonite Grout'. A 'Blank casing' section is indicated. A 'Bentonite Seal' is shown as a dark, solid block. Below the seal, the casing is filled with 'Sand'. A 'Screen' is located at the bottom of the casing, allowing water to enter while filtering out sand.

12-22-2003 1:00PERAT-1 VASRAC120402Z-1 W0THST-1 RDW06/ALL-1 BORING-1 SVE-1 BOR

(Page 1 of 1)

Well Casing Diameter : 4-inch PVC
Slot Size : 0.020-inch
ADWR No. :

SECOR Rep on-site : Chris Gamache

12-22-2003 1:00PM OPERAT-1 VASRAC20402(~140THST-1,RDW06/ALL-1)BORING-1(SVE-2 BOR

SECOR

International, Inc.

LOG OF BORING SVE-3

(Page 1 of 1)

East Central Phoenix WQARF-Allen's Cleaners
4129 N. 40th Street
Phoenix, Arizona

Start Date : December 9, 2003
End Date : December 10, 2003
Drilling Company : Yellow Jacket Drilling
Drilling Method : Hollow Stem Auger
SECOR Rep on-site : Chris Gamache

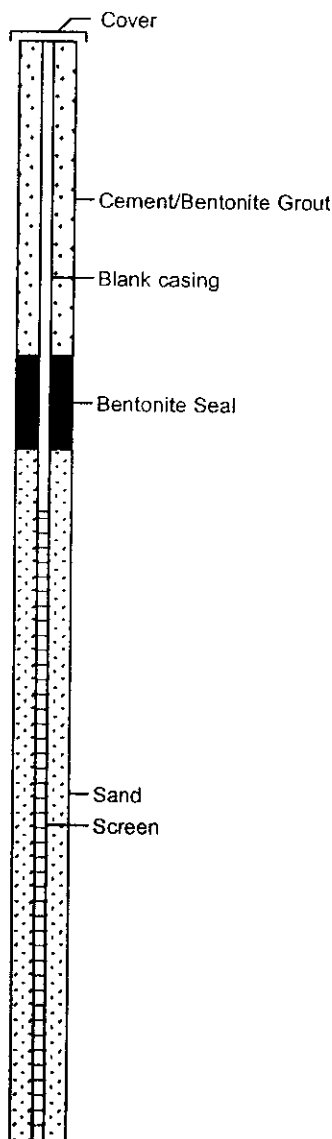
Well Casing Diameter : 4-inch PVC
Slot Size : 0.020-inch
ADWR No. :

Project #: 18OT.20412.02

Depth in Feet	USCS	GRAPHIC	DESCRIPTION	FID ppm
---------------------	------	---------	-------------	------------

Well: SVE-3
Elev.: ~1300 ft amsl

0			Approximately 6-inches of asphalt	
5			SILTY SAND, fine to medium sand, moderate brown (5YR 4/4), fine gravel up to 0.5-inches in diameter, subrounded to subangular, approximately 30% fines, trace caliche, loose, low plasticity, dry to damp.	0.0
10			Dark yellowish orange (10YR 6/6)	0.0
15	SM			0.0
20				0.0
25				0.0
30				0.0
35	CL		SANDY CLAY, light brown (5YR 5/6) to moderate brown (5YR 4/4), fine grained sand, damp to moist, medium density, medium to high plasticity.	0.0
40			Boring terminated at approximately 35 feet bgs.	

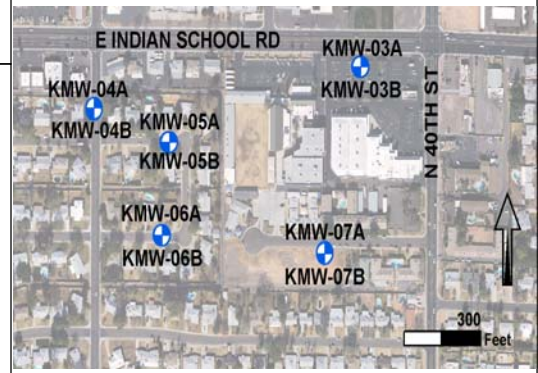


East Central Phoenix Phoenix, AZ

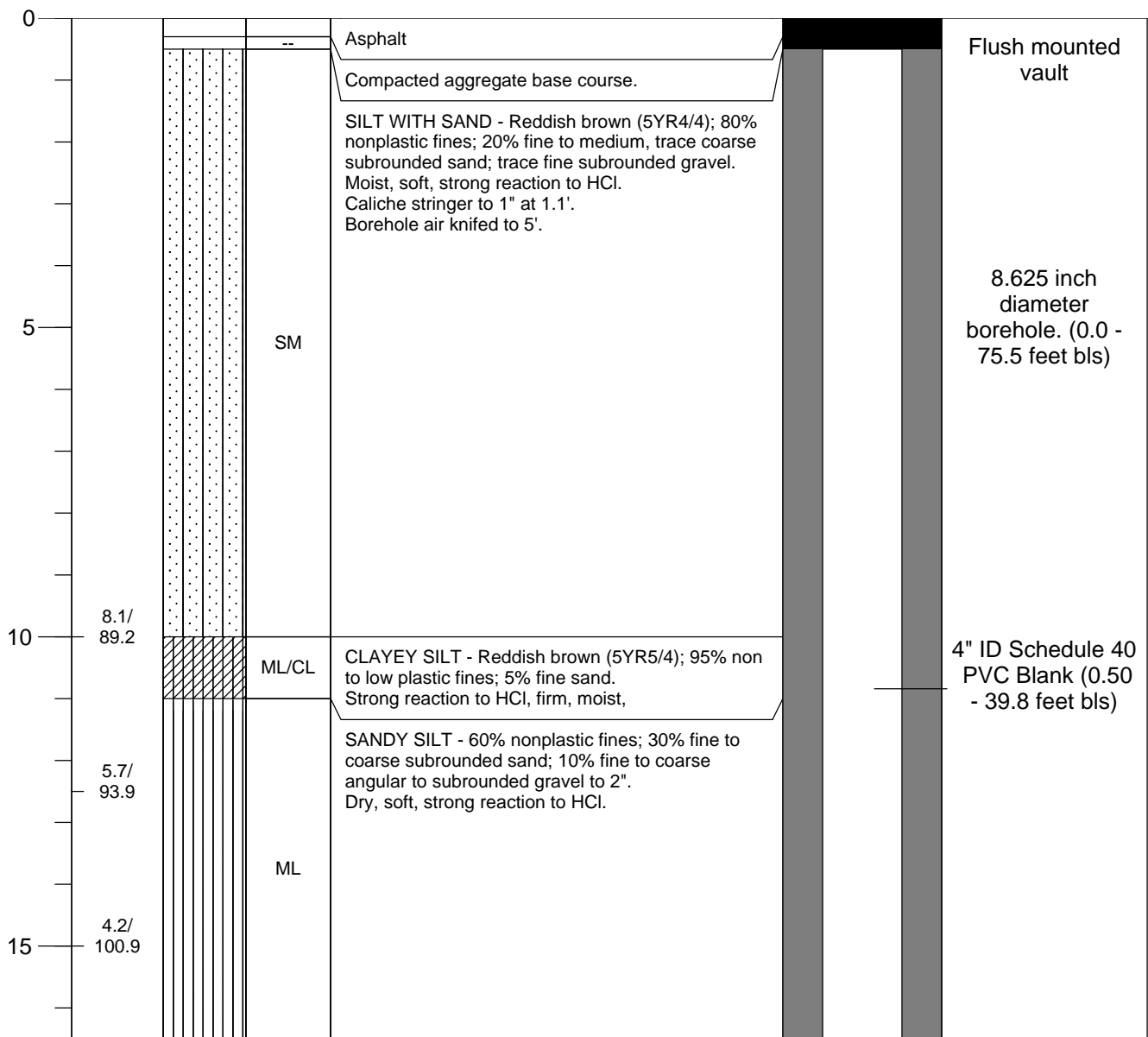
Lithologic and well construction log: KMW-03A

Northing (ft) 907607.48
Easting (ft) 675698.44
LS Elev. (ft) 1208.80
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1208.30
Total Depth bmp (ft) 74.7
Depth to Water (ft) 47
Date 5/02/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916786



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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Lithologic and well construction log: KMW-03A

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
40.5/ 144.8			ML/CL	CLAYEY SILT - Yellowish red (5YR4/6); 90% low plastic fines; 10% coarse, trace fine to medium angular granitic sand. Dry, firm, strong reaction to HCl. At 19'; color change to Yellowish red (5YR5/4), finer formation, 90% fines, 10% sand. At 21'; Manganese coated pores.		
35.6/ 131.3			ML	SILT WITH SAND - Yellowish red (5YR4/6); 85% nonplastic fines; 10% fine to coarse subrounded sand; 5% fine angular granitic gravel. Strong reaction to HCl, soft, dry.		
17.9/ 122.0			ML/CL	CLAYEY SILT - Yellowish red (5YR4/6); 90% low plastic fines; 10% coarse angular granitic sand, trace fine angular gravel to ½". Dry, firm, Strong reaction to HCl, abundant feldspar.		
17.3/ 122.9			ML	SANDY SILT - Reddish brown (5YR5/4); 65% nonplastic fines; 30% fine to coarse subrounded sand; 5% fine, trace coarse subangular gravel to 1". Strong reaction to HCl, dry, loose.		
18.7/ 115.3			ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse subangular sand; trace fine subangular gravel to ¾". Moderate to strong reaction to HCl, dry.		
14.0/ 117.1			ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine to medium sand. Dry, moderate to strong reaction to HCl.		
19.5/ 123.6			SM	SILTY SAND - Reddish brown (5YR3/4); 50% fine to coarse subangular to subrounded sand; 40% nonplastic fines; 10% fine subangular gravel to ¾". Dry, soft, moderate reaction to HCl.		
13.6/ 107.9			ML	SILT - Reddish brown (5YR5/6); 95% nonplastic fines; 5% fine sand; trace fine gravel to ¼". Moist, soft, moderate reaction to HCl.		
24.1/ 110.8			ML			

Cement (1.0 - 32.2 feet bls)

Bentonite Seal
(32.2 - 37.5 feet bls)



Lithologic and well construction log: KMW-03A

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
40	29.1/ 116.0			SILT WITH GRAVEL - Yellowish red (5YR4/6); 80% nonplastic fines; 15% fine subrounded gravel to 1/2"; 5% coarse angular to subrounded sand.		
	25.5/ 138.7		ML/CL	CLAYEY SILT - Reddish brown (5YR4/4); 95% non to low plastic fines; 5% medium to coarse angular sand. moist, slow dialtency, hard, Strong local reaction to HCl, contains white (5YR8/1) caliche lenses and platy tabular clays.		
45	12.7/ 114.7		ML	SILT - Reddish brown to dark reddish brown (5YR4/4 to 5YR 3/4); 95% nonplastic fines; 5% medium to coarse subrounded sand. Moist, strong reaction to HCl.		
	13.2/ 113.5		ML	SANDY SILT - Reddish brown (5YR4/4); 60% nonplastic fines; 30% fine to coarse subrounded sand; 10% fine, trace coarse subrounded gravel to 1 1/2". Wet, firm, weak to moderate reaction to HCl.		# 10-20 Sand (37.5 - 76.5 feet bls)
	15.5/ 96.2		ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines' 15% medium to coarse subangular sand; trace fine subangular gravel to 1/2". Strong local reaction to HCl, firm, wet. Contains caliche stringers.		4" ID Schedule 40 PVC 0.020 inch Screen (39.8 - 74.8 feet bls)
50	11.6/ 92.8			SILT - Reddish brown (5YR4/4); 95% nonplastic fines; 5% medium to coarse subangular to subrounded sand; trace coarse subrounded gravel to 1 1/2". Wet, firm, moderate reaction to HCl. Clayey caliche horizons at 55' and 59', strong reaction to HCl.		
	18.1/ 91.4		ML			
55	20.9/ 91.7					
	10.5/ 94.1					
60						



Lithologic and well construction log: KMW-03A						
Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments

			SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse, subangular to subrounded sand; trace fine subrounded to rounded gravel to ½". No to weak reaction to HCl, wet, firm.	
65	12.4/ 86.7			
	11.3/ 84.3	ML		
	3.4/ 85.6			
70	12.7/ 93.9			
	7.1/ 91.0	SM/ML	SILTY SAND / SANDY SILT - Dark reddish brown (5YR3/4); 50% nonplastic fines; 45% fine to coarse subangular to subrounded sand; 5% fine angular to subangular granitic gravel to ½". Firm to hard, wet, no reaction to HCl.	
		ML	SANDY SILT - Reddish brown (5YR4/4); 65% nonplastic fines; 30% fine to coarse, subangular to subrounded sand; 5% fine subangular gravel to ¾". Wet, hard, no reaction to HCl.	
75	10.0/ 87.6			
		ML	SILT WITH SAND - Same as above; 80% nonplastic fines; 20% fine to coarse sand; trace fine angular gravel. Caliche stringers 80' to 81.5'.	

Flush threaded end cap

6 inch diameter borehole (75.5 - 77.0 feet bls)

Slough (76.5 - 77.0 feet bls)

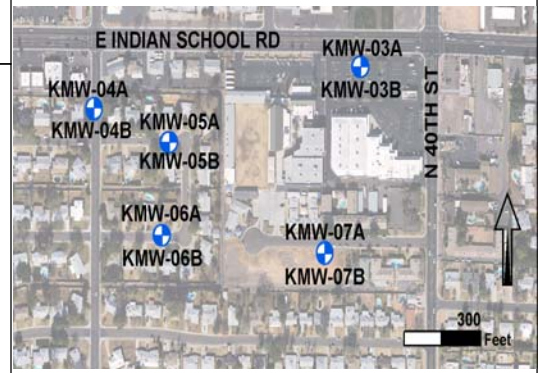
Total depth = 77.0 feet bls

East Central Phoenix Phoenix, AZ

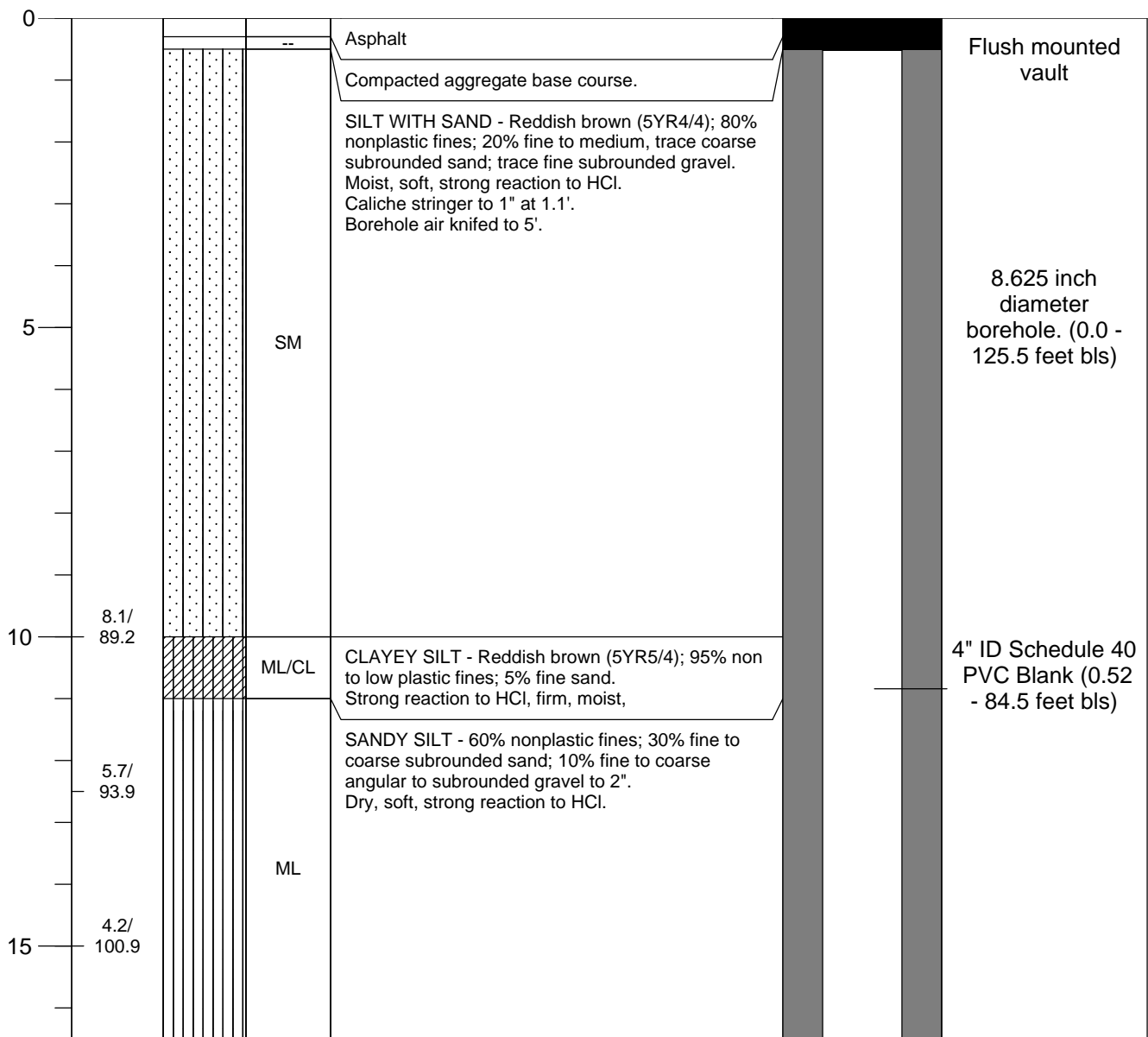
Lithologic and well construction log: KMW-03B

Northing (ft) 907607.40
Easting (ft) 675691.55
LS Elev. (ft) 1208.81
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1208.29
Total Depth bmp (ft) 124.5
Depth to Water (ft) 47
Date 5/01/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916787



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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Lithologic and well construction log: KMW-03B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
40.5/ 144.8			ML/CL	CLAYEY SILT - Yellowish red (5YR4/6); 90% low plastic fines; 10% coarse, trace fine to medium angular granitic sand. Dry, firm, strong reaction to HCl. At 19'; color change to Yellowish red (5YR5/4), finer formation, 90% fines, 10% sand. At 21'; Manganese coated pores.		Cement (1.0 - 75.2 feet bls)
35.6/ 131.3			ML	SILT WITH SAND - Yellowish red (5YR4/6); 85% nonplastic fines; 10% fine to coarse subrounded sand; 5% fine angular granitic gravel. Strong reaction to HCl, soft, dry.		
17.9/ 122.0			ML/CL	CLAYEY SILT - Yellowish red (5YR4/6); 90% low plastic fines; 10% coarse angular granitic sand, trace fine angular gravel to ½". Dry, firm, Strong reaction to HCl, abundant feldspar.		
17.3/ 122.9			ML	SANDY SILT - Reddish brown (5YR5/4); 65% nonplastic fines; 30% fine to coarse subrounded sand; 5% fine, trace coarse subangular gravel to 1". Strong reaction to HCl, dry, loose.		
18.7/ 115.3			ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse subangular sand; trace fine subangular gravel to ¾". Moderate to strong reaction to HCl, dry.		
14.0/ 117.1			ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine to medium sand. Dry, moderate to strong reaction to HCl.		
19.5/ 123.6			SM	SILTY SAND - Reddish brown (5YR3/4); 50% fine to coarse subangular to subrounded sand; 40% nonplastic fines; 10% fine subangular gravel to ¾". Dry, soft, moderate reaction to HCl.		
13.6/ 107.9			ML	SILT - Reddish brown (5YR5/6); 95% nonplastic fines; 5% fine sand; trace fine gravel to ¼". Moist, soft, moderate reaction to HCl.		
24.1/ 110.8			ML			



Lithologic and well construction log: KMW-03B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
40	29.1/ 116.0			SILT WITH GRAVEL - Yellowish red (5YR4/6); 80% nonplastic fines; 15% fine subrounded gravel to 1/2"; 5% coarse angular to subrounded sand.		
	25.5/ 138.7		ML/CL	CLAYEY SILT - Reddish brown (5YR4/4); 95% non to low plastic fines; 5% medium to coarse angular sand. moist, slow dialtency, hard, Strong local reaction to HCl, contains white (5YR8/1) caliche lenses and platy tabular clays.		
45	12.7/ 114.7		ML	SILT - Reddish brown to dark reddish brown (5YR4/4 to 5YR 3/4); 95% nonplastic fines; 5% medium to coarse subrounded sand. Moist, strong reaction to HCl.		
	13.2/ 113.5		ML	SANDY SILT - Reddish brown (5YR4/4); 60% nonplastic fines; 30% fine to coarse subrounded sand; 10% fine, trace coarse subrounded gravel to 1 1/2". Wet, firm, weak to moderate reaction to HCl.		
	15.5/ 96.2		ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines' 15% medium to coarse subangular sand; trace fine subangular gravel to 1/2". Strong local reaction to HCl, firm, wet. Contains caliche stringers.		
50	11.6/ 92.8			SILT - Reddish brown (5YR4/4); 95% nonplastic fines; 5% medium to coarse subangular to subrounded sand; trace coarse subrounded gravel to 1 1/2". Wet, firm, moderate reaction to HCl. Clayey caliche horizons at 55' and 59', strong reaction to HCl.		
	18.1/ 91.4		ML			
55	20.9/ 91.7					
	10.5/ 94.1					
60						



Lithologic and well construction log: KMW-03B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
12.4/ 86.7				SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse, subangular to subrounded sand; trace fine subrounded to rounded gravel to ½". No to weak reaction to HCl, wet, firm.		
11.3/ 84.3			ML			
3.4/ 85.6						
12.7/ 93.9						
7.1/ 91.0			SM/ML	SILTY SAND / SANDY SILT - Dark reddish brown (5YR3/4); 50% nonplastic fines; 45% fine to coarse subangular to subrounded sand; 5% fine angular to subangular granitic gravel to ½". Firm to hard, wet, no reaction to HCl.		
10.0/ 87.6			ML	SANDY SILT - Reddish brown (5YR4/4); 65% nonplastic fines; 30% fine to coarse, subangular to subrounded sand; 5% fine subangular gravel to ¾". Wet, hard, no reaction to HCl.		
3.7/ 89.2			ML	SILT WITH SAND - Same as above; 80% nonplastic fines; 20% fine to coarse sand; trace fine angular gravel. Caliche stringers 80' to 81.5'.		
4.1/ 92.1						
4.4/ 90.8			SM	SILTY SAND - Reddish brown (2.5YR4/4); 50% fine to coarse, subangular to subrounded sand; 40% nonplastic fines; 10% fine to coarse angular to rounded gravel to 1½". No reaction to HCl, wet, soft.		

Bentonite Seal
(75.2 - 80.8 feet
bls)



Lithologic and well construction log: KMW-03B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
85	4.9/ 89.6		ML	SILT WITH SAND - Same as above; 80% nonplastic fines; 20% fine to coarse sand; trace fine angular gravel.		
			ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine to medium sand; trace fine subrounded gravel to 1/2".		4" ID Schedule 40 PVC 0.020 inch Screen (84.5 - 124.5 feet bls)
	11.1/ 100.7		ML	SILT WITH SAND - Reddish brown (5YR4/4); 80% nonplastic fines; 15% sand; 5% fine to coarse rounded gravel to 1 1/4". No reaction to HCL, firm.		
			ML	SANDY SILT WITH GRAVEL - 60% nonplastic fines; 25% sand; 15% fine gravel to 1/2". Weak reaction to HCL, hard, wet.		
90	10.8/ 98.4		SM	SILTY SAND - Reddish brown (5YR4/4); 50% fine to coarse sand; 40% nonplastic fines; 10% fine to coarse rounded gravel to 1 1/2". Wet, soft, no reaction to HCL.		# 10-20 Sand (80.8 - 126.3 feet bls)
			ML	SILT WITH SAND - Same as above; weak reaction to HCL, firm.		
	10.5/ 89.6		ML	SILT - Same as above; 90% nonplastic fines; 10% sand. Moderate reaction to HCL, moist.		
			ML	SILT WITH SAND - Same as above; 75% nonplastic fines; 20% sand; 5% fine gravel to 3/4". Moderate reaction to HCL.		
95	9.8/ 105.6		ML	SANDY SILT WITH GRAVEL - Same as above; Reddish brown (5YR4/4); 60% nonplastic fines; 25% sand; 15% fine gravel. Hard.		
			ML	SILT WITH SAND - Reddish brown (5YR4/4); 80% nonplastic fines; 15% fine to coarse subrounded sand; 5% fine angular gravel. Weak reaction to HCL, wet, firm.		
			ML	SANDY SILT WITH GRAVEL - Reddish brown (5YR4/4); 65% nonplastic fines; 20% fine to coarse subrounded sand; 15% fine, trace coarse angular to subangular gravel to 2". Hard, weak reaction to HCL, wet.		
100	6.6/ 105.4		ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 5% fine to coarse subangular sand; 5% fine, trace coarse angular to subangular gravel to 1 1/4". Hard, weak reaction to HCL to 102', strong reaction at 104'.		
	10.3/ 93.9		ML			
105	11.3/ 102.2					



Lithologic and well construction log: KMW-03B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
105			SM/ML	SILTY SAND / SANDY SILT - Reddish brown (5YR5/4); 50% nonplastic fines; 30% fine to coarse subangular to subrounded sand; 20% fine to coarse subrounded gravel to 2½". Firm to hard, wet, no reaction to HCl.		
17.9/ 107.2			ML	SILT WITH GRAVEL - Reddish brown (5YR4/4); 75% nonplastic fines; 15% fine, trace coarse angular to subangular gravel to 1½"; 10% medium to coarse subangular sand. Wet, no to weak reaction to HCl.		
110	19.4/ 123.9		ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 5% medium to coarse, subrounded; 5% fine subrounded gravel. Wet, weak reaction to HCl to 111', strong reaction to 113'.		
32.7/ 125.9			ML	SILT WITH GRAVEL - Reddish brown (5YR4/4); 70% nonplastic fines; 15% fine, trace coarse angular to subangular gravel; 10% fine to coarse subangular sand. Firm, moderate to strong reaction to HCl.		
115	48.6/ 145.0		ML	GRAVELLY SILT WITH SAND - Reddish brown (2.5YR4/4); 55% nonplastic fines; 25% fine angular gravel; 20% fine to coarse angular to subangular sand. Wet, hard, no reaction to HCl.		
21.2/ 115.5			ML			
120	29.7/ 115.3		SM	SILTY SAND - Dark reddish brown (2.5YR3/4); 60% fine to coarse subrounded sand; 30% nonplastic fines; 10% fine to coarse subangular to rounded gravel to 1½". Soft, no reaction to HCl, wet.		
15.7/ 92.7			ML	SILT WITH SAND - Dark reddish brown (5YR3/4); 85% nonplastic fines; 15% fine to coarse subangular sand. No reaction to HCl, firm, wet.		
125	13.8/ 91.4					

Flush threaded
end cap

6 inch diameter
borehole (125.5 -
127.0 feet bls)

Slough (126.3 -
127.0 feet bls)

Total depth =
127.0 feet bls

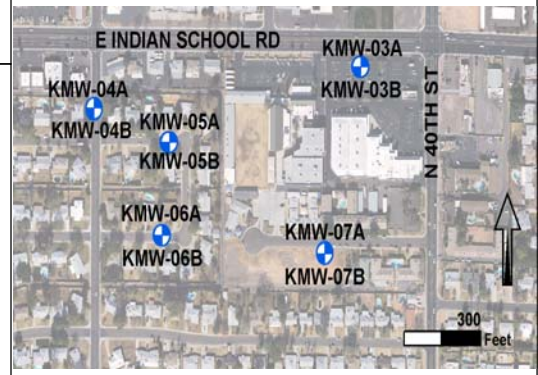


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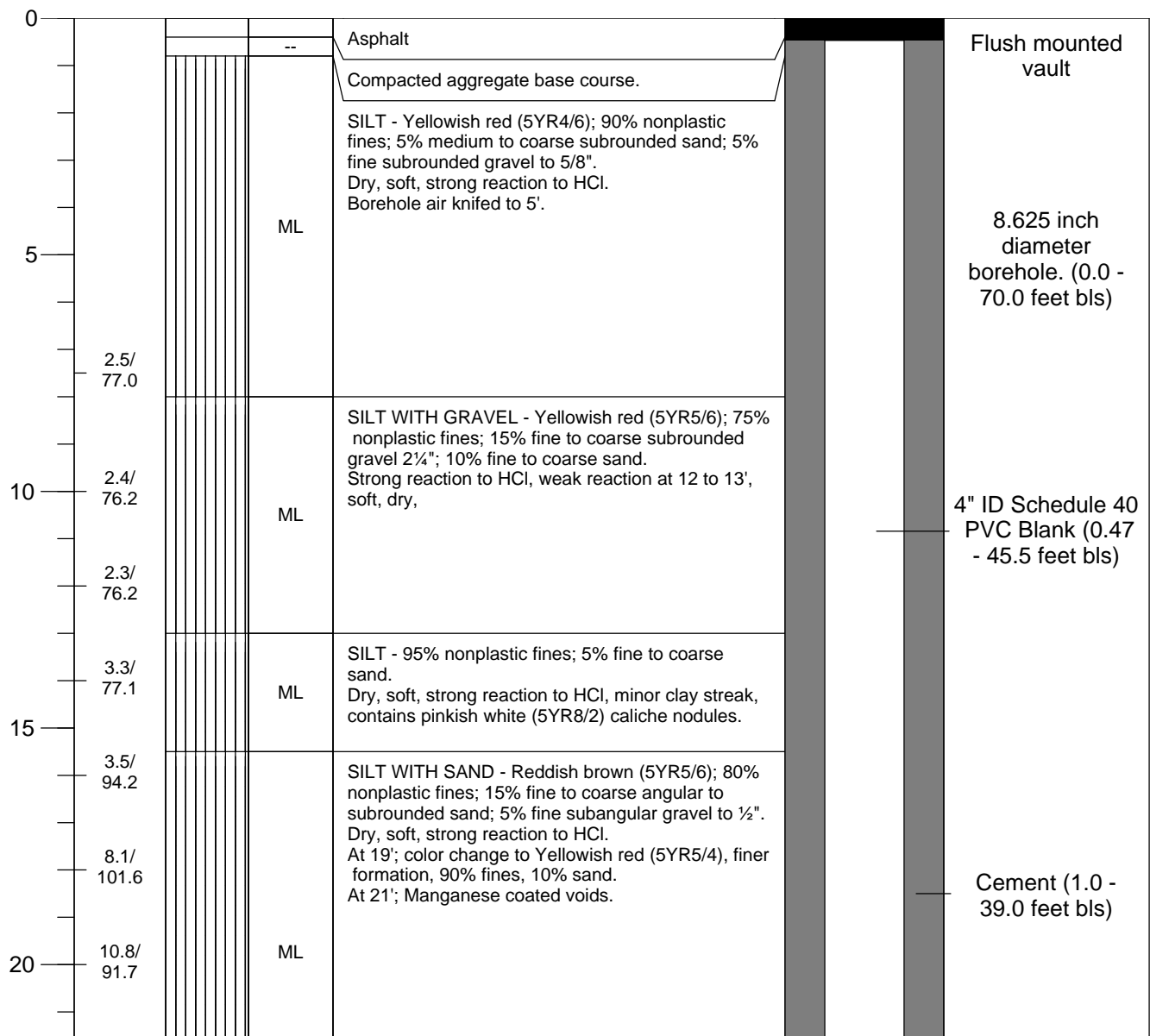
Lithologic and well construction log: KMW-04A

Northing (ft) 907472.58
Easting (ft) 674640.87
LS Elev. (ft) 1202.90
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1202.43
Total Depth bmp (ft) 70.4
Depth to Water (ft) 49
Date 2/20/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916208



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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Lithologic and well construction log: KMW-04A

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
3.1/ 93.2						
25	7.6/ 109.5		ML/CL	CLAYEY SILT - Light reddish brown to reddish brown (5YR6/4 to 5YR4/4); 95% low plastic fines; 5% fine to coarse angular to subangular sand. Dry, hard, Strong reaction to HCl.		
			ML	SILT WITH SAND - Same as above.		
	14.1/ 107.9		ML	SILT - Reddish brown (5YR4/4); 95% nonplastic fines; 5% fine, trace medium and coarse sand. Strong reaction to HCl, firm, dry		
30	10.1/ 106.5		SM	SILTY SAND WITH GRAVEL - Reddish brown (5YR4/4); 40% nonplastic fines; 35% fine to coarse subangular to subrounded sand; 25% fine, trace coarse angular to subrounded gravel to 2". Dry, soft, strong reaction to HCl.		
	13.1/ 123.2			SILT - Dark reddish brown (5YR3/4); 95% non to low plastic fines; 5% fine to coarse sand; trace subrounded gravel to 1/2". Moist 31 to 32.5', dry below. At 32.5'; trace coarse angular gravel to 1". At 36 to 37'; clayey silt.		
35	11.2/ 132.4		ML			
	6.4/ 124.8					
40	7.1/ 122.5					Bentonite Seal (39.0 - 41.3 feet bls)
	9.9/ 117.6					
45	11.7/ 134.9		ML	SILT WITH GRAVEL - Dark reddish brown (5YR3/4); 80% non to low plastic fines; 15% fine angular to subangular gravel; 5% coarse subangular sand.		# 10-20 Sand (41.3 - 72.2 feet bls)
			GM	SILTY GRAVEL - Reddish brown (5YR4/4); 50% fine to coarse angular to subrounded gravel to 2 1/2"; 40% nonplastic fines; 10% fine to coarse sand. Weak to moderate reaction to HCl, soft, moist		
	11.5/ 118.8		ML	SANDY SILT - Reddish brown (5YR4/4); 70% non to low plastic fines; 20% fine to coarse sand; 10% fine subrounded gravel to 3/4". Moist to locally wet, firm to hard, weak reaction to HCl.		4" ID Schedule 40 PVC 0.020 inch Screen (45.4 - 70.4 feet bls)
50	3.8/ 99.1		ML			



Lithologic and well construction log: KMW-04A

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
55	3.8/ 100.0			SILT WITH SAND - Dark reddish brown (5YR3/4); 80% nonplastic fines' 15% fine to coarse subrounded sand; 5% fine subangular to subrounded gravel. Weak reaction to HCl, soft, wet.		
	2.0/ 85.6		SM/ML	SILTY SAND / SANDY SILT - Dark reddish brown (5YR3/4); 50% nonplastic fines; 45% fine to coarse subrounded to rounded sand; 5% fine subrounded gravel to ¾". Soft, wet, weak reaction to HCl.		
	2.6/ 91.0		SM	SILTY SAND - Reddish brown (5YR4/4); 65% fine to coarse, subrounded to rounded sand; 30% nonplastic fines; 5% fine subrounded gravel. Wet, soft, no reaction to HCl.		
60	2.6/ 99.1		ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine to coarse subangular to subrounded gravel. Moist, firm, weak reaction to HCl.		
	2.6/ 93.2		SM	SILTY SAND - Dark reddish brown (5YR3/4); 55% fine to coarse, subrounded to rounded sand; 40% nonplastic fines; 5% fine, trace coarse subrounded gravel to 1½". No reaction to HCl, wet, soft.		
			ML			
65	3.2/ 91.0		SM	SILT - Same as above. Wet. SILTY SAND - Same as above. Wet, no reaction to HCl.		
	2.6/ 100.7		ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% non to low plastic fines; 15% fine to coarse subrounded sand; trace fine subrounded gravels to ½". Moderate reaction to HCL, hard to very hard, moist. At 69'; Color change to dark reddish brown (5YR3/4).		
70	2.3/ 95.1					
	3.0/ 92.6					
75						

Flush threaded
end cap

6 inch diameter
borehole (70.0 -
73.0 feet bls)

Slough (72.2 -
73.0 feet bls)

Total depth = 73.0
feet bls

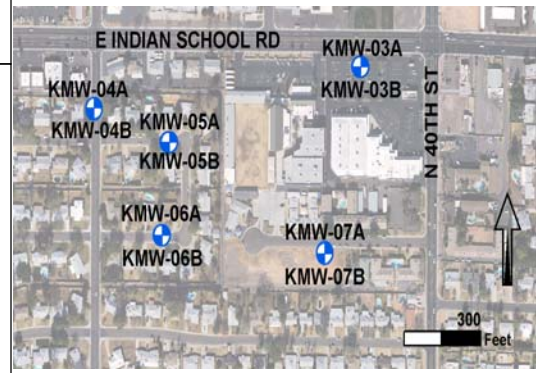


East Central Phoenix Phoenix, AZ

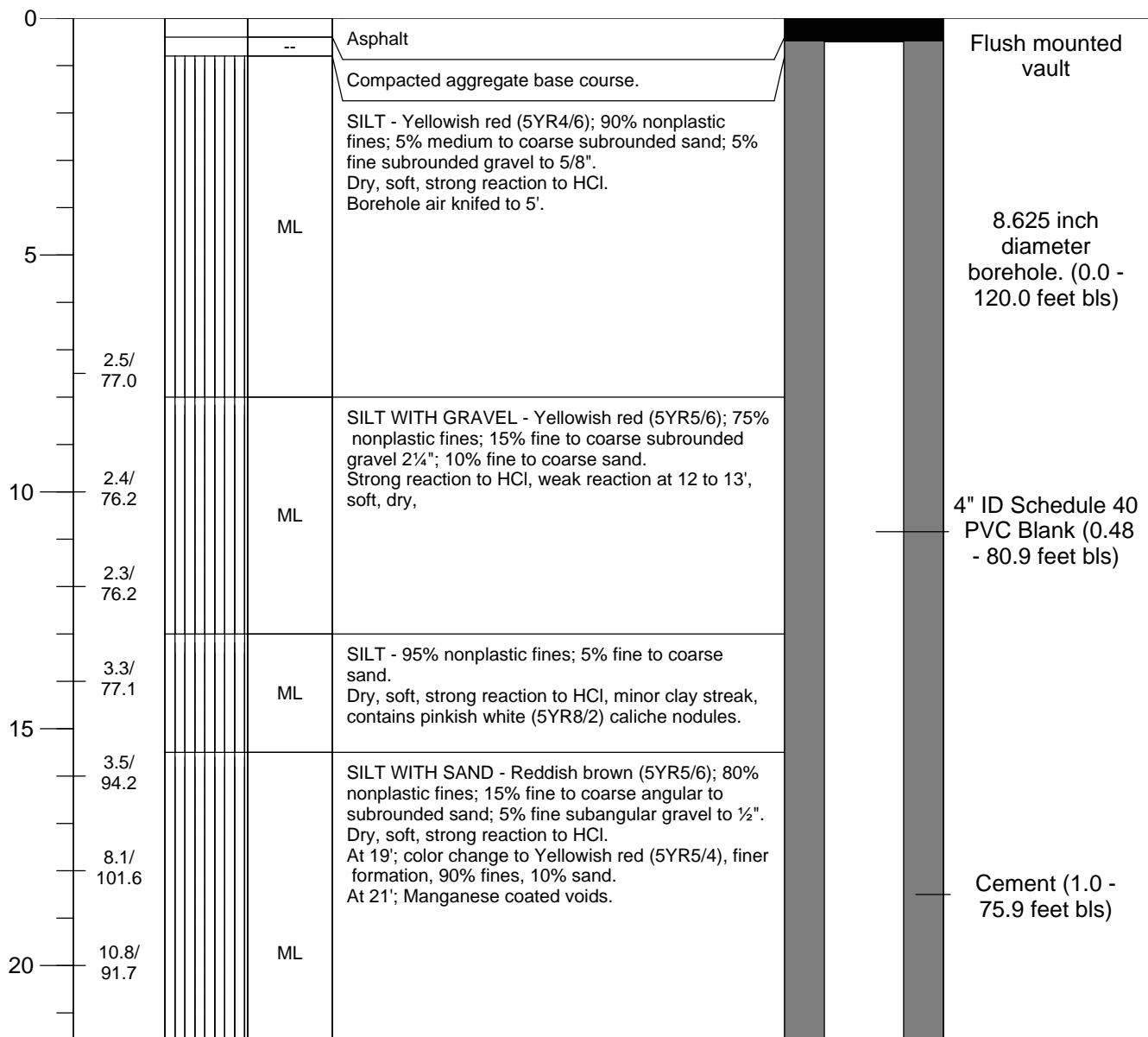
Lithologic and well construction log: KMW-04B

Northing (ft) 907478.79
Easting (ft) 674641.01
LS Elev. (ft) 1202.95
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1202.47
Total Depth bmp (ft) 120.9
Depth to Water (ft) 49
Date 2/19/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916209



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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Lithologic and well construction log: KMW-04B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
3.1/ 93.2						
25	7.6/ 109.5		ML/CL	CLAYEY SILT - Light reddish brown to reddish brown (5YR6/4 to 5YR4/4); 95% low plastic fines; 5% fine to coarse angular to subangular sand. Dry, hard, Strong reaction to HCl.		
			ML	SILT WITH SAND - Same as above.		
	14.1/ 107.9		ML	SILT - Reddish brown (5YR4/4); 95% nonplastic fines; 5% fine, trace medium and coarse sand. Strong reaction to HCl, firm, dry		
30	10.1/ 106.5		SM	SILTY SAND WITH GRAVEL - Reddish brown (5YR4/4); 40% nonplastic fines; 35% fine to coarse subangular to subrounded sand; 25% fine, trace coarse angular to subrounded gravel to 2". Dry, soft, strong reaction to HCl.		
	13.1/ 123.2			SILT - Dark reddish brown (5YR3/4); 95% non to low plastic fines; 5% fine to coarse sand; trace subrounded gravel to 1/2". Moist 31 to 32.5', dry below. At 32.5'; trace coarse angular gravel to 1". At 36 to 37'; clayey silt.		
35	11.2/ 132.4		ML			
	6.4/ 124.8					
40	7.1/ 122.5					
	9.9/ 117.6					
	11.7/ 134.9		ML	SILT WITH GRAVEL - Dark reddish brown (5YR3/4); 80% non to low plastic fines; 15% fine angular to subangular gravel; 5% coarse subangular sand.		
45			GM	SILTY GRAVEL - Reddish brown (5YR4/4); 50% fine to coarse angular to subrounded gravel to 2 1/2"; 40% nonplastic fines; 10% fine to coarse sand. Weak to moderate reaction to HCl, soft, moist		
	11.5/ 118.8		ML	SANDY SILT - Reddish brown (5YR4/4); 70% non to low plastic fines; 20% fine to coarse sand; 10% fine subrounded gravel to 3/4". Moist to locally wet, firm to hard, weak reaction to HCl.		
50	3.8/ 99.1		ML			



Lithologic and well construction log: KMW-04B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
55	3.8/ 100.0			SILT WITH SAND - Dark reddish brown (5YR3/4); 80% nonplastic fines' 15% fine to coarse subrounded sand; 5% fine subangular to subrounded gravel. Weak reaction to HCl, soft, wet.		
	2.0/ 85.6		SM/ML	SILTY SAND / SANDY SILT - Dark reddish brown (5YR3/4); 50% nonplastic fines; 45% fine to coarse subrounded to rounded sand; 5% fine subrounded gravel to 3/4". Soft, wet, weak reaction to HCl.		
	2.6/ 91.0		SM	SILTY SAND - Reddish brown (5YR4/4); 65% fine to coarse, subrounded to rounded sand; 30% nonplastic fines; 5% fine subrounded gravel. Wet, soft, no reaction to HCl.		
60	2.6/ 99.1		ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine to coarse subangular to subrounded gravel. Moist, firm, weak reaction to HCl.		
	2.6/ 93.2		SM	SILTY SAND - Dark reddish brown (5YR3/4); 55% fine to coarse, subrounded to rounded sand; 40% nonplastic fines; 5% fine, trace coarse subrounded gravel to 1 1/2". No reaction to HCl, wet, soft.		
			ML			
				SILT - Same as above. Wet.		
65	3.2/ 91.0		SM	SILTY SAND - Same as above. Wet, no reaction to HCl.		
	2.6/ 100.7			SILT WITH SAND - Reddish brown (5YR4/4); 85% non to low plastic fines; 15% fine to coarse subrounded sand; trace fine subrounded gravels to 1/2". Moderate reaction to HCL, hard to very hard, moist. At 69'; Color change to dark reddish brown (5YR3/4). At 75'; weak reaction to HCl, sand content up to 25%, wet.		
70	2.3/ 95.1					
	3.0/ 92.6		ML			
75	3.4/ 87.2					
	3.7/ 93.0					
			ML	SANDY SILT - 70% nonplastic fines; 25% fine to coarse sand; 5% fine rounded gravel to 3/4". Moderate reaction to HCl, hard, wet.		

Bentonite Seal
(75.9 - 78.5 feet
bls)



Lithologic and well construction log: KMW-04B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
80	5.9/ 92.6		ML	SILT WITH SAND - Same as above.		
			SM	SILTY SAND - Dark reddish brown (5YR7/4); 60% fine to coarse sand; 40% nonplastic fines; trace fine rounded gravel.		
	4.3/ 87.8		ML	Wet, soft, no reaction to HCl.		
			SM	SANDY SILT - Same as above.		
				SILTY SAND - Same as above.		
85	5.5/ 92.3		ML	SILT WITH SAND - Reddish brown (5YR4/4); 80% nonplastic fines; 20% fine to coarse subangular to subrounded sand; trace fine subangular gravel. Weak reaction to HCl, firm, wet.		4" ID Schedule 40 PVC 0.020 inch Screen (80.9 - 120.9 feet bls)
	5.3/ 99.5		ML	SANDY SILT - Reddish brown (5YR4/4); 65% nonplastic fines; 25% fine to coarse angular to subrounded sand; 10% fine angular to subangular gravel. Moderate to strong reaction to HCl, moist, hard formation.		
90	5.8/ 105.8		SM	SILTY SAND WITH GRAVEL - Reddish brown (5YR4/4); 45% fine to coarse subrounded to rounded sand; 40% nonplastic fines; 15% fine subrounded to rounded gravel to 3/4".		# 10-20 Sand (78.5 - 125.5 feet bls)
	3.2/ 85.6		ML	SANDY SILT - Reddish brown (2.5YR4/4) 92 TO 93'; (5YR4/4) 93 to 95'; 70% nonplastic fines; 30% fine to coarse subrounded to rounded sand.		
				SILT WITH SAND - Reddish brown (5YR5/4); 85% nonplastic fines; 15% subangular to subrounded sand; trace coarse rounded gravel to 2". Hard, wet to 99', moist below, weak to moderate reaction to HCl.		
95	2.8/ 84.9					
	9.5/ 129.5					
			ML			
100	6.9/ 122.3					
	7.9/ 109.0					
105	6.8/ 112.4					
			ML	GRAVELLY SILT - Yellowish red (5YR4/6); 70% nonplastic fines; 20% fine, trace coarse angular to subrounded gravel to 1 1/2"; 10% fine to coarse subangular sand. Wet, hard, no reaction to HCl, finer 107 to 107.5'.		
	5.4/ 94.8					



Lithologic and well construction log: KMW-04B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
110	5.7/ 95.3		SM	SILTY SAND WITH GRAVEL - Yellowish red (5YR4/4); 40% fine to coarse, subrounded to rounded sand; 40% nonplastic fines; 20% fine subrounded gravel to 3/4". Wet, soft, no reaction to HCl.		
			SM/ML			
	5.2/ 84.8		ML	SILTY SAND / SANDY SILT - Reddish brown (5YR4/4); 50% nonplastic fines; 40% fine to coarse subrounded to rounded sand; 10% fine rounded gravel. Firm, wet, no reaction to HCl.		
115	4.1/ 87.0			SILT WITH SAND - Reddish brown (5YR4/4); 75% nonplastic fines; 15% fine to coarse subangular sand, 10% fine subangular to subrounded gravel. Wet, firm, weak reaction to HCl, contains hard silt nodules with manganese coated voids.		
	5.0/ 101.6		ML	GRAVELLY SILT WITH SAND - Reddish brown (5YR4/4); 55% nonplastic fines; 25% fine subangular gravel; 20% fine to coarse subangular sand. Firm to hard, No to weak reaction to HCl, wet.		
120	4.7/ 108.1					
	16.6/ 104.5					
	9.9/ 112.9		ML/CL	CLAYEY SILT WITH SAND - Reddish brown (5YR5/4); 75% non to low plastic fines; 20% fine to coarse subangular sand; 5% fine angular to subangular gravel. Moist, hard, moderate to strong reaction to HCl, visible clay streak.		
125			ML	SILT WITH SAND - Same as above. No reaction to HCL.		
	9.0/ 109.9					

Flush threaded
end cap

6 inch diameter
borehole (120.0 -
127.0 feet bls)

Slough (125.5 -
127.0 feet bls)

Total depth =
127.0 feet bls

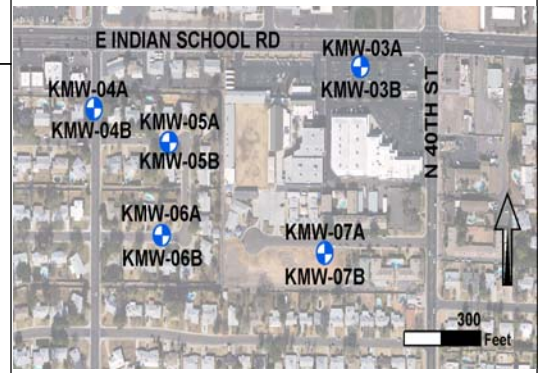


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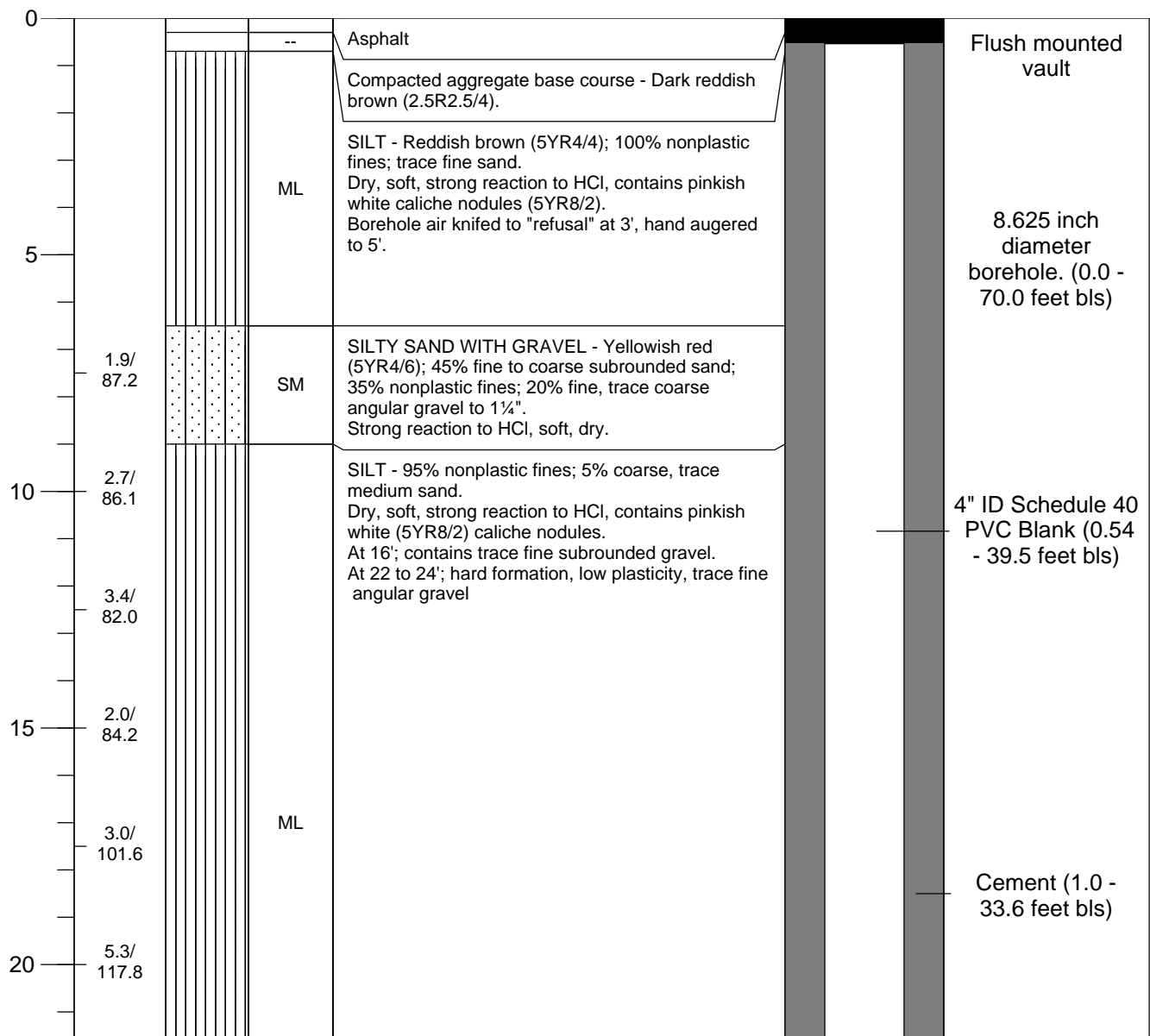
Lithologic and well construction log: KMW-05A

Northing (ft) 907373.87
Easting (ft) 674919.22
LS Elev. (ft) 1203.29
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1202.75
Total Depth bmp (ft) 69.5
Depth to Water (ft) 47
Date 2/12/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-901210



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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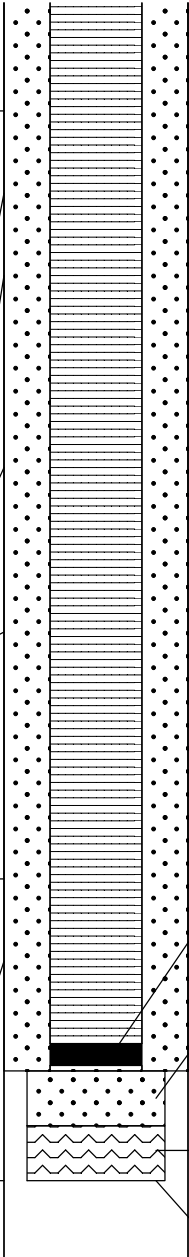


Lithologic and well construction log: KMW-05A

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
8.5/ 107.9						
25	9.5/ 106.3		ML/CL	CLAYEY SILT - Reddish brown (5YR4/4); 95% low plastic fines; 5% fine sand. Dry, hard, strong reaction to HCl.		
	30.0/ 154.0					
	12.0/ 147.7		ML	SILT - Reddish brown (5YR4/4); Same as above.		
30			SM	SILTY SAND - Reddish brown (5YR4/4); 50% fine to coarse sand; 45% nonplastic fines; 5% fine to coarse angular to subrounded gravel to 1½". Strong reaction to HCl, dry, soft.		
	12.4/ 123.9		ML			
			ML	SILT - Reddish brown (5YR4/4); 95% nonplastic fines; 5% fine to medium subrounded sand. Soft, dry.		
35	9.5/ 122.7		ML	GRAVELY SILT - Reddish brown (5YR4/4); 55% nonplastic fines; 35% fine to coarse angular gravel to 2"; 10% medium to coarse sand.		Bentonite Seal (33.6 - 36.0 feet bls)
	33.4/ 152.2		ML	SILT - Dark reddish brown (5YR3/4); 95% non to low plastic fines; 5% fine sand. Dry, soft.		
			ML	GRAVELY SILT - Same as above.		
40	20.5/ 141.8		ML	SILT - Same as above. Moderate reaction to HCl.		# 10-20 Sand (36.0 - 71.0 feet bls)
			ML	GRAVELY SILT - Same as above. Moist.		
	144.5/ 146.6		ML	SILT - Reddish brown (5YR5/4); 90% nonplastic fines; 10% fine angular gravel to ½"; trace fine sand. Moderate reaction to HCl, moist.		
45	13.8/ 130.6		ML	GRAVELLY SILT WITH SAND - Reddish brown (5YR4/4); 50% nonplastic fines; 30% fine to coarse subrounded gravel to 3"; 20% fine to coarse, angular to subrounded sand. Wet, weak reaction to HCL, firm.		4" ID Schedule 40 PVC 0.020 inch Screen (39.5 - 69.5 feet bls)
	7.1/ 107.0		ML	SILT WITH GRAVEL - Reddish brown (5YR5/4); 85% nonplastic fines; 10% fine angular to subrounded gravel to ¾"; 5% coarse angular sand.		
50	9.3/ 99.1		ML	GRAVELLY SILT WITH SAND - Same as above.		



Lithologic and well construction log: KMW-05A

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
55	3.1/ 94.4		ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine sand. Moist, soft, weak reaction to HCl.		
			SM	SILTY SAND WITH GRAVEL - Reddish brown (5YR4/4); 40% fine to coarse, subrounded to rounded sand; 40% nonplastic fines; 20% fine, trace coarse subrounded gravel to 1½". No reaction to HCl, wet, soft.		
	3.4/ 89.0		ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse sand. Wet.		
			ML	SANDY SILT WITH GRAVEL - Reddish brown (5YR4/4); 60% nonplastic fines; 25% fine to coarse subrounded sand; 15% fine, trace coarse gravel to 1½". Wet, firm, weak reaction to HCl.		
60	6.9/ 137.3		ML	SANDY SILT - Reddish brown (5YR4/4); 65% nonplastic fines; 35% fine to coarse angular to subrounded sand. Moderate reaction to HCl, hard to very hard, moist. No reaction to HCl, wet.		
	3.0/ 86.1		ML	SILT WITH SAND - Reddish brown (5YR4/4); 80% nonplastic fines; 15% fine to coarse subrounded sand; 5% fine subrounded gravel to ¾". Weak reaction to HCl, firm to hard, moist.		
65	6.5/ 96.9		ML			
	5.7/ 110.6		SM	SILTY SAND - Reddish brown (5YR4/4); 55% fine to coarse subrounded to rounded sand; 40% nonplastic fines; 5% fine subangular gravel. No reaction to HCl, wet, soft.		
70	11.0/ 108.6		ML	SILT WITH SAND - Dark reddish brown (5YR7/4); 80% non to low plastic fines; 20% fine to coarse subrounded sand. Moderate to strong reaction to HCl, moist, hard, minor clay streak.		

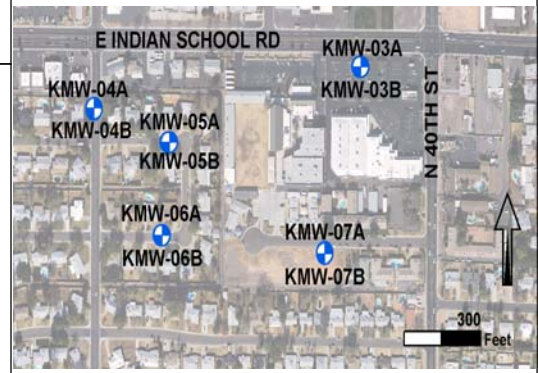


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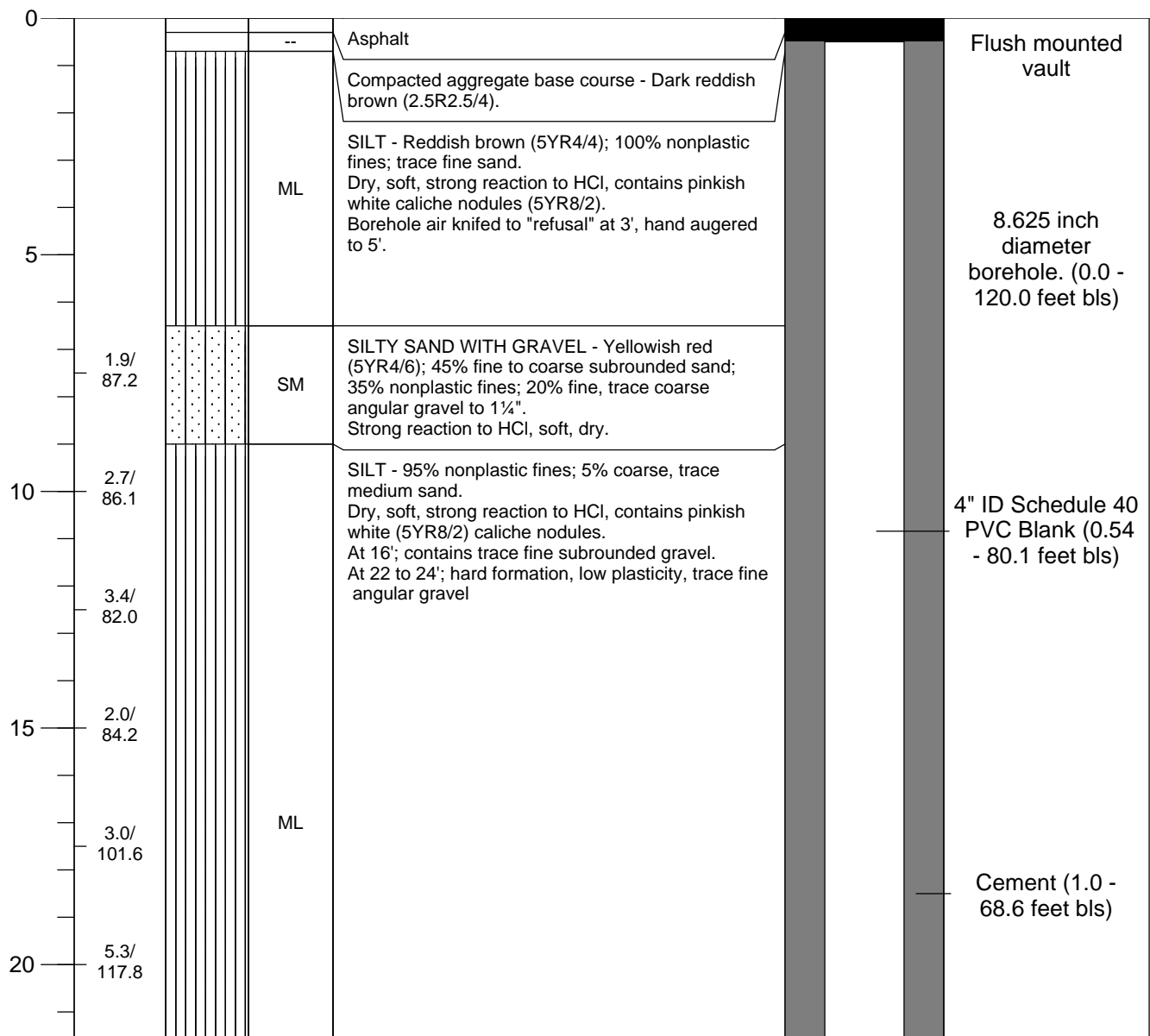
Lithologic and well construction log: KMW-05B

Northing (ft) 907374.06
Easting (ft) 674913.46
LS Elev. (ft) 1203.25
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1202.71
Total Depth bmp (ft) 120.1
Depth to Water (ft) 47
Date 2/11/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916211



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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Lithologic and well construction log: KMW-05B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
8.5/ 107.9						
25	9.5/ 106.3		ML/CL	CLAYEY SILT - Reddish brown (5YR4/4); 95% low plastic fines; 5% fine sand. Dry, hard, strong reaction to HCl.		
	30.0/ 154.0					
	12.0/ 147.7		ML	SILT - Reddish brown (5YR4/4); Same as above.		
30			SM	SILTY SAND - Reddish brown (5YR4/4); 50% fine to coarse sand; 45% nonplastic fines; 5% fine to coarse angular to subrounded gravel to 1½". Strong reaction to HCl, dry, soft.		
	12.4/ 123.9		ML			
			ML	SILT - Reddish brown (5YR4/4); 95% nonplastic fines; 5% fine to medium subrounded sand. Soft, dry.		
35	9.5/ 122.7		ML	GRAVELY SILT - Reddish brown (5YR4/4); 55% nonplastic fines; 35% fine to coarse angular gravel to 2"; 10% medium to coarse sand.		
	33.4/ 152.2		ML	SILT - Dark reddish brown (5YR3/4); 95% non to low plastic fines; 5% fine sand. Dry, soft.		
			ML	GRAVELY SILT - Same as above.		
40	20.5/ 141.8		ML	SILT - Same as above. Moderate reaction to HCl.		
			ML	GRAVELY SILT - Same as above. Moist.		
	144.5/ 146.6		ML	SILT - Reddish brown (5YR5/4); 90% nonplastic fines; 10% fine angular gravel to ½"; trace fine sand. Moderate reaction to HCl, moist.		
45	13.8/ 130.6		ML	GRAVELLY SILT WITH SAND - Reddish brown (5YR4/4); 50% nonplastic fines; 30% fine to coarse subrounded gravel to 3"; 20% fine to coarse, angular to subrounded sand. Wet, weak reaction to HCL, firm.		
	7.1/ 107.0		ML	SILT WITH GRAVEL - Reddish brown (5YR5/4); 85% nonplastic fines; 10% fine angular to subrounded gravel to ¾"; 5% coarse angular sand.		
50	9.3/ 99.1			GRAVELLY SILT WITH SAND - Same as above.		



Lithologic and well construction log: KMW-05B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
			ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine sand. Moist, soft, weak reaction to HCl.		
3.1/ 94.4			SM	SILTY SAND WITH GRAVEL - Reddish brown (5YR4/4); 40% fine to coarse, subrounded to rounded sand; 40% nonplastic fines; 20% fine, trace coarse subrounded gravel to 1½". No reaction to HCl, wet, soft.		
55	3.4/ 89.0		ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse sand. Wet.		
3.1/ 111.3			ML	SANDY SILT WITH GRAVEL - Reddish brown (5YR4/4); 60% nonplastic fines; 25% fine to coarse subrounded sand; 15% fine, trace coarse gravel to 1½". Wet, firm, weak reaction to HCl.		
60	6.9/ 137.3		ML	SANDY SILT - Reddish brown (5YR4/4); 65% nonplastic fines; 35% fine to coarse angular to subrounded sand. Moderate reaction to HCl, hard to very hard, moist. No reaction to HCl, wet.		
3.0/ 86.1			ML	SILT WITH SAND - Reddish brown (5YR4/4); 80% nonplastic fines; 15% fine to coarse subrounded sand; 5% fine subrounded gravel to ¾". Weak reaction to HCl, firm to hard, moist.		
65	6.5/ 96.9		ML			
5.7/ 110.6			SM	SILTY SAND - Reddish brown (5YR4/4); 55% fine to coarse subrounded to rounded sand; 40% nonplastic fines; 5% fine subangular gravel. No reaction to HCl, wet, soft.		
70	11.0/ 108.6		ML	SILT WITH SAND - Dark reddish brown (5YR7/4); 80% non to low plastic fines; 20% fine to coarse subrounded sand. Moderate to strong reaction to HCl, moist, hard, minor clay streak.		
29.8/ 102.2			SM			
75	32.9/ 87.2		ML	SILTY SAND - Reddish brown (5YR4/4); 50% fine to coarse subrounded to rounded sand; 40% nonplastic fines; 10% fine subrounded to rounded gravel. No reaction to HCl, wet, soft.		
33.4/ 109.7			ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% medium to coarse sand. SILT - 95% nonplastic fines; 5% fine sand. No reaction to HCl, trace rounded coarse gravel at 77'. SM		

Bentonite Seal
(68.6 - 74.7 feet
bls)



Lithologic and well construction log: KMW-05B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
80	18.5/ 114.0		ML	SILTY SAND - 55% fine to coarse subrounded to rounded sand; 40% nonplastic fines; 5% fine subrounded to rounded gravel. No reaction to HCl, wet.		
			SM			
	6.3/ 107.7		ML	SILT - Same as above; 90% nonplastic fines; 10% fine sand. Wet, no reaction to HCl.		
			SM			
85	7.8/ 111.3		ML	SILTY SAND - Same as above; 55% fine to coarse subrounded to rounded sand; 40% nonplastic fines; 5% fine gravel. Wet, no reaction to HCl.		
				SILT WITH SAND - Same as above; 85% nonplastic fines; 15% medium to coarse sand. Weak reaction to HCL at top, strong reaction at bottom, moist.		
	10.5/ 122.7			SILTY SAND - Reddish brown (5YR4/4); 50% fine to coarse rounded sand; 40% nonplastic fines; 10% fine to coarse rounded gravel to 1½".		
90	8.3/ 122.1		ML	SILT - Reddish brown (5YR4/4); 95% nonplastic fines; 5% fine to coarse sand; trace fine rounded gravel. Moderate to strong reaction to HCl, visible caliche nodules.		
	4.4/ 106.7			SANDY SILT WITH GRAVEL - Reddish brown (5YR4/4); 65% nonplastic fines; 20% fine to coarse angular sand; 15% fine to coarse angular gravel to 3". Weak to moderate reaction to HCl, wet at top formation, dry at bottom.		
95	3.1/ 98.4		ML	SILT - Reddish brown (5YR5/4); 90% non to low plastic fines; 10% fine, trace medium and coarse sand.		
	7.5/ 117.8		ML	SILT WITH SAND - Reddish brown (5YR4/4); 75% nonplastic fines; 15% fine to coarse subrounded sand, 10% fine subrounded gravel. Weak reaction to HCl, hard, moist to wet.		
100	4.0/ 111.5		SM/ML	SILTY SAND / SANDY SILT WITH GRAVEL - Reddish brown (5YR4/4); 50% nonplastic fines; 35% fine to coarse subrounded to rounded sand; 15% fine rounded to rounded gravel. Soft, wet, no reaction to HCl.		
	4.2/ 107.6		ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine to medium, trace coarse subrounded to rounded sand; trace fine rounded gravel. Moist, Hard, weak reaction to HCl.		
105	3.9/ 91.9		ML	SILT WITH SAND - Reddish brown (5YR4/4); 75% nonplastic fines; 20% fine to coarse subrounded to rounded sand; 5% fine rounded gravel. Firm, wet, no reaction to HCl.		
	3.1/ 88.3		ML	SANDY SILT - Reddish brown (5YR4/4); 60% nonplastic fines; 30% medium to coarse subrounded to rounded sand, 10% fine to coarse subrounded rounded gravel to 1½". Wet, firm to hard, no to weak reaction to HCl.		

4" ID Schedule 40
PVC 0.020 inch
Screen (80.1 -
120.1 feet bls)

10-20 Sand
(74.7 - 120.5 feet
bls)



Lithologic and well construction log: KMW-05B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
110	2.0/ 94.6		ML	SILT - Reddish brown (5YR5/4); 90% nonplastic fines; 10% fine subrounded sand. Firm, weak reaction to HCl, wet.		
			ML			
	2.6/ 94.2		ML	SILT WITH SAND - Reddish brown (5YR4/4); 80% low plastic fines; 15% fine to coarse sand, 5% fine to coarse subrounded gravel. No reaction to HCl, wet.		
				SILT - Same as above.		
115	2.9/ 91.5		SM	SILTY SAND WITH GRAVEL - Reddish brown (5YR4/4); 45% fine to coarse angular to subrounded sand; 40% nonplastic fines; 15% fine angular to subrounded gravel. No reaction to HCl, firm, wet.		
	1.2/ 92.3					
	2.9/ 97.7		ML	SANDY SILT - Reddish brown (5YR5/4); 70% nonplastic fines; 25% fine to coarse angular to subrounded sand; 5% fine angular to subrounded gravel. No to weak reaction to HCl, hard, wet.		
120						
	2.8/ 106.1					

Flush threaded
end cap

6 inch diameter
borehole (120.0 -
122.0 feet bls)

Slough (120.5 -
122.0 feet bls)

Total depth =
122.0 feet bls

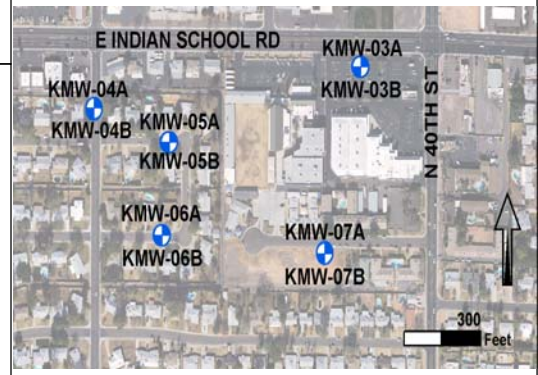


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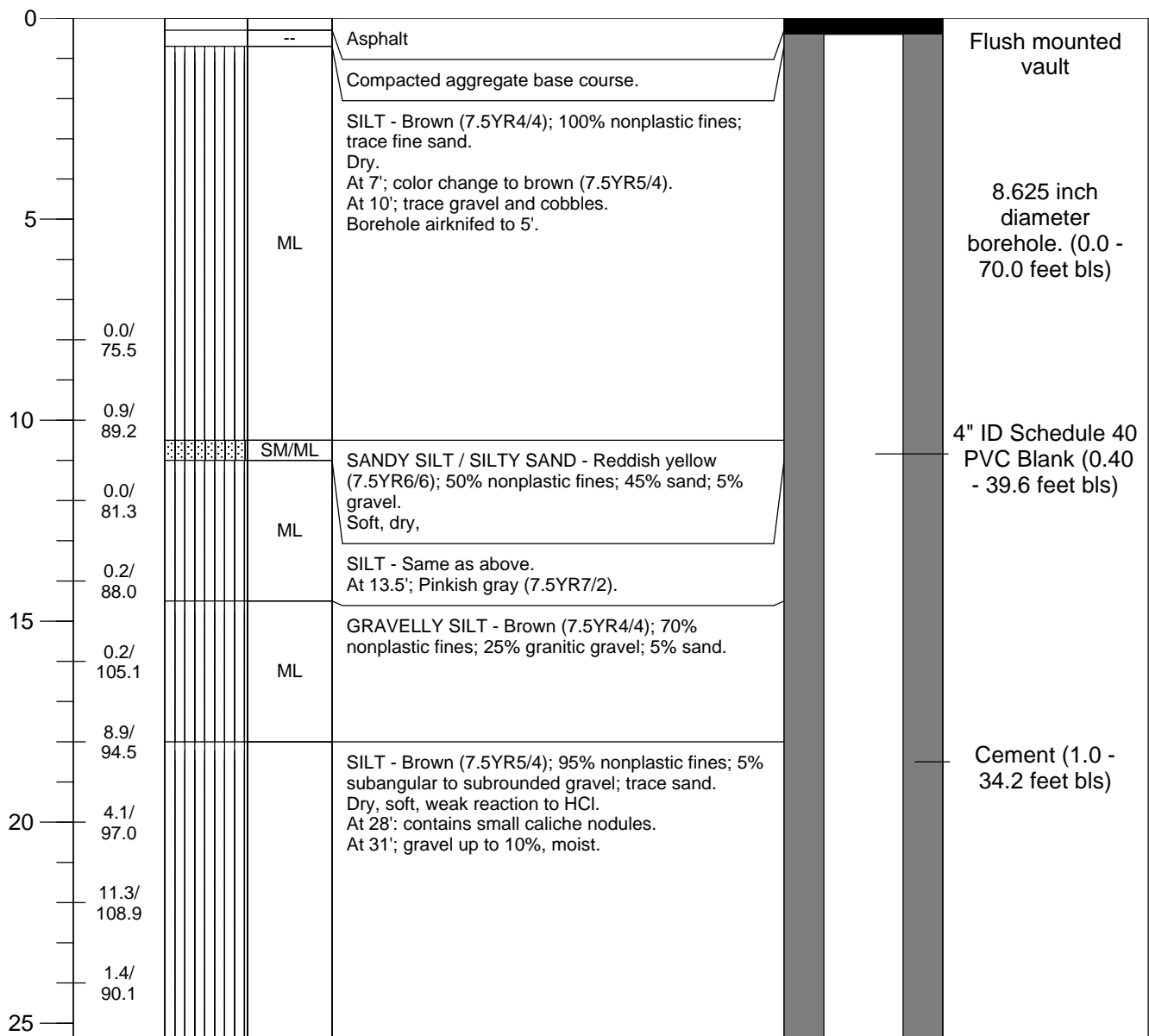
Lithologic and well construction log: KMW-06A

Northing (ft) 907090.34
Easting (ft) 674898.18
LS Elev. (ft) 1201.09
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1200.69
Total Depth bmp (ft) 69.7
Depth to Water (ft) 45
Date 2/02/14

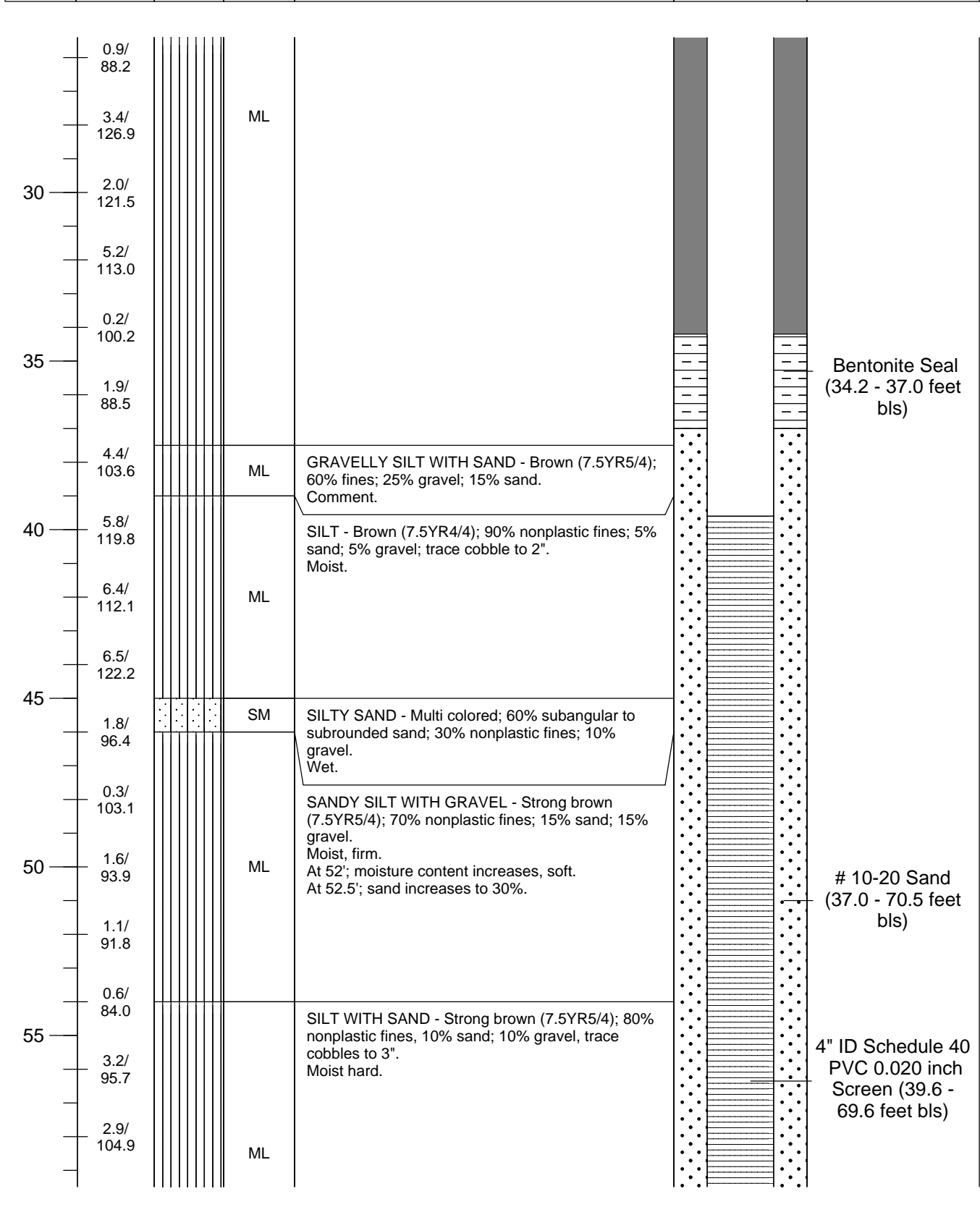
Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916212

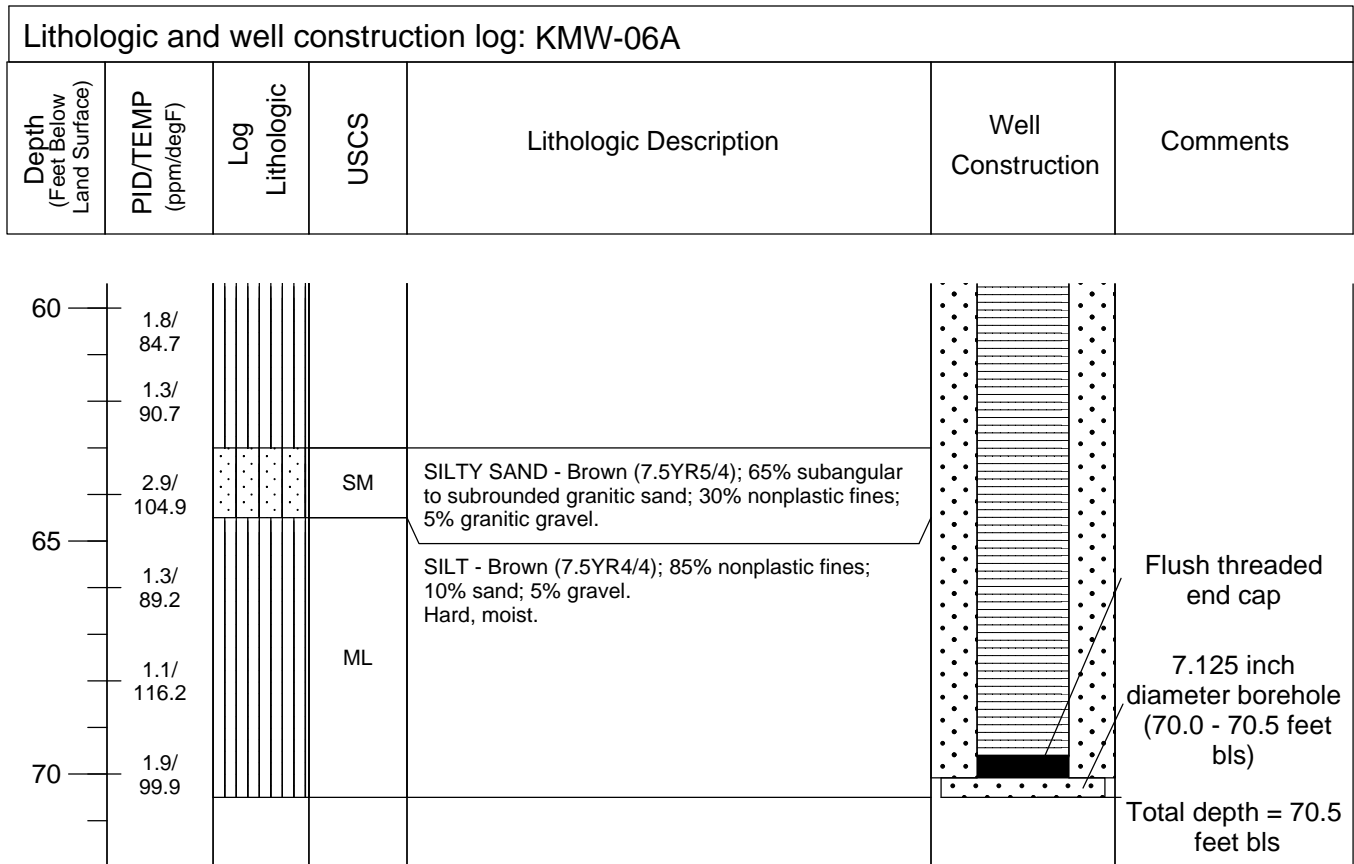


Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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Lithologic and well construction log: KMW-06A						
Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments



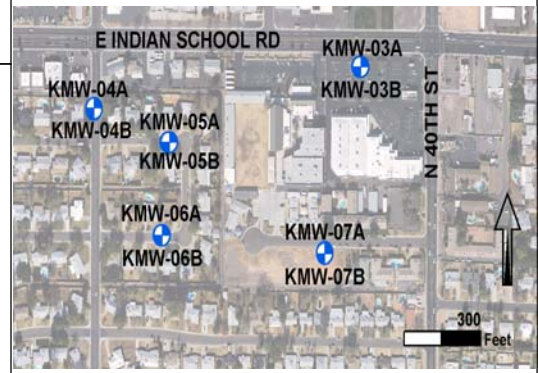


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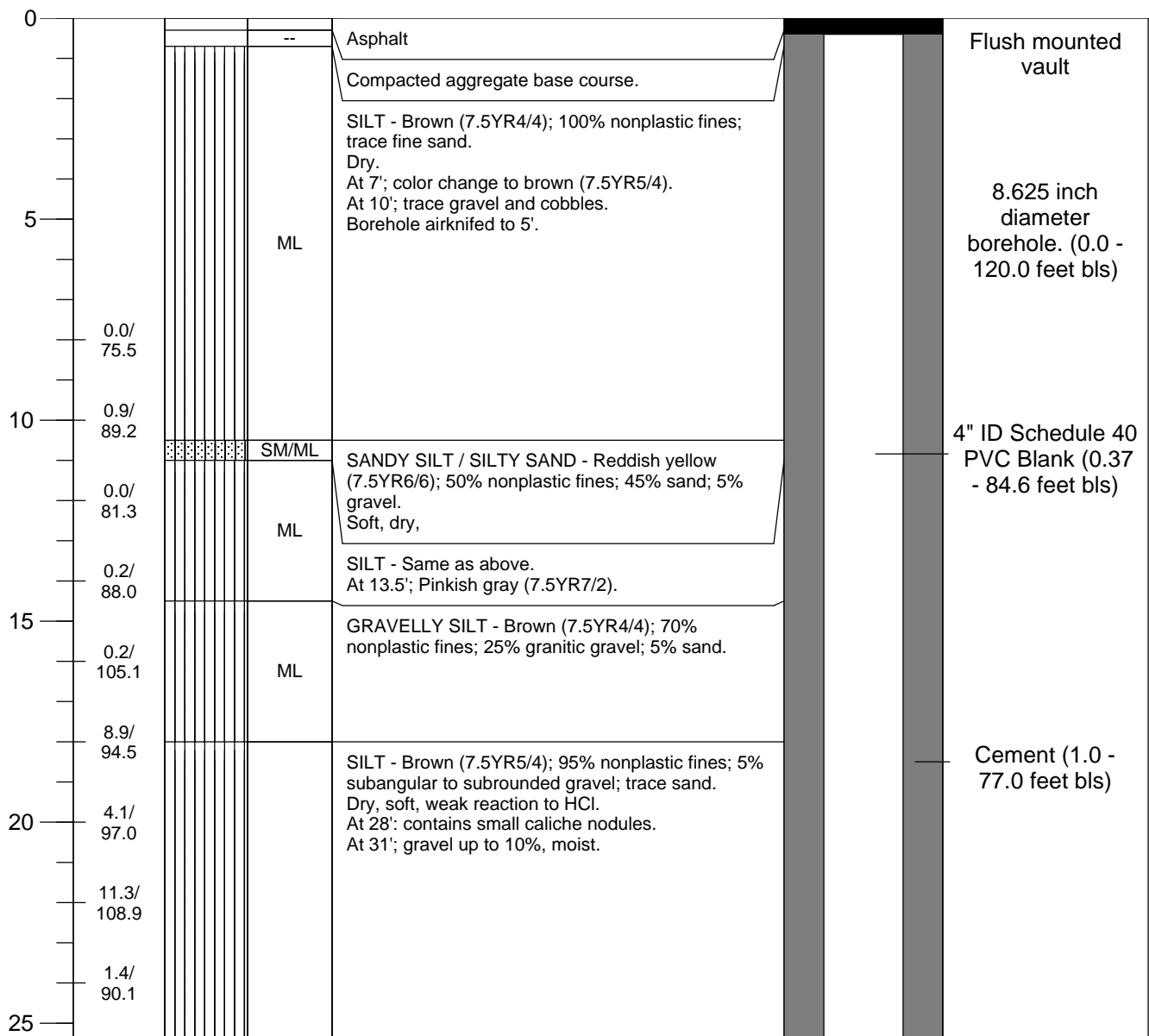
Lithologic and well construction log: KMW-06B

Northing (ft) 907090.54
Easting (ft) 674903.89
LS Elev. (ft) 1201.07
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1200.70
Total Depth bmp (ft) 119.6
Depth to Water (ft) 45
Date 2/01/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916213



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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Lithologic and well construction log: KMW-06B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
0.9/ 88.2						
3.4/ 126.9			ML			
2.0/ 121.5						
5.2/ 113.0						
0.2/ 100.2						
1.9/ 88.5						
4.4/ 103.6			ML	GRAVELLY SILT WITH SAND - Brown (7.5YR5/4); 60% fines; 25% gravel; 15% sand. Comment.		
5.8/ 119.8			ML	SILT - Brown (7.5YR4/4); 90% nonplastic fines; 5% sand; 5% gravel; trace cobble to 2". Moist.		
6.4/ 112.1						
6.5/ 122.2						
1.8/ 96.4			SM	SILTY SAND - Multi colored; 60% subangular to subrounded sand; 30% nonplastic fines; 10% gravel. Wet.		
0.3/ 103.1						
1.6/ 93.9			ML	SANDY SILT WITH GRAVEL - Strong brown (7.5YR5/4); 70% nonplastic fines; 15% sand; 15% gravel. Moist, firm. At 52'; moisture content increases, soft. At 52.5'; sand increases to 30%.		
1.1/ 91.8						
0.6/ 84.0						
3.2/ 95.7				SILT WITH SAND - Strong brown (7.5YR5/4); 80% nonplastic fines, 10% sand; 10% gravel, trace cobbles to 3". Moist hard.		
2.9/ 104.9			ML			



Lithologic and well construction log: KMW-06B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
60	1.8/ 84.7					
	1.3/ 90.7					
	2.9/ 104.9		SM	SILTY SAND - Brown (7.5YR5/4); 65% subangular to subrounded granitic sand; 30% nonplastic fines; 5% granitic gravel.		
65	1.3/ 89.2			SILT - Brown (7.5YR4/4); 85% nonplastic fines; 10% sand; 5% gravel. Hard, moist. At 80'; trace cobbles.		
	1.1/ 116.2					
70	1.9/ 99.9					
	1.5/ 99.5					
	2.5/ 95.2		ML			
75	1.2/ 95.9					
	1.1/ 110.7					
80	1.0/ 93.9					
	1.7/ 94.3					
	3.5/ 102.2		SM	SILTY SAND - 55% subangular to subrounded sand; 35% nonplastic fines; 10% subangular to subrounded gravel. Moist.		
85	2.3/ 88.2			SANDY SILT WITH GRAVEL - Brown (7.5YR4/4); 85% nonplastic fines; 15% sand; trace gravel. Moist, firm.		
	2.3/ 102.6		ML			
90	2.4/ 94.8					
	4.8/ 98.2		SM	SILTY SAND - Brown (7.5YR4/4); 55% subangular to subrounded sand; 40% nonplastic fines; 5% subangular to subrounded gravel. Moist, reaction to HCL on clastics.		

Bentonite Seal
(77.0 - 82.5 feet
bls)

4" ID Schedule 40
PVC 0.020 inch
Screen (84.6 -
119.6 feet bls)

10-20 Sand
(82.5 - 123.0 feet
bls)



Lithologic and well construction log: KMW-06B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
95	0.3/ 88.2		SM/ML	SILT SAND / SANDY SILT - Brown (7.5YR4/4); 50% subangular to subrounded sand; 50% nonplastic fines. Moist. At 95'; Sandy silt stringer.		
	8.5/ 100.8					
	7.7/ 99.0			SILT - Brown (7.5YR4/4); 90% nonplastic fines; 5% sand; 5% gravel. Moist.		
100	4.2/ 109.4		ML			
	8.2/ 123.4					
	28.2/ 126.7					
105	1.0/ 92.1					
	2.7/ 84.4		SM	SILTY SAND - Brown (7.5YR4/4); 50% subangular to subrounded sand; 40% nonplastic fines; 10% subangular to subrounded gravel. Wet, sand content increases with depth.		
110	2.4/ 85.8			SILTY SAND - Reddish brown (5YR4/4); 60% sand; 30% nonplastic fines; 10% gravel.		
	2.2/ 81.7					
	3.1/ 85.6		SM			
115	6.7/ 90.3					
	4.1/ 98.4					
120	1.0/ 102.4			No core recovery.		
	2.1/ 113.7		ML	SILT WITH SAND - Brown (7.5YR4/4); 75% nonplastic fines; 15% sand; 10% gravel. Hard, moist.		
125						

Flush threaded
end cap

7.125 inch
diameter borehole
(120.0 - 125.0
feet bls)

Slough (123.0 -
125.0 feet bls)

Total depth =
125.0 feet bls

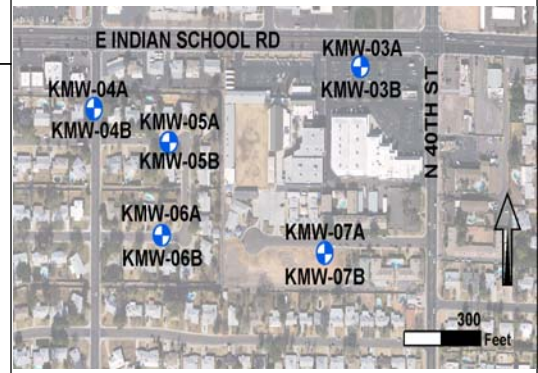


East Central Phoenix Phoenix, AZ

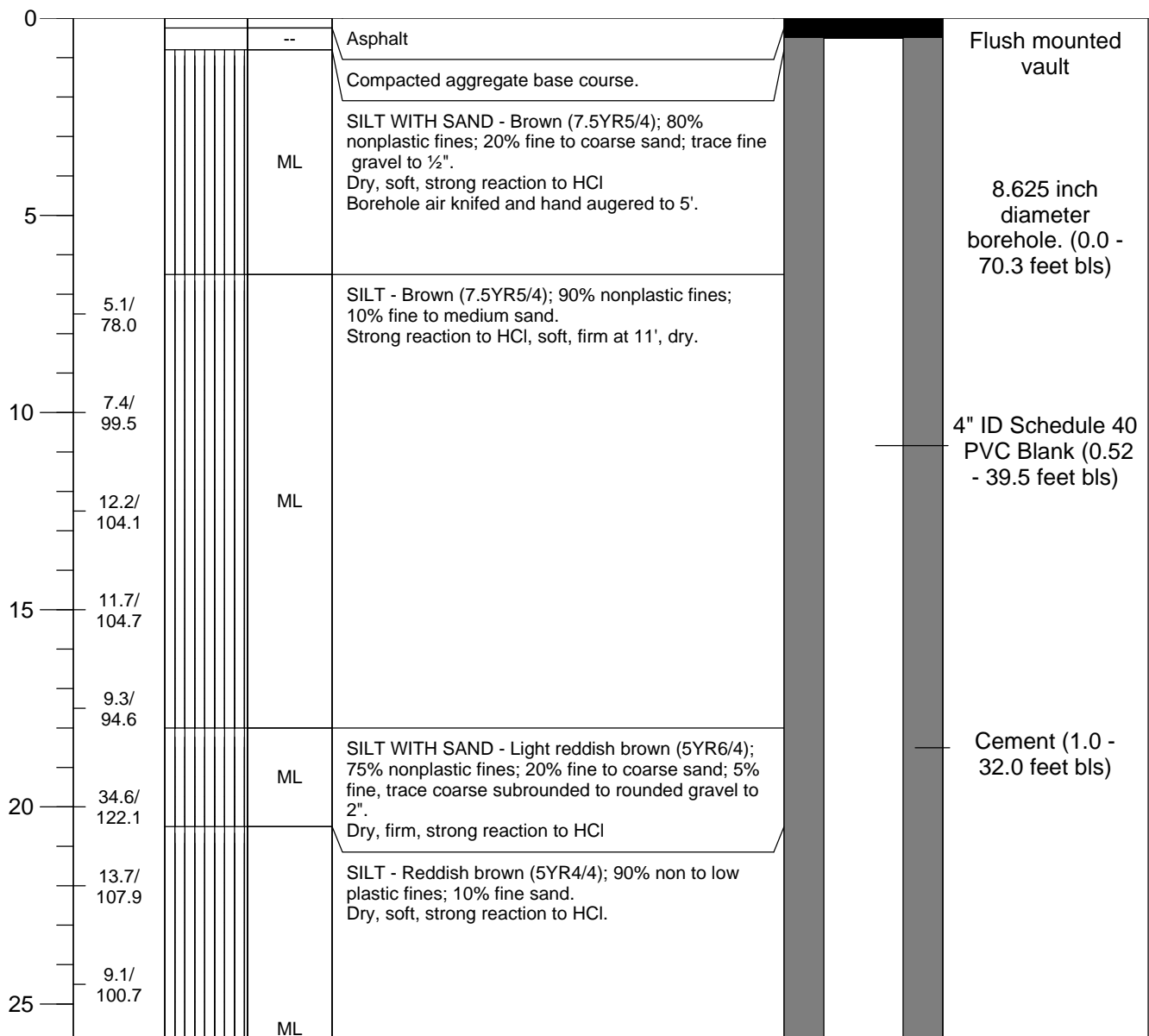
Lithologic and well construction log: KMW-07A

Northing (ft) 907026.19
Easting (ft) 675587.17
LS Elev. (ft) 1200.96
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1200.44
Total Depth bmp (ft) 69.5
Depth to Water (ft) 43
Date 1/29/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916206



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
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Lithologic and well construction log: KMW-07A

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
20.6/ 98.7						
10.6/ 85.6						
30						
11.8/ 87.9						
9.2/ 95.7			ML	SILT - Brown (7.5YR4/4); 95% non to low plastic fines; 5% fine sand. At 31 to 32'; Wet, weak reaction to HCL, low plasticity (ML/CL). At 32 to 33.5'; Moist, soft, moderate reaction to HCL. At 33.5'; Firm.		
35						
11.0/ 88.3						
9.5/ 105.9						
11.2/ 102.3						
40						
5.2/ 86.0			ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine sand; trace fine angular gravel. Dry, soft, weak reaction to HCL except for caliche horizon at 36'. At 39'; Moist. At 45 to 46'; 10% fine rounded gravel, moist.		
9.4/ 84.9						
45						
8.4/ 97.5						
6.9/ 88.1						
50						
4.0/ 91.4			SM	SILTY SAND - Dark Reddish brown (5YR3/4); 50% fine to coarse subrounded to rounded sand; 40% nonplastic fines; 10% fine subrounded gravel. No reaction to HCL, wet, soft.		
3.0/ 86.3			ML/CL			
3.0/ 84.2			SM	CLAYEY SILT - Reddish brown (5YR4/4); 95% low plastic fines; 5% coarse rounded sand. Firm, wet.		
55						
				SILTY SAND - Same as above.		
2.7/ 89.7			ML	SILT - Reddish brown (5YR5/4); 90% nonplastic fines; 10% coarse sand; trace fine subrounded gravel. Firm, moist, no reaction to HCL.		
11.9/ 92.1						
60						

Bentonite Seal
(32.0 - 35.2 feet
bls)

10-20 Sand
(35.2 - 70.3 feet
bls)

4" ID Schedule 40
PVC 0.020 inch
Screen (39.5 -
69.5 feet bls)



Lithologic and well construction log: KMW-07A

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
14.2/ 111.5			ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse subrounded sand; trace fine gravel to 3/8". No reaction to HCl.		
9.4/ 102.5			ML	SANDY SILT - Reddish brown (5YR4/4); 70% nonplastic fines; 30% fine to coarse angular to subrounded sand; trace fine gravel to 1/2".		
4.0/ 89.7			ML	SILT WITH SAND - Same as above. Moist.		
13.3/ 152.9						
65						
70						
						Flush threaded end cap
						Total depth = 70.3 feet bls

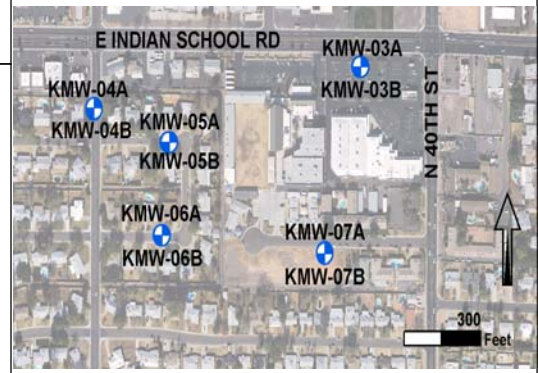


East Central Phoenix Phoenix, AZ

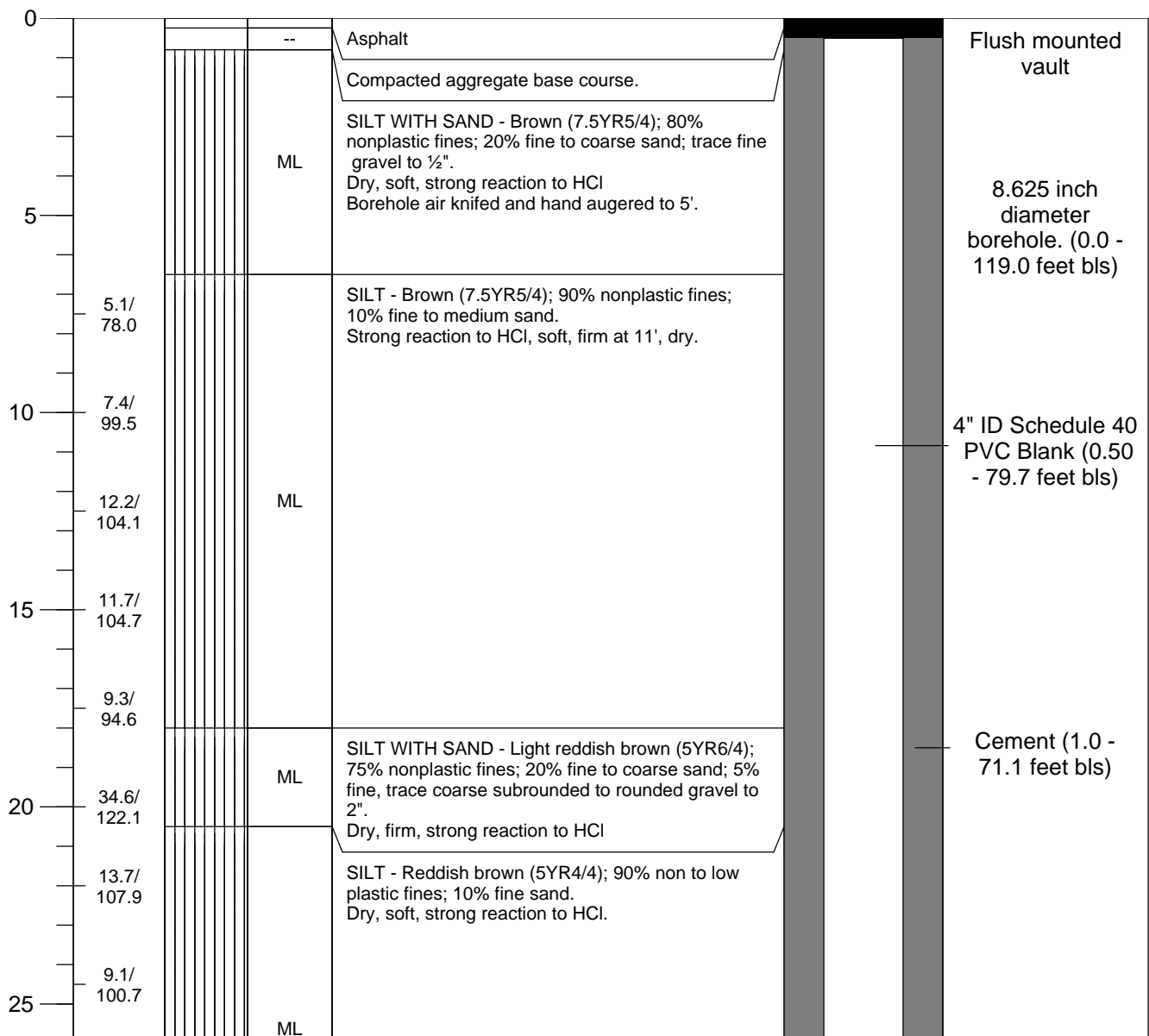
Lithologic and well construction log: KMW-07B

Northing (ft) 907030.40
Easting (ft) 675591.09
LS Elev. (ft) 1200.98
Ref. Pnt. Top of casing
Ref. Pnt. Elev. (ft) 1200.48
Total Depth bmp (ft) 119.7
Depth to Water (ft) 43
Date 1/28/14

Drill Method RotoSonic
Diameter of Casing 4"
Type of Casing PVC
Slot Size 0.020"
Filter #10-20 Sand
ADWR Reg. NO. 55-916207



Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Lithologic Log	USCS	Lithologic Description	Well Construction	Comments
---------------------------------------	------------------------	-------------------	------	------------------------	----------------------	----------



Lithologic and well construction log: KMW-07B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
20.6/ 98.7						
10.6/ 85.6						
30						
11.8/ 87.9						
9.2/ 95.7			ML	SILT - Brown (7.5YR4/4); 95% non to low plastic fines; 5% fine sand. At 31 to 32'; Wet, weak reaction to HCL, low plasticity (ML/CL). At 32 to 33.5'; Moist, soft, moderate reaction to HCl. At 33.5'; Firm.		
35						
11.0/ 88.3						
9.5/ 105.9						
11.2/ 102.3						
40						
5.2/ 86.0			ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine sand; trace fine angular gravel. Dry, soft, weak reaction to HCl except for caliche horizon at 36'. At 39'; Moist. At 45 to 46'; 10% fine rounded gravel, moist.		
9.4/ 84.9						
45						
8.4/ 97.5						
6.9/ 88.1						
50						
4.0/ 91.4			SM	SILTY SAND - Dark Reddish brown (5YR3/4); 50% fine to coarse subrounded to rounded sand; 40% nonplastic fines; 10% fine subrounded gravel. No reaction to HCl, wet, soft.		
3.0/ 86.3			ML/CL			
3.0/ 84.2			SM	CLAYEY SILT - Reddish brown (5YR4/4); 95% low plastic fines; 5% coarse rounded sand. Firm, wet.		
55						
				SILTY SAND - Same as above.		
2.7/ 89.7			ML	SILT - Reddish brown (5YR5/4); 90% nonplastic fines; 10% coarse sand; trace fine subrounded gravel. Firm, moist, no reaction to HCl.		
11.9/ 92.1						
60						



Lithologic and well construction log: KMW-07B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
14.2/ 111.5			ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse subrounded sand; trace fine gravel to 3/8". No reaction to HCl.		
9.4/ 102.5			ML	SANDY SILT - Reddish brown (5YR4/4); 70% nonplastic fines; 30% fine to coarse angular to subrounded sand; trace fine gravel to 1/2".		
4.0/ 89.7			ML	SILT WITH SAND - Same as above. Moist.		
13.3/ 152.9			ML			
32.4/ 153.3			ML	SILT - Reddish brown (5YR4/4); 95% nonplastic fines; 5% fine sand; trace coarse subrounded gravel. Weak reaction to HCl, moist.		
10.8/ 113.5			ML	SILT WITH SAND - Same as above with 5% fine, trace coarse angular to subrounded gravel.		
9.2/ 100.5			SM	SILTY SAND - Reddish brown to dark reddish brown (5YR4/4 to 5YR3/4); 50% fine to coarse angular to subrounded sand; 40% nonplastic fines; 10% fine to coarse subrounded to rounded gravel. Wet, no reaction to HCl.		
3.6/ 93.7			ML	SILT - Same as above.		
5.9/ 100.0			ML	SILT WITH SAND - Same as above		
5.8/ 86.7			SM	SILTY SAND - Reddish brown to dark reddish brown (5YR4/4 to 5YR3/4); 50% fine to coarse angular to subrounded sand; 40% nonplastic fines; 10% fine to coarse subrounded to rounded gravel. Wet, no reaction to HCl.		
8.3/ 94.2			ML	SILT WITH SAND - Reddish brown (5YR4/4); 85% nonplastic fines; 15% fine to coarse angular to subrounded sand; trace fine angular gravel to 3/8". Moist to wet.		
1.3/ 82.5			ML	SILT - Reddish brown (5YR4/4); 90% nonplastic fines; 10% fine to coarse angular to subrounded sand.		
2.5/ 83.8						
2.6/ 85.6						

Bentonite Seal
(71.1 - 76.3 feet
bls)

4" ID Schedule 40
PVC 0.020 inch
Screen (79.7 -
119.7 feet bls)

10-20 Sand
(76.3 - 121.1 feet
bls)



Lithologic and well construction log: KMW-07B

Depth (Feet Below Land Surface)	PID/TEMP (ppm/degF)	Log Lithologic	USCS	Lithologic Description	Well Construction	Comments
5.6/ 85.2						
0.9/ 108.1			ML	SILT WITH SAND - 85% nonplastic fines; 15% fine to coarse angular to subrounded sand; trace coarse rounded gravel to 1¾". Moist to wet.		
100			SM	SILTY SAND - Same as above.		
2.7/ 90.8			ML	SILT WITH SAND - Same as above.		
1.7/ 80.0			SM/ML	SILTY SAND / SANDY SILT - Reddish brown (5YR4/4); 50% fine to coarse subrounded sand; 50% nonplastic fines. No reaction to HCl, wet, firm, contains siltstone clasts to 3½".		
1.5/ 78.2						
3.7/ 81.8			ML	SANDY SILT - Reddish brown (5YR4/4); 70% nonplastic fines; 30% fine to coarse subangular to subrounded sand. No reaction to HCl, wet.		
110			SM	SILTY SAND WITH GRAVEL - 45% fine to coarse subangular to subrounded sand; 35% nonplastic fines; 20% fine, trace coarse angular gravel.		
3.1/ 92.1						
2.0/ 86.1						
115				SANDY SILT - Reddish brown (5YR4/4); 65% nonplastic fines; 30% fine to coarse subangular sand; 5% fine subangular gravel. No reaction to HCl, wet, firm, visible clay tabs.		
4.2/ 82.9						
10.6/ --			ML			
120						
15.6/ 114.4						
16.0/ 91.2						
125						

Flush threaded
end cap

7.125 inch
diameter borehole
(119.0 - 124.3
feet bls)

Bentonite Seal
(121.1 - 124.3 feet
bls)

Total depth =
124.3 feet bls



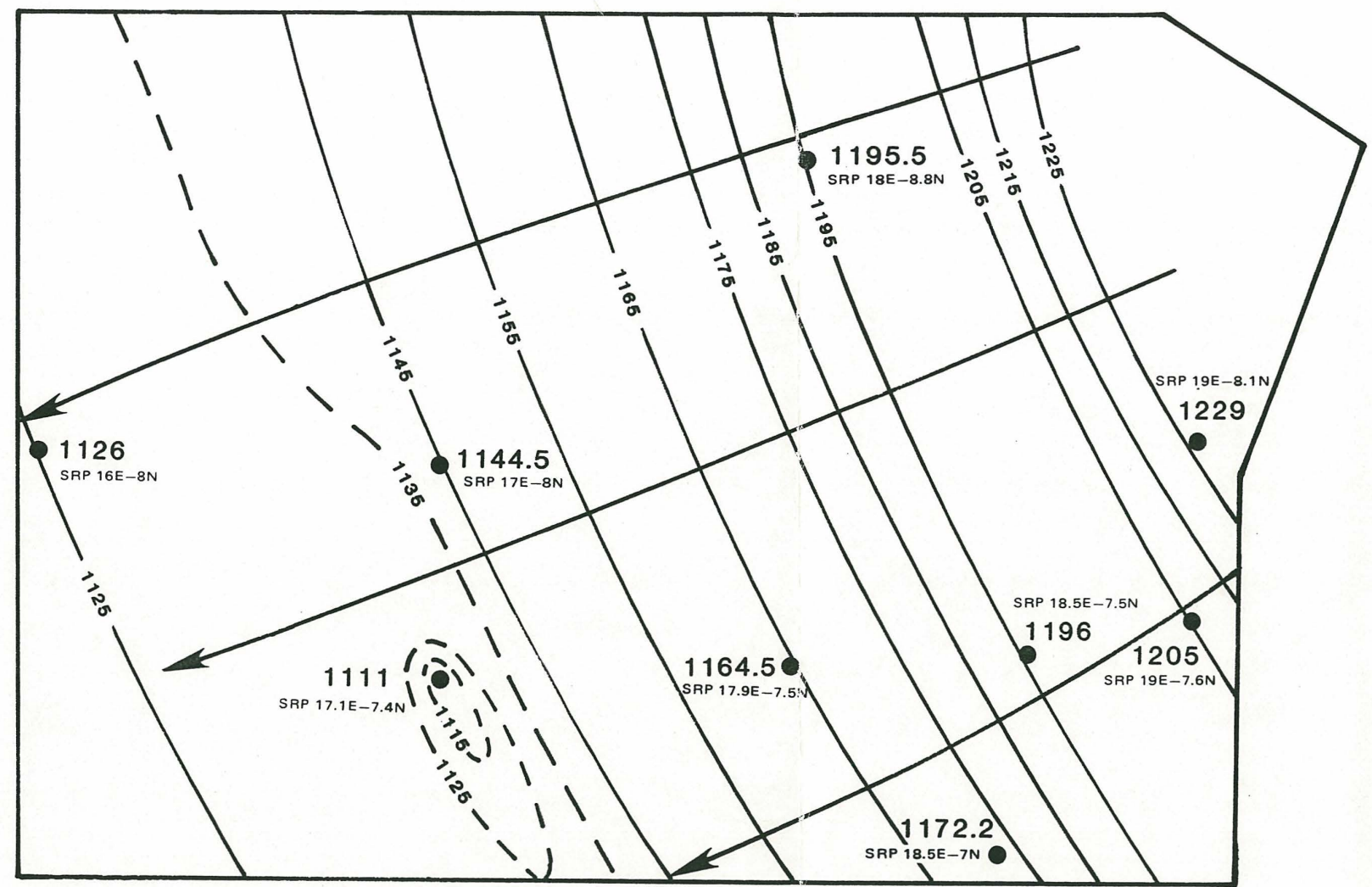
APPENDIX D
HISTORICAL WATER LEVEL CONTOUR MAPS

APPENDIX D
HISTORICAL WATER LEVEL CONTOUR MAPS

TABLE OF CONTENTS

Figure

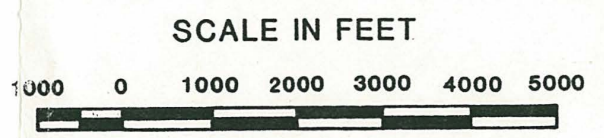
3-3	GROUNDWATER CONTOURS, WINTER 1988 (Earth Technology)
2-1	GROUNDWATER CONTOURS, WINTER 1990-1991 (Earth Technology)
3-1	AUGUST 1992 POTENTIOMETRIC MAP FOR EAST CENTRAL PHOENIX (Earth Technology)
2-1	GENERALIZED GROUNDWATER ELEVATION CONTOUR MAP, DECEMBER 12-16, 1994 (Earth Technology)
3	GROUNDWATER GRADIENT, March 1998 (Fluor Daniel, GTI)
	FORMER DRY CLEANERS LOCATION MAP, January 2009 (Stantec)
1	GROUNDWATER CONDITIONS MAP, 09/27/04 & 10/12/04 (Secor)
1	GROUNDWATER CONDITIONS MAP, 03/08/05 & 03/22/05 (Secor)
1	GROUNDWATER CONDITIONS MAP, 10/06/05 (Secor)
1	GROUNDWATER CONDITIONS MAP, MARCH 14 & 15, 2006 (Secor)
1	GROUNDWATER CONDITIONS MAP, OCTOBER 27, 2006 (Secor)
3	GROUNDWATER ELEVATION MAP, OCTOBER 27, 2006 (Secor)
1	GROUNDWATER ELEVATION MAP, FEBRUARY 26, 2007 (Secor)
1	GROUNDWATER ELEVATION MAP, SEPTEMBER 26, 2007 (Stantec)



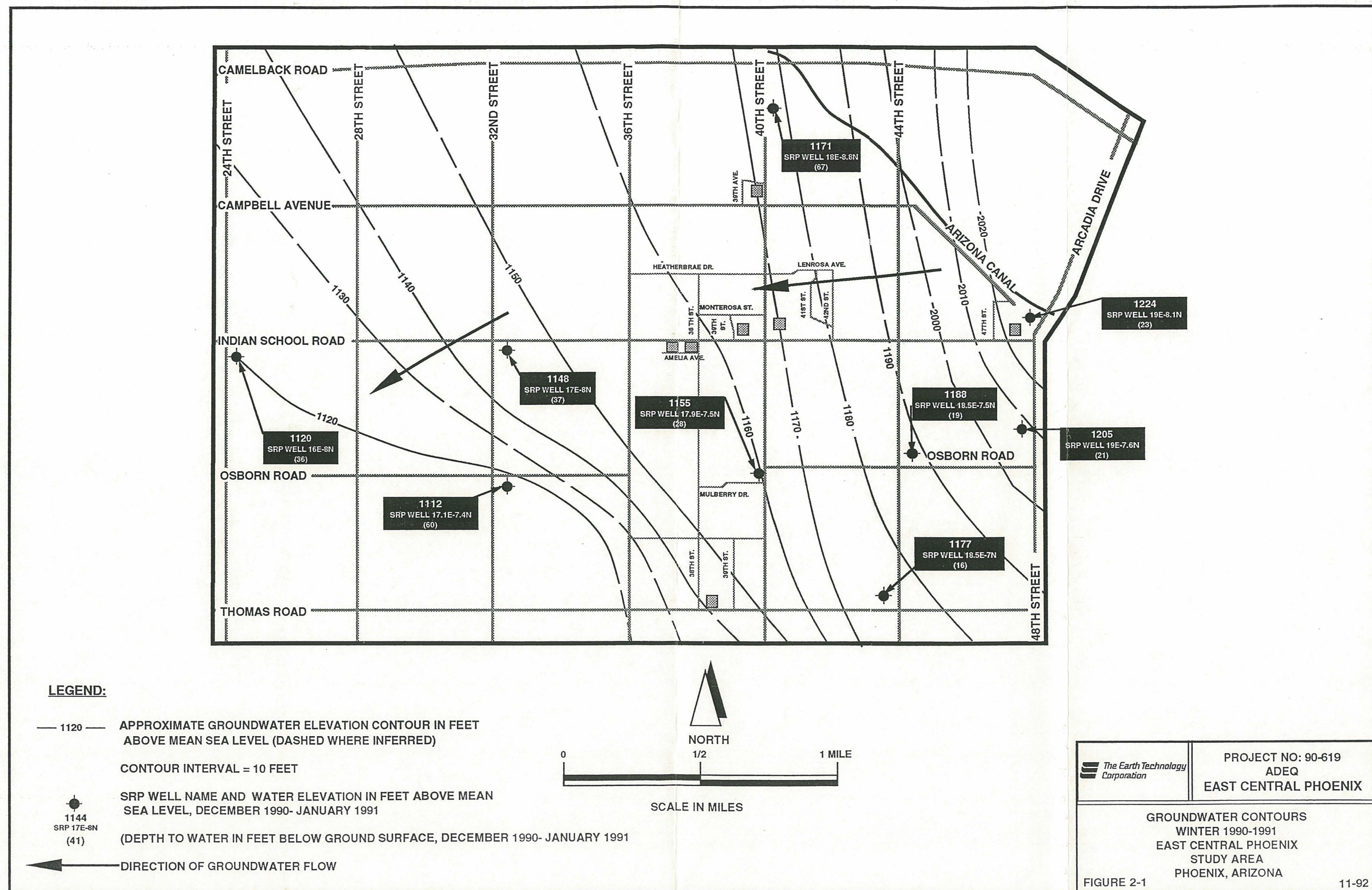
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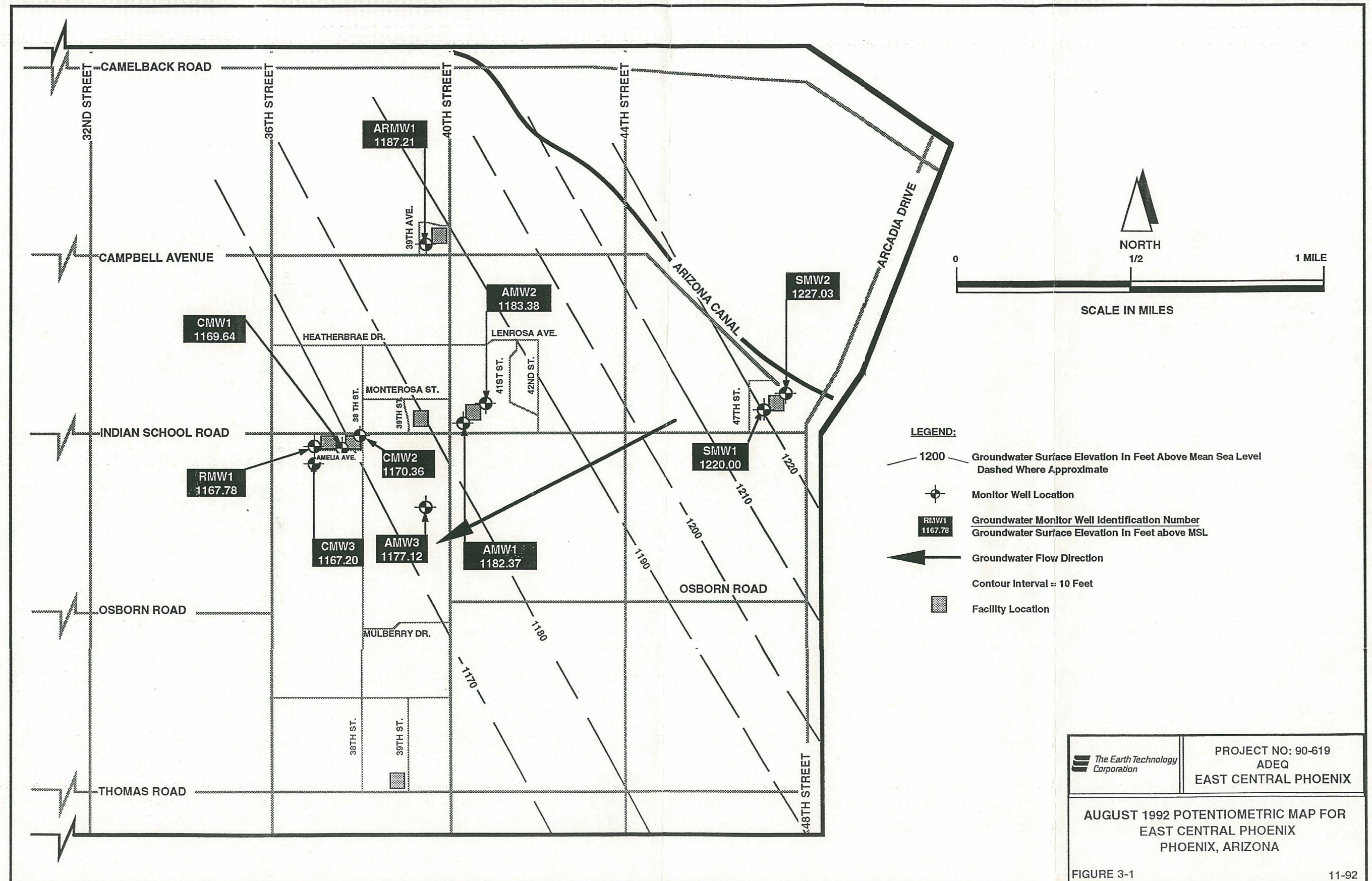
- Groundwater Elevation Contour in Feet Above Sea Level
- Dashed Where Inferred
- SRP Well Name and Water Elevation
- Direction of Groundwater Flow

Source: SRP, 1988



	Project No: 88-884
	W Q A R F
East Central Phoenix	
GROUNDWATER CONTOURS	
WINTER 1988	
EAST CENTRAL PHOENIX	
Figure 3-3	10-88



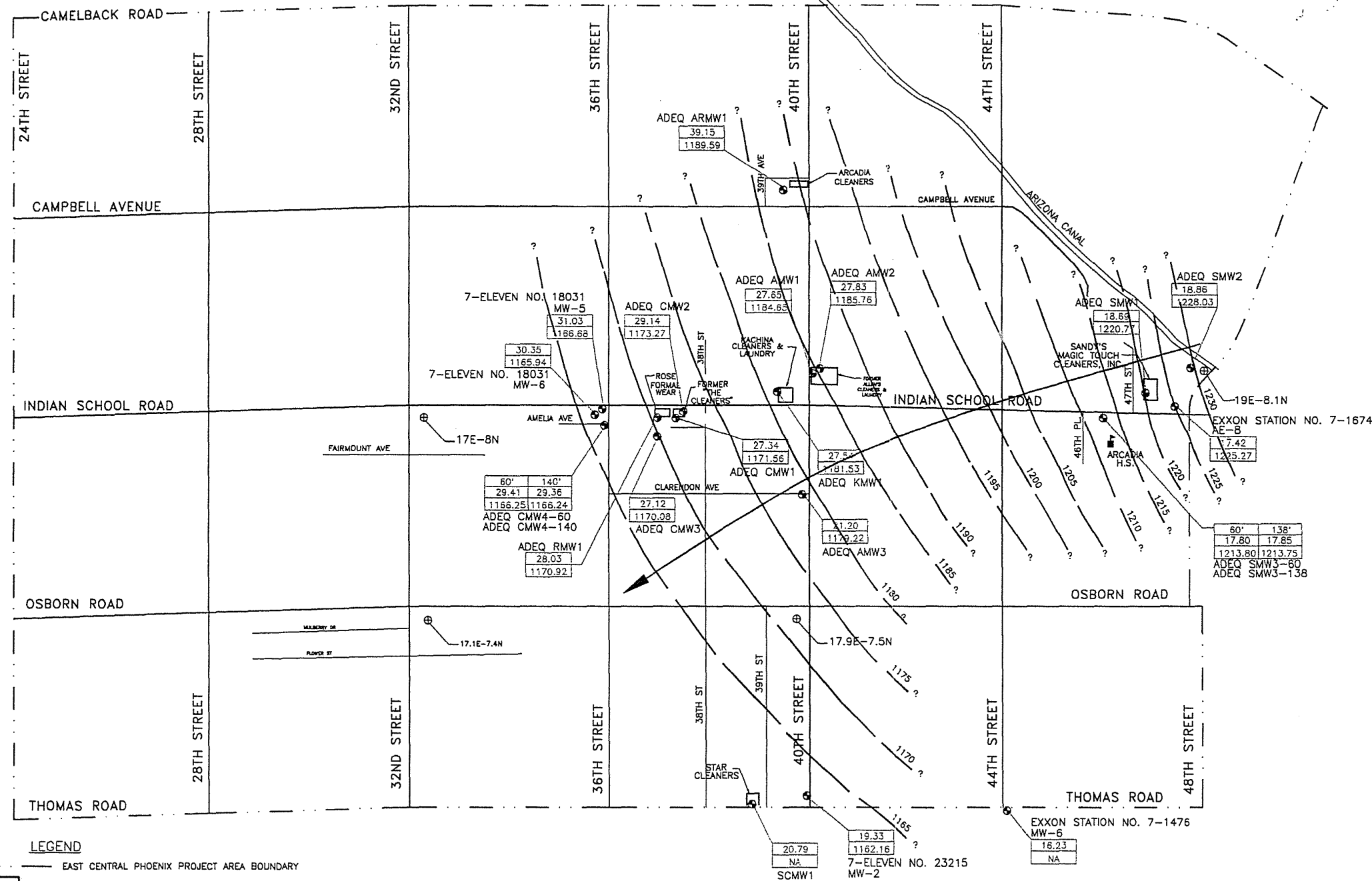


Plot Scale: 1"=1600'

File Name: C:\ET\956121\0108\GWDEC94.DWG

Drawn By: TJT

Last Date Revised: 3-20-95



LEGEND

- EAST CENTRAL PHOENIX PROJECT AREA BOUNDARY
- APPROXIMATE BOUNDARY OF FACILITY UNDER INVESTIGATION THROUGH WQRF
- EAST CENTRAL PHOENIX WQRF MONITOR WELL LOCATION AND IDENTIFICATION
- OTHER MONITOR WELL LOCATION AND IDENTIFICATION
- EXXON CO. USA MW-6
- SALT RIVER PROJECT (SRP) WELL AND IDENTIFICATION
- GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL) DASHED WHERE INFERRED, QUERIED WHERE UNCERTAIN

APPROXIMATE GROUNDWATER FLOW DIRECTION

20.79
1162.16

DEPTH TO GROUNDWATER (FEET BELOW TOP OF CASING)
GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
NA = TOP OF CASING ELEVATION NOT SURVEYED,
NO GROUNDWATER ELEVATION AVAILABLE

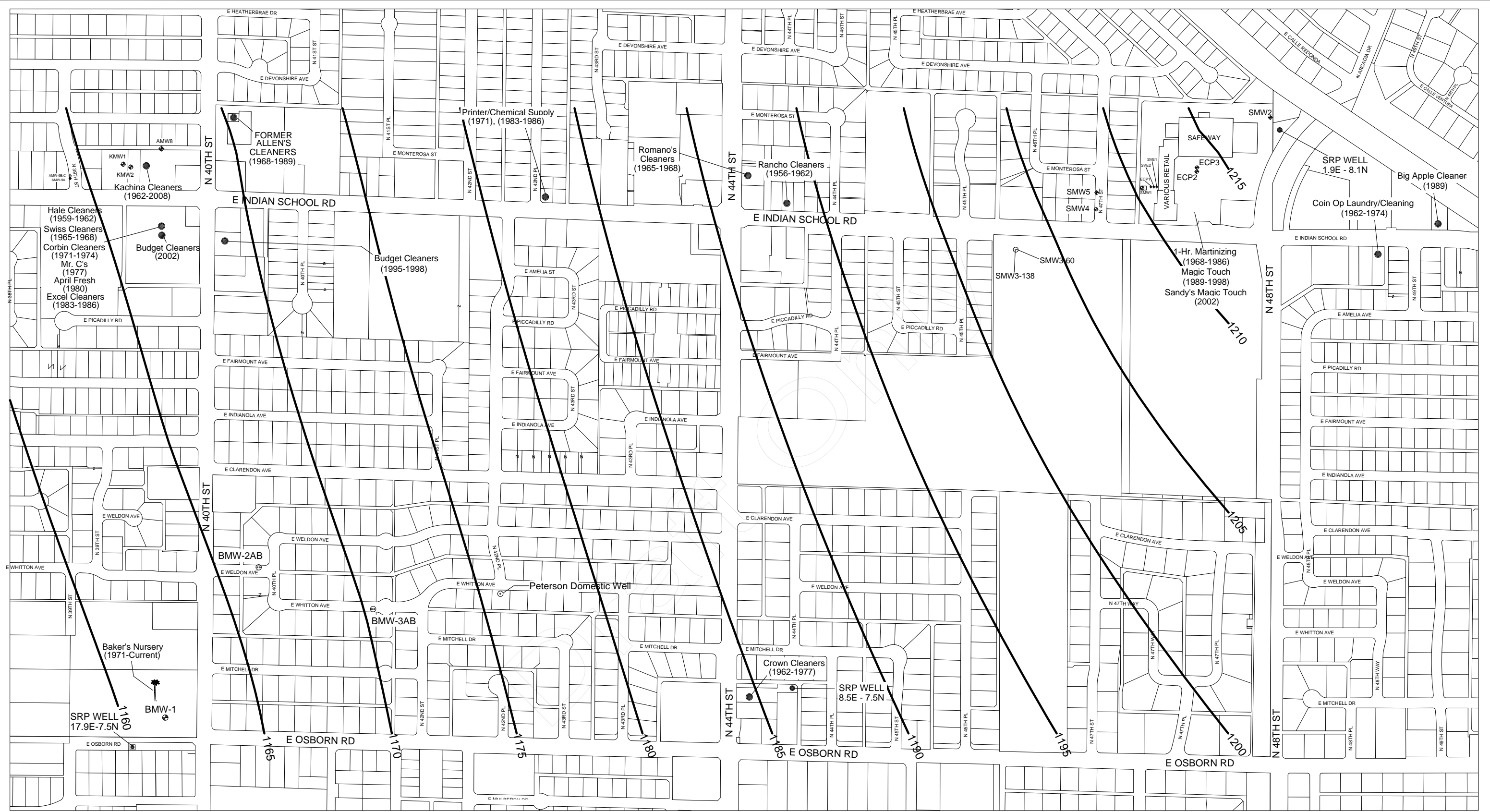
EARTH TECH

PROJECT NO. 95-6121
ADEQ
TA-95-ET-50


GENERALIZED GROUNDWATER ELEVATION
CONTOUR MAP, DECEMBER 12-16, 1994
EAST CENTRAL PHOENIX WQRF PROJECT AREA

3/95

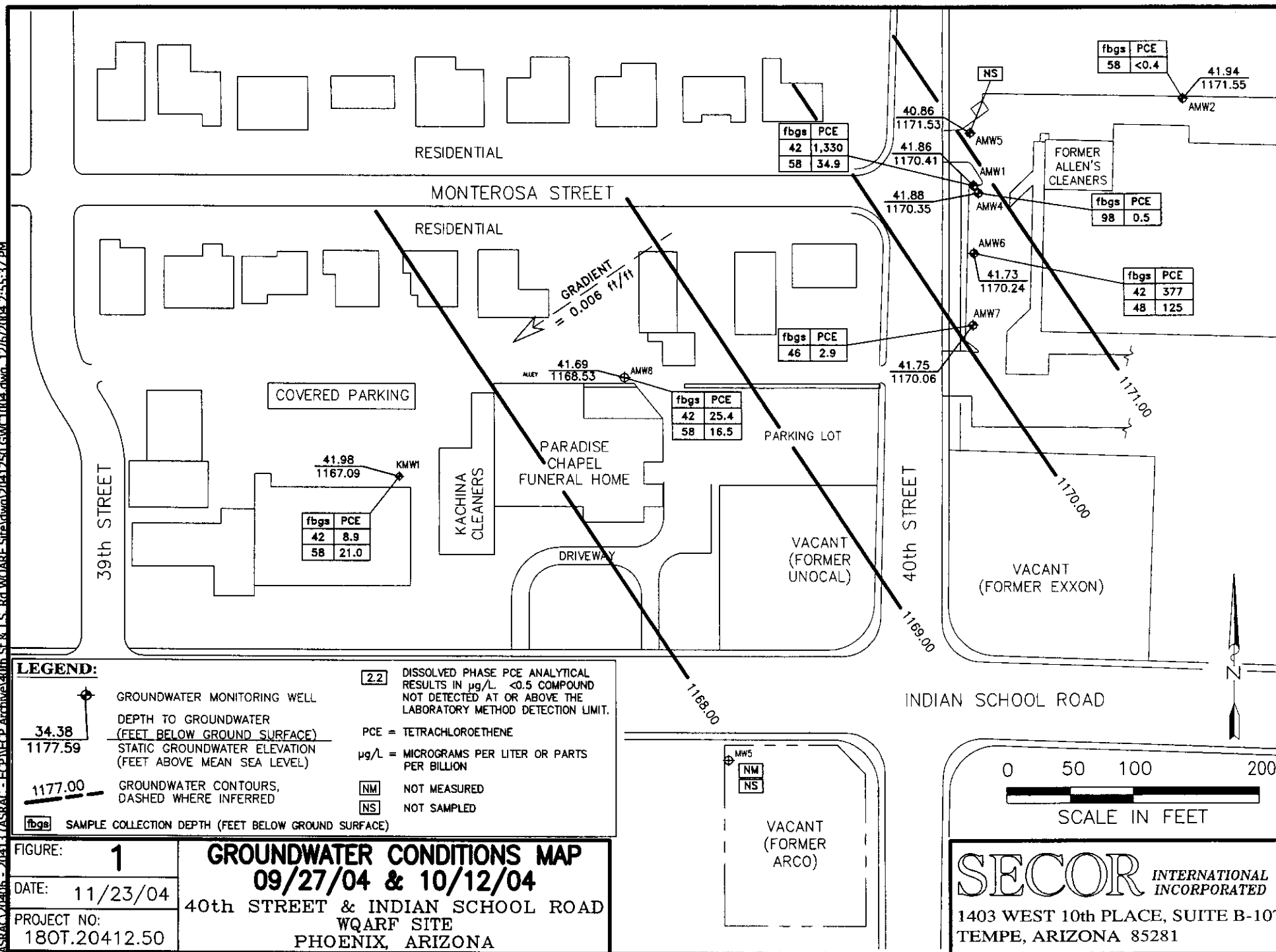
FIGURE 2-1



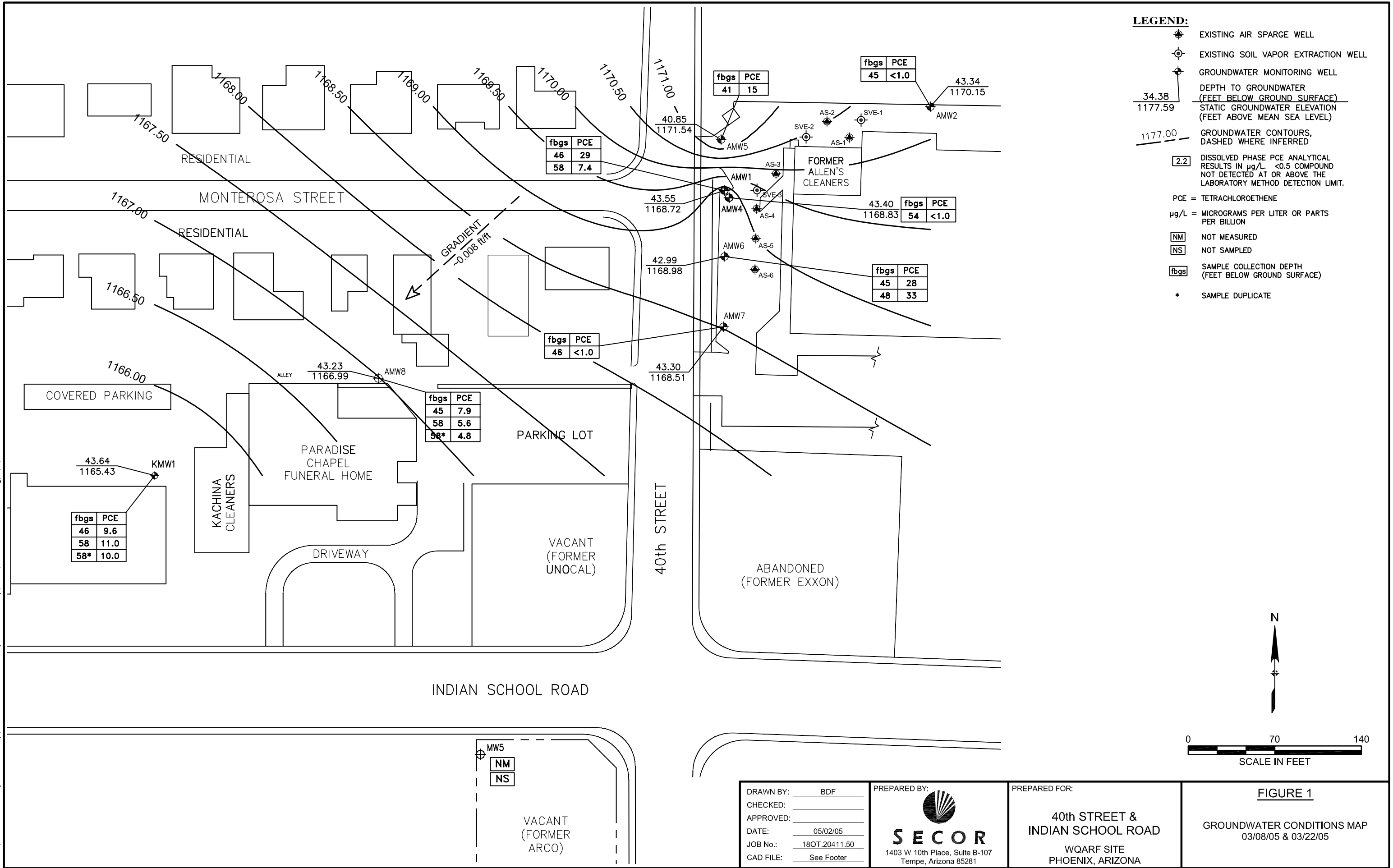
DRAFT ONLY

 8211 South 48th Street Phoenix, AZ PHONE: (602) 438-2200 FAX: (602) 431-9562		FOR: ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY EAST CENTRAL PHOENIX WQARF		FIGURE: FORMER DRY CLEANERS LOCATION MAP	
JOB NUMBER: 18OT.20421.09	DRAWN BY: CG	CHECKED BY: TK	APPROVED BY: TK	DATE: 01/27/09	

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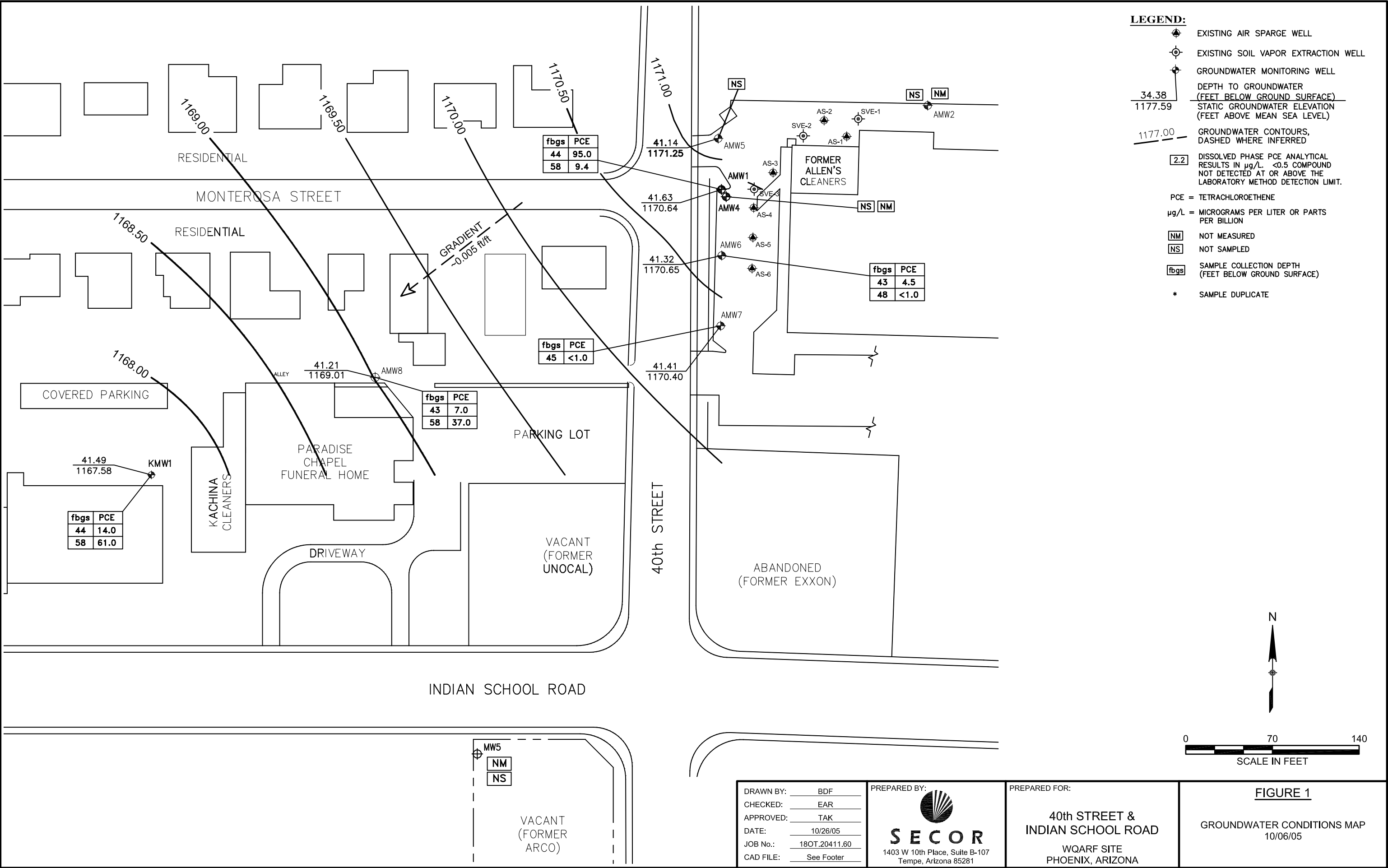


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CHECKED: _____
APPROVED: _____
DATE: 05/02/05
JOB No.: 180T.20411.50
CAD FILE: See Footer

PREPARED BY:
SECOR
1403 W 10th Place, Suite B-107
Tempe, Arizona 85281

PREPARED FOR:
**40th STREET &
INDIAN SCHOOL ROAD**
WQARF SITE
PHOENIX, ARIZONA

FIGURE 1
GROUNDWATER CONDITIONS MAP
03/08/05 & 03/22/05

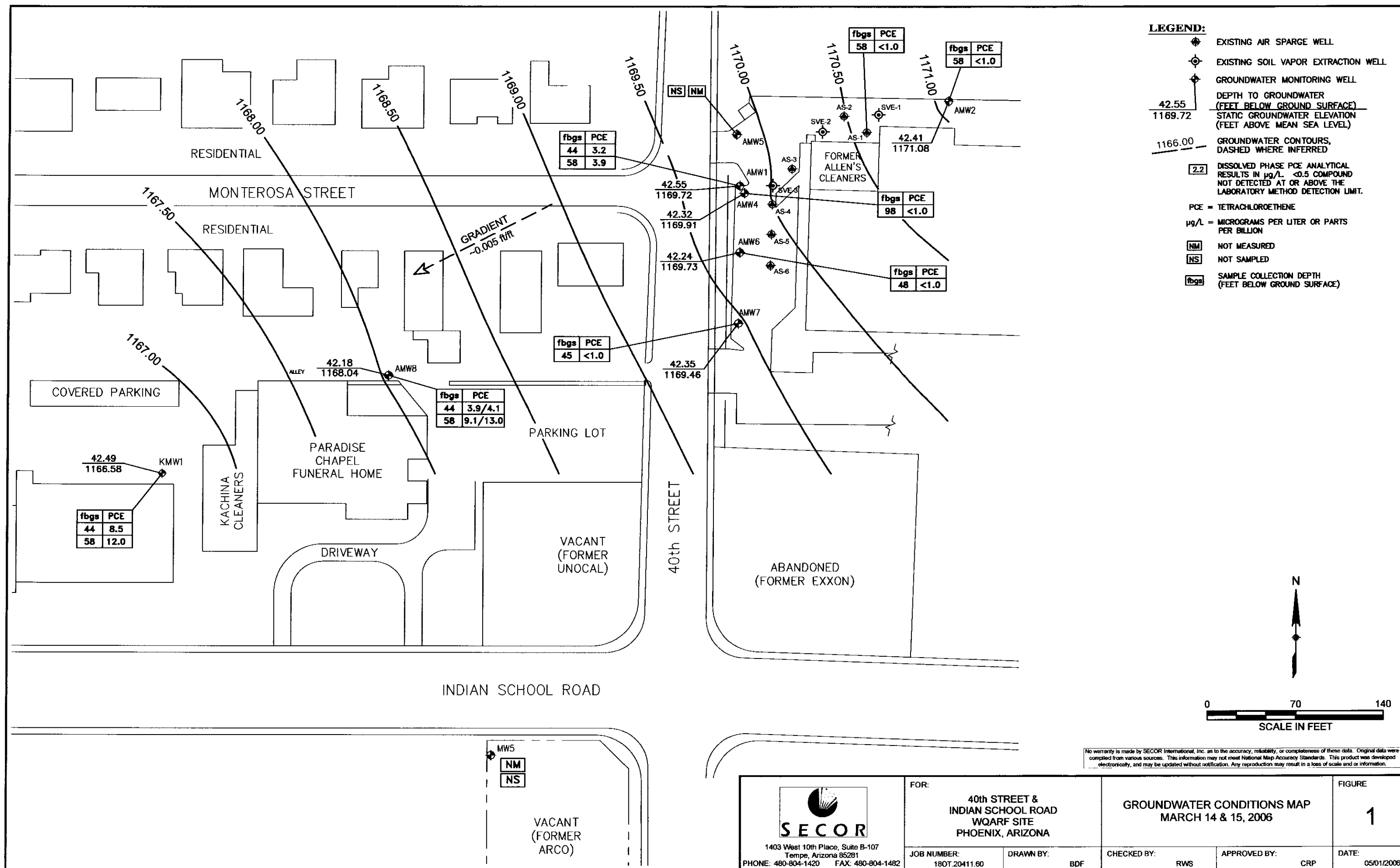


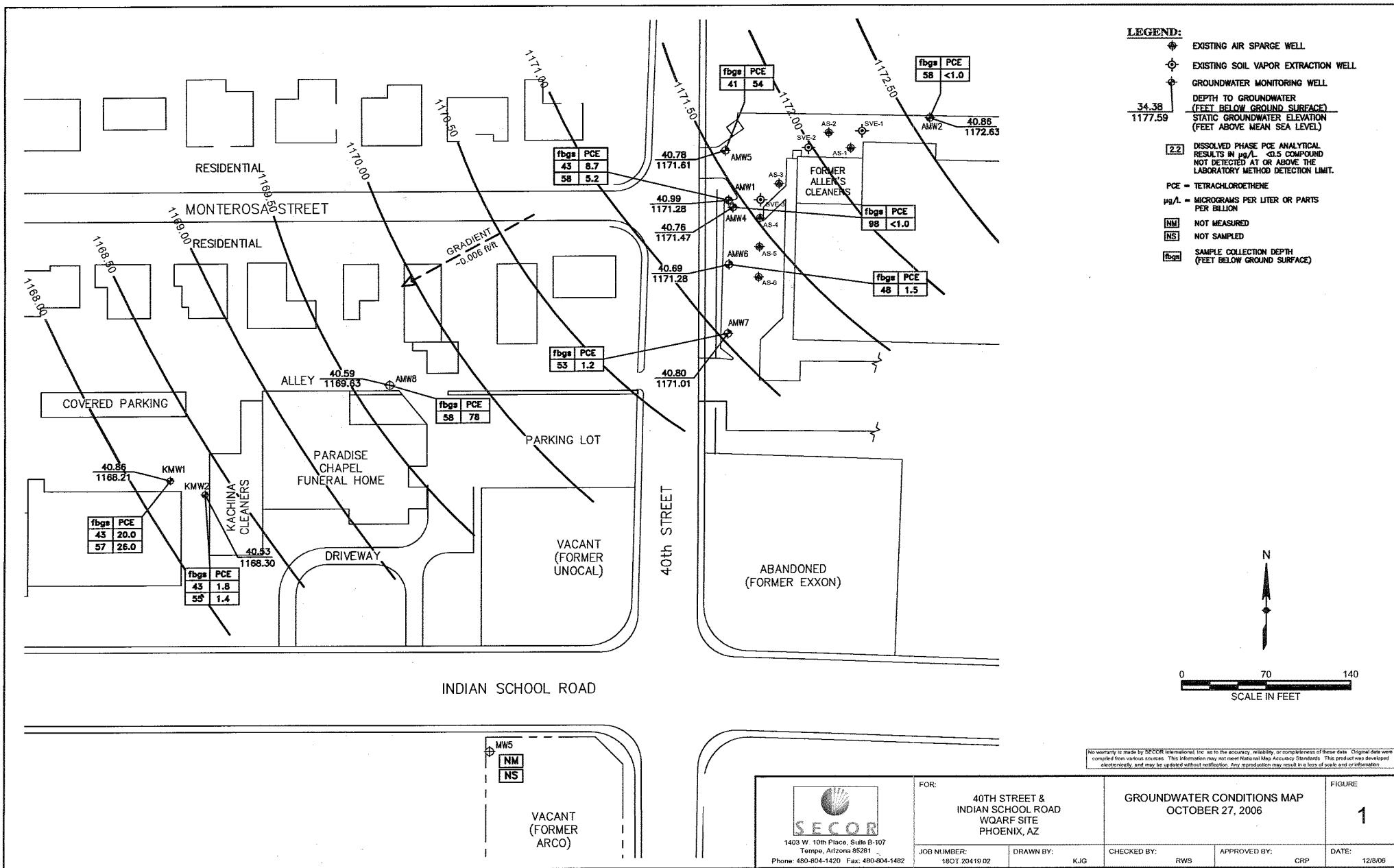
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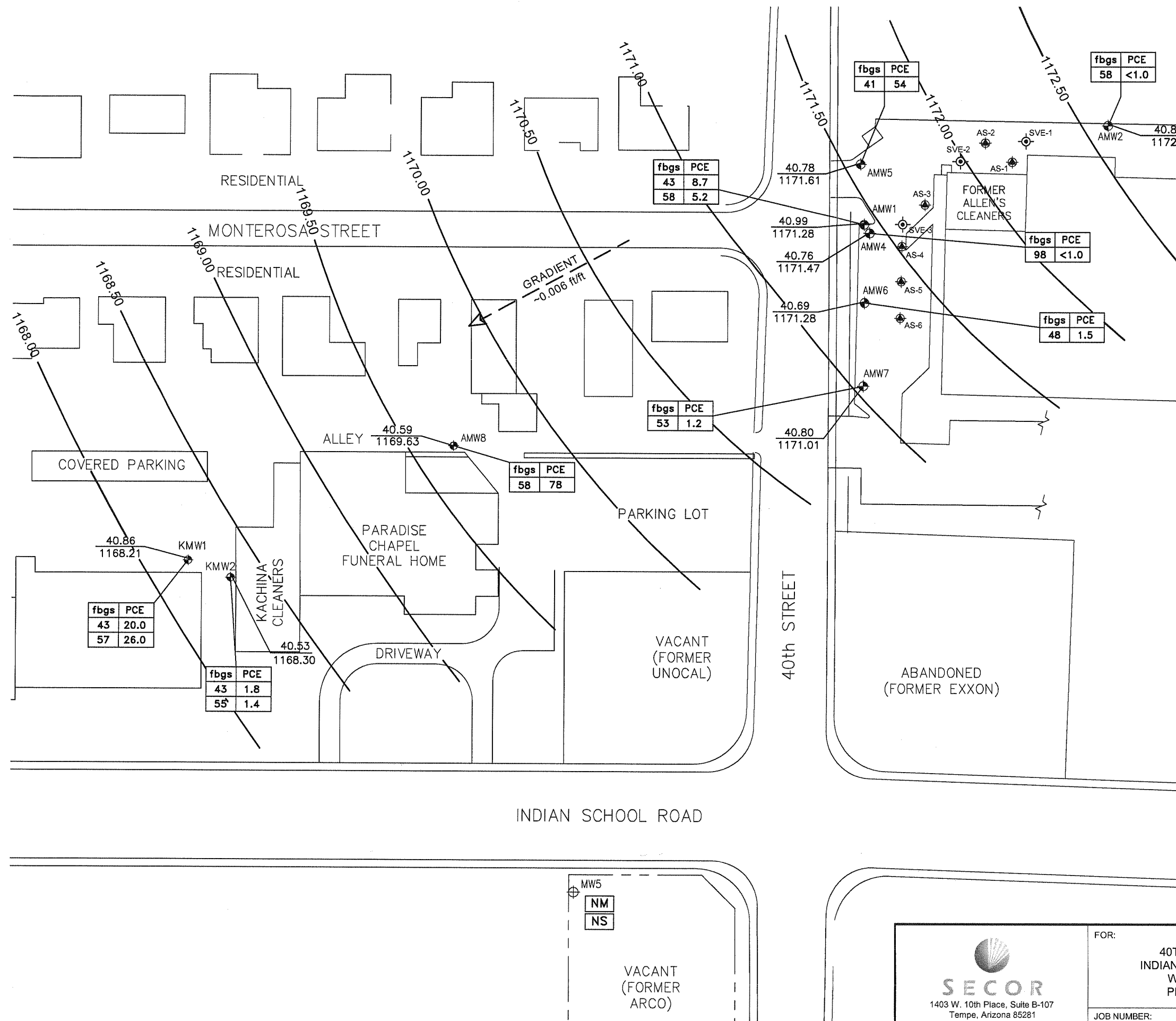
PREPARED BY:
SECOR
1403 W 10th Place, Suite B-107
Tempe, Arizona 85281

PREPARED FOR:
**40th STREET &
INDIAN SCHOOL ROAD**
WQARF SITE
PHOENIX, ARIZONA

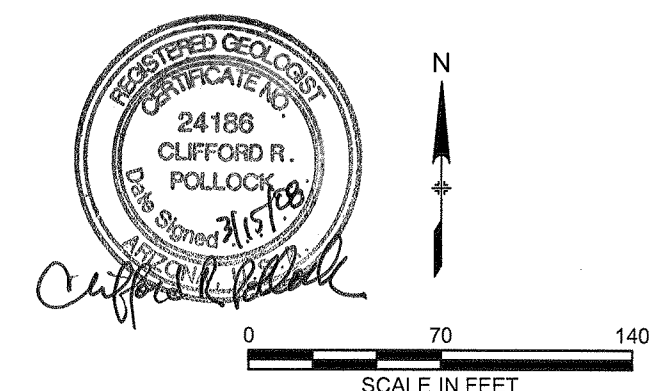
FIGURE 1
GROUNDWATER CONDITIONS MAP
10/06/05






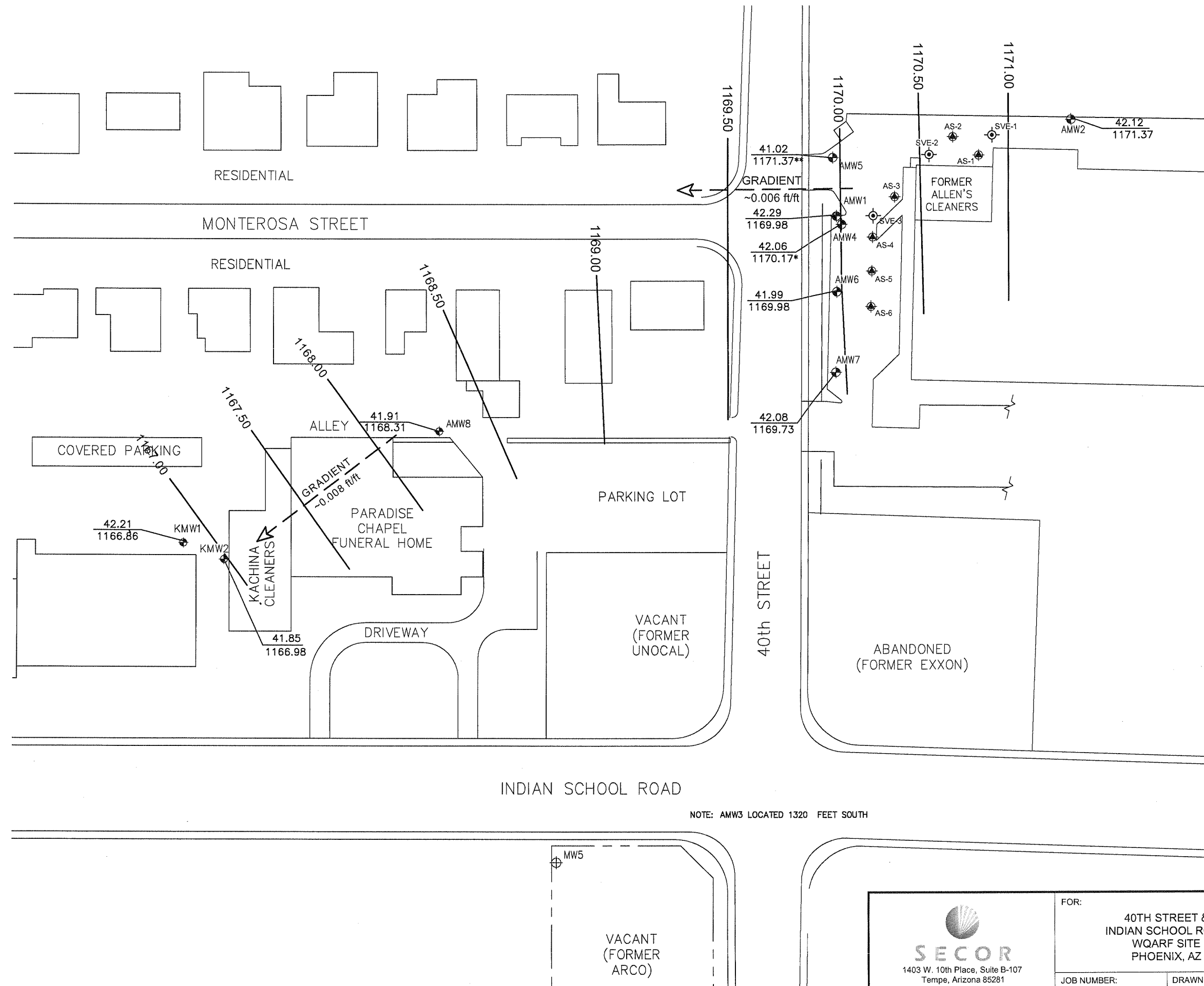


- LEGEND:**
- EXISTING AIR SPARGE WELL
 - EXISTING SOIL VAPOR EXTRACTION WELL
 - GROUNDWATER MONITORING WELL
 - DEPTH TO GROUNDWATER (FEET BELOW GROUND SURFACE)
 - STATIC GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
 - DISSOLVED PHASE PCE ANALYTICAL RESULTS IN $\mu\text{g/L}$ <0.5 COMPOUND NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT.
 - PCE = TETRACHLOROETHENE
 - $\mu\text{g/L}$ = MICROGRAMS PER LITER OR PARTS PER BILLION
 - NM NOT MEASURED
 - NS NOT SAMPLED
 - fbgs SAMPLE COLLECTION DEPTH (FEET BELOW GROUND SURFACE)

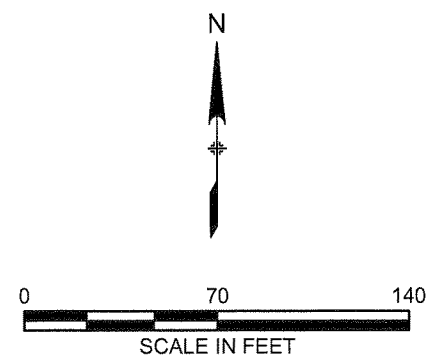


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 1403 W. 10th Place, Suite B-107 Tempe, Arizona 85281 Phone: 480-804-1420 Fax: 480-804-1482	FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, AZ		GROUNDWATER ELEVATION MAP OCTOBER 27, 2006		FIGURE 3
	JOB NUMBER: 18OT.20419.02	DRAWN BY: KJG	CHECKED BY: RWS	APPROVED BY: CRP	DATE: 12/8/06



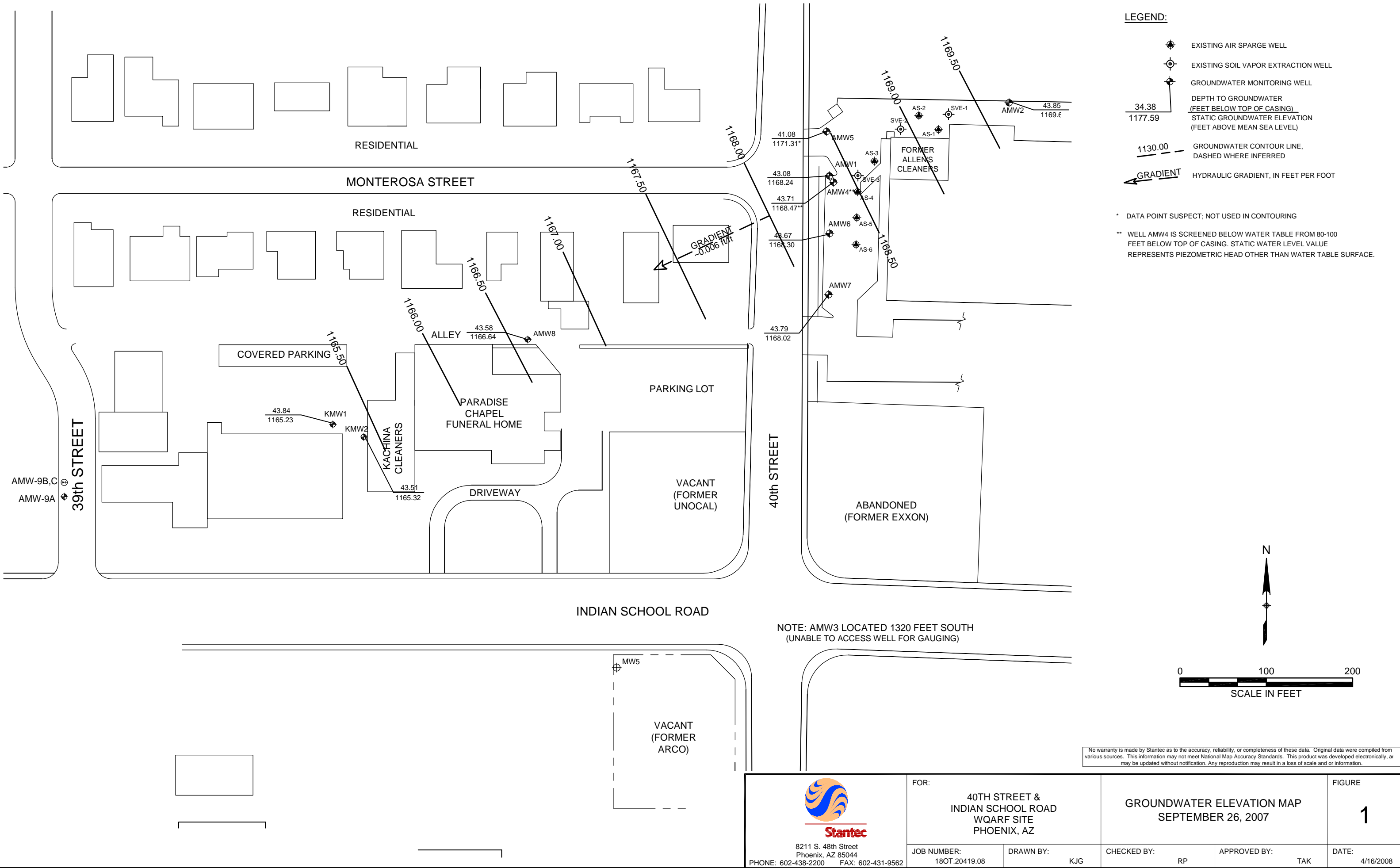
- LEGEND:**
- EXISTING AIR SPARGE WELL
 - EXISTING SOIL VAPOR EXTRACTION WELL
 - GROUNDWATER MONITORING WELL
 - DEPTH TO GROUNDWATER (FEET BELOW GROUND SURFACE)
 STATIC GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
 - 1130.00 GROUNDWATER CONTOUR, DASHED WHERE INFERRED
 - GRADIENT GROUNDWATER GRADIENT
 - * SCREENED BELOW THE WATER TABLE
GROUNDWATER ELEVATION DATA NOT USED IN CONTOURING
 - ** GROUNDWATER ELEVATION DATA NOT USED IN CONTOURING



NOTE: AMW3 LOCATED 1320 FEET SOUTH

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 1403 W. 10th Place, Suite B-107 Tempe, Arizona 85281 Phone: 480-804-1420 Fax: 480-804-1482	FOR: 40TH STREET & INDIAN SCHOOL ROAD WQARF SITE PHOENIX, AZ		GROUNDWATER ELEVATION MAP FEBRUARY 26, 2007		FIGURE 1
	JOB NUMBER: 18OT.20419.02	DRAWN BY: KJG	CHECKED BY: RWS	APPROVED BY: CRP	DATE: 5/30/2007



APPENDIX E

WATER QUALITY AND WATER LEVEL HYDROGRAPHS

APPENDIX E

WATER QUALITY AND WATER LEVEL HYDROGRAPHS

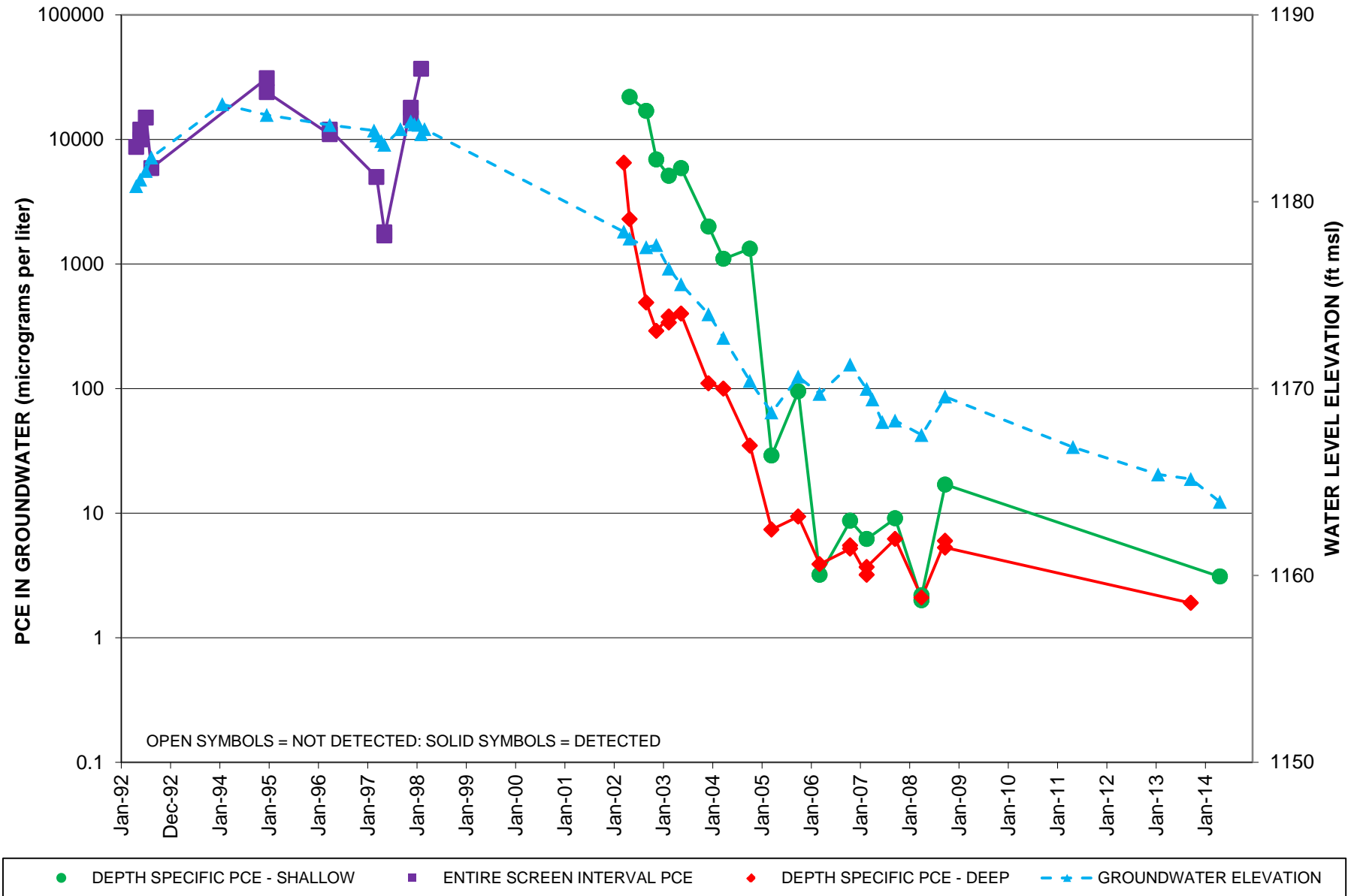
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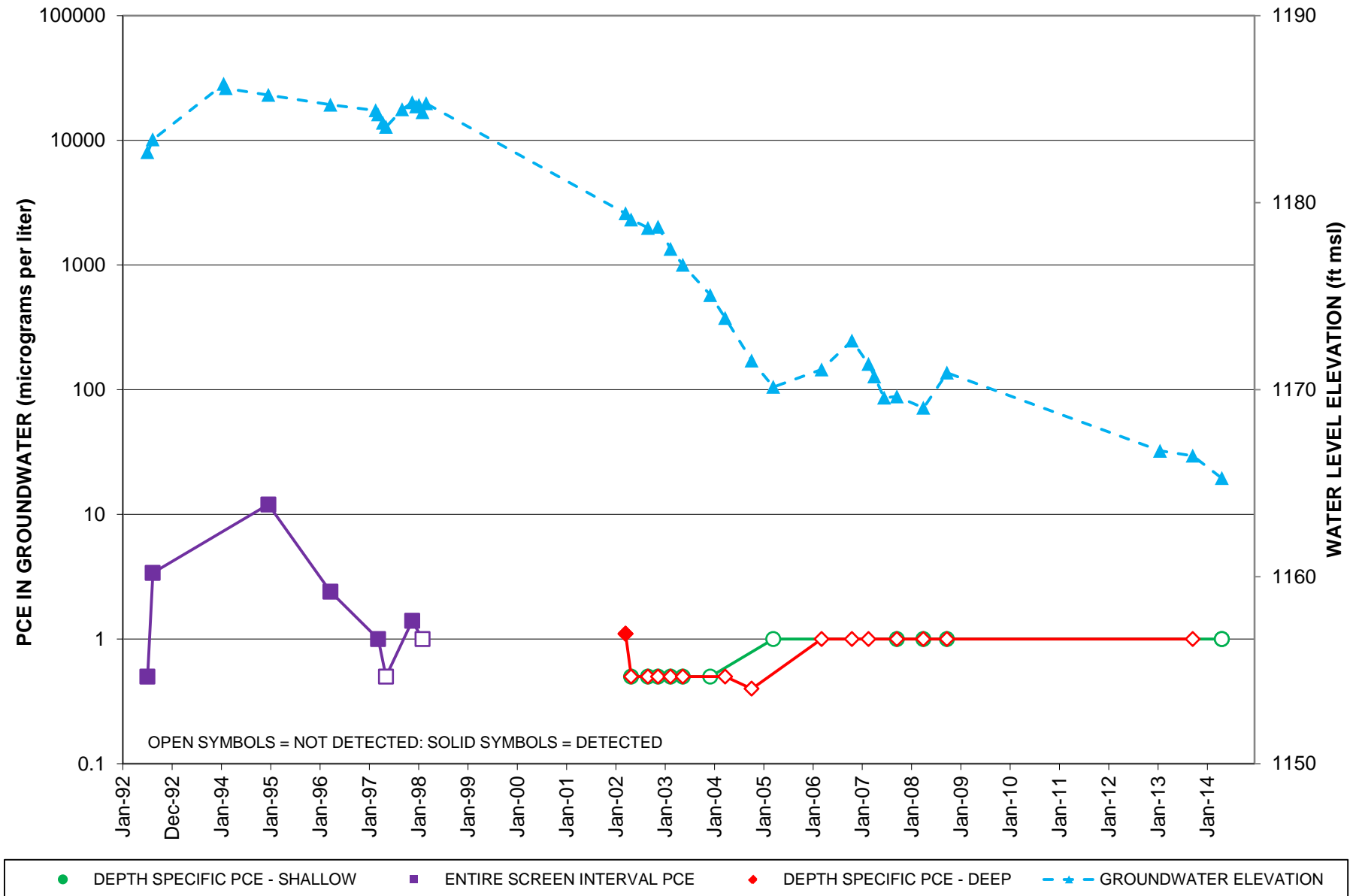
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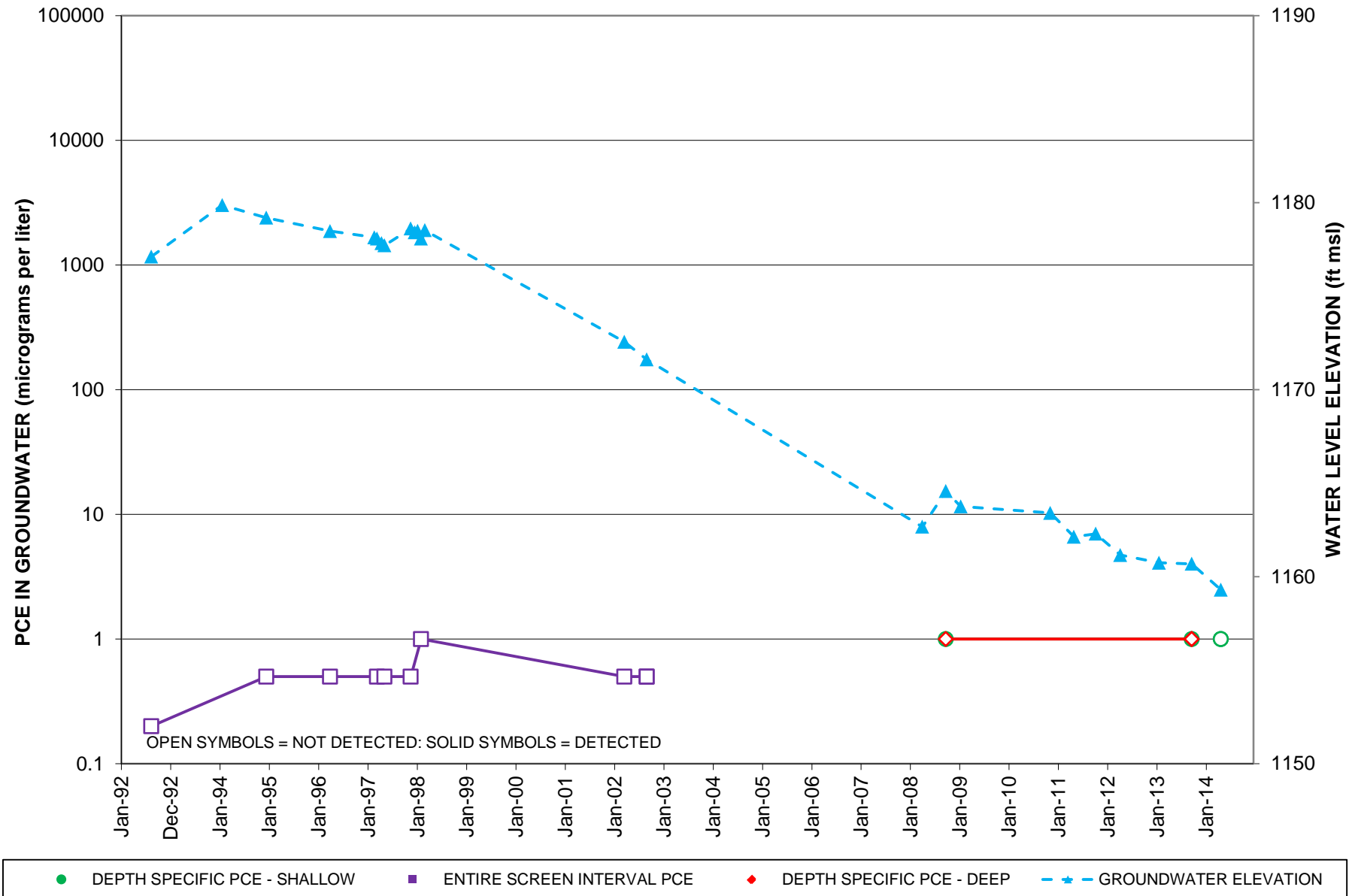
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-1. MONITOR WELL AMW-01 HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



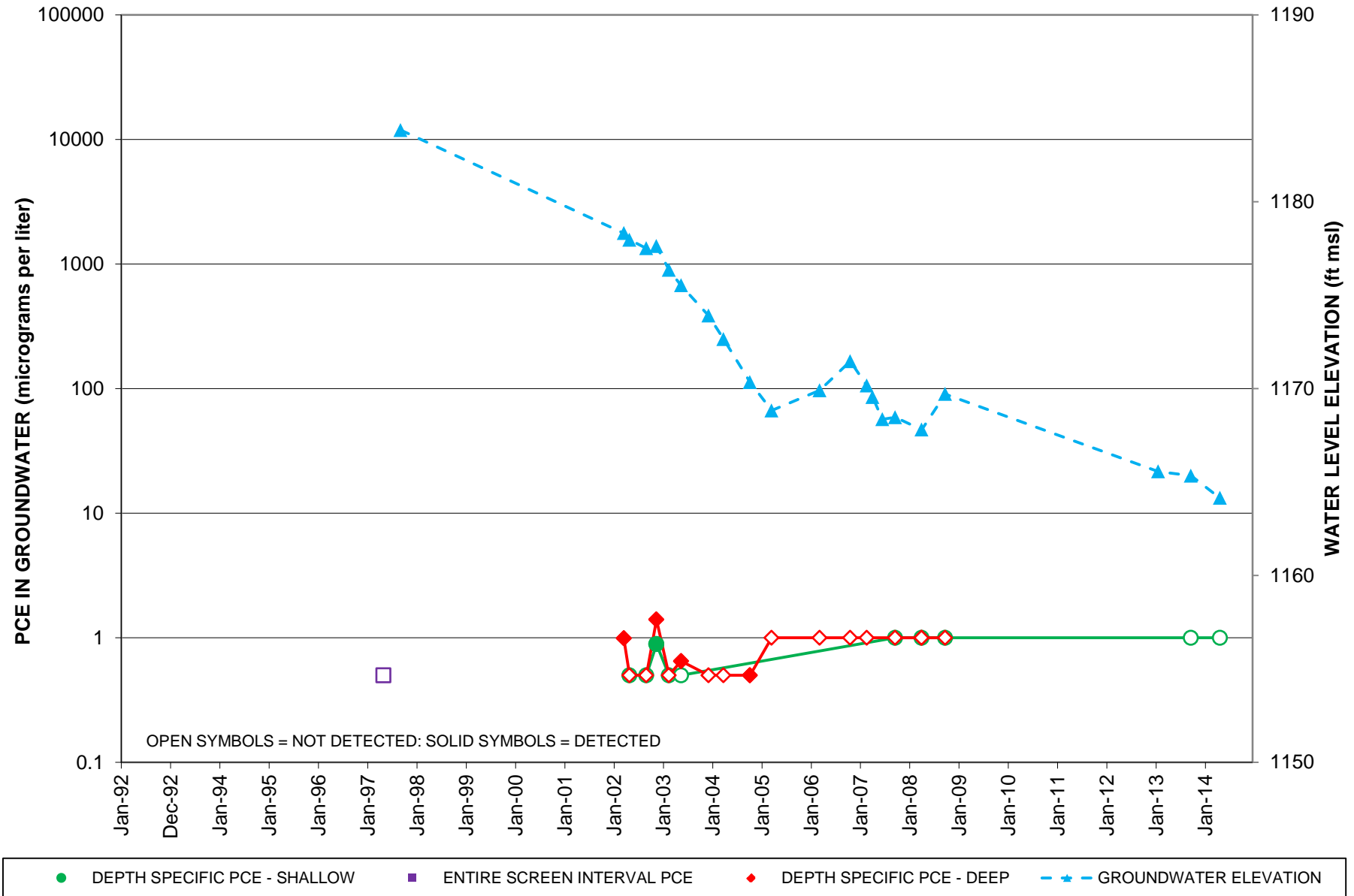
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-2. MONITOR WELL AMW-02 HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



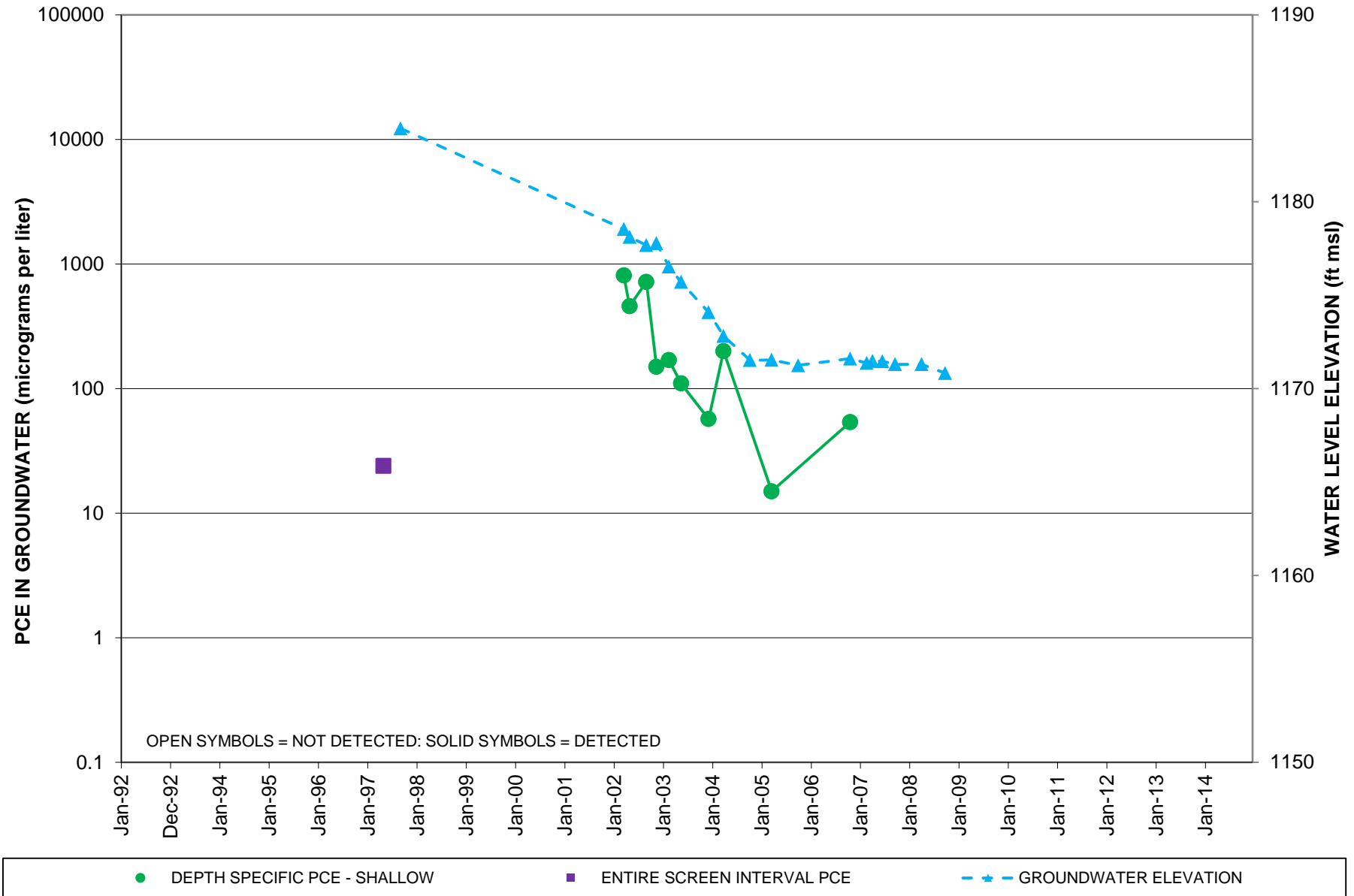
PCE = Tetrachloroethylene
ft msl = feet mean sea level

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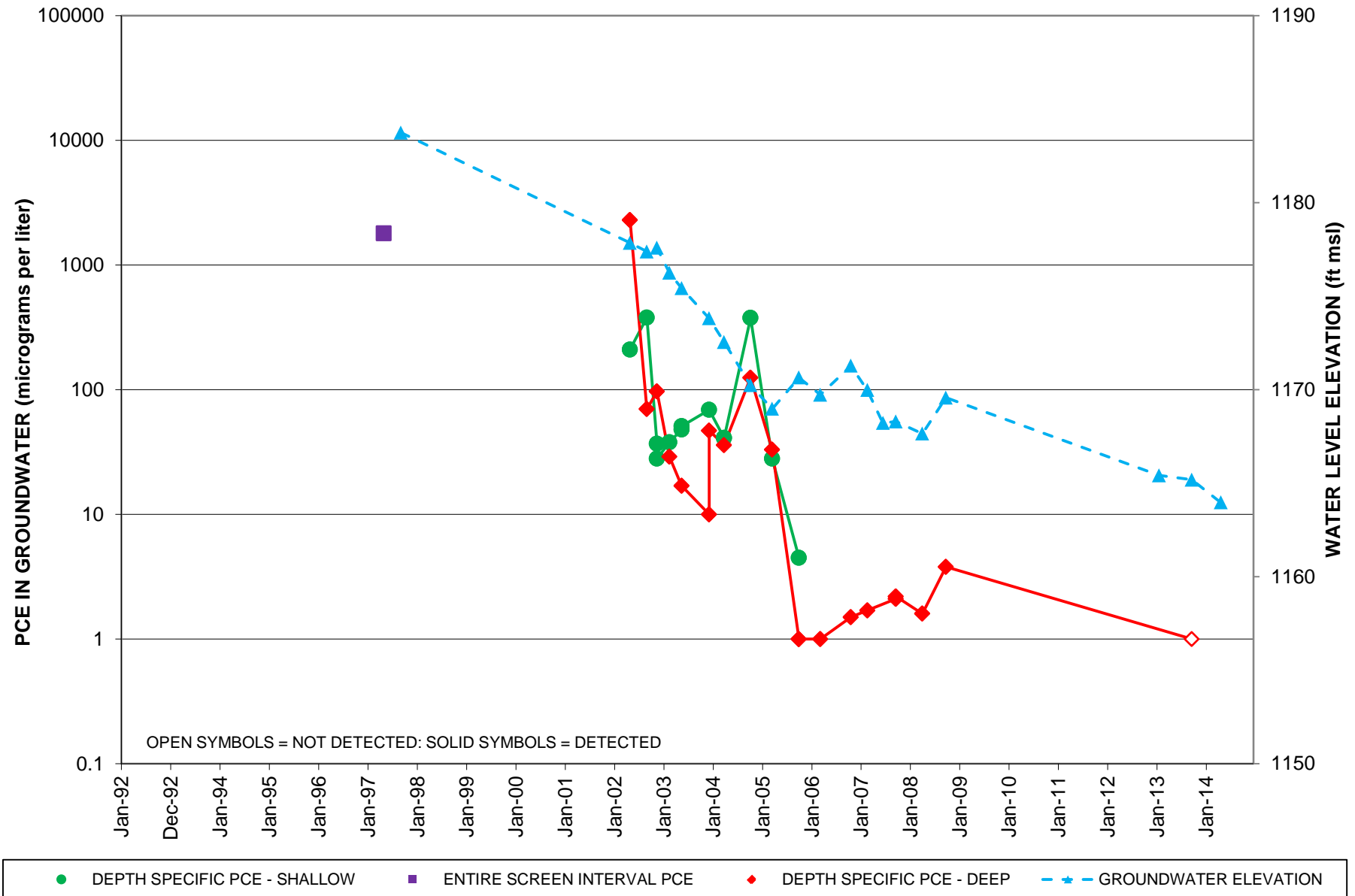
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-4. MONITOR WELL AMW-04 HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



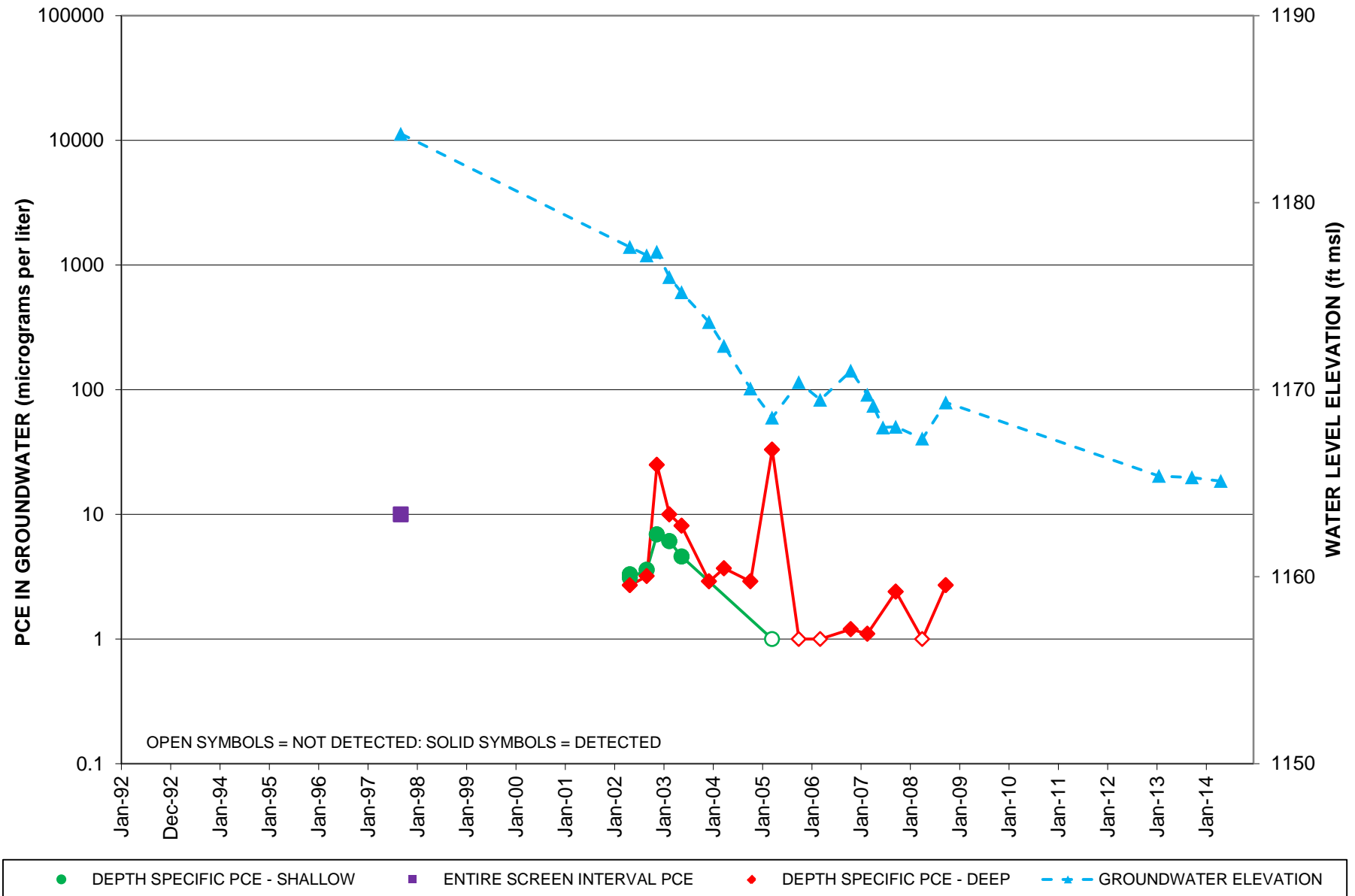
PCE = Tetrachloroethylene
ft msl = feet mean sea level

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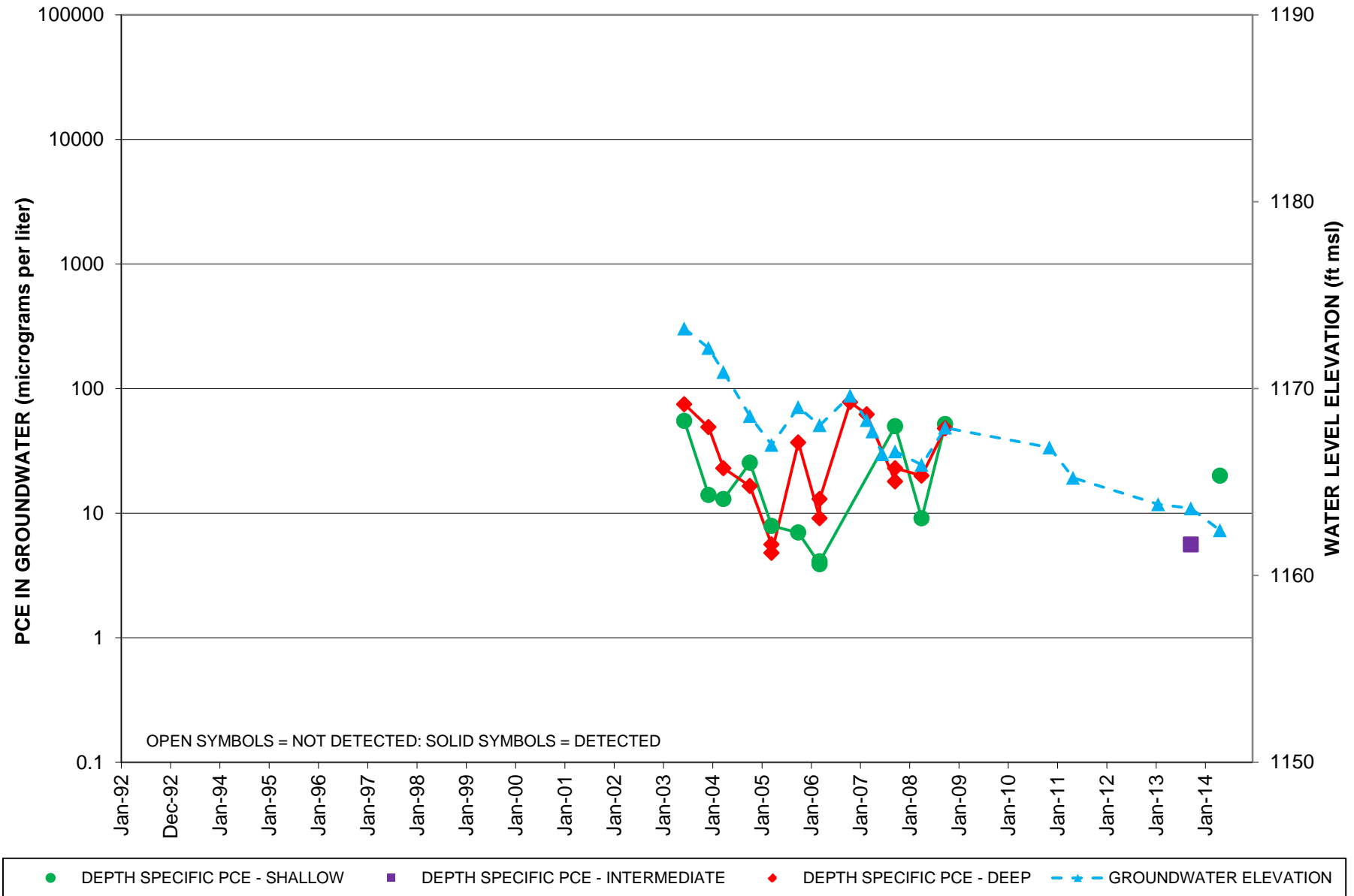
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-6. MONITOR WELL AMW-06 HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



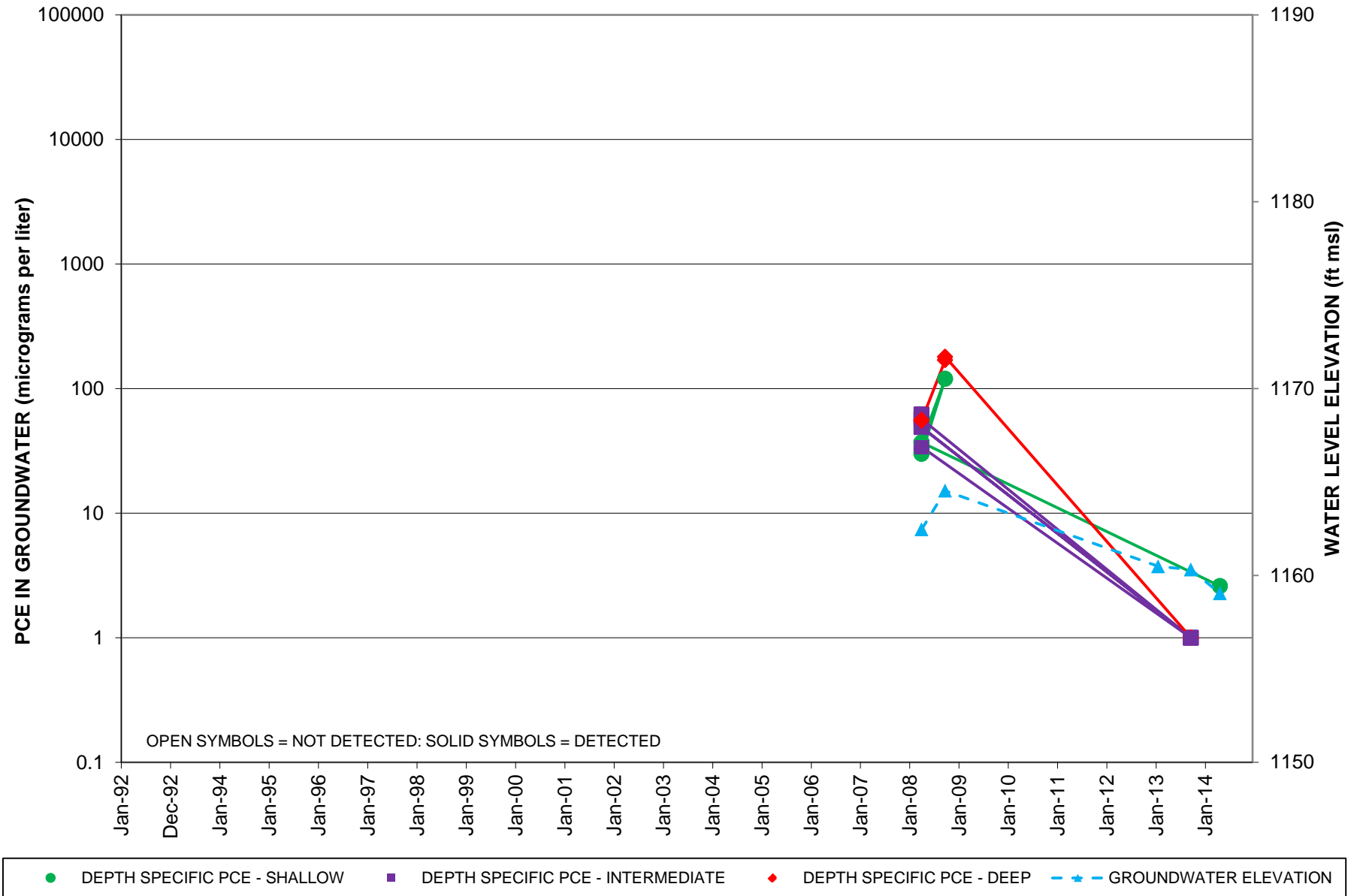
PCE = Tetrachloroethylene
ft msl = feet mean sea level

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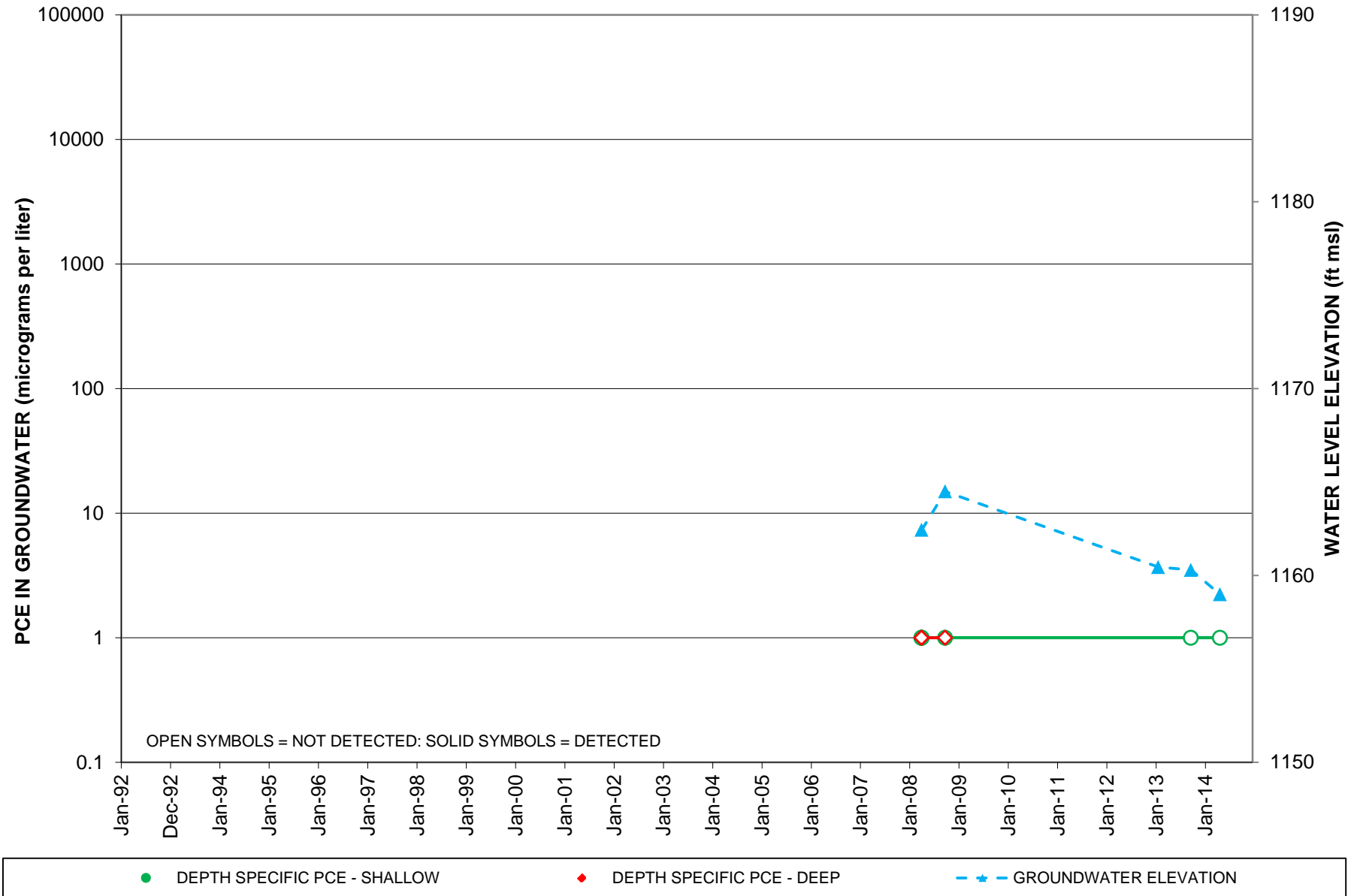
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-8. MONITOR WELL AMW-08 HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



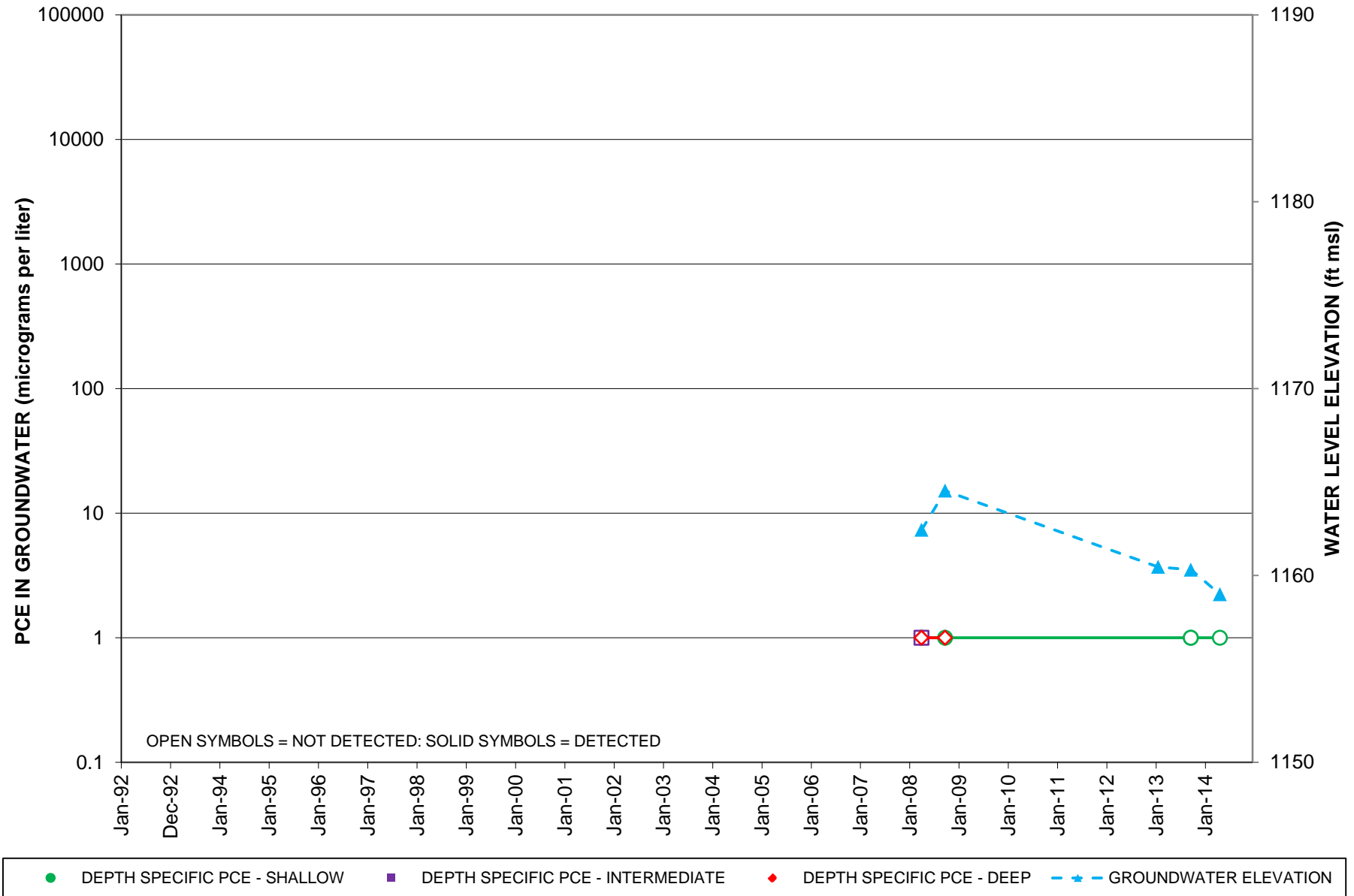
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-9. MONITOR WELL AMW-09A HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



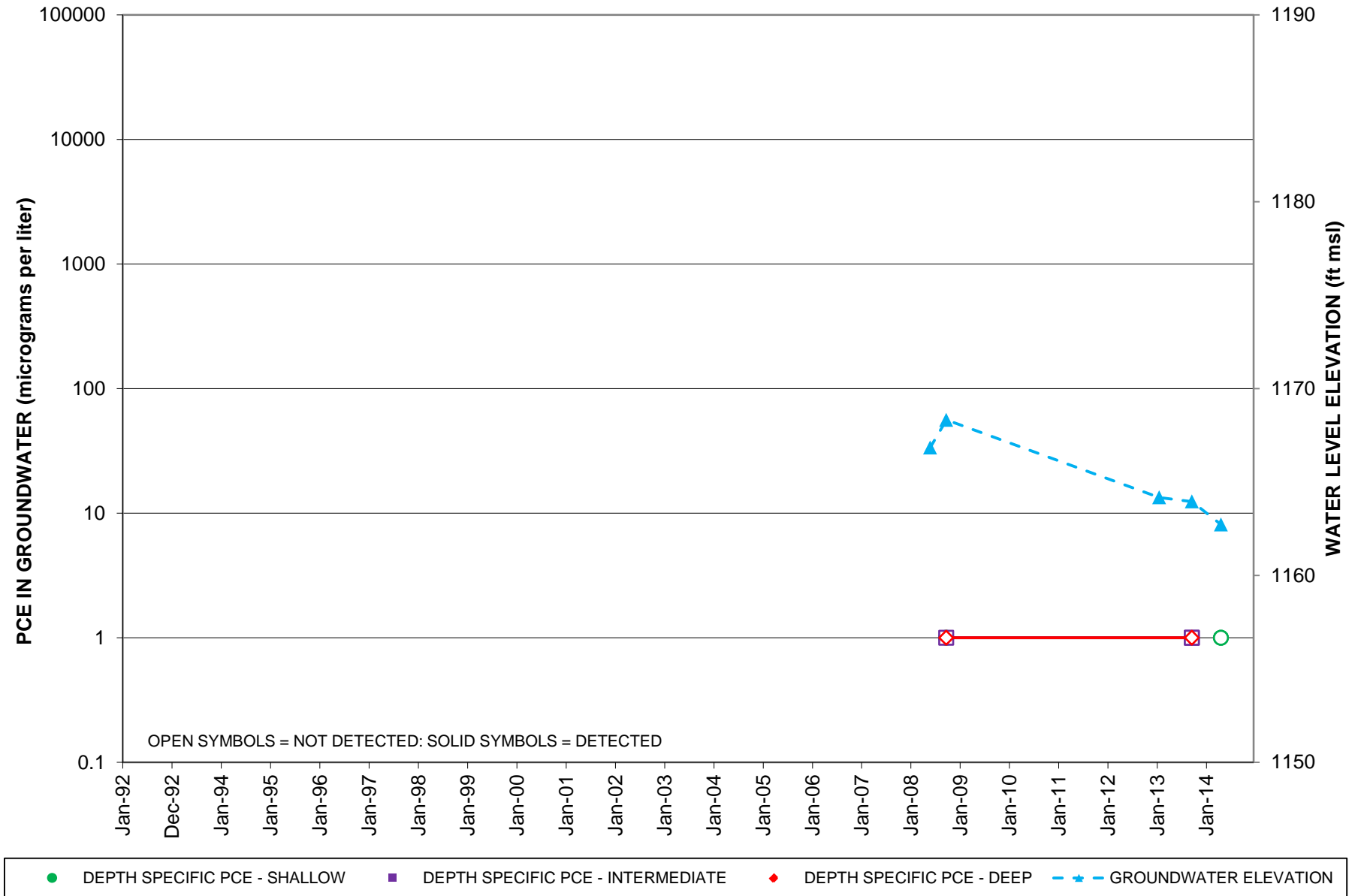
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-10. MONITOR WELL AMW-09B HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



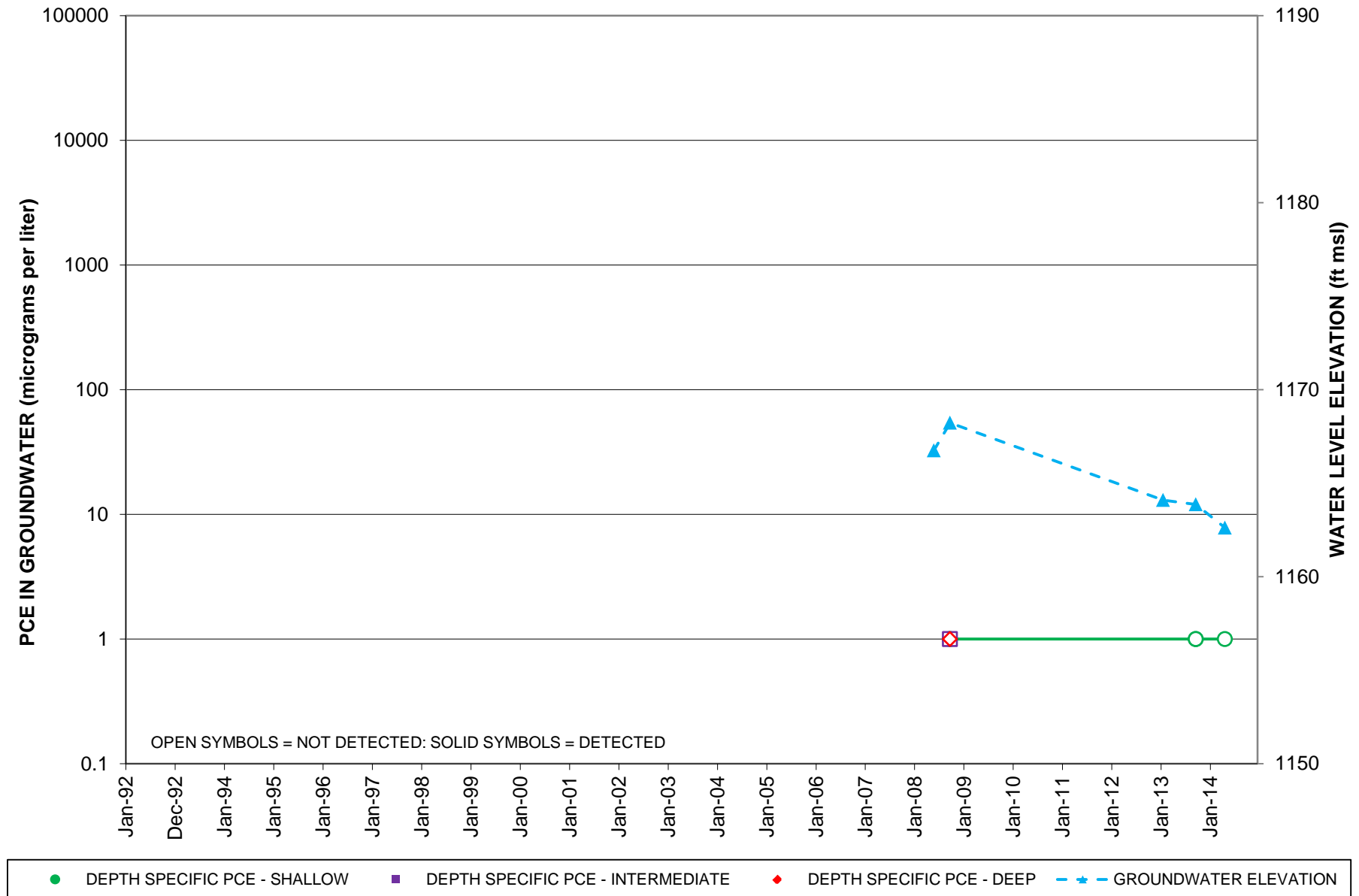
PCE = Tetrachloroethylene
ft msl = feet mean sea level

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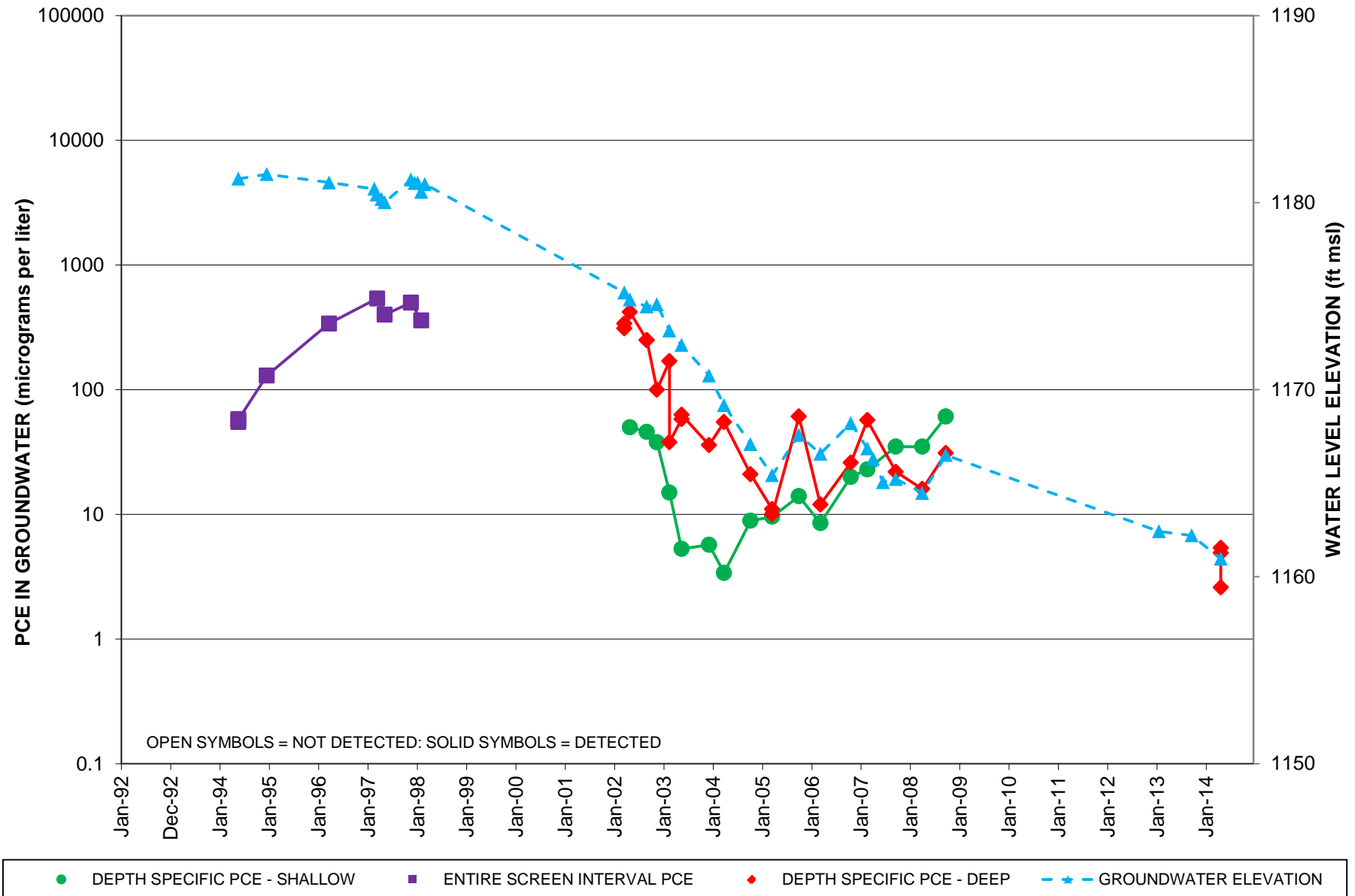
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-12. MONITOR WELL AMW-10A HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



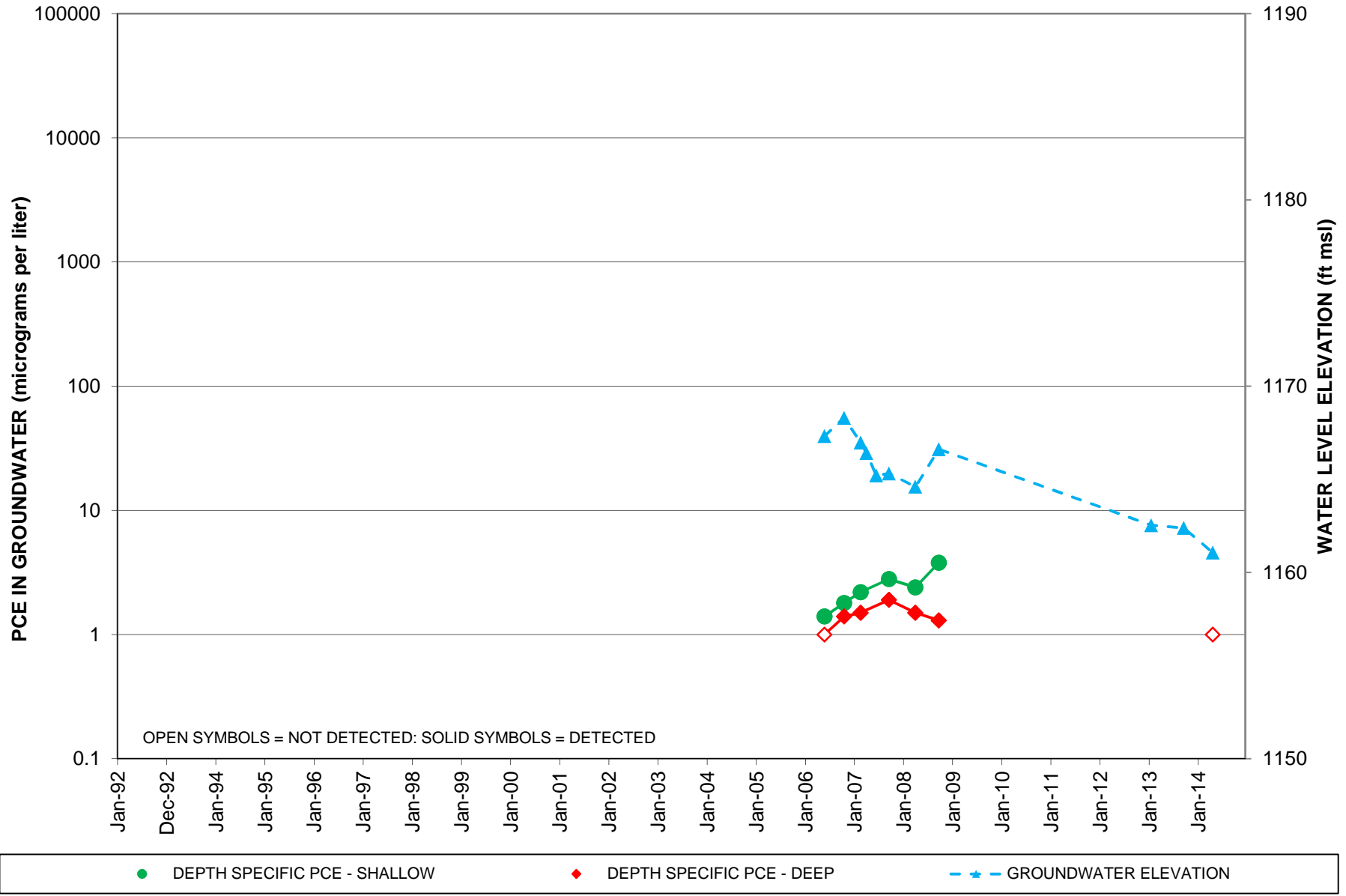
PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-13. MONITOR WELL AMW-10B HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-14. MONITOR WELL KMW-01 HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE



PCE = Tetrachloroethylene
ft msl = feet mean sea level

FIGURE E-15. MONITOR WELL KMW-02 HYDROGRAPH - 40TH AND INDIAN SCHOOL ROAD SITE

APPENDIX F

LAND AND WATER USE REPORT

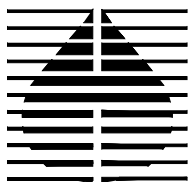
APRIL 21, 2015

FINAL
LAND AND WATER USE REPORT
40TH AND INDIAN SCHOOL ROAD SITE

EAST CENTRAL PHOENIX
WATER QUALITY ASSURANCE REVOLVING FUND SITE
PHOENIX, ARIZONA

Prepared For:
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

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LAND AND WATER USE REPORT
40TH AND INDIAN SCHOOL ROAD SITE

EAST CENTRAL PHOENIX
WATER QUALITY ASSURANCE REVOLVING FUND SITE
PHOENIX, ARIZONA

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EXECUTIVE SUMMARY

The East Central Phoenix (ECP) Water Quality Assurance Revolving Fund (WQARF) Site – 40th and Indian School Road (the Site) is the areal projection of two sources of dry cleaning chemicals that have contaminated groundwater in the area of 40th Street and Indian School Road in Phoenix, Arizona. The Site is approximately bounded by Devonshire Avenue to the north, 40th Street to the east, East Piccadilly Road to the south, and 38th Place to the west (Figure F-1). The sources of the dry cleaning chemicals are Kachina Cleaners located at 3926 East Indian School Road and the former Allen's Cleaners which was located at 4129 North 40th Street. The contaminant of concern (COC) for the Site is tetrachloroethene (PCE).

The land and water use study (use study) is required in accordance with Arizona Administrative Code (A.A.C.) R18-16-406(A)(3), which states that the remedial investigation (RI) shall identify current and reasonably foreseeable uses of land and waters of the state. As specified in A.A.C. R18-16-406(D), reasonably foreseeable uses of water are those likely to occur within 100 years.

In order to obtain consistent land and water use information from specified stakeholders, a standardized land and water use study questionnaire was prepared and mailed by ADEQ and ADEQ's consultant Hargis + Associates, Inc. (H+A) to Maricopa County (the County), municipalities, and utilities in the Site area. Questionnaires were completed and returned to ADEQ/H+A, by the City of Phoenix (COP), the County, and Salt River Project (SRP). The questionnaires requested specific information in the following areas:

- Property information
- On-site wells
- Water use
- Waste streams

Based on the land and water use study questionnaires and the answers returned to ADEQ, very limited, if any significant change to respondent properties would be expected to occur.

The entire Site is located within the COP. Arizona State law requires each city to have a General Plan that establishes policy for the city's physical development (Arizona Revised Statutes [A.R.S.] 9-461.05). The COP General Plan includes goals, policies, and recommendations to guide land use and neighborhood development for the next 10 to 20 years and beyond. Thus, most of the discussion of land use centers on the COP General Plan, most recently amended in January 2013.

The COP is comprised of 15 "urban villages". The Site is located in the Camelback East Village (CEV). CEV has two primary cores: the 24th Street and Camelback Road core and the 44th Street and Van Buren Street core. The primary land use within the CEV and the Site is single family residential followed by multiple family residential and commercial.

The COP Water Services Department issued a water resources plan (Plan) in 2011. The plan includes water development and water use policies. Plans for specific groundwater development within the ECP Site are not addressed in the Plan.

Since 1985, groundwater use by the COP steadily declined due to the availability of Central Arizona Project (CAP) water, the development of SRP-based surface water supplies, and provisions in the State's Water Code (1919), updated by A.R.S. 9-461.05, which mandates groundwater use limitations. In effect, the Water Code and COP corresponding policy rely on groundwater as an essential supply to mitigate future water shortages. The COP currently meets over 95 percent of its demand with surface water sources. The COP also relies on groundwater to accommodate water system maintenance and as a back-up during temporary outages. The City has the current capability of producing 28 million gallons per day (mgd) (15-20,000 acre-feet) per year, and typically withdraws between 6,000 and 9,000 acre-feet per year. Sufficient wells exist to produce more than 28 mgd, though rehabilitation and/or treatment may be needed to increase the yield due to aquifer contamination and aging well conditions.

In 2010, the Arizona Department of Water Resources (ADWR) approved the COP's application for a designation of assured water supply. This designation, reconfirmed the original approval by ADWR in 1998, and confirms the COP has sufficient water supplies to support existing customers and projected growth demands through the year 2025 for at least 100 years. The COP concludes in their Water Resources Plan that sustainable water supplies exist for all growth currently anticipated through 2060 under normal supply (non-shortage) conditions (COP, 2011).



Degraded groundwater constitutes a vast reserve of water for use in meeting the COP's future water needs. The COP maintains several wells within or adjacent to WQARF sites for emergency use and future use in meeting service area water needs; these wells could be placed back in service with the addition of wellhead treatment systems or approved blending programs. Also, the COP holds "Special Pump Rights" with SRP, which are rights to groundwater well capacity developed by SRP. The COP does not have any wells within one mile of the Site contaminant plumes.

SRP generally uses groundwater to supplement its surface water supply. Thus, annual use of groundwater fluctuates depending upon the availability of surface water. SRP currently has four groundwater supply wells within one mile of the within the ECP WQARF area. As the area becomes more urbanized, wells with suitable water quality may be shifted to municipal use. SRP indicated in their Land and Water Use Questionnaire response that all its properties within the vicinity of the ECP WQARF Area will remain in use over the next 100 years. Additionally, SRP anticipates its groundwater supply wells in the ECP WQARF Area will transition from irrigation to municipal service (potable supply) in the reasonably foreseeable future.

1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this Land and Water Use Report for the East Central Phoenix (ECP) 40th and Indian School Site Water Quality Assurance Revolving Fund (WQARF) Site (the Site) to meet the requirements established under Arizona Administrative Code (A.A.C.) R18-16-406(D). The purpose of the report is to gather information regarding current and foreseeable uses of land or waters that have been or are threatened to be impacted by a contaminant release.

1.1 PROCESS OVERVIEW

The process to complete the remedial investigation (RI) and select remedial objectives (ROs) begins with the completion of the Draft RI Report. Following the completion of the Draft RI Report, which includes the Land and Water Use Report, a public meeting is held to discuss the reports and solicit input for the selection of ROs. Typically, the public will be given 30 to 60 days to comment on the reports. Following the public meeting and comment period, ADEQ issues the Proposed RO Report. The ROs chosen for a site may be based on none, some, or all of the uses identified in the Land and Water Use Report. If there is significant public interest or additional information has been discovered, an additional public meeting to discuss the ROs is held. The Final RO Report is then prepared and included in the Final RI Report.

1.2 LAND AND WATER USE REPORT

The purpose of the Land and Water Use Report is to gather information regarding current and “foreseeable” uses of land or waters that have been or are threatened to be impacted by a contaminant release, and to project time frames for future changes in those uses. Information gathered from discussions with property owners, water providers, municipalities, and well owners are to be included in the report.

In general, this Land and Water Use Report identifies various current and potential future uses of land and water in the vicinity of the Site. However, the report does not evaluate the uses, nor does it classify the use as “reasonably foreseeable”. The evaluation of uses will take place during public comment periods, and public meetings and will be presented in the Proposed RO Report.

1.3 SITE BACKGROUND

The Site is generally bounded by Devonshire Avenue to the north, 40th Street to the east, East Piccadilly Road to the south, and 38th Place to the west as shown on Figure F-1. The 40th and Indian School Road Site was placed on the WQARF Registry List in 1998. The current contaminant of concern (COC) at the site is PCE. Kachina Cleaners and the former Allen's Cleaners facility have been investigated with regard to potential PCE contamination and identified as sources.

Kachina Cleaners

Kachina Cleaners began operating at 3926 East Indian School Road in 1959 and is currently operating at that location. Prior to the early 1960s, and before being connected to the sewer system, Kachina Cleaners used two cesspools and a septic tank for wastewater disposal. They were located northwest of the main building. In addition, a lint trap was located just south of the septic tank (HydroGeoLogic [HGL], 2014).

In the early 1960s, wastewater from Kachina Cleaners, containing PCE, passed through filters prior to being discharged to the sewer system. The spent filters were removed and disposed of by Safety-Kleen Corporation. Waste PCE fluids were distilled for recycling, and leftover amounts of PCE were handled and disposed of by Rinchem Company, Inc. Kachina Cleaners reportedly used 40 to 50 gallons of PCE per week (HGL, 2014). According to the 1996 site characterization report prepared by Earth Tech, Inc., the cesspools and septic tank were reportedly no longer in use in 1996, but were still present (HGL, 2014).

As of 2014, Kachina Cleaners is still operating at 3926 East Indian School Road, and City of Phoenix Fire Department records indicate proper chemical storage and apparent use and no violations in recent evaluations. The Kachina Cleaners Maricopa County Air Quality Department permit is current and planned for renewal in January 2016 (HGL, 2014).

Former Allen's Cleaners

Allen's Cleaners operated at 4129 North 40th Street from 1969 to 1989. Allen's Cleaners used PCE as its primary dry cleaning solvent; however, waste disposal at the facility was not documented until 1987, when Safety-Kleen was retained to transport and dispose of dry cleaning waste products (HGL, 2014). In 1993, a site assessment was conducted and an underground vault was located in the northeast corner of the laundry just inside the rear doors. No fluid connection was observed between the vault and the sewer and access drains to this line were capped. The vault and plumbing were removed, broken down, and placed in drums by Gulf-Pacific in November 1993.

The excavated materials only appeared to provide evidence of a potential release at the vault at low quantities; not supportive of the wide area contamination reported in previous studies.

PCE was initially detected in soil gas during an October 1989 soil gas survey at the site, where PCE was detected at 370 µg/L at a depth of 15.2 feet bgs. In 1993, two sumps at the former Allen's Cleaners were removed, and PCE was found in soil samples taken from the excavation. A sludge sample taken from one of the sumps at Allen's Cleaners has a PCE concentration of 977.9 mg/kg (HGL, 2014).

Elevated levels of PCE and TCE were found in groundwater samples collected both downgradient and cross-gradient from the facility on December 16, 1994. Monitoring well AMW-01, located 50 feet downgradient of the facility, had the highest concentration of PCE at 37,000 micrograms per liter (µg/L) in 1998 and the highest concentration of TCE at 490 µg/L in 1994 (HGL, 2014).

Groundwater sampling in 2002, by ADEQ, showed the continued presence of PCE above the 5 µg/L Arizona Aquifer Water Quality Standard (AWQS) limit at the Site. In 2003, ADEQ installed a groundwater monitoring well in the alley between the former Allen's Cleaners and Kachina Cleaners, as well as three (3) soil vapor extraction (SVE) wells and six (6) air sparge (AS) wells at the former Allen's Cleaners as part of an early response action (ERA). In 2005, the SVE/AS system was decommissioned and removed from the former Allen's Cleaners after removing approximately 33 pounds of PCE from the vadose zone throughout its operation from 2004 to 2005.

In 2007, ADEQ sent out notices per Arizona Revised Statutes § 49-287.03, initiating the Remedial Investigation for the Site. Several phases of investigation have been conducted including soil and soil vapor sample collection, and groundwater monitoring well installation and sampling. The results of these investigations have indicated that volatile organic compounds (VOCs), primarily PCE, are present in soil, soil vapor, and groundwater in the vicinity of the Site.

The aquifer underlying the site is known as the Upper Alluvial Unit (UAU) Aquifer. The UAU extends to depths of approximately 400 feet below land surface (bls) in the surrounding area (Brown and Pool, 1989). It consists of basin fill sediments of sand and gravel proximal to the Salt and Gila Rivers and at the basin margins. In areas distal to the basin margins, which include the Site, the UAU is silt and sand and is significantly less thick. Typically, the UAU is considered an unconfined aquifer. Shallow groundwater beneath the Site and surrounding vicinity has historically flowed southwest and has a small gradient under non-pumping conditions.



1.4 GENERAL GROUNDWATER QUALITY

Groundwater in the Site and the surrounding area generally contain concentrations of total dissolved solids (TDS) ranging from 500 milligrams per liter (mg/L) to slightly greater than 1,000 mg/L (Brown and Pool, 1989) (Thiros, S.A. et. al., 2010). The EPA has not set a maximum contaminant level (MCL) for TDS, however, there is a secondary standard of 500 mg/L TDS for drinking water. The secondary standards are non-enforceable guidelines regulating contaminants that may cause aesthetic effects in drinking water. The principal ions present within local groundwater include chloride, magnesium, sodium, and calcium (Reeter and Remick, 1986).

SRP provided the following water quality information on their questionnaire (Appendix A) from their wells located within the ECP WQARF Site, all of which show impacts:

SRP Well No.	ADWR 55 Registration	Intersection/ Local Area	Maximum PCE Concentration (µg/L)	Maximum TCE Concentration (µg/L)
17E-8N	55-608431	32nd/Indian School	82	1.5
17.1E-7.4N	55-607731	32nd/Osborn	5.8	ND
17.9E-7.5N	55-617857	40th/Osborn	210	9.9
18E-8.8N	55-617825	40th/Coolidge	1.1	ND

Note:

1. Bolded value indicates concentration detected above Aquifer Water Quality Standard.
2. Data obtained from SRP via questionnaire (See Appendix A).
3. ND – not detected.

As mentioned above, PCE is the COC that has been detected in groundwater samples collected from the Site wells at concentrations greater than the AWQS of 5 µg/L. PCE groundwater concentrations have dropped significantly since startup of the ERA with PCE only exceeding the AWQS at wells AMW-08 at 20 µg/L [49.6 feet bgs] and at well KMW-01 at 5.4 µg/L [50.5 feet bgs] during May 2014. The decline in COC concentrations at the Site is attributed to the ERA.

2.0 USE EVALUATION

The following sections outline current and foreseeable land and water uses for the Site and the surrounding area. Reasonably foreseeable uses for land are those uses of land likely to occur at the Site within a reasonable time period. Reasonably foreseeable uses of water are those likely to occur within 100 years unless a longer time period is shown to be reasonable based on site-specific circumstances [A.A.C. R18-16-406(D)].

2.1 LAND AND WATER USE QUESTIONNAIRES

In order to obtain consistent land and water use information from specified stakeholders, a standardized land and water use study questionnaire was prepared and mailed by ADEQ and Hargis + Associates, Inc. (H+A) to Maricopa County, municipalities, and utilities in the Site. Questionnaires were completed and returned to ADEQ/H+A, by City of Phoenix (COP), Maricopa County, and SRP; they are included in Attachment A.

The questionnaires requested specific information in the following areas:

- Property information
- On-site wells
- Water use
- Waste streams

The information provided in the questionnaires was used in conjunction with the references identified in this section.

2.2 LAND USE

The entire Site is located within the COP in Maricopa County. Arizona State law requires each city to have a General Plan that establishes policy for the city's physical development. The COP General Plan includes goals, policies, and recommendations to guide land use and neighborhood development for the next 10 to 20 years and beyond. Thus, most of the discussion of land use centers on the COP General Plan, most recently amended in January 2013.

As indicated on the questionnaire, Maricopa County has no specified land or water uses within the ECP Site; however, it is important that any planned remediation coordinate with Maricopa County Air Quality Department for the necessary permits (i.e. dust control, VOC emissions, etc.).

The COP is comprised of 15 "urban villages" (Figure F-2) (COP, 2002). The Site is located in the center of the Camelback East Village (CEV) (Figure F-3) which covers an area of 36.3 square miles. CEV has two primary cores: 1) the 24th Street and Camelback Road core, comprised of office and retail shops, including movie theaters, major department stores, restaurants, and hotels; and 2) the 44th Street and Van Buren Street core an area of airport and regional offices uses along with a Chinese cultural center. The area around 44th Street and Thomas Road is considered the secondary core of the village. This village offers a range of housing diversity and neighborhood types evenly split in the number of single family and multi-family residences. Areas such as the Arcadia neighborhood consist of large acre lots while higher density residential developments surround the more concentrated centers like the CEV primary core. A major portion of the housing stock was built between 1950 and 1970, but new construction of both single family and multi-family homes continues.

There are five school districts represented in the entire (CEV), three are located within the ECP WQARF Site: Scottsdale Unified School District, Phoenix Union School District, and Creighton School District. Monte Vista School (Creighton School District) and Christ Lutheran School are located in the vicinity of the 40th Street and Indian School Road Site.

Each village located within the COP has a Planning Coordinator and a Village Planning Committee who have input into planning decisions for that community and to the COP mayor and Planning Commission.

Development in the area occurs consistent with zoning laws and must go through a site-planning review and permit process. The primary land use within the Site is single family residential (38%) followed by parks/open space (26%), multiple family residential (12%) and commercial/industrial (12%), public/transportation (8%). Four (4%) percent of the land within the village is reportedly vacant (COP, 2013). Current zoning districts in the Site are identified below and are shown on Figure F-4. A more detailed description of COP zoning designations can be found in Table F-1.

2.2.1 Current Site-Specific Land Use

Kachina Cleaners began operating at 3926 East Indian School Road in 1959 and is currently operating at that location. The current zoning designation for the Kachina Cleaners property is C-2, Commercial – Intermediate Commercial (Figure F-4) (COP, 2013).

The second source, the former Allen's Cleaners, operated at 4129 North 40th Street and was an active dry cleaning facility from 1969 until 1989. According to Maricopa County Assessor, the parcel is now listed at the address 4020 E. Indian School Road and owned by Verde SPE-I, LLC. The current occupant of the building is DriveTime Automotive Group, Inc., an automotive dealer; this location is a corporate headquarters. The current zoning designation for the former dry cleaning property is C-2, Commercial – Intermediate Commercial (Figure F-4) (COP, 2013).

2.2.2 Current Regional Land Use

The current land use in and surrounding the Site is as follows (Figure F-4):

Zoning District	Description
C-O	Commercial Office – Restricted Commercial (CO prior to 1986)
C-O/G-O	Commercial Office – General Office Option (Minimum 1 gross acre)
C-1	Commercial – Neighborhood Retail
C-2	Commercial – Intermediate Commercial
P-1	Passenger Automobile Parking, Limited (Surface Parking)
PAD-9	Planned Area Development (No longer available for rezoning)
PUD	Planned Unit Development Individually tailored standards to create a built environment superior to that produced through conventional zoning and design guidelines
R-3A	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 22 to 23.1 or 26.4 w/bonus)
R-3	Multiple Family Residence (Detached single family [SF] 5 to 6.5 or 12 with bonus) (Attached 14.5 to 15.23 or 17.4 with bonus)
R-4	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 29 to 30.45 or 34.8 w/bonus)
R-5	Multiple Family Residence (Detached SF 5 to 6.5 or 12 with bonus) (Attached 43.5 to 45.68 or 52.5 with bonus)
R1-6	Single Family Residence (Density range of 5 to 5.5 or 6.5 with bonus)
R1-10	Single Family Residence (Density range of 3 to 3.5 or 4.5 with bonus)

Zoning District	Description
R1-14	One Family Residence (14,000 sq. ft. min.) (No longer available for rezoning)
R1-18	Single Family Residence (density range of 1.95 to 2.05 or 2.34 w/bonus)
RE-24	One Family Residence (24,000 sq. ft. min.) (No longer available for rezoning)
RE-35	Single Family Residence (density range of 1.1 to 1.15 or 1.32 w/ bonus)
R-O	Residential Office – Restricted Commercial

2.2.3 Future Land Use

The CEV Planning Coordinator and CEV Planning Committee meet regularly to accept and review requests for zoning changes within the CEV. The COP response to their questionnaire indicated there are no current foreseeable plans to alter current zoning districts in the Site vicinity. Property owners can file to change the zoning designation of their property. Requests for zoning changes must go through a public hearing and be approved by the City Council prior to finalization.

2.3 GROUNDWATER USE

The Site lies within the Phoenix Active Management Area (AMA) (Figure F-5) (ADWR, 2014b). The Phoenix AMA was created by the Arizona Groundwater Management Code passed in 1980 and covers approximately 5,646 square miles in central Arizona. All groundwater withdrawn from any AMA must occur under a groundwater right or permit, unless groundwater is being withdrawn from an exempt well. An exempt well is a well with a maximum pumping capacity of 35 gallons per minute. Exempt wells may be used to withdraw groundwater only for non-irrigation purposes and are generally used for domestic purposes. All exempt wells must be registered with the ADWR. Non-exempt wells have a pumping capacity greater than 35 gallons per minute and are associated with one of the following types of rights or permits: Grandfathered rights, service area rights, and withdrawal permits.

According to ADWR records, there are seven (7) non-exempt withdrawal wells located within one-mile of the Site; all owned and operated by SRP (Table F-2) (Figure F-6) (ADWR, 2014a). ADWR records indicate that there are five (5) exempt withdrawal wells located within one-mile of the Site; all five wells have an intended use for domestic irrigation (ADWR, 2014a, and Attachment B). There are no grandfathered rights in the Site (ADWR, 2014c). The COP and SRP have service area rights in the Site, however, only SRP is currently pumping groundwater from beneath the Site.

Water levels in the Upper Alluvial Unit (UAU) at the Site have been monitored since April 1992. During the period of record for the Site monitor wells, the depth to water has ranged from approximately 27 feet bgs in the mid 1990's to greater than 50 feet bgs in 2014. Groundwater elevations measured in Site wells during May 2014 are depicted on Figure F-7. The direction of groundwater flow historically has been to the west-southwest at gradients ranging from approximately 0.006 to 0.007. Vertical gradients between the shallow and deeper zones of the UAU monitored at the Site are generally negligible.

2.3.1 Municipality and Utility Groundwater Use

The COP and SRP pump groundwater as needed when surface water supplies cannot meet their customer needs. The following sections discuss the current and future groundwater uses of the COP and SRP.

2.3.1.1 Current City of Phoenix Needs

The COP relies on four primary water supply sources: SRP, Central Arizona Project (CAP), groundwater pumped from COP wells, and reclaimed water (COP, 2011). SRP supplies water from the Salt and Verde Rivers to eligible lands within the Phoenix service areas which are generally south of the Arizona Canal. The remainder of the service area is supplied primarily by Colorado River water delivered by the CAP. Groundwater wells and reclaimed water make up the remainder of the COP water supplies. During normal supply years, approximately 50 percent of the COP water supply comes from SRP; 44 percent is from CAP; and approximately 3 percent is from groundwater pumpage and 3 percent reclaimed water each. When SRP and/or CAP water supplies are reduced, the COP supplements water supplies with groundwater pumped from COP wells (COP, 2011).

Because of groundwater quality degradation due to the presence of industrial solvents such as PCE and TCE, the COP has abandoned or discontinued use of 20 wells (COP, 2011). This has resulted in a loss of approximately 23 million gallons per day of groundwater production. The COP total loss of well production due to elevated concentrations of organic and inorganic substances exceeds 90,000 acre-feet per year, according to the Water Resources Plan (COP, 2011), as a result of the closure of more than 60 wells (60 percent of the total production capacity of all COP wells). Any of these wells, if returned to service in the future, will require cleanup of the contaminated aquifers or the installation and operation of expensive wellhead treatment systems. No COP wells exist within one mile of the Site contaminant plumes (Figure F-6).

2.3.1.2 Future City of Phoenix Needs

According to information provided by COP, since 2002 (a peak demand year), the total water demand declined by more than 16%, although the service population of COP increased by approximately 8% (COP, 2011). The decrease in overall per-capita total water demand has been attributed to the increased efficiency in water use which declined by 25 percent between 1996 and 2011. Contributing factors in the decrease include improved plumbing fixture standards, smaller residential lots, fewer new pools, increased installation of desert landscaping in both new and existing homes, increased customer “water awareness,” and higher water rates.

Regional economic conditions are a large component of the future water demands, as well as the Phoenix General Plan for land development and recent trends in residential and commercial development. Growth projections for COP reflect annual growth rates of 1.0 percent (high), 0.8 percent (base level) and 0.6 percent (low) and are assumed to top out in the 2045-2055 period based on current COP boundaries. The low projection assumes that service area growth occurs at a slow pace and that existing customers continue to become more efficient without further incentives or regulation (moderate level). The high demand line reflects fast or high-density growth and no further efficiency improvements for existing and new customers. These rates are lower than those experienced during the 1990s and early 2000’s; as of Spring 2011, data indicate the actual growth rate for COP could be lower or stagnant for the next 5-10 years. The COP estimates that a “base level” consumption growth will develop at today’s efficiency levels and that current customers will remain stable. Possible “moderate efficiency” consumption gains are estimated at a 10% consumption reduction for existing customers and 5% reduction for post-2010 development by 2035. “High efficiency” consumption gains are estimated at a 20% reduction in consumption for existing customers and a 10% reduction for post-2010 customers by gain by 2035. However, there are numerous factors associated with growth and consumption that cannot be fully predicted and the consequences of this possible leveling off or increasing of demand will continue to be addressed in the COP General Plan and Water Resource Plan.

Uncertainty also exists regarding water resources and the ability to meet current and future demands (COP, 2011). The following items may affect the available COP water supply:

- Cyclical drought;
- Increasing demands in the Upper Colorado River Basin States (Utah, Colorado, Wyoming and New Mexico) affecting Arizona’s supply of Colorado River water;

- The availability of water supplies from the Arizona Water Banking Authority to the CAP to offset shortages;
- Climate variability on impacts on long-term flows, reservoir storage and deliveries by SRP and CAP;
- The probability of low reservoir conditions occurring in both watersheds simultaneously;
- State legal, institutional, or policy changes impacting surface water availability;
- The availability and volume of groundwater supplies without aquifer replenishment; and
- Impacts of increased groundwater pumping in the SRP watershed on river flow and reservoir storage.

If Colorado River flow should decline, allotment of CAP water for the COP and surface water supplies from SRP may be reduced if reservoir levels drop substantially and groundwater pumping cannot compensate the lack of surface water availability. As a buffer to potential surface water supply reductions, the COP has been recharging to underground storage or banking unused CAP allotments for future use (Figure F-8). However, high increases in consumption coupled with severe reductions in surface water supplies could deplete these reserves by 2020 (COP, 2011) (Figure F-9).

As part of their long-term deficit plan, COP developed a strategy to address a reasonable “worst case”. These extreme conditions were modeled to represent deeper shortages than those observed in historic records. The “severe shortage” model scenario combined with the “high demand” scenario produces a maximum deficit of 165,000 acre-feet in the latter part of the 50 year planning horizon (COP, 2011).

Managing water use can be accomplished by continuing to increase efficiency of water distribution, curtailing demand, and monetary incentives, which can be addressed through infrastructure improvements, conservation programs, drought management plan, and water pricing strategies (COP, 2011). Alternate sources of water include expanded groundwater pumping, accessing water that has been stored for future use, importing water from the McMullen Valley farm, and purchasing water from other water providers (COP, 2011).

Besides obtaining additional surface water supplies, local groundwater is the most accessible alternate water source (COP, 2011). The COP has access to more than 3.5 million acre-feet of groundwater in the Phoenix service area over a 100 year period. Currently, the COP can produce 28 million gallons per day (mgd) (15-20,000 acre-feet) per year, but only withdraws between 6,000 and 9,000 acre-feet per year. Pumping capacity has been lost in the past two decades due to aquifer contamination and aging well conditions.

The most accessible alternate water source for COP is local groundwater; planning is ongoing for the expansion of well capacity within the service area (via well rehabilitation or the development of new service area wells). The COP plans to develop 15 additional wells at a cost of \$233 million to yield approximately 70,000 acre-feet per year; this increased yield would be allowable in any one year as long as the 100 year average usage does not exceed available groundwater and stored water credits (COP, 2011). Recent well development by the COP has occurred in northeast Phoenix area. However, as indicated in the COP questionnaire response, the COP currently has no plans to develop groundwater near or within the Site but will consider the area for well development in the future. Therefore, the potential exists for the COP to install future municipal wells within the Site or within one mile of the Site plumes.

2.3.1.3 Current Salt River Project Needs

As a water supplier, SRP delivers nearly a million acre-feet of water to the Phoenix area each year. In normal runoff years, most of the water is supplied from surface water on the Salt and Verde Watersheds. However, in more dry years, more groundwater must be pumped to supplement the surface water supply. During extended periods of low run off, groundwater can account for almost one-third of the total SRP water supply. Approximately 28 percent of the average annual municipal water demand in the Phoenix AMA, from 2001-2005, was supplied by groundwater (ADWR, 2014d). Typically, groundwater comprises approximately 15% of the total water supplied by SRP to municipal treatment plants. The groundwater contribution varies seasonally with the highest contribution occurring March through August.



SRP operates and maintains seven (7) irrigation wells within approximately one-mile of the 40th Street and Indian School Road Site (Figure F-6 and Table F-2).

ADWR 55-Registry No.	SRP Well No.
55-202398	18.6E-7.6N
55-607672	17.5E-7N
55-607731	17.1E-7.4N
55-607748	19E-8.1N
55-608431	17E-8N
55-617825	18E-8.8N
55-617857	17.9E-7.5N

The last groundwater sample collected from SRP well 17E-8N in June 2011 contained PCE at a concentration of 2.2 µg/L, and in April 2013, SRP reported PCE at a concentration of 3 µg/L in well 17.9E-7.5N (Elliott, 2014). Groundwater quality data collected from these wells indicates that PCE concentrations in these two SRP wells are below the AWQS of 5 µg/L, and is attributed to the Site. Groundwater pumpage at these wells has been intermittent in the recent past, but the wells can be activated at any time.

2.3.1.4 Future Salt River Project Needs

Although recent use of the irrigation wells in and adjacent to the Site has been intermittent, SRP has no plans to eliminate any of these wells from their system. Based on demand analysis, SRP has indicated it will continue to need the wells in the area to remain operational, especially during dry years.

SRP anticipates all its properties in the vicinity of ECP WQARF Area will remain in use over the next 100 years. Additionally, SRP anticipates that its groundwater supply wells that are in the vicinity will transition from irrigation to municipal service (potable supply) within this time period.

Water shortage is an issue that can impact this Site and all of metropolitan Phoenix. As water quality issues compound the demand concerns already present with regard to anticipated climate change and already stressed water supplies. Water quality is a significant issue, as discussed above SRP expects its groundwater supply wells in the Site area will transition to potable supply in the future. The importance of groundwater and the ability to utilize the aquifer in local and large scale water management scenarios is critical to the future growth and wellbeing of the entire Phoenix metro-area.

According to the questionnaire response, SRP does not plan on installing any new wells in the Site; however, this could change pending COP water needs.

2.3.2 Private Groundwater Use

As discussed above, five (5) exempt wells are located within one-mile of the Site; all five wells have an intended use for domestic irrigation (ADWR, 2014a, and Attachment B). There is no documented private drinking use of groundwater within the Site (ADWR, 2014a).

2.4 Surface Water Use

The nearest surface water body is the Arizona Canal, located approximately 1.25 miles to the northeast of the Site. The Site area is situated within an active flood irrigation district of SRP, which receives water from the Arizona Canal from SRP lateral canal 6.1 (Salt River Valley Water Users' Association, 1980). The water is used for residential irrigation (Figure F-10). SRP lateral 6.1 in the Site area receives water from the Arizona Canal, SRP well 17.9E-7.5N, and SRP 17E-8N. Water from the lateral canal is used for irrigation and also discharges into the Grand Canal. Grand Canal, also used for irrigation, is located approximately two (2) miles southwest of the Site. Future plans for the Grand Canal include a drinking water treatment plant that may be constructed at the end of the Grand Canal. The construction of the treatment plant would change the end use of the canal water requiring that water discharged to the canal meet stricter water quality criteria than what is currently required.



3.0 SUMMARY OF USES

The land and water uses described in Section 2.0 that are most likely to be relevant to the discussion of remedial objectives are presented below.

3.1 LAND USE

The zoning pattern in the area has been long established and there are no foreseeable changes for the future. Land uses for the Site are expected to remain predominantly residential and commercial.

3.2 GROUNDWATER USE

Current and future groundwater uses within the Site include the following:

- The COP anticipates the possible need for additional wells in and adjacent to the Site sometime in the future.
- The SRP owns six wells in and adjacent to the Site and will continue to need the wells to be operational to supplement surface water supplies. SRP has indicated that they may change water usage from irrigation to drinking water within the foreseeable future.

3.3 SURFACE WATER USE

Currently, surface water uses within the Site are only for residential irrigation.



4.0 REFERENCES

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TABLES

TABLE F-1
City of Phoenix Zoning Districts with Brief Descriptions

Zoning District	Description
S-1	Ranch or Farm
S-2	Ranch or Farm Commercial
RE-43	One Family Residence (43,560 sq. ft. min.)(No longer available for rezoning)
RE-24	One Family Residence (24,000 sq. ft. min.)(No longer available for rezoning)
R1-14	One Family Residence (14,000 sq. ft. min.)(No longer available for rezoning)
RE-35	Single Family Residence (density range of 1.1 to 1.15 or 1.32 w/ bonus)
R1-18	Single Family Residence (density range of 1.95 to 2.05 or 2.34 w/bonus)
R1-10	Single Family Residence (density range of 3 to 3.5 or 4.5 w/bonus)
R1-8	Single Family Residence (density range of 4 to 4.5 or 5.5 w/bonus)
R1-6	Single Family Residence (density range of 5 to 5.5 or 6.5 w/bonus)
R-2	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 10 to 10.5 or 12 w/bonus)
R-3	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 14.5 to 15.23 or 17.4 w/bonus)
R-3A	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 22 to 23.1 or 26.4 w/bonus)
R-4	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 29 to 30.45 or 34.8 w/bonus)
R-5	Multiple Family Residence (Detached SF 5 to 6.5 or 12 w/bonus) (Attached 43.5 to 45.68 or 52.2 w/bonus)
R-4A	Multiple Family Residence (Dependent on lot area and unit type)
R-O	Residential Office – Restricted Commercial
C-O	Commercial Office – Restricted Commercial (C-O prior to 1986)
C-O/G-O	Commercial Office – General Office Option (Minimum 1 gross acre)
C-O/M-O	Commercial Office – Major Office Option (Minimum 5 gross acres)
C-1	Commercial – Neighborhood Retail
C-2	Commercial – Intermediate Commercial
C-3	Commercial – General Commercial
CP/SU	Commerce Park – Single User Option
CP/RP	Commerce Park – Research Park Option
CP/BP	Commerce Park – Business Park Option
CP/GCP	Commerce Park – General Commerce Park Option
IP or Ind. Pk.	Industrial Park (See CP) (No longer available for rezoning)
A-1	Light Industrial
A-2	Industrial
RH	Resort
RI	Residential Infill (Combined w/underlying zoning)
HR	High-Rise and High Density (Combined w/underlying zoning)
HR1	High-Rise and High Density (Downtown Area) (Combined w/underlying zoning)
HRI	High-Rise Incentive – High-Rise and Mixed Use (Combined w/underlying zoning)
MR PAD	Mid-Rise (Combined w/underlying zoning)
PCD	Planned Community District (Combined w/underlying zoning or approved zoning)
PSC	Planned Shopping Center (No longer available for rezoning)
RSC	Regional Shopping Center (No longer available for rezoning)
P-1	Passenger Automobile Parking, Limited (Surface parking)
P-2	Parking (Surface parking and parking structures)
GC	Golf Course
UR	Urban Residential (May apply between 7th Ave. to 7th St. & Lincoln St. to Grand
DC	Downtown Core (Underlying zoning for Fillmore to Harrison & 7th St. to 3rd Ave.)
W	Warehouse Overlay (Combined w/underlying zoning) (Applies to specific area near
Warehouse Parking	(Combined w/underlying zoning)
Capitol Mall Overlay	(Combined w/underlying zoning) (Applies to specific area near the Capitol)
SP	Special Permit (Combined w/underlying zoning) (Allows a number of specific uses not
MUA	Mixed Use Agricultural (Should be designated as MUA on the General Plan)
HCRO	Historic Canal-Side Restaurant Overlay (Combined w/underlying zoning) (Applies to
Baseline Area Overlay	(Combined w/underlying zoning) (Applies between Central to 40th St. & Southern to
Arcadia Camelback Special Planning District	(Combined w/underlying zoning) (Applies along Camelback Rd. from 44th St. to the
Desert Character Overlay	(Combined w/underlying zoning) (Applies to North Land Use Plan area)
NBCC	North Black Canyon Overlay (Combined w/underlying zoning) (Specific guidelines for
RSIO	Rio Salado Interim Overlay (Combined w/underlying zoning) (Applies between I-17/I-
HP	Historic Preservation Overlay (Combined w/underlying zoning)
CCSIO	Central City South Interim Overlay (Combined w/underlying zoning) (Applies to
Four Corners Overlay	(Applies to specific area near 24th St. & Broadway Rd.)
SPVTABDO	South Phoenix Village and Target Area B Design Overlay (Applies to specific areas
PSC Overlay	Planned Shopping Center Overlay
SPD	Special Planning District (Combined w/underlying zoning) (Applies to specific
EBRO	East Buckeye Road Overlay District (Combined w/underlying zoning) (Applies to
DVAO	Deer Valley Airport Overlay District (Combined w/underlying zoning) (Applies to
ACOD	Arts, Culture and Small Business Overlay District (Combined w/underlying zoning)
HRO	Hatcher Road Overlay (Combined w/underlying zoning) (Applies to specific area on
Downtown Code	A code to implement the Downtown Phoenix Plan increased mix of land uses, and
PUD	Planned Unit Development Individually tailored standards to create a built
TOD-1	Interim Transit-Oriented District One, to encourage appropriate mixture/density of
TOD-2	Interim Transit-Oriented District Two, to encourage appropriate mixture/density of
SAUMSO	Seventh Avenue Urban Main Street Overlay District (Combined w/underlying zoning)
NCASPD	North Central Avenue SPD Overlay District (Combined w/underlying zoning) Provide
AIO	Airport Noise Impact Overlay District (Combined w/underlying zoning) (Applies to
FH	Flood Hazard and Erosion Management District (Combined w/underlying zoning)

Note: See Section 608 of the Zoning Ordinance to calculate bonus points for residential development.

TABLE F-2
GROUNDWATER WITHDRAWAL WELLS WITHIN ONE MILE OF THE SITE
EAST CENTRAL PHOENIX 40TH STREET AND INDIAN SCHOOL ROAD SITE
REMEDIAL INVESTIGATION - LAND AND WATER USE SURVEY

55-REGISTRY ID	GWSI SITE	CADASTRAL	OWNER NAME	SRP Well No.	WELL TYPE	WELL DEPTH (FT BGS)	CASING DEPTH (FT BGS)	CASING DIAMETER (IN)	APPLICATION DATE	INSTALLED DATE	WATER LEVEL (FT BGS)	PUMP RATE (GPM)	UTM-X (METERS)	UTM-Y (METERS)
202398	332918111590701	A02004030ACC	Salt River Project	18.6E-7.6N	Non-Exempt	207	207	21	3/15/2004	12/30/2004	27	0	408419.8	3705868
501994	NR	A02004030BCA	Peterson, D D	NA	EXEMPT	65	85	4	*2/3/1982	1/1/1981	19	0	407829.4	3706089
600537	NR	A02003024BCD	American Continental	NA	EXEMPT	137	0	4	*9/23/1981	**1/2/1900	71	0	406221.1	3707562
607672	332853112000801	A02003025DCC	Salt River Project	17.5E-7N	Non-Exempt	202	188	12	*5/18/1982	10/1/1923	89	563	406803.9	3705103
607731	332915112004301	A02003025CBB	Salt River Project	17.1E-7.4N	Non-Exempt	400	400	18	*5/18/1982	4/21/1962	53	1196	406004.9	3705727
607748	332942111584101	A020420CCC	Salt River Project	19E-8.1N	Non-Exempt	305	305	18	*5/18/1982	6/18/1971	17	808	409232.8	3706647
608431	332941112004301	A02003025BBB	Salt River Project	17E-8N	Non-Exempt	250	250	18	*5/11/1982	8/20/1964	52	1232	406012.9	3706543
617825	333026111594501	A02003024ADA	Salt River Project	18E-8.8N	Non-Exempt	417	417	16	*5/26/1982	1/1/1945	37	1457	407451.9	3707744
617857	332913111594601	A02003025DAA	Salt River Project	17.9E-7.5N	Non-Exempt	300	300	18	*5/26/1982	5/4/1965	24	1114	407421.7	3705699
634799	332858111593001	A02004030CCA	Abbey, D R	NA	EXEMPT	100	70	4	*5/26/1982	10/1/1979	23	10	407813.3	3705284
639997	NR	A02003024ABA	Riskas, L S	NA	EXEMPT	0	0	0	*6/17/1982	NR	0	0	407045.7	3708164
807925	NR	A02003024DBC	Thiher, L	NA	EXEMPT	0	0	0	*8/24/1999	prior to 1980	0	0	406831.8	3707137

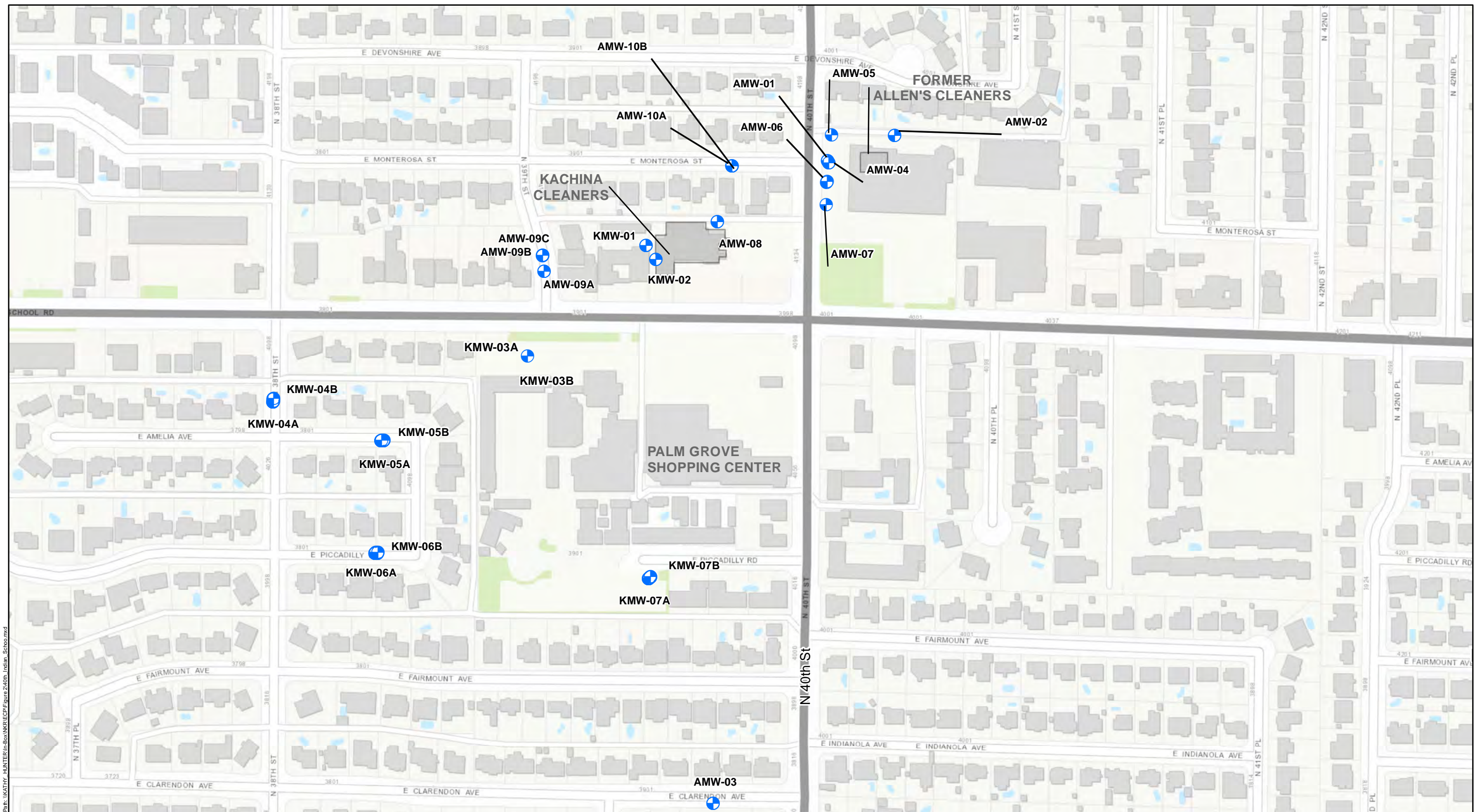
Abandoned September 1996

807366	NR	A02004030DBC	Johns, R F	NA	Exempt	63	0	4	9/17/1996	NR	0	0	408411.5	3705466
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NOTES:

- Exempt - A well having a pump with a maximum capacity of not more than 35 GPM which is used to withdraw groundwater pursuant to A.R.S. § 45-454 and A.R.S. § 45-402(8).
- FT BGS - Feet below ground surface
- GPM - Gallons per minute
- GWSI - Groundwater Site Inventory
- IN - Inches
- NA - Not Applicable
- NR - Not Reported
- Non-exempt - A well drilled within an Active Management Area drilled pursuant to a groundwater right authorized by A.R.S. Title 45, Chapter 2, Article 5, a service area right authorized by A.R.S. Title 45, Chapter 2, Article 6, or a groundwater withdrawal permit authorized by A.R.S. Title 45, Chapter 2, Article 7.
- * Date well registered with Arizona Department of Water Resources

FIGURES



EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA

40TH STREET AND INDIAN SCHOOL ROAD SITE MAP

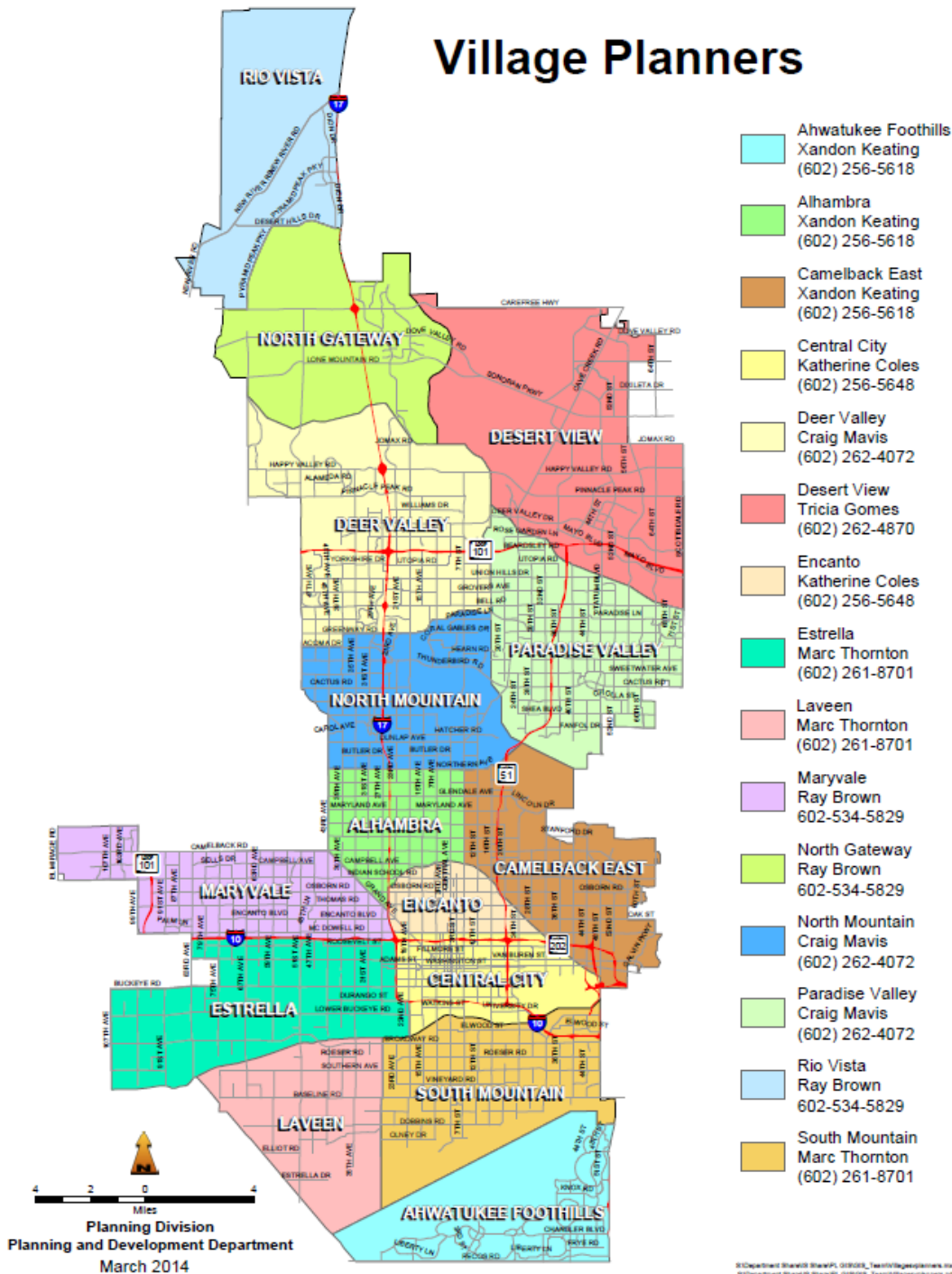


10/1/2014

FIGURE F-1

PREP BY NKR REV BY LLJM RPT NO 1134.41

Village Planners



**EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA**

**CITY OF PHOENIX
VILLAGE PLANNERS MAP**

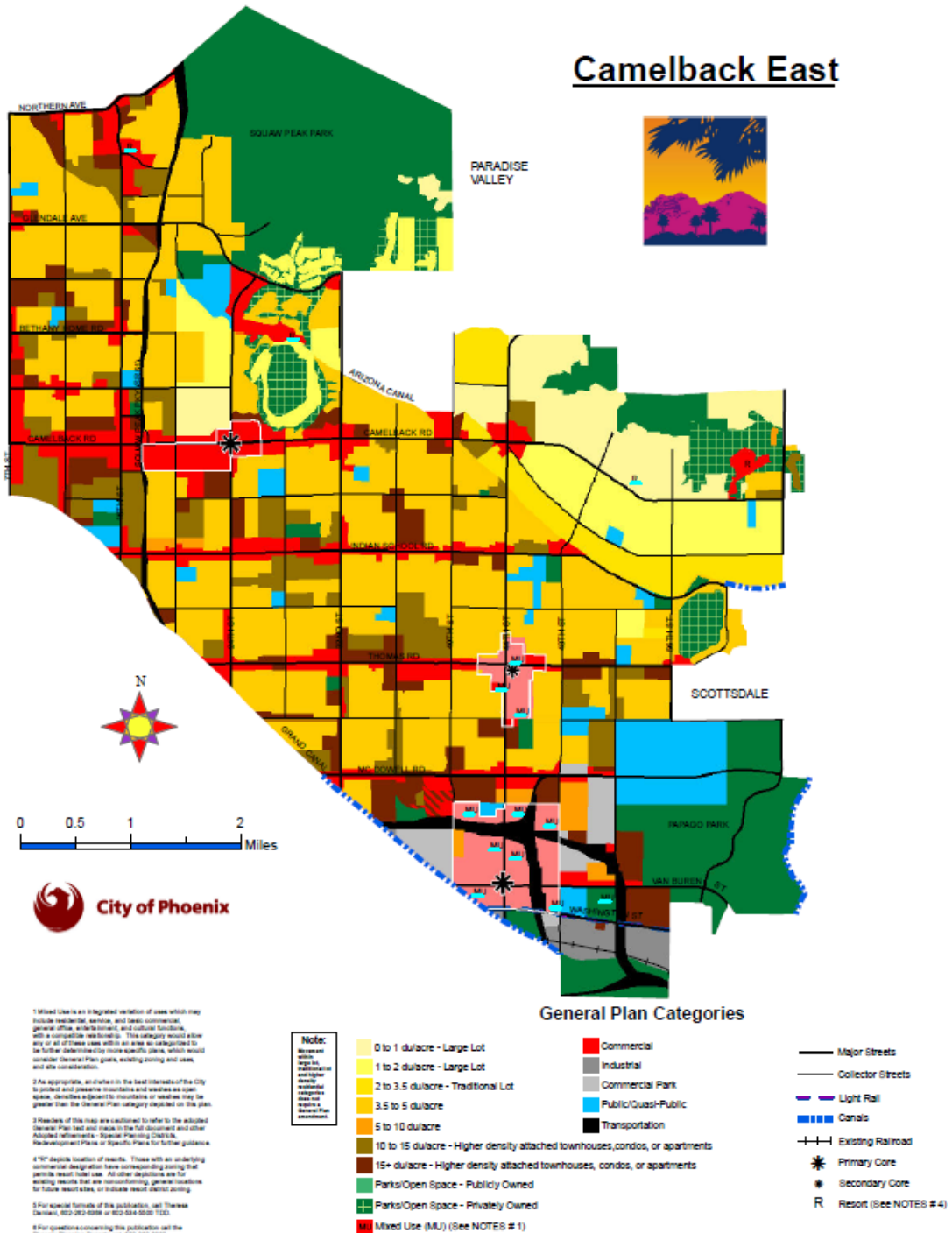


HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

6/13/2014
FIGURE F-2

Note: Figure adapted from
City of Phoenix, Planning and Development (June 2014)
www.phoenix.gov/pdd/pz/vpcomm.html

Camelback East



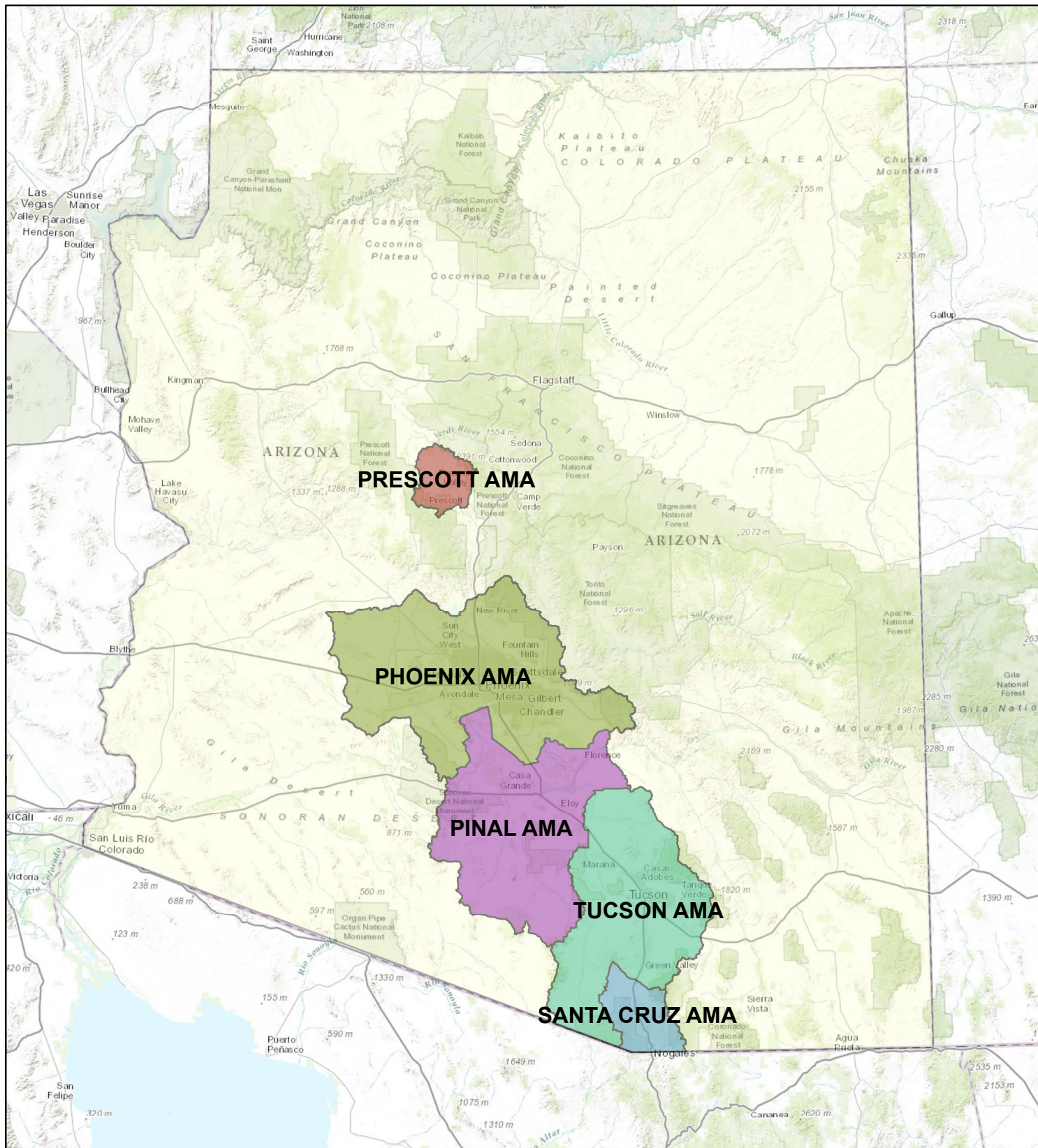
**EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA**

**CAMELBACK EAST
GENERAL PLAN MAP**

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY - ENGINEERING

**6/13/2014
FIGURE F-3**

Note: Figure adapted from
City of Phoenix, Planning and Development (June 2014)
www.phoenix.gov/pdd/pz/vpce.html



NOTES:

- 1) AMA: Active Management Areas
- 2) Data obtained from Arizona Department of Water Resources (ADWR) Water Management Website (June 2014)

0 25 50 100
Miles



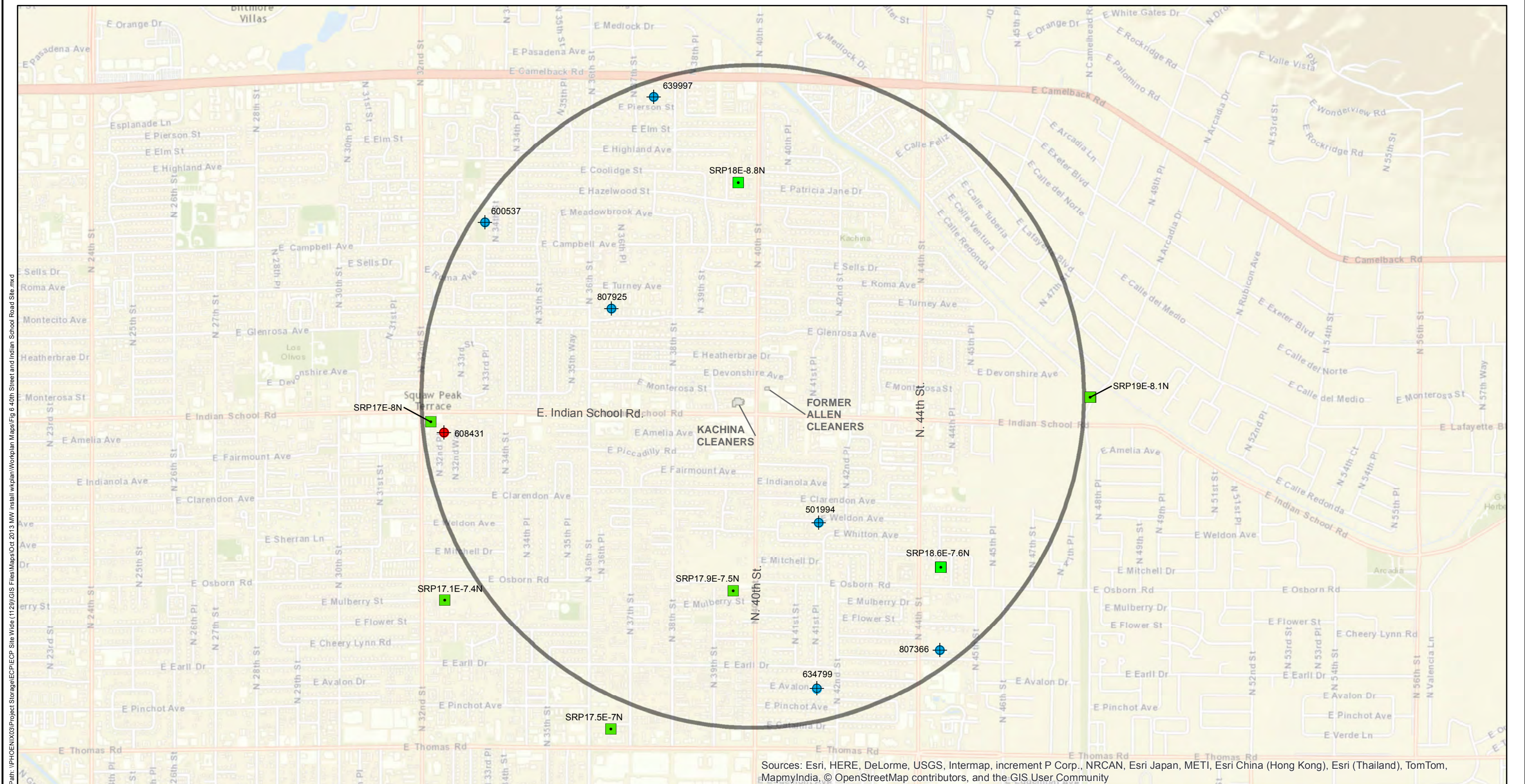
**EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA**

ADWR AMA LOCATION MAP

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HYDROGEOLOGY • ENGINEERING


6/26/2014
FIGURE F-5


PREP BY NKR REV BY JWM



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

 1 Mile Area

 SRP Production Well Location

 Non-Exempt Well Location	-- A groundwater well drilled within an Active Management Area under a groundwater right for withdrawal pursuant to ARS Title 45, Chapter 2, Article 5, 6, or 7.
---	--

● Exempt Well Locations -- A groundwater well with maximum capacity of <35 gallons per minute

518068 -- Well Registry Number for State of Arizona (55-XXXXXX)

NOTES:

- ARS = Arizona Revised Statutes
- WQARF = Water Quality Assurance Revolving Fund
- This map falls within the City of Phoenix municipal service area.
- Well information obtained from Arizona Department of Water Resources 55 Registry.



0 375 750 1,500
Feet

EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA

**REGISTERED WITHDRAWAL WELLS
WITHIN 1-MILE RADIUS OF SITE
40TH STREET AND INDIAN SCHOOL ROAD**

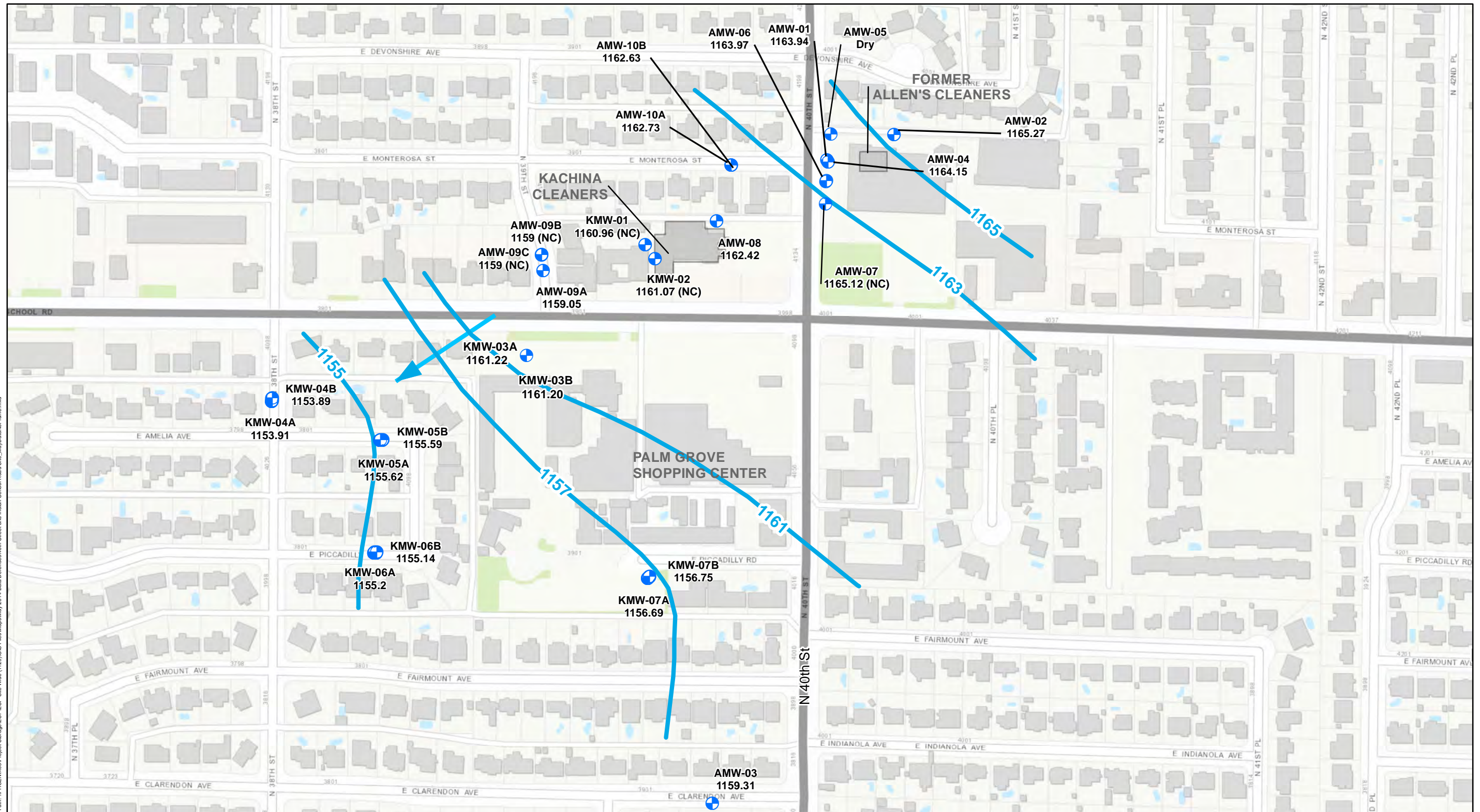


0/1/2014

FIGURE F-6

PREP BY NKR	REV BY LLJM	RPT NO 1136.41
-------------	-------------	----------------

Path: V:\PHOENIX\03\Project Storage\EC\PECP Site Wide (1129)\GIS Files\Maps\May 2014 Data\Defenses\40th Street and Indian School Road Site MayData\Bplume.mxd



EXPLANATION

- Groundwater Monitor Well Locations
- Water Level Contour
- Direction of Groundwater Flow

1159.31 -- Groundwater elevation (ft above mean sea level) - May 2014

NC -- Data not used in contouring and interpretation of groundwater flow direction; casing elevation measurement is considered suspect.

0 62.5125 250
Feet



EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA

GROUNDWATER ELEVATIONS (MAY 2014) 40TH STREET AND INDIAN SCHOOL ROAD SITE

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

10/1/2014

FIGURE F-7

PREP BY_NKR_ REV BY_LLJM_ RPT NO 1134.41

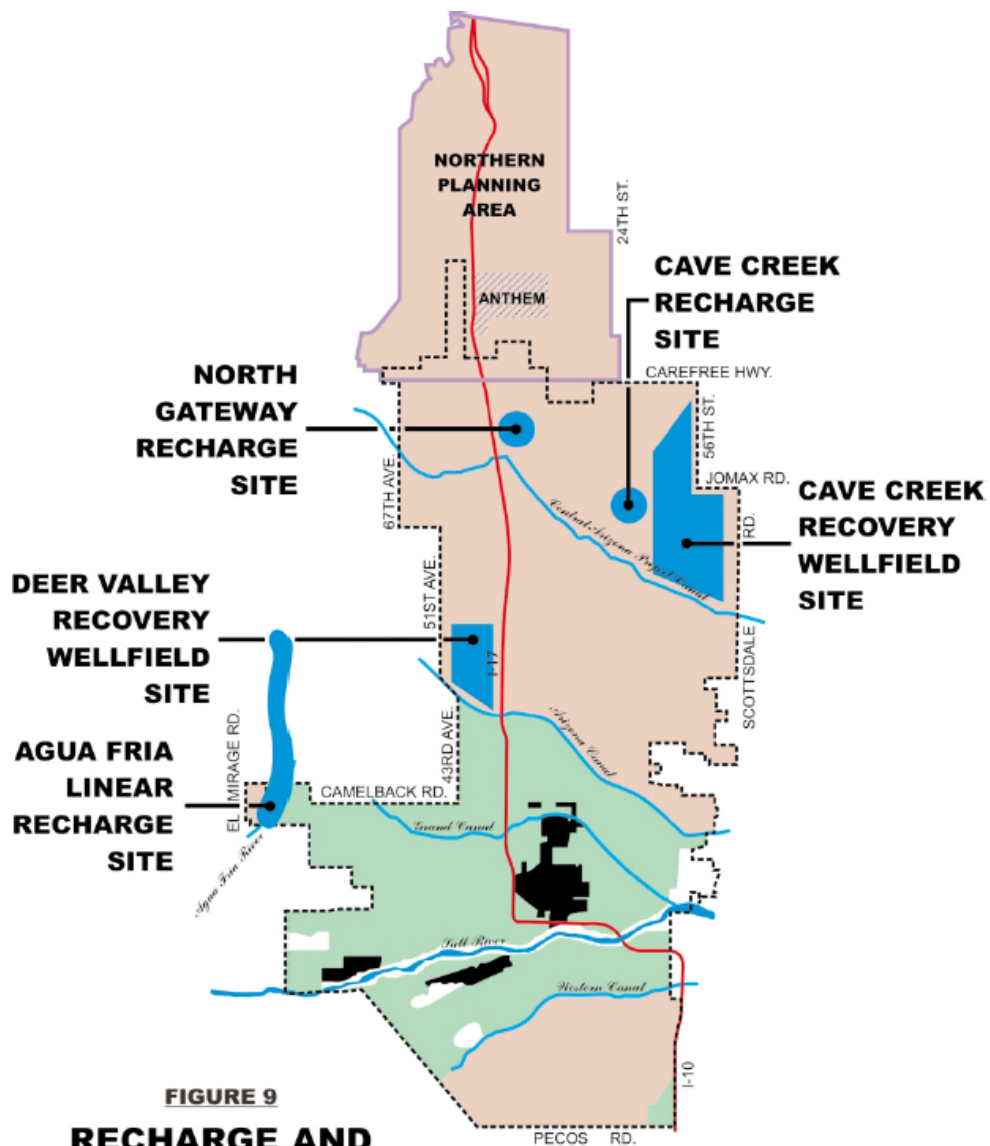


FIGURE 9
RECHARGE AND
RECOVERY SITES

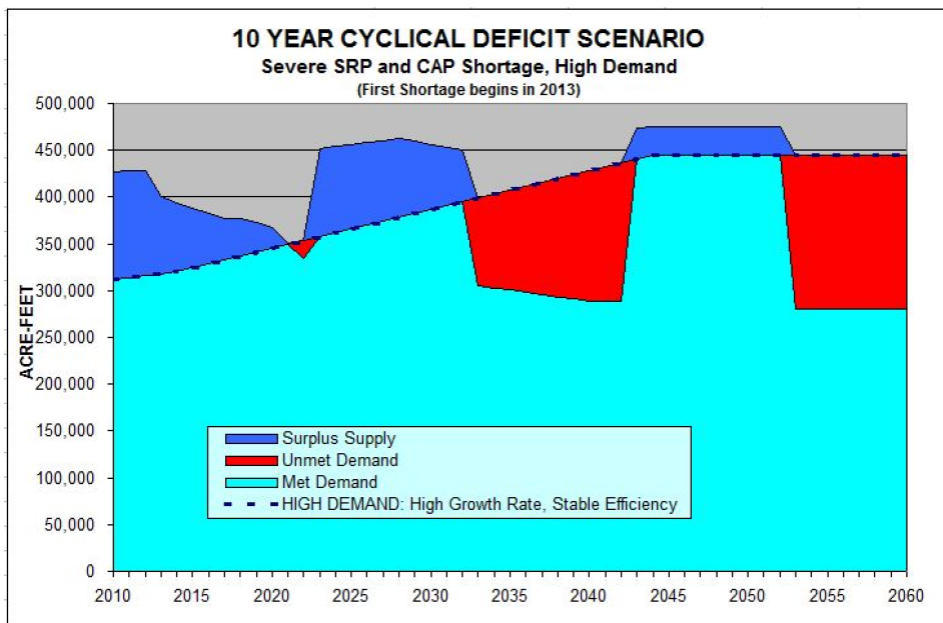
- | | |
|--|---|
| OFF - PROJECT LANDS | OFF - PROJECT LANDS EXCLUDED FROM PLAN |
| MEMBER LANDS | CITY OF PHOENIX LIMITS |
| WATER RIGHT AREAS | NORTHERN PLANNING AREA |
| NON- MEMBER WITHOUT WATER RIGHTS | |



EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA

CITY OF PHOENIX
RECHARGE AND RECOVERY SITES

Note: Figure adapted from City of Phoenix Water Resources Element, General Plan 2002 .



12

Figure 4-11. Severe SRP and CAP shortage 10 year deficit scenario

¹² First shortage to CAP occurs in 2010, but deficit to Phoenix would not materialize until 2020.

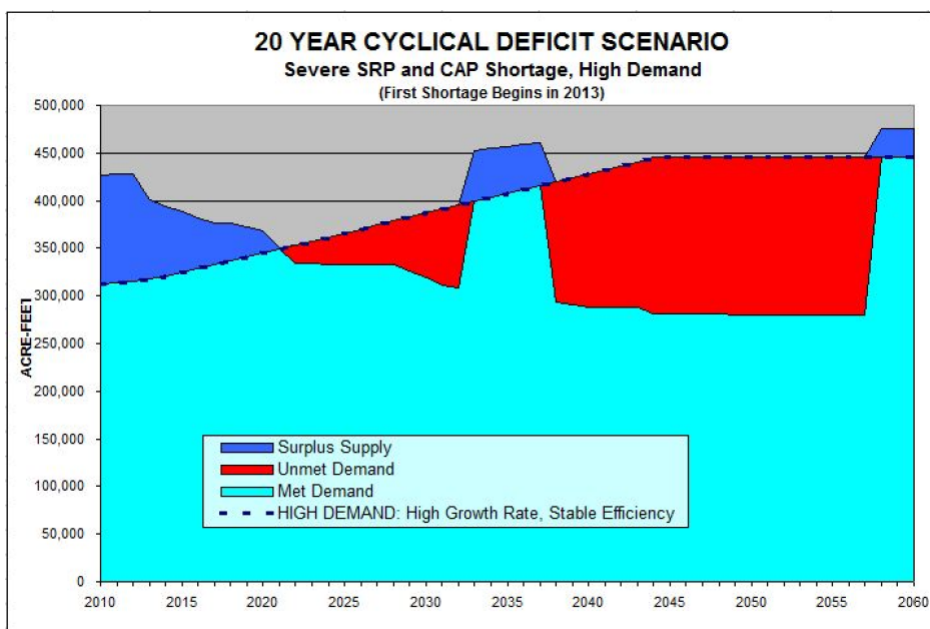


Figure 4-12. Severe SRP and CAP shortage 20 year deficit scenario

Note: Figure adapted from
City of Phoenix 2011 Water Resources Plan .

**EAST CENTRAL PHOENIX
WQARF SITE
PHOENIX, ARIZONA**

**CITY OF PHOENIX
DEFICIT SCENARIOS**

 **HARGIS + ASSOCIATES, INC.**
HYDROGEOLOGY • ENGINEERING

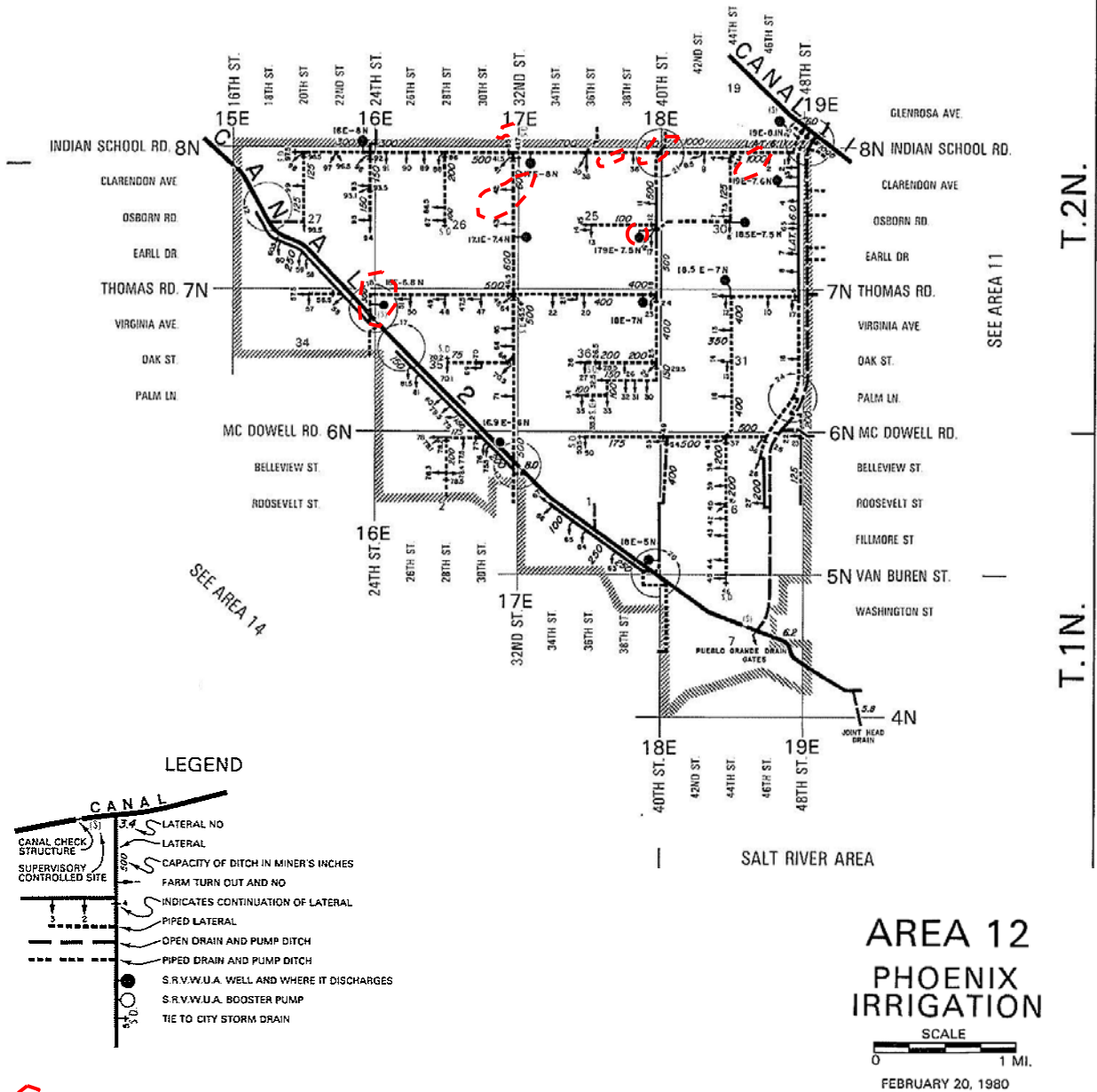
6/13/2014
FIGURE F-9

R.3E.

R.4E.

12

SEE AREA 13

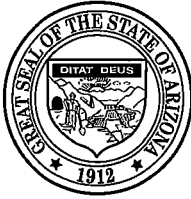


Approximate ECP WQRF Site Locations

Note: Figure adapted from
Salt River Valley Water Users' Association, Zanjero Area Maps, 1980.

ATTACHMENT A
LAND AND WATER USE STUDY QUESTIONNAIRES

ATTACHMENT A



Janice K. Brewer
Governor

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov



Henry R. Darwin
Director

Certified Mail
RPU14:370

April 22, 2014

Philip McNeely
City of Phoenix
Office of Environmental Programs
200 W. Washington St
14th Floor
Phoenix, AZ 85003

Re: Land and Water Use Study Questionnaire, East Central Phoenix - 38th Street and Indian School Road Water Quality Assurance Revolving Fund (WQARF) Registry Site, Phoenix, Arizona.

The Arizona Department of Environmental Quality (ADEQ) has prepared a Land and Water Use Study Questionnaire for specified stakeholders located in and near the East Central Phoenix - 38th Street and Indian School Road WQARF Registry site (Site). The Site is currently undergoing evaluation for remedial actions to address tetrachloroethene (PCE) in the groundwater.

This land and water use study is an important tool for ADEQ in development of the remedial objectives for this site. Please complete the enclosed questionnaire within 30 days of receipt. The information you provide is very important for continuation of the remedial process. Please return the questionnaire in the enclosed, self-addressed, stamped envelope to Mel Bunkers, Arizona Department of Environmental Quality, 1110 West Washington St., Phoenix, Arizona, 85007.

Please contact me at 602-771-4556 or Bunkers.Mel@azdeq.gov with questions or comments.

Sincerely,

Mel Bunkers, Project Manager
East Central Phoenix WQARF Site
Remedial Projects Unit

Enclosure

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

Printed on recycled paper

ATTACHMENT A

LAND AND WATER USE STUDY QUESTIONNAIRE FOR MUNICIPALITIES/UTILITIES WITHIN THE EAST CENTRAL PHOENIX (38TH/40TH AND INDIAN SCHOOL ROAD) WQARF REGISTRY SITE

Please answer all questions. Mark "NA" for questions that are not applicable. Mark "UNK" if the answer is unknown to you at the time of completion. Please attach any additional pages as needed.

Water user municipality/utility name: City of Phoenix

Date Questionnaire was completed: May 2, 2014

Name of person completing Questionnaire: Philip McNeely /Gary Gin /Xandon Keating

Contact Name: Philip McNeely

Title: Environmental Programs Manager

Division: Office of Environmental Programs / Water Services Dept

Address: 200 W. Washington St. / 14th Floor

Phoenix, AZ 85003

Phone Number: 602-256-5654

1. What is the current use of your municipality's/utility's property within the limits of the East Central Phoenix (38th and Indian School Road) WQARF site? (Boundaries are approximately Indian School Road to the North, 38th Street to the east, Piccadilly Road to the South and 36th Street to the West).

Single family residential, retail, commercial, restaurants

2. Please list the municipality's/utility's properties of concern/boundaries (neighborhood planning committees, zoning, canals, wells) within the East Central Phoenix (38th and Indian School Road) WQARF site boundary.

Camelback East Village Planning Committee

ATTACHMENT A

3. What are the foreseeable plans for the municipality's/utility's property within the East Central Phoenix (38th and Indian School Road) WQARF site boundary as far into the future as they are known and up to 100 years, if possible.

Same as current.

4. Does the municipality/utility have a published general plan for the property within the East Central Phoenix (38th and Indian School Road) WQARF site boundary?

Yes.

5. Are parcel, zoning, or land maps available through the municipality/utility? Where are they located?

Yes. Phoenix.gov/planning

6. Please list any specific neighborhood concern the municipality/utility is aware of within the East Central Phoenix (38th and Indian School Road) WQARF site boundaries? Please list future concerns (e.g.- freeway expansion, water use, water availability, etc.)

None.

ATTACHMENT A

7. Please list any future zoning plans or area plans for the municipality/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary:

Same as current.

8. Please list any "special projects" projected or anticipated within the East Central Phoenix (38th and Indian School Road) WQARF site boundaries:

No.

9. If any property is leased (the municipality/utility is the lessor), how long is the lease term?

N/A

10. If the property is leased, are there plans to renew the lease and if so, for how long?

N/A

ATTACHMENT A

11. Please list any environmental spill of material or waste products that has occurred within the municipality/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary in the past 5 years?

Aware of none.

12 Is the municipality/utility currently sampling groundwater wells within the East Central Phoenix (38th and Indian School Road) WQARF site? If so, how often is the sampling conducted? Are analytical results being submitted to ADEQ for the groundwater database?

No sampling conducted.

13. Does your municipality/utility have an environmental manager or do you outsource environmental management to an environmental consulting firm? If so, please provide the following information:

Name:	<u>Philip McNeely</u>
Contact:	<u>Office of Environmental Programs</u>
Title:	<u>Environmental Programs Manager</u>
Address:	<u>200 W. Washington St., 14th Floor</u>
	<u>Phoenix, AZ 85003</u>
	<u></u>
Phone:	<u>602-256-5654</u>

14. Please indicate anticipated groundwater development by the municipality/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary.

No plans at this time.

ATTACHMENT A

15. Are there any groundwater wells owned by the water provider that have been affected by the East Central Phoenix (38th and Indian School Road) WQARF site? If so, please list the ADWR well identification numbers. What is the current status of these wells (e.g.- shut down, still pumping)?

No.

16. What is the future use (up to 100 years) for any wells that have been impacted by the East Central Phoenix (38th and Indian School Road) WQARF site?

N/A

Thank you for your time. The Project Manager, Mel Bunkers, or a representative from ADEQ's consultant, Hargis + Associates, Inc., may follow-up on answers provided.

ATTACHMENT A

From: elizabeth.zima@phoenix.gov
To: [Kathy Hunter](#)
Subject: Re: East Central Phoenix - Land & Water Use Questionnaires
Date: Monday, April 28, 2014 11:10:35 AM

Great, thanks!

Beth Zima, R.G.
Environmental Quality Specialist
602-256-3447

City of Phoenix
Office of Environmental Programs
200 West Washington Street, 14th Floor
Phoenix, Arizona 85003

-----Kathy Hunter <KHUNTER@HARGIS.COM> wrote: -----

To: Elizabeth Zima/MGR/PHX@PHXENT
From: Kathy Hunter <KHUNTER@HARGIS.COM>
Date: 04/25/2014 05:01PM
Cc: Laura Menken <LMENKEN@HARGIS.COM>
Subject: East Central Phoenix - Land & Water Use Questionnaires

Good Ms. Zima,

Ray Ortega from ADEQ contact us with regards to your request for the word files of the above referenced documents. Please find them attached. Should you have any problems accessing the files or have any questions with regard to the content of the document, please contact our Project Manager, Laura Menken at 480.345.0888 Ext. 260.

Thank you and have a great weekend.

Kathy Hunter | Hargis + Associates, Inc

Stapley Center | 1640 S. Stapley Drive, Suite 209 | Mesa, AZ 85204

☎ 480.345.0888 Ext. 250 | 📠 480.730.0508 | ✉ khunter@hargis.com

[attachment "LAND AND WATER USE STUDY QUESTIONNAIRE MUNICIPALITY-ECP-24GC.docx"
removed by Elizabeth Zima/MGR/PHX]

[attachment "LAND AND WATER USE STUDY QUESTIONNAIRE MUNICIPALITY-ECP-38IS.docx"
removed by Elizabeth Zima/MGR/PHX]

ATTACHMENT A

From: elizabeth.zima@phoenix.gov
To: [Laura Menken: Mel Bunkers \(mpb@azdeq.gov\)](mailto:Laura Menken: Mel Bunkers (mpb@azdeq.gov))
Cc: phil.mcneely@phoenix.gov
Subject: Land & Water Use Questionnaires - 24th St/Grand Canal & 38th St /Indian School
Date: Friday, May 02, 2014 3:19:21 PM
Attachments: [LAND AND WATER USE STUDY QUESTIONNAIRE MUNICIPALITY-ECP-24GC.docx](#)
[LAND AND WATER USE STUDY QUESTIONNAIRE MUNICIPALITY-ECP-38IS.docx](#)

Laura,

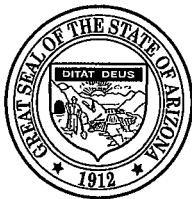
Thanks for the electronic versions. Attached are the completed questionnaires for the above sites.

Thanks,
Beth

Beth Zima, R.G.
Environmental Quality Specialist
602-256-3447

City of Phoenix
Office of Environmental Programs
200 West Washington Street, 14th Floor
Phoenix, Arizona 85003

ATTACHMENT A



Janice K. Brewer
Governor

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov



Henry R. Darwin
Director

Certified Mail
RPU14:373

April 23, 2014

Andrea Martinez
Salt River Project
Mail Station PAB 352
PO Box 52025
Phoenix 85072-2025

Re: Land and Water Use Study Questionnaire, East Central Phoenix - 38th Street and Indian School Road Water Quality Assurance Revolving Fund (WQARF) Registry Site, Phoenix, Arizona.

The Arizona Department of Environmental Quality (ADEQ) has prepared a Land and Water Use Study Questionnaire for specified stakeholders located in and near the East Central Phoenix - 38th Street and Indian School Road WQARF Registry site (Site). The Site is currently undergoing an evaluation for remedial actions to address tetrachloroethene (PCE) in the groundwater.

This land and water use study is an important tool for ADEQ in development of the remedial objectives for this site. Please complete the enclosed questionnaire within 30 days of receipt. The information you provide is very important for continuation of the remedial process. Please return the questionnaire in the enclosed, self-addressed, stamped envelope to Mel Bunkers, Arizona Department of Environmental Quality, 1110 West Washington St., Phoenix, Arizona, 85007.

Please contact me at 602-771-4556 or Bunkers.Mel@azdeq.gov with questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Mel Bunkers".

Mel Bunkers, Project Manager
East Central Phoenix WQARF Site
Remedial Projects Unit

Enclosure

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

ATTACHMENT A

LAND AND WATER USE STUDY QUESTIONNAIRE FOR MUNICIPALITIES/UTILITIES WITHIN THE EAST CENTRAL PHOENIX (38TH/40TH AND INDIAN SCHOOL ROAD) WQARF REGISTRY SITE

Please answer all questions. Mark "NA" for questions that are not applicable. Mark "UNK" if the answer is unknown to you at the time of completion. Please attach any additional pages as needed.

Water user municipality/utility name: Salt River Project

Date Questionnaire was completed: June 6, 2014

Name of person completing Questionnaire: Andrea Martinez

Contact Name: Andrea Martinez

Title: Senior Environmental Engineer

Division: Environmental Compliance

Address: PAB 352, P. O. Box 52025

Phoenix AZ 85233

Phone Number: 602-236-2618

1. What is the current use of your municipality's/utility's property within the limits of the East Central Phoenix (38th and Indian School Road) WQARF site? (Boundaries are approximately Indian School Road to the North, 38th Street to the east, Picadilly Road to the South and 36th Street to the West).

SRP owns and operates conveyance structures in the subject area that produce and convey water for its shareholders. Power distribution lines are also within ECP boundaries. Additionally, SRP has multiple groundwater supply wells in close proximity to the site.

2. Please list the municipality's/utility's properties of concern/boundaries (neighborhood planning committees, zoning, canals, wells) within the East Central Phoenix (38th and Indian School Road) WQARF site boundary.

SRP owns four groundwater supply wells within one-mile of the East Central Phoenix (ECP) WQARF area – 17E-8N to the west, 17.1E- 7.4N to the southwest, 17.9E- 7.5N to the southeast, 18E -8.8N to the northeast. SRP's wells supplement surface water supplies and are critical in times of drought. See question #15 for contamination concerns.

ATTACHMENT A

3. What are the foreseeable plans for the municipality's/utility's property within the East Central Phoenix (38th and Indian School Road) WQARF site boundary as far into the future as they are known and up to 100 years, if possible.

SRP anticipates all its properties in the vicinity of ECP WQARF Area will remain in use over the next 100 years. Additionally, SRP anticipates that its groundwater supply wells that are in the vicinity (see question #2 above) will transition from irrigation to municipal service (potable supply) within this time period.

4. Does the municipality/utility have a published general plan for the property within the East Central Phoenix (38th and Indian School Road) WQARF site boundary?

No

5. Are parcel, zoning, or land maps available through the municipality/utility? Where are they located?

Not available

6. Please list any specific neighborhood concern the municipality/utility is aware of within the East Central Phoenix (38th and Indian School Road) WQARF site boundaries? Please list future concerns (e.g.- freeway expansion, water use, water availability, etc.)

Water shortage is an issue that can impact this neighborhood as it can all of metropolitan Phoenix. As water quality issues will impact water supplies as much as water quantity, SRP has a specific concern regarding water quality impacts associated with the East Central Phoenix WQARF site. SRP expects the groundwater supply wells noted in #2 above will transition to potable supply in the future so the chemical quality of the groundwater is a significant issue. Our concern is heightened because of anticipated climate change and the additional stress expected to be applied to already stressed surface water supplies. The importance of groundwater and the ability to utilize the aquifer in local and large scale water management scenarios is critical to the future growth and wellbeing of the entire metro-area. We cannot overstate the importance of effective cleanups of contaminants which threaten the use of groundwater and the aquifers that host it.

7. Please list any future zoning plans or area plans for the municipality/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary:

None, SRP does not do zoning.

ATTACHMENT A

8. Please list any "special projects" projected or anticipated within the East Central Phoenix (38th and Indian School Road) WQARF site boundaries:

Transition of SRP owned groundwater supply wells from irrigation to municipal service (potable supply). Additionally it may become necessary in the future to construct additional groundwater supply wells in close proximity to the East Central Phoenix WQARF site boundaries.

9. If any property is leased (the municipality/utility is the lessor), how long is the lease term?

There is no property in the area where SRP is the lessor.

10. If the property is leased, are there plans to renew the lease and if so, for how long?

N/A

11. Please list any environmental spill of material or waste products that has occurred within the municipality/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary in the past 5 years?

None

12. Is the municipality/utility currently sampling groundwater wells within the East Central Phoenix (38th and Indian School Road) WQARF site? If so, how often is the sampling conducted? Are analytical results being submitted to ADEQ for the groundwater database?

SRP conducts routine groundwater sampling from its wells when possible. Water quality records are available on request, if not already submitted to the ADEQ groundwater database.

13. Does your municipality/utility have an environmental manager or do you outsource environmental management to an environmental consulting firm? If so, please provide the following information:

Name: *David Sultana*_____

Contact: _____

Title: *Manager, Water Quality, Waste Management & Field Services*

ATTACHMENT A

Address: PAB 352, P.O. Box 52025 _____

Phoenix, AZ 85233 _____

Phone: (602) 236-8118 _____

14. Please indicate anticipated groundwater development by the municipality/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary.

Though SRP has no current plans to develop additional groundwater supplies within the East Central Phoenix WQARF site, it is very likely they will be added in the future. The site is completely within the SRP water service area and SRP must be responsive to the water supply needs of its shareholders and customers. To meet its water delivery needs SRP may elect to increase its groundwater use in close proximity to the WQARF site as noted in #8 above. SRP may do this by constructing additional groundwater supply wells or by connecting its existing water supply wells to direct municipal delivery or pipe them to the Arizona Canal to provide greater flexibility in its delivery operations. In any case, there are many scenarios where usage of groundwater in the vicinity of the WQARF site can be expected to increase above historic levels.

15. Are there any groundwater wells owned by the water provider that have been affected by the East Central Phoenix (38th and Indian School Road) WQARF site? If so, please list the ADWR well identification numbers. What is the current status of these wells (e.g.- shut down, still pumping)?

Some of the SRP groundwater supply wells listed in #2 above have shown elevated PCE and TCE (one time above AWQS in 1996) levels since 1990:

17E-8N (55-608431) – PCE concentration as high as 82 µg/L and TCE as high as 1.5 ug/L;

17.1E-7.4N (55-607731) – PCE concentrations as high as 5.8 ug/L;

17.9E-7.5N (55-617857) – PCE concentration as high as 210 µg/L and one time above AWQS TCE 9.9 µg/L;

18E-8.8N (55-617825) – PCE concentrations as high as 1.1 ug/L;

All of the wells noted above and listed in #2 are currently in service.

ATTACHMENT A

16. What is the future use (up to 100 years) for any wells that have been impacted by the East Central Phoenix (38th and Indian School Road) WQARF site?

All of SRP's groundwater supply wells in the vicinity of the East Central Phoenix WQARF site are anticipated to remain in use over the next 100 years. SRP delivers nearly 1,000,000 acre-feet of water per year to the metro Phoenix area. In normal run off years, most of this is supplied from surface water coming from the Salt and Verde Rivers. However, in dry years, groundwater must be pumped to supplement the surface water supplies. SRP's water supply wells are a critical resource especially in drought conditions and it is very important to SRP that it have a reliable supply of water to meet customer and shareholder needs.

Thank you for your time. The Project Manager, Mel Bunkers, or a representative from ADEQ's consultant, Hargis + Associates, Inc., may follow-up on answers provided.

ATTACHMENT A

From: [Martinez Andrea L](#)
To: [Laura Menken](#); [Mel P. Bunkers](#)
Subject: RE: SRP Water User Questionnaires
Date: Friday, June 06, 2014 4:20:57 PM
Attachments: [SRP Land and Water Use Questionnaire, ECP 24th and Grand, 06-2014.pdf](#)
[SRP Land and Water Use Questionnaire, ECP 38th and Indian School, 06-2014.pdf](#)
[SRP Land and Water Use Questionnaire, ECP 40th and Osborn, 06-2014.pdf](#)

Laura and Mel,

Sorry for the delay, please find the attached questionnaires from SRP.

Thanks,

Andrea Martinez | Senior Environmental EngineerI | 602.236.2618
Salt River Project | 1521 North Project Drive | Tempe, Arizona 85281

From: Laura Menken [<mailto:LMENKEN@HARGIS.COM>]
Sent: Monday, June 02, 2014 11:51 AM
To: Mel P. Bunkers; Martinez Andrea L
Subject: RE: SRP Water User Questionnaires

Andrea,

As Mel indicated, we are under deadline as well. I need the 38th and Indian School and 40th/Osborn as early as possible. The 24th/Grand Canal can come later if that helps.

If you could give us an update I'd appreciate it.

Thank you!

Laura

Laura L.J. Menken, RG
Hargis + Associates, Inc.
1640 S. Stapley Drive, Ste 209
Mesa, Arizona 85204
Office 480.345.0888x260
Cell 480.271.5448
[lmenken@hargis.com](mailto:lmcken@hargis.com)

From: Mel P. Bunkers [<mailto:Bunkers.Mel@azdeq.gov>]
Sent: Monday, June 02, 2014 7:23 AM
To: 'Martinez Andrea L'; Laura Menken
Subject: RE: SRP Water User Questionnaires

Andrea,

ATTACHMENT A

Is it possible to get the questionnaires back earlier than June 20th as ADEQ reports that contain the questionnaires as attachments are due also?

Thank you,

Mel Bunkers, Project Manager
Remedial Projects Unit
Arizona Department of Environmental Quality
1110 W Washington St.
Phoenix, Arizona 85007
(602) 771-4556

From: Martinez Andrea L [<mailto:Andrea.Martinez@srpnet.com>]
Sent: Friday, May 30, 2014 1:26 PM
To: Laura Menken
Cc: Mel P. Bunkers
Subject: RE: SRP Water User Questionnaires

Hi Laura,

We are working on the three ECP questionnaires, unfortunately they are all taking us longer than expected due to other demands. Can we return all three by June 20th?

Thanks,

Andrea Martinez | Senior Environmental EngineerI | 602.236.2618
Salt River Project | 1521 North Project Drive | Tempe, Arizona 85281

From: Laura Menken [<mailto:LMENKEN@HARGIS.COM>]
Sent: Friday, April 25, 2014 3:09 PM
To: Martinez Andrea L
Cc: Mel Bunkers (mpb@azdeq.gov)
Subject: RE: SRP Water User Questionnaires

Andrea,

I've attached the letter and survey for the ECP 40th and Osborn Site as well. Please let me know if you have any questions.

Thanks,

Laura

Laura L.J. Menken, RG
Hargis + Associates, Inc.
1640 S. Stapley Drive, Ste 209

ATTACHMENT A

Mesa, Arizona 85204
Office 480.345.0888x260
Cell 480.271.5448
lmcken@hargis.com

From: Martinez Andrea L [<mailto:Andrea.Martinez@srpnet.com>]
Sent: Friday, April 25, 2014 11:50 AM
To: Laura Menken
Cc: Mel Bunkers (mpb@azdeq.gov)
Subject: RE: SRP Water User Questionnaires

Laura,

It makes no difference to us how we receive these questionnaires, they have come both hard copy from ADEQ, electrically from the Consulting firm. However Mel would like to handle. Either way I always request the word version as there are multiple groups within SRP that have input on the forms. Thanks Laura.

Thanks,

Andrea Martinez | Senior Environmental EngineerI | 602.236.2618
Salt River Project | 1521 North Project Drive | Tempe, Arizona 85281

From: Laura Menken [<mailto:LMENKEN@HARGIS.COM>]
Sent: Friday, April 25, 2014 11:46 AM
To: Martinez Andrea L
Cc: Mel Bunkers (mpb@azdeq.gov)
Subject: RE: SRP Water User Questionnaires

Andrea,
Thanks for your help. Here are the forms for the two sites.

I have one more site that I need to send a letter out to you. Would you prefer I send that via email, as well?

Laura

Laura L.J. Menken, RG
Hargis + Associates, Inc.
1640 S. Stapley Drive, Ste 209
Mesa, Arizona 85204
Office 480.345.0888x260
Cell 480.271.5448
lmcken@hargis.com

ATTACHMENT A

From: Martinez Andrea L [<mailto:Andrea.Martinez@srpnet.com>]
Sent: Friday, April 25, 2014 11:29 AM
To: Laura Menken
Subject: SRP Water User Questionnaires

Hi Laura,

Could you please send the two questionnaires electronically, word please? It is much easier internally to fill out answers in word then route to internal groups that need to provide input. Thanks.

Thanks,

Andrea Martinez | Senior Environmental EngineerI | 602.236.2618
Salt River Project | 1521 North Project Drive | Tempe, Arizona 85281

NOTICE: This e-mail (and any attachments) may contain PRIVILEGED OR CONFIDENTIAL information and is intended only for the use of the specific individual(s) to whom it is addressed. It may contain information that is privileged and confidential under state and federal law. This information may be used or disclosed only in accordance with law, and you may be subject to penalties under law for improper use or further disclosure of the information in this e-mail and its attachments. If you have received this e-mail in error, please immediately notify the person named above by reply e-mail, and then delete the original e-mail. Thank you.

ATTACHMENT A

From: Laura Menken
To: ["Martinez Andrea L"](#)
Cc: [Mel Bunkers \(mpb@azdeq.gov\)](mailto:mpb@azdeq.gov)
Subject: RE: SRP Water User Questionnaires
Date: Friday, April 25, 2014 11:46:00 AM
Attachments: [LAND AND WATER USE STUDY QUESTIONNAIRE MUNICIPALITY-ECP-24GC.docx](#)
[LAND AND WATER USE STUDY QUESTIONNAIRE MUNICIPALITY-ECP-38IS.docx](#)

Andrea,

Thanks for your help. Here are the forms for the two sites.

I have one more site that I need to send a letter out to you. Would you prefer I send that via email, as well?

Laura

Laura L.J. Menken, RG
Hargis + Associates, Inc.
1640 S. Stapley Drive, Ste 209
Mesa, Arizona 85204
Office 480.345.0888x260
Cell 480.271.5448
lmcken@hargis.com

From: Martinez Andrea L [<mailto:Andrea.Martinez@srpnet.com>]
Sent: Friday, April 25, 2014 11:29 AM
To: Laura Menken
Subject: SRP Water User Questionnaires

Hi Laura,

Could you please send the two questionnaires electronically, word please? It is much easier internally to fill out answers in word then route to internal groups that need to provide input. Thanks.

Thanks,

Andrea Martinez | Senior Environmental EngineerI | 602.236.2618
Salt River Project | 1521 North Project Drive | Tempe, Arizona 85281

ATTACHMENT A

VIA EMAIL

May 2, 2014

Rita Neill
Environmental Programs Manager
Maricopa County Risk Management
222 North Central Avenue, Suite 1110
Phoenix, Arizona 85004

Re: Land and Water Use Study Questionnaire, East Central Phoenix
38th Street and Indian School Road Water Quality Assurance Revolving Fund (WQARF)
Registry Site, Phoenix, Arizona.

Dear Ms. Neill:

On behalf of the Arizona Department of Environmental Quality (ADEQ), Hargis + Associates, Inc. (H+A) has prepared a Land and Water Use Study Questionnaire for specified stakeholders located in and near the East Central Phoenix - 38th Street and Indian School Road WQARF Registry Site (Site). The Site is currently undergoing an evaluation for remedial actions to address tetrachloroethene (PCE) in the groundwater.

This land and water use study is an important tool for ADEQ in development of the remedial objectives for this site. Please complete the enclosed questionnaire within 30 days of receipt. The information you provide is very important for continuation of the remedial process. Please return the questionnaire to Laura Menken, H+A via e-mail at lmenken@hargis.com.

Please contact me at 480-345-0888, extension 260 with questions or comments.

Sincerely,

HARGIS + ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read "Laura L.J. Menken", followed by a long horizontal flourish.

Laura L.J. Menken, RG
Hydrogeologist/Project Manager
East Central Phoenix WQARF Site

Attachments

ATTACHMENT A

LAND AND WATER USE STUDY QUESTIONNAIRE FOR MUNICIPALITIES/COUNTY/UTILITIES WITHIN THE EAST CENTRAL PHOENIX (38TH/40TH AND INDIAN SCHOOL ROAD) WQARF REGISTRY SITE

Please answer all questions. Mark "NA" for questions that are not applicable. Mark "UNK" if the answer is unknown to you at the time of completion. Please attach any additional pages as needed.

Water user municipality/county/utility name: Maricopa County

Date Questionnaire was completed: May 5, 2014

Name of person completing Questionnaire: Rita Neill

Contact Name: Rita Neill

Title: Environmental Programs Manager

Division: Risk Management Department

Address: 222 N. Central Ave, Ste 1110

Phoenix, AZ 85004

Phone Number: 602-506-5063

1. What is the current use of your municipality's/county's/utility's property within the limits of the East Central Phoenix (38th and Indian School Road) WQARF site? (Boundaries are approximately Indian School Road to the North, 38th Street to the east, Picadilly Road to the South and 36th Street to the West).

NA

2. Please list the municipality's/county's/utility's properties of concern/boundaries (neighborhood planning committees, zoning, canals, wells) within the East Central Phoenix (38th and Indian School Road) WQARF site boundary.

NA

ATTACHMENT A

3. What are the foreseeable plans for the municipality's/county's/utility's property within the East Central Phoenix (38th and Indian School Road) WQARF site boundary as far into the future as they are known and up to 100 years, if possible?

NA

4. Does the municipality/county/utility have a published general plan for the property within the East Central Phoenix (38th and Indian School Road) WQARF site boundary?

NA

5. Are parcel, zoning, or land maps available through the municipality/county/utility? Where are they located?

The County has parcel maps and historical aerials available on the GIS section of its website at www.Maricopa.gov

6. Please list any specific neighborhood concern the municipality/county/utility is aware of within the East Central Phoenix (38th and Indian School Road) WQARF site boundaries? Please list future concerns (e.g.- freeway expansion, water use, water availability, etc.).

That any planned remediation coordinate with Maricopa County Air Quality Department for the necessary permits, ie, NESHAPs, dust control, VOC emissions.

ATTACHMENT A

7. Please list any future zoning plans or area plans for the municipality/county/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary:

NA

8. Please list any "special projects" projected or anticipated within the East Central Phoenix (38th and Indian School Road) WQARF site boundaries:

NA

9. If any property is leased (the municipality/county/utility is the lessor), how long is the lease term?

NA

10. If the property is leased, are there plans to renew the lease and if so, for how long?

NA

ATTACHMENT A

11. Please list any environmental spill of material or waste products that has occurred within the municipality/county/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary in the past 5 years?

NA

12 Is the municipality/county/utility currently sampling groundwater wells within the East Central Phoenix (38th and Indian School Road) WQARF site? If so, how often is the sampling conducted? Are analytical results being submitted to ADEQ for the groundwater database?

NA

13. Does your municipality/county/utility have an environmental manager or do you outsource environmental management to an environmental consulting firm? If so, please provide the following information:

Name:	<u>Rita Neill</u>
Contact:	<u>Maricopa County Risk Management</u>
Title:	<u>Environmental Programs Manager</u>
Address:	<u>222 N. Central Ave, Ste 1110</u>
	<u>Phoenix, AZ 85004</u>
	<u></u>
Phone:	<u>602-506-5063</u>

14. Please indicate anticipated groundwater development by the municipality/county/utility within the East Central Phoenix (38th and Indian School Road) WQARF site boundary.

NA

ATTACHMENT A

15. Are there any groundwater wells owned by the water provider that have been affected by the East Central Phoenix (38th and Indian School Road) WQARF site? If so, please list the ADWR well identification numbers. What is the current status of these wells (e.g.- shut down, still pumping)?

NA

16. What is the future use (up to 100 years) for any wells that have been impacted by the East Central Phoenix (38th and Indian School Road) WQARF site?

NA

Thank you for your time. The Project Manager, Mel Bunkers, or a representative from ADEQ's consultant, Hargis + Associates, Inc., may follow-up on answers provided.

ATTACHMENT A

From: [Rita Neill - RMX](#)
To: [Laura Menken](#)
Subject: Questionnaires for East Central Phoenix WQARF Site
Date: Monday, May 05, 2014 1:57:30 PM
Attachments: [LWUS_Cov_LtrSurvey_ECP-400S_MaricopaCounty1.pdf](#)
[LWUS_Cov_LtrSurvey_ECP-381S_MaricopaCounty1.pdf](#)
[LWUS_Cov_LtrSurvey_ECP-401S_MaricopaCounty1.pdf](#)

Laura – here you go. The County doesn't have any facilities or property within these areas, so most of the answers are not applicable.

Rita H. Neill, PE
Environmental Programs Manager
Maricopa County Risk Management
602-506-5063

ATTACHMENT B
ADWR WELL REGISTRATION RECORDS

✓ JOB FILE



Arizona Department of Water Resources
Records Management Section
500 N. 3rd Street y Phoenix, Arizona 85004
(602) 417-2405 y (800) 352-8488
www.water.az.gov

Well Driller Report and Well Log

- ❖ Review instructions prior to completing form
- ❖ This report should be prepared by the driller in detail and filed with the Department within 30 days following completion of the well.

30

FILE NUMBER
A (2-4) acc
WELL REGISTRATION NUMBER
55-202398
PERMIT NUMBER (IF ISSUED)

** PLEASE PRINT CLEARLY **

SECTION 1: REGISTRY INFORMATION	
Well Owner	Location of Well
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL Salt River Project	WELL LOCATION ADDRESS (IF ANY) Near 44th st. and Osborn Phx, AZ
MAILING ADDRESS PO Box 52025	TOWNSHIP (N/S) RANGE (E/W) SECTION 160 ACRE 40 ACRE 10 ACRE 2N 4E 30 NE ¼ SW ¼ SW ¼
CITY / STATE / ZIP CODE Phoenix, AZ 85072	LATITUDE LONGITUDE 33 ° 29 ' 15.73N 111 ° 59 ' 12.51W
CONTACT PERSON NAME AND TITLE	LAND SURFACE ELEVATION AT WELL Feet Above Sea Level
TELEPHONE NUMBER FAX	METHOD OF LATITUDE / LONGITUDE (CHECK ONE) <input type="checkbox"/> Hand-Held <input type="checkbox"/> USGS Quad Map <input type="checkbox"/> Conventional Survey <input type="checkbox"/> GPS: <input type="checkbox"/> Survey-Grade
	COUNTY ASSESSOR'S PARCEL ID NUMBER BOOK MAP PARCEL 127 8 41-A
	COUNTY WHERE WELL IS LOCATED Maricopa

SECTION 2: DRILLING AUTHORIZATION	
Drilling Firm	
NAME Weber Group LC	
DWR LICENSE NUMBER 215	
TELEPHONE NUMBER 480-961-1141	FAX 480-961-0290

IMAGED

SECTION 3: WELL CONSTRUCTION DETAILS		
DATE WELL CONSTRUCTION STARTED 6-27-04	DATE WELL CONSTRUCTION COMPLETED 12-30-04	IF FLOWING WELL, METHOD OF FLOW REGULATION <input type="checkbox"/> Valve <input type="checkbox"/> Other:
Drill Method	Method of Well Development	Method of Sealing at Reduction Points
CHECK ONE <input type="checkbox"/> Air Rotary <input type="checkbox"/> Bored or Augered <input checked="" type="checkbox"/> Cable Tool <input type="checkbox"/> Dual Rotary <input type="checkbox"/> Mud Rotary <input type="checkbox"/> Reverse Circulation <input type="checkbox"/> Driven <input type="checkbox"/> Jetted <input type="checkbox"/> Air Percussion / Odex Tubing <input type="checkbox"/> Other (please specify):	CHECK ONE <input type="checkbox"/> Airlift <input type="checkbox"/> Bail <input checked="" type="checkbox"/> Surge Block <input type="checkbox"/> Surge Pump <input type="checkbox"/> Other (please specify):	CHECK ONE <input type="checkbox"/> None <input type="checkbox"/> Packed <input type="checkbox"/> Swedged <input type="checkbox"/> Welded <input type="checkbox"/> Other (please specify):
	Water Level Information	
	STATIC WATER LEVEL 27 Feet Below Land Surface	
	DATE MEASURED 11-22-04	

ENTERED SEP - 6 2005

Installed Annular Material												
DEPTH FROM SURFACE		ANNULAR MATERIAL TYPE (1-5)							FILTER PACK			
FROM (feet)	TO (feet)	NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	CHIPS	PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	SAND	GRAVEL	SIZE
0	38			X								
20	205								TACNA		X	6x12
205	207		X						PLUG INSIDE AND OUT			
DEPTH OF BORING									DEPTH OF COMPLETED WELL			
207									205			
Feet Below Land Surface									Feet Below Land Surface			

ATTACHMENT B

Well Driller Report and Well Log

WELL REGISTRATION NUMBER

55 - 202398

[illegible]

ATTACHMENT B

Report and Well Log

WELL REGISTRATION NUMBER
55-202398

SECTION 6. WELL SITE PLAN

NAME OF WELL OWNER

SALT RIVER PROJECT

COUNTY ASSESSOR'S PARCEL ID NUMBER

BOOK

127

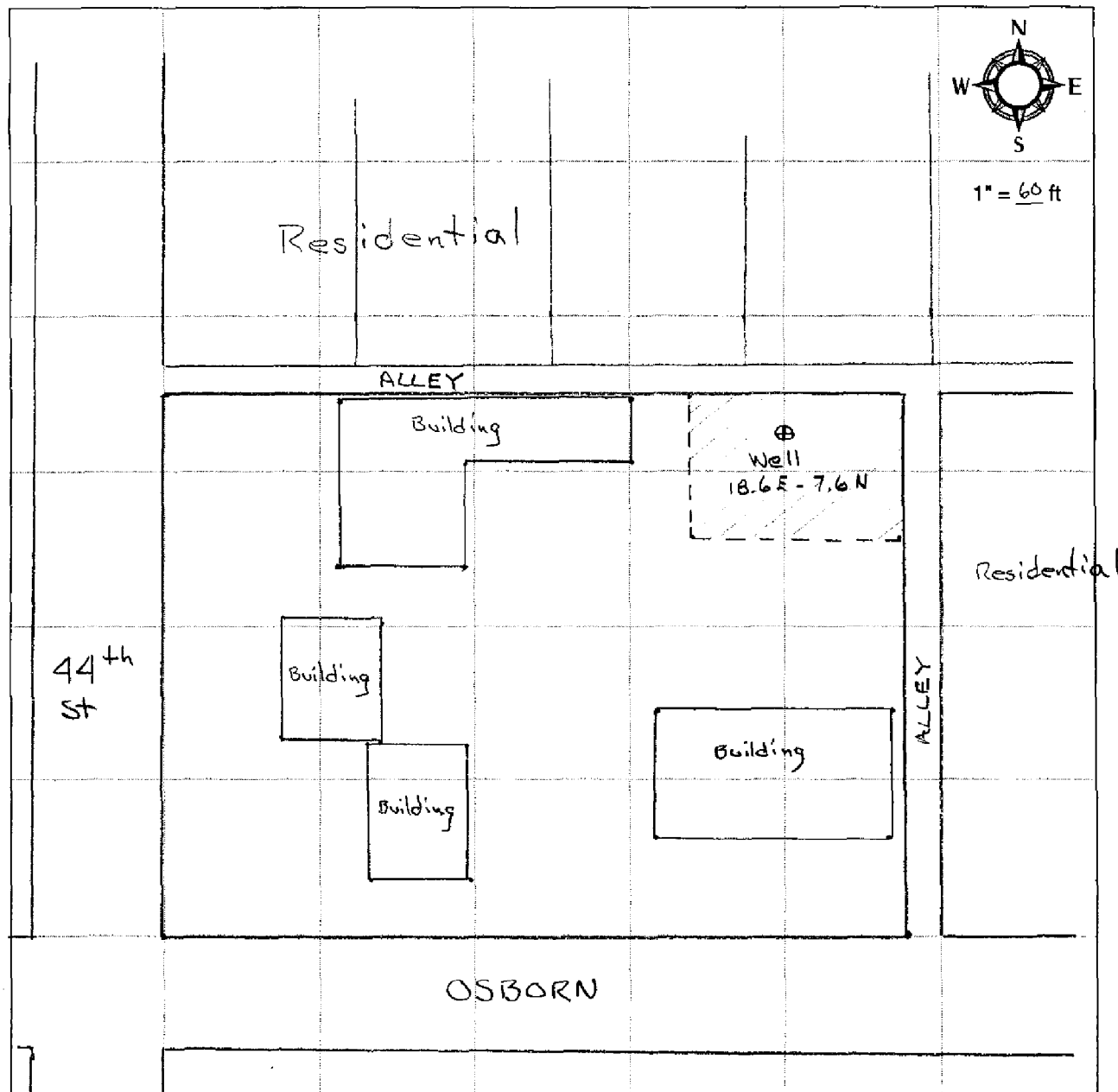
MAP

8

PARCEL

41-A

- ❖ Please draw the following: (1) the boundaries of property on which the well was located; (2) the well location; (3) the locations of all septic tank systems and sewer systems on the property or within 100 feet of the well location, even if on neighboring properties; and (4) any permanent structures on the property that may aid in locating the well.
- ❖ Please indicate the distance between the well location and any septic tank system or sewer system.



I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and belief.

DRILLING FIRM

WEBER GROUP LLC

SIGNATURE OF QUALIFYING PARTY

DATE

6/4/05

ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION
500 North Third Street
Phoenix, Arizona 85004

REISSUE

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-202398

REPLACES: 55-607713

AUTHORIZED DRILLER: WEBER GROUP, L.C.

LICENSE NO: 215

A NOTICE OF INTENTION TO REPLACE AN EXISTING NON-EXEMPT WELL INSIDE THE PHOENIX ACTIVE MANAGEMENT AREA HAS BEEN GRANTED TO:

WELL OWNER: Salt River Project

P.O. Box 52025

Phoenix, AZ 85072

The well(s) is/are to be located in the:

SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ Section 30 Township 2 North Range 4 East

No. of well(s) in this project: 1

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 1ST DAY OF MARCH, 2005.



WATER MANAGEMENT DIVISION

THE DRILLER MUST FILE A LOG OF THE WELL
WITHIN 30 DAYS OF COMPLETION OF DRILLING

Weber Group, L.C.

August 26, 2005

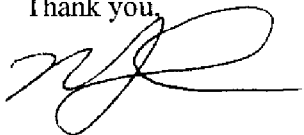
Barb Sims
ADWR
Information Management Unit

RE: Salt River Project 55-202398

Barb,

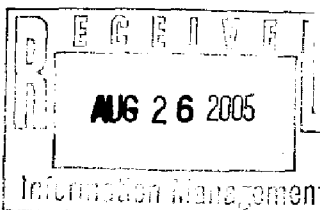
Thank you for your assistance in recognizing and solving the registration issue on this new SRP production well. I have made the appropriate changes to the well completion report. I am unable to offer any assistance on 55-607713 as Weber Group did not abandon that well. If you should have any further questions please don't hesitate to contact me.

Thank you,

A handwritten signature in black ink, appearing to be 'Marty Weber', written over a horizontal line.

Marty Weber

Cc Walker Milici



Weber Group L.C.

C O N T R A C T O R S

16825 S. Weber Dr. Chandler, AZ 85226
Phone 480-961-1141 Fax 480-961-0290

Fax Transmission

Date 8/26/05

To:	From:
Attention <u>BARB SIMS</u>	Name <u>MARTY</u>
Company <u>ADWR</u>	Dept
RE <u>SS-202398</u>	Number of pages included <u>7</u>
Fax Number <u>602 417 2421</u>	

Memo

BARB,

Sorry it took so long for such an
easy fix. This should be what
you need. THANK YOU. MARTY

I will send copy in the mail.

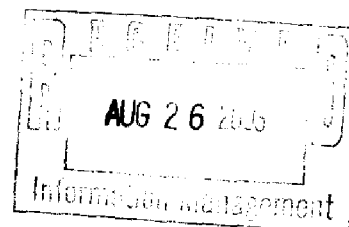
If you do not receive all pages please contact above number.

IMAGED

Weber Group, L.C.

August 26, 2005

Barb Sims
ADWR
Information Management Unit



RE: Salt River Project 55-202398

Barb,

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Thank you,

Marty Weber

Cc Walker Milici

ATTACHMENT B

08/26/2005 07:52 4809610290

WEBER GROUP

PAGE 03/07

✓ JOB FILE

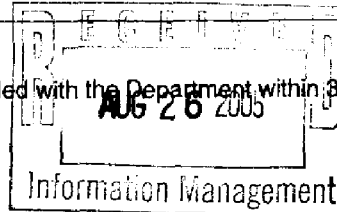


Arizona Department of Water Resources
Records Management Section
500 N. 3rd Street γ Phoenix, Arizona 85004
(602) 417-2405 γ (800) 352-8488
www.water.az.gov

Well Driller Report and Well Log

A(2-4)30ACC

- ❖ Review instructions prior to completing form
- ❖ This report should be prepared by the driller in detail and filed with the Department within 30 days following completion of the well.



WELL REGISTRATION NUMBER
55-202398
PERMIT NUMBER (IF ISSUED)

** PLEASE PRINT CLEARLY **

SECTION 1: REGISTRY INFORMATION						
Well Owner				Location of Well		
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL Salt River Project				WELL LOCATION ADDRESS (IF ANY) Near 44th st. and Osborn Phx, AZ		
MAILING ADDRESS PO Box 52025				TOWNSHIP (NS)	RANGE (EW)	SECTION
				2N	4E	30
CITY/STATE / ZIP CODE Phoenix, AZ 85072				LATITUDE	LONGITUDE	
				33 °	29 ' 15.73N 111° 59 ' 12.51W	
CONTACT PERSON NAME AND TITLE				LAND SURFACE ELEVATION AT WELL Feet Above Sea Level		
TELEPHONE NUMBER		FAX		METHOD OF LATITUDE / LONGITUDE (CHECK ONE)		
				<input type="checkbox"/> Hand-Held <input type="checkbox"/> USGS Quad Map <input type="checkbox"/> Conventional Survey <input type="checkbox"/> GPS: <input type="checkbox"/> Survey-Grade		
COUNTY ASSESSOR'S PARCEL ID NUMBER						
BOOK		MAP		PARCEL		
127		8		41-A		
COUNTY WHERE WELL IS LOCATED Maricopa						

SECTION 2: DRILLING INFORMATION	
Drilling Firm	
NAME Weber Group LC	
DWR LICENSE NUMBER 215	
TELEPHONE NUMBER 480-961-1141	FAX 480-961-0290

SECTION 3: WELL CONSTRUCTION DETAILS		
DATE WELL CONSTRUCTION STARTED 6-27-04	DATE WELL CONSTRUCTION COMPLETED 12-30-04	IF FLOWING WELL, METHOD OF FLOW REGULATION <input type="checkbox"/> Valve <input type="checkbox"/> Other:
Drill Method CHECK ONE <input type="checkbox"/> Air Rotary <input type="checkbox"/> Bored or Augered <input checked="" type="checkbox"/> Cable Tool <input type="checkbox"/> Dual Rotary <input type="checkbox"/> Mud Rotary <input type="checkbox"/> Reverse Circulation <input type="checkbox"/> Driven <input type="checkbox"/> Jetted <input type="checkbox"/> Air Percussion / Odex Tubing <input type="checkbox"/> Other (please specify):	Method of Well Development CHECK ONE <input type="checkbox"/> Airlift <input type="checkbox"/> Bail <input checked="" type="checkbox"/> Surge Block <input type="checkbox"/> Surge Pump <input type="checkbox"/> Other (please specify):	Method of Sealing or Regulation Points CHECK ONE <input type="checkbox"/> None <input type="checkbox"/> Packed <input type="checkbox"/> Swedged <input type="checkbox"/> Welded <input type="checkbox"/> Other (please specify):
Water Level Information		
STATIC WATER LEVEL 27 Feet Below Land Surface		
DATE MEASURED 11-22-04		

Well Driller Report and Well Log

WELL REGISTRATION NUMBER

55 - 202398

SECTION 4: WELL CONSTRUCTION DESIGN (AS BUILT) (attach additional pages if needed)

[illegible]

DEPTH FROM SURFACE		NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE			IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	SAND	GRAVEL	SIZE
FROM (feet)	TO (feet)					GROUT	CHIPS	PELLETS				
0	38			X								
20	205							TACNA		X		6x12
205	207		X					PLUG INSIDE AND OUT				
DEPTH OF BORING									DEPTH OF COMPLETED WELL			
207									205			
Feet Below Land Surface									Feet Below Land Surface			

Well Driller Report and Well Log

WELL REGISTRATION NUMBER

55. 202396

[illegible]

ATTACHMENT B

08/26/2005 07:52 4809610290

WEBER GROUP

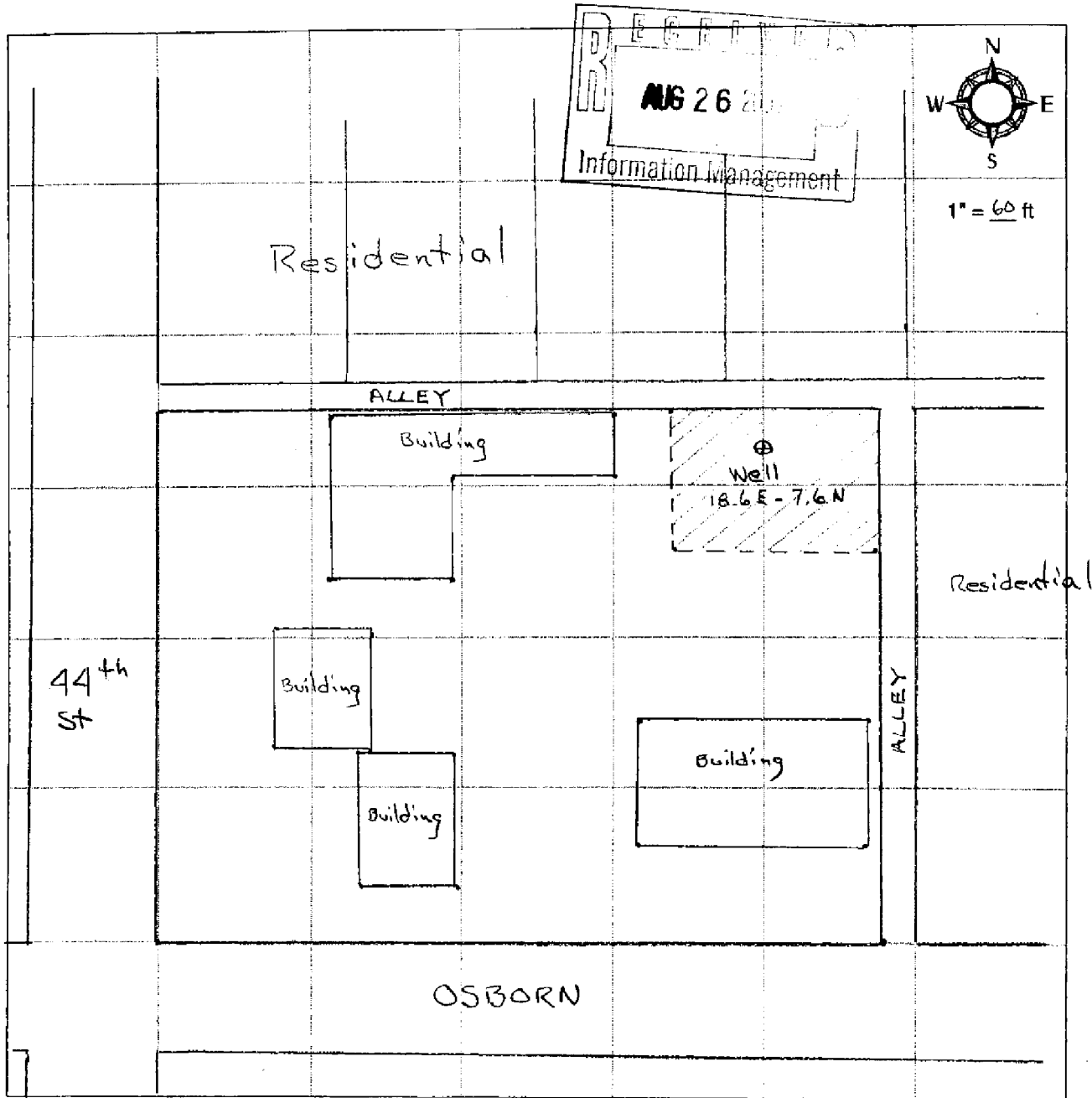
PAGE 06/07

Report and Well Log

WELL REGISTRATION NUMBER
55-202398

SECTION 6 WELL SITE PLAN			
NAME OF WELL OWNER SALT RIVER PROJECT		COUNTY ASSESSOR'S PARCEL ID NUMBER	
BOOK 127	MAP 8	PARCEL 41-A	

- ❖ Please draw the following: (1) the boundaries of property on which the well was located; (2) the well location; (3) the locations of all septic tank systems and sewer systems on the property or within 100 feet of the well location, even if on neighboring properties; and (4) any permanent structures on the property that may aid in locating the well.
- ❖ Please indicate the distance between the well location and any septic tank system or sewer system.



I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and belief.		
DRILLING FIRM WEBER GROUP LLC	SIGNATURE OF QUALIFYING PARTY <i>[Signature]</i>	DATE 6/4/05

**ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION**

300 North Third Street
Phoenix, Arizona 85004

REISSUE

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-202398

REPLACES: 55-607713

AUTHORIZED DRILLER: WEBER GROUP, L.C.

LICENSE NO: 215

**A NOTICE OF INTENTION TO REPLACE AN EXISTING NON-EXEMPT WELL INSIDE THE PHOENIX ACTIVE
MANAGEMENT AREA HAS BEEN GRANTED TO:**

WELL OWNER:

Salt River Project

P.O. Box 52025

Phoenix, AZ 85072

The well(s) is/are to be located in the:

SW¹/₄ of the SW¹/₄ of the NE¹/₄ Section 30 Township 2 North Range 4 East

No. of well(s) in this project: 1

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 1ST DAY OF MARCH, 2005.



WATER MANAGEMENT DIVISION

**THE DRILLER MUST FILE A LOG OF THE WELL,
WITHIN 30 DAYS OF COMPLETION OF DRILLING**

**500 North Third Street
Phoenix, Arizona 85004**

REISSUE

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-202398

AUTHORIZED DRILLER: WEBER GROUP, L.C.

A NOTICE OF INTENTION TO REPLACE AN EXISTING NON-EXEMPT WELL INSIDE THE PHOENIX ACTIVE MANAGEMENT AREA HAS BEEN GRANTED TO:

WELL OWNER: Salt River Project
P.O. Box 52025
Phoenix, AZ 85072

The well(s) is/are to be located in the:

SW¹/₄ of the SW¹/₄ of the NE¹/₄ Section 30 Township 2 North Range 4 East

No. of well(s) in this project: 1

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 1ST DAY OF MARCH, 2005.

WATER MANAGEMENT DIVISION

**THE DRILLER MUST FILE A LOG OF THE WELL
WITHIN 30 DAYS OF COMPLETION OF DRILLING**

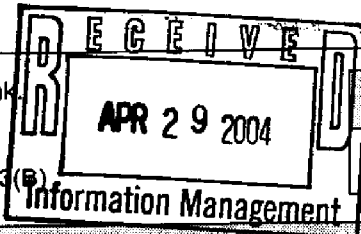


ATTACHMENT B



Arizona Department of Water Resources
Groundwater Management Support Section
P.O. Box 458 • Phoenix, Arizona 85001-0458
(602) 417-2470 • (800) 352-8488
www.water.az.gov

Request to Change Well Information



FILE NUMBER
WELL REGISTRATION NUMBER
55-202398

- ❖ Review instructions prior to completing form in black or blue ink.
- ❖ You must include with your Notice:
 - check or money order for any required fee(s)
- ❖ Authority for fee: A.A.C. R12-15-151(B)(4)(a), A.R.S. § 45-113(B)

** PLEASE PRINT CLEARLY **

SECTION 1. REGISTRY INFORMATION

Well Owner		Location of Well					
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL SRP/16ST52		WELL LOCATION ADDRESS (IF ANY) 18.5E-7.5N					
MAILING ADDRESS P.O. Box 52025		TOWNSHIP (NS)	RANGE (EW)	SECTION	160 ACRE	40 ACRE	10 ACRE
CITY / STATE / ZIP CODE Phoenix, AZ 85072-2025		2N	4E	30	NE 1/4	SW 1/4	SW 1/4
CONTACT PERSON NAME AND TITLE Walker Milici Geohydrologist		LATITUDE 33° 29' 15.73"N		LONGITUDE 111° 59' 12.51"W			
TELEPHONE NUMBER 602-236-5363		FAX 602-236-2987		COUNTY ASSESSOR'S PARCEL ID NUMBER BOOK 127 MAP 8 PARCEL 41A & B		COUNTY WHERE WELL IS LOCATED Maricopa	

Type of Request (CHECK ONE)

- ☒ Change of Well Drilling Contractor (Fill out Section 2) ☐ Change of Well Ownership (Fill out Section 3) ☐ Change of Well Information (location, use, etc.) (Fill out Section 4)

SECTION 2. REQUEST TO CHANGE WELL DRILLING CONTRACTOR (\$10 Fee Required)

\$10 FEE

- ♦ If drilling or abandoning a well, the Department must receive this request and issue authorization to the new drilling firm prior to the commencement of well drilling or abandonment.

Current Well Drilling Contractor		New Well Drilling Contractor	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL Layne Christensen		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL The Weber Group	
DWR LICENSE NUMBER 7		DWR LICENSE NUMBER 215	
TELEPHONE NUMBER 480-895-9404		TELEPHONE NUMBER 480-961-1141	
FAX 480-895-8699		FAX 480-961-0290	
		ROC LICENSE CATEGORY Exempt	

SECTION 3. STATEMENT OF CHANGE OF WELL OWNERSHIP (\$10 Fee Required)

\$10 FEE

		PO BOX 52025 PHOENIX, AZ 85072-2025 (602) 236-5900		BANK ONE, ARIZONA, NA COMMERCIAL BANKING PHOENIX, ARIZONA		LIMIT \$500 160665 91-2 1221																			
PURPOSE: ADWR Permit																									
<table border="1"> <thead> <tr> <th>ORIGINATING CENTER</th> <th>CHARGE NUMBER</th> <th>OTOC</th> <th>RELATED NUMBER</th> <th>CROSS-CHARGE RESPONSIBLE CC</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr> <td>91321</td> <td>RC1-03002-1601</td> <td>401</td> <td></td> <td></td> <td>10.00</td> </tr> <tr> <td colspan="5">TOTAL AMOUNT</td> <td>10.00</td> </tr> </tbody> </table>								ORIGINATING CENTER	CHARGE NUMBER	OTOC	RELATED NUMBER	CROSS-CHARGE RESPONSIBLE CC	AMOUNT	91321	RC1-03002-1601	401			10.00	TOTAL AMOUNT					10.00
ORIGINATING CENTER	CHARGE NUMBER	OTOC	RELATED NUMBER	CROSS-CHARGE RESPONSIBLE CC	AMOUNT																				
91321	RC1-03002-1601	401			10.00																				
TOTAL AMOUNT					10.00																				
EMPLOYEE NUMBER 07510		PAY TO THE ORDER OF ADWR \$ 10.00																							
EMPLOYEE NUMBER 13223		THE AMOUNT OF ten & 00/100 DOLLARS																							
		EXPENSE AUTHORIZED BY [Signature]																							

0 FEE

must be filed.

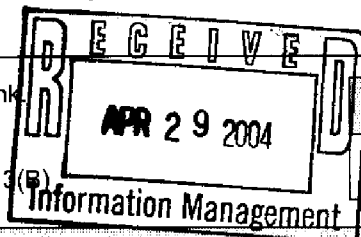
DATE

ATTACHMENT B



Arizona Department of Water Resources
Groundwater Management Support Section
P.O. Box 458 • Phoenix, Arizona 85001-0458
(602) 417-2470 • (800) 352-8488
www.water.az.gov

Request to Change Well Information



FILE NUMBER
WELL REGISTRATION NUMBER
55-202398

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
 - check or money order for any required fee(s)
- Authority for fee: A.A.C. R12-15-151(B)(4)(a), A.R.S. § 45-113(B)

** PLEASE PRINT CLEARLY **

SECTION 1. REGISTRY INFORMATION

Well Owner		Location of Well					
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL SRP/16ST52		WELL LOCATION ADDRESS (IF ANY) 18.5E-7.5N					
MAILING ADDRESS P.O. Box 52025		TOWNSHIP (N/S) 2N	RANGE (E/W) 4E	SECTION 30	160 ACRE NE 1/4	40 ACRE SW 1/4	10 ACRE SW 1/4
CITY / STATE / ZIP CODE Phoenix, AZ 85072-2025		LATITUDE 33° 29' 15.73"N Degrees Minutes Seconds			LONGITUDE -111° 59' 12.51"W Degrees Minutes Seconds		
CONTACT PERSON NAME AND TITLE Walker Milici Geohydrologist		COUNTY ASSESSOR'S PARCEL ID NUMBER BOOK 127 MAP 8 PARCELS of... 41A & B Description attached					
TELEPHONE NUMBER 602-236-5363	FAX 602-236-2987	COUNTY WHERE WELL IS LOCATED Maricopa					

Type of Request (CHECK ONE)

- ☒ Change of Well Drilling Contractor (Fill out Section 2) ☐ Change of Well Ownership (Fill out Section 3) ☐ Change of Well Information (location, use, etc.) (Fill out Section 4)

SECTION 2. REQUEST TO CHANGE WELL DRILLING CONTRACTOR (\$10 Fee Required)

- ♦ If drilling or abandoning a well, the Department must receive this request and issue authorization to the new drilling firm prior to the commencement of well drilling or abandonment.

\$10 FEE

Current Well Drilling Contractor		New Well Drilling Contractor	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL Layne Christensen		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL The Weber Group	
DWR LICENSE NUMBER 7	FAX 480-895-8699	DWR LICENSE NUMBER 215	ROC LICENSE CATEGORY Exempt
TELEPHONE NUMBER 480-895-9404	FAX 480-895-8699	TELEPHONE NUMBER 480-961-1141	FAX 480-961-0290

SECTION 3. STATEMENT OF CHANGE OF WELL OWNERSHIP (\$10 Fee Required)

- ♦ If this change pertains to more than one well and the names are the same, only one \$10 fee is required.

\$10 FEE

Previous Well Owner		New Well Owner	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL	
MAILING ADDRESS		MAILING ADDRESS	
CITY / STATE / ZIP CODE		CITY / STATE / ZIP CODE	
CONTACT PERSON NAME AND TITLE		CONTACT PERSON NAME AND TITLE	
TELEPHONE NUMBER	FAX	TELEPHONE NUMBER	FAX

SECTION 4. CHANGE OF WELL INFORMATION (No Fee Required)

NO FEE

NOTE: Applies only to wells that have already been drilled. For proposed wells, an amended Notice of Intent to Drill a Well must be filed.

EXPLAIN

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief.

TYPE OR PRINT NAME AND TITLE Walker Milici Geohydrologist	SIGNATURE OF WELL OWNER Walker Milici for SRP	DATE 4/29/04
--	--	-----------------

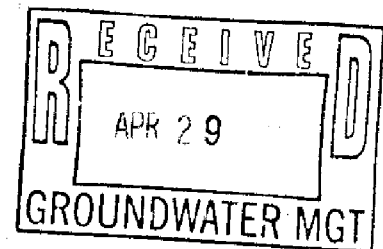
PRELIMIARY LEGAL DESCRIPTIONS - PENDING SURVEY

Fee Purchase: Parcel 127-08-041A (KNIGHT)

The East 60 feet of the North 40 feet of Tract "A", CHESTLEY MANOR, according to Book 63 of Maps, Page 5, records of Maricopa County, Arizona. Said parcel contains 2,400 square feet, more or less.

Fee Purchase: Parcel 127-08-041B (Reyman)

The East 60 feet of the South 15 feet of the North 55 feet of Tract "A", CHESTLEY MANOR, according to Book 63 of Maps, Page 5, records of Maricopa County, Arizona. Said parcel contains 900 square feet, more or less.



ATTACHMENT B

Registry | Name Addr | Drilling Auth | Permits | Water/Site | POU | Driller Log | Completion

Drilling Authorities

Registry ID: 55-11306 License #: 215 ... Issue Date: 05/04/2004 Expiration Date: 03/01/2005

Comments:

Driller Licenses

Company:

WEBER GROUP, L.C.

Qualifying Party:

SEE COMMENTS

☒ Active License

Address1:

16825 S. WEBER DRIVE

Address2:

City:

CHANDLER

State:

AZ

Zip Code:

85226-41

Phone:

480-961-1141

ROC Licenses:

4-16 & KA

Comments:

BERNARD "BERNIE" LEE WEBER 80-04 ACTIVE
MARTY WEBER 2000-2003 ACTIVE
EDEN TEEB & SIVEO 2004-2007 ACTIVE

ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT SUPPORT SECTION
MAIL TO: P.O. BOX 458, PHOENIX, ARIZONA 85001-0458
 500 North Third Street, Phoenix, Arizona 85004
 Phone (602) 417-2470 Fax (602) 417-2422

MAR - 2 2004

GROUNDWATER MGT

**NOTICE OF INTENTION TO DEEPEN, REPLACE OR MODIFY AN EXISTING,
NON-EXEMPT WELL AT APPROXIMATELY THE SAME LOCATION
 IN AN ACTIVE MANAGEMENT AREA**

PLEASE READ GENERAL INSTRUCTIONS AND CONDITIONS ON REVERSE SIDE OF THIS FORM BEFORE COMPLETING.

Section § 45-597, Arizona Revised Statutes provides: In an Active Management Area, prior to deepening, replacing or modifying an existing well at approximately the same location, a person entitled to withdraw groundwater, shall file a Notice of Intention to Drill with the Department.

1. WELL/LAND LOCATION:
2 NS 4 W 30
 Township Range Section
SW SW NE
 10 Acre 40 Acre 160 Acre

2. POSITION LOCATION OF THE WELL:
 Latitude 33° 29' 15.73" N
 Longitude 111° 59' 12.51" W

3. COUNTY Maricopa

4. APPLICANT SRP

Name 165T52/P.O. Box 52025
 Mailing Address Phoenix AZ 85012-2025
 City State Zip
 Telephone No. 602-236-5363

5. OWNER OF THE LAND OF WELLSITE: SRP

Name 165T52/P.O. Box 52025
 Mailing Address Phoenix AZ 85012-2025
 City State Zip
 Telephone No. 602-236-5363

6. THIS NOTICE IS FILED BY:

Check one: ☒ Owner ☐ Lessee

same as above

Name

Mailing Address

City State Zip

7. DESCRIPTION OF THE PROPOSED WELL:
 Diameter 20 Inches

Depth 300 Feet

Type of Casing steel

8. ESTIMATE OF TOTAL ANNUAL PUMPAGE:
1050 Acre Feet per Year

9. ESTIMATED AMOUNT OF GROUNDWATER WITHDRAWN FROM THE ORIGINAL WELL:
1050 Acre Feet per Year

10. PRINCIPAL USE OF WATER (be specific): Irrigation

11. OTHER USES INTENDED (be specific): None

12. CONSTRUCTION WILL START:
5 2003
 Month Year

FOR DEPARTMENT USE ONLY	
File No. <u>A(2-4)30 ACC</u>	
Filed <u>3-2-2004</u> By <u>DSK</u>	
Input <u>3-2-04</u> By <u>DSK</u>	
DUPLICATE	
Mailed <u>3-15-04</u> By <u>DSK</u>	
Registration <u>55-202390</u>	
AMA/TNA <u>PHOENIX</u>	

13. CLAIM OF ENTITLEMENT TO WITHDRAW GROUNDWATER:
 Certificate 58

Permit 59- _____

Irrigation District 57- 002520

Service Area 56- _____

Recovery Well Permit _____

14. ACTION REQUESTED:
☐ Deepen ☒ Replace ☐ Modify
 For a replacement well give distance from original well 430 Feet

15. EXISTING WELL REGISTRATION NO. 55- 607713

16. WILL THE WELL BE REPLACED OR ABANDONED? ☒ Yes ☐ No

17. DRILLING FIRM:

Name Layne Christensen
 Mailing Address 12030 E. Riggs Rd
Chandler AZ 85249
 City State Zip
 Telephone No. 480-602-895-9404

DWR License Number 7

ROC License Category Exempt

18. Is the proposed well within 100 feet of a septic tank system, sewage area, landfill, hazardous waste facility or storage area of hazardous material or a petroleum storage area and tank? ☐ Yes ☒ No

19. Attach a detailed construction diagram of the proposed well design. The diagram should provide verification of consistency with minimum construction requirements. Specifically, the diagram should include an indication of the perforated interval location(s) in relationship to the expected water level; the depth and thickness of the surface seal, and grouting material used; whether the surface or conductor casing will extend above grade; and vault details, if specified.

I state that this Notice is filed in compliance with Rules A.A.C. R12-15-809 and R12-15-816(F), and is complete and correct to the best of my knowledge and belief, and that I understand the conditions set forth on the reverse side of this form.

Walker Milici Geohydrologist for SRP 3/1/04
 Type or Print Name and Title Signature [X] Land Owner [] Lessee of well site Title Date

ARIZONA DEPARTMENT OF WATER RESOURCES

GROUNDWATER MANAGEMENT DIVISION

500 North Third Street - Phoenix, Arizona 85004-3903

Telephone 602-417-2470

Fax 602-417-2422

MAR - 2 2004

NEW WELL CONSTRUCTION SUPPLEMENT (form DWR 55-90)

Well Registration Number 55- 202398
(FOR DEPARTMENT USE ONLY)

1. Well Location:

SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$, Sec. 30 Township 2N Range 4E.
10AC 40AC 160AC

2. Position Location of the Well:

Latitude 33° 29' 15.73" Longitude 111° 59' 12.51"3. County Maricopa4. Date construction to start: 3/045. Time period well will remain in use: 100 years6. Is pump equipment to be installed? Yes If so, design pump capacity: 750 GPM.

(estimate)

7. Well construction plan:

a. Drilling method (mud rotary, hollow-stem auger, etc.) cable toolb. Borehole diameters 36" inches from 0 feet to 40 feet.30" inches from 40 feet to 300 feet.c. Casing materials steel blank & slotted casingd. Method of well development (ball, air lift, surge, etc.) swab & pump/surgee. Will surface or conductor casing extend above grade? yes, approx. 1'

8. Include a detailed construction diagram of the proposed well design. The diagram should verify consistency with minimum construction requirements specified in the Department's well construction rules found in Arizona Administrative Code (A.A.C.) R12-15-801 et. seq. Specifically, the diagram should include borehole diameters; casing materials and diameters; perforation intervals; the expected water level; depth and thickness of the surface seal; proposed grouting materials; and the length that the surface or conductor casing will extend above grade, or vault details, if specified.

9. Proposed materials and method of abandonment if well is to be abandoned after project is completed (Minimum requirements per A.A.C. R12-15-816):

Well will not be abandoned

ATTACHMENT B

10. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material, or petroleum storage area or tank? Yes ☒ No

11. Is this well to monitor existing contamination? Yes ☒ No

Potential contamination? Yes ☒ No If yes, please provide explanation: _____

12. Will the proposed well be a replacement well in the same location (A.R.S. §§ 45-596 and 45-597, A.A.C. R12-15-840)? A replacement well is one located no more than 660 feet from the original well that it is replacing, and which is not expected to withdraw on an annual basis more groundwater than historical annual withdrawals from the original well. ☒ Yes No

If yes then indicate the following:

(a) Record the registration number for the well that will be replaced: 55- 607713

(b) Will the original well to be replaced be Capped, ☒ Abandoned Other.

If Other, please explain: _____

13. Name of Consulting firm, if any : None

Address _____ City _____ State _____ Zip _____

Contact Person: _____ Telephone Number _____

14. Drilling firm: Layne Christensen

DWR License Number: 7 ROC License Category: Exempt

15. Special construction standards, if any, required pursuant to A.A.C. R12-15-821: None

I (we), Walker Millican hereby swear that all information provided in this application is true and correct to the best of my/our knowledge and belief.

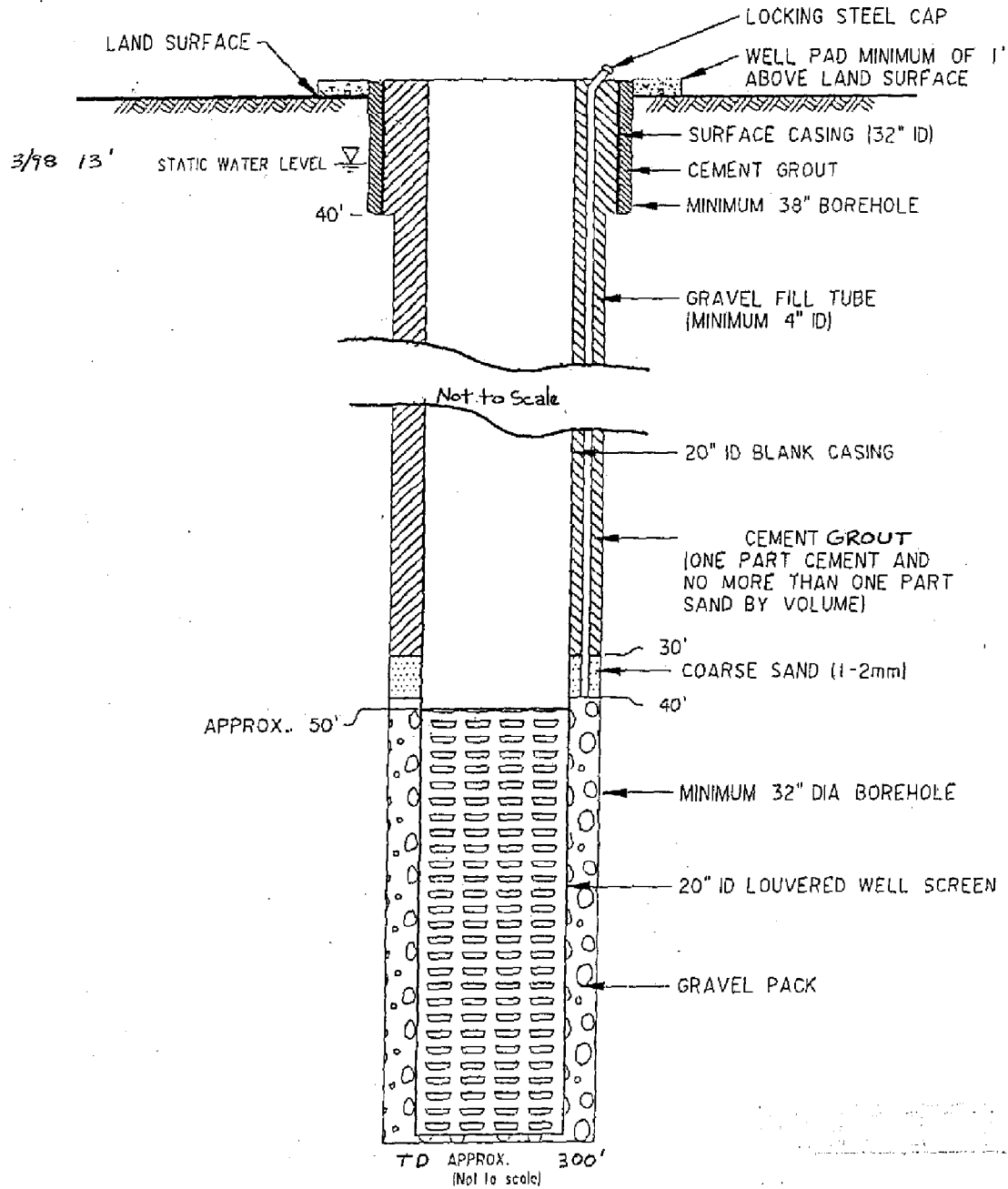
Walker Millican for SRP 3/1/04
Signature of Applicant Date

MAR -2 2004

WELL No. 55-202398

SCHEMATIC DIAGRAM OF
PROPOSED PRODUCTION WELL

SRP WELL 18.5E-7.5N



MAR - 2 2004

3/04


ARIZONA DEPARTMENT OF WATER RESOURCES
HYDROLOGY DIVISION - WQARF UNIT

MEMORANDUM

DATE: March 17, 2004

TO: Darlene Sumpter-King, Groundwater Management Support
Scott Miller, Phoenix AMA

THROUGH: Teri Davis, WQARF Unit

FROM: Andrew Scott, WQARF Unit 

SUBJECT: **55-202398 – Salt River Project (SRP)**

APPLICATION: **NOI to Replace a Well (Old Well 55-607713)**

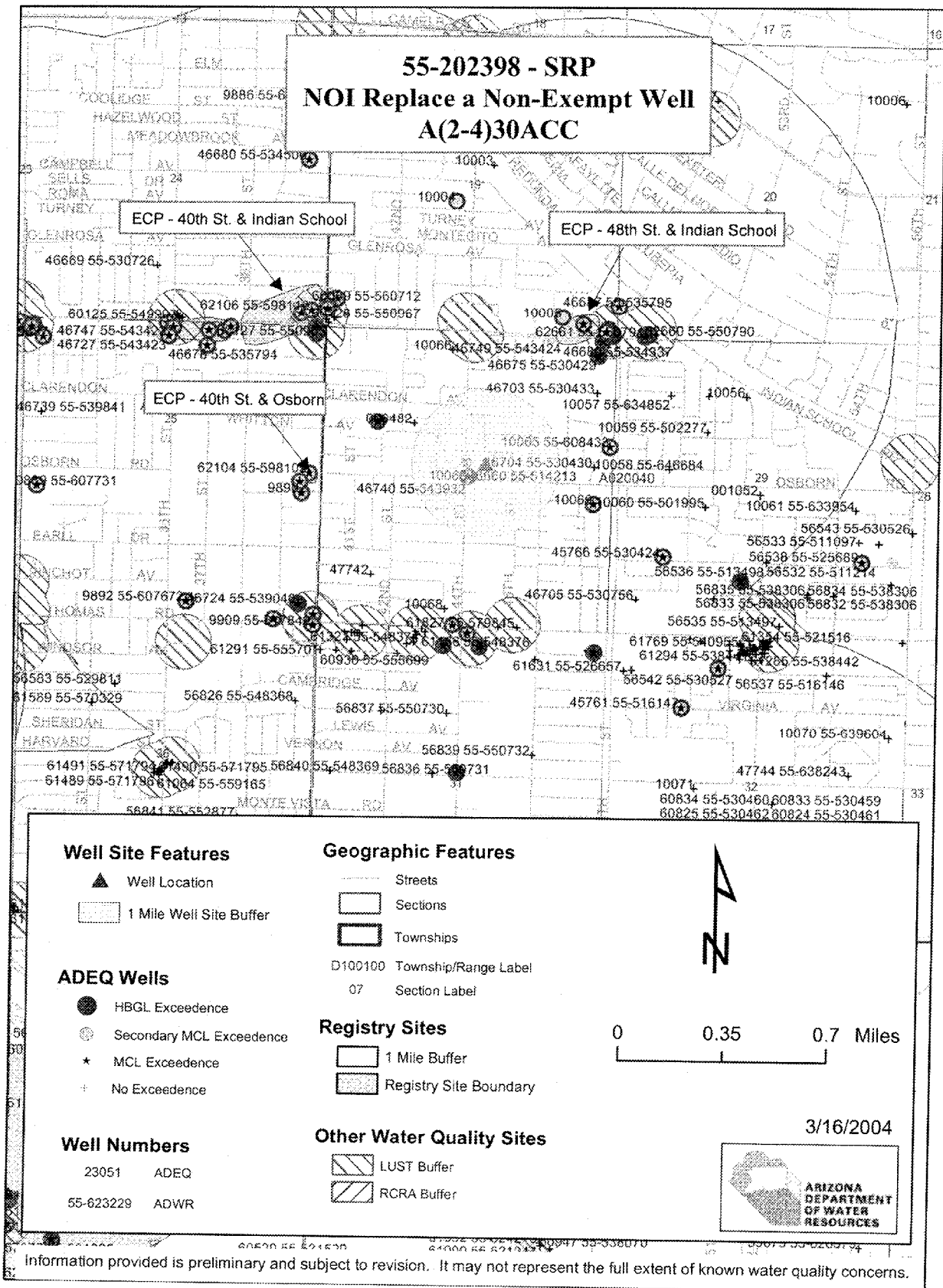
1. The area of groundwater withdrawal activities is located within in proximity to an area of known significant groundwater contamination known as the East Central Phoenix (ECP) Water Quality Assurance Revolving Fund (WQARF) site. The well site is located about ½ mile Southwest of the ECP 48th Street and Indian School Road site, about ½ mile Southeast of the ECP 40th Street and Indian School Road site, and about ½ mile East of the ECP 40th Street and Osborn Road site. According to Arizona Department of Environmental Quality (ADEQ) Groundwater Database, sample results from wells located within ¼ of a mile of the withdrawal activities indicate parameter concentrations that exceed Maximum Contaminant Level (MCL) standards for Fluoride (F), Trichloroethylene (TCE), Nitrate (NO₃). In addition, parameter concentrations also exceed Secondary Maximum Contaminant Level (MCL2) standards for Chloride, Total Dissolved Solids (TDS), and pH and Health Based Guidance Levels for Vanadium (V). These samples are taken from the old SRP at this location (55-607713), and the TCE exceedence was from a sample taken in 1986. Recent water quality sampling data were provided by SRP, which indicate that TCE was detected in 55-607713 up to 1990. Water samples from 1991 through 2003 were non-detect (BDL) or below the reporting limit (BRL) for TCE. See attached map and supporting information.
2. An NOI to replace 55-607713 was submitted on March 26, 2003. Hydrology/WQARF reviewed the NOI on April 10, 2003 and the drilling authority to replace 55-607713 was issued. The well was not drilled within the 1-year timeframe, so SRP submitted the same application to get a new authority. The original WQARF review found that the well was to be drilled in the Upper Alluvial Aquifer (UAU) and that bedrock (Red Unit?) is expected to be encountered at 300 feet below the land surface, at which point drilling would stop and the well would be completed above the rock.

ATTACHMENT B

RE: 55-202398 – SRP
NOI to Replace 55-607713
3/17/2004
Page 2

3. According to Walker Milici of SRP, the bedrock is expected to be found at a depth of **up to** 300 feet. SRP intends to produce primarily from the UAU and little or no production is expected from the bedrock if the well is even completed in rock.
4. Given the recent sampling data provided by SRP, the WQARF Unit has no objections to issuance of the drill card. However, given the history of contamination at the site, it is strongly recommended that the well be completed entirely within the UAU and that if the bedrock is encountered during drilling, the borehole should be backfilled with neat cement or bentonite grout to a depth that is at least 5 feet above the top of the bedrock.
5. References: Water Quality Information Maps Program (attached), the Groundwater Code (Arizona Revised Statutes, Title 45, Chapter 2), and the rules adopted thereunder.
6. If more information is needed, contact me at (602) 417-2448, ext. 7273. Thank you.

attachments: as stated



55-202398 - SRP
 NOI to Replace a Non-Exempt Well
 A(2-4)30ACC

ADEQ Exceedences Within 1 Mile of Withdrawal Activities

2/16/2004

Rec	Results	Units	Detection Limits	Detection Limit Units	MCL	MCL Units	MCL2	MCL2 Units	Sample Date	Parameter Name	HBGL	HBGL Units	DEQ Well	Registry ID
1	371.85	mg/L		mg/L			250	mg/L	9/17/1985	CHLORIDE, TOTAL IN WATER			10064	55-607713
2	16.527	mg/L		mg/L	4	mg/L	2	mg/L	9/17/1985	FLUORIDE, TOTAL (AS F)	4	mg/L	10064	55-607713
3	3	ug/L	3	ug/L					7/16/1986	COBALT, DISSOLVED (AS CO)	0.7	ug/L	10064	55-607713
4	8	SU		SU			6.5	SU	7/16/1986	PH (STANDARD UNITS)			10064	55-607713
5	9.36	ug/L		ug/L	5	ug/L			7/16/1986	TRICHLOROETHYLENE, DISSOLVED			10064	55-607713
6	30	ug/L		ug/L					7/16/1986	VANADIUM, DISSOLVED (AS V)	7	ug/L	10064	55-607713
7	383.91	mg/L		mg/L			250	mg/L	10/14/1986	CHLORIDE, TOTAL IN WATER			10064	55-607713
8	67	mg/L		mg/L	45	mg/L			10/14/1986	NITRATE NITROGEN, TOTAL (AS NO3)			10064	55-607713
9	8	SU		SU			6.5	SU	7/16/1987	PH (STANDARD UNITS)			10064	55-607713
10	0.5	ug/L	0.5	ug/L					6/15/1988	METHYL CHLORIDE (CHLOROMETHANE), TOTAL WATER	0.19	ug/L	10064	55-607713
11	0.05	ug/L	0.05	ug/L					6/14/1989	ALDRIN IN WHOLE WATER SAMPLE	0.002	ug/L	10064	55-607713
12	0.1	ug/L	0.1	ug/L					6/14/1989	DIELDRIN IN WHOLE WATER SAMPLE	0.001	ug/L	10064	55-607713
13	0.5	ug/L	0.5	ug/L					6/14/1989	METHYL CHLORIDE (CHLOROMETHANE), TOTAL WATER	0.19	ug/L	10064	55-607713
14	0.5	ug/L	0.5	ug/L					6/14/1989	METHYL CHLORIDE (CHLOROMETHANE), TOTAL WATER	0.19	ug/L	10064	55-607713
15	0.5	ug/L	0.5	ug/L	0.08	ug/L			6/14/1989	PCB - 1016, TOTAL WATER			10064	55-607713
16	0.5	ug/L	0.5	ug/L	0.3	ug/L			6/14/1989	PCB - 1242 PCB SERIES WHOLE WATER SAMPLE			10064	55-607713
17	0.5	ug/L	0.5	ug/L	0.1	ug/L			6/14/1989	PCB - 1248 PCB SERIES WHOLE WATER SAMPLE			10064	55-607713
18	0.5	ug/L	0.5	ug/L	0.1	ug/L			6/14/1989	PCB - 1254 PCB SERIES WHOLE WATER SAMPLE			10064	55-607713
19	0.5	ug/L	0.5	ug/L	0.2	ug/L			6/14/1989	PCB - 1260 PCB SERIES WHOLE WATER SAMPLE			10064	55-607713
20	981	mg/L		mg/L			500	mg/L	10/18/1990	(TDS) RESIDUE, TOTAL FILTRABLE (DRIED AT 180C)			10064	55-607713

note: ug/L = micrograms per liter, equivalent to parts per billion (ppb)
 mg/L = milligrams per liter, equivalent to parts per million (ppm)
 SU = Standard Units

55-202398 - SRP
 NOI to Replace a Non-Exempt Well
 A(2-4)30ACC

ADEQ Exceedences Within 1 Mile of Withdrawal Activities

2/16/2004

Rec	Results	Units	Detection Limits	Detection Limit Units	MCL	MCL Units	MCL2	MCL2 Units	Sample Date	Parameter Name	HBGL	HBGL Units	DEQ Well	Registry ID
21	5.7	mg/L		mg/L	4	mg/L	2	mg/L	10/18/1990	FLUORIDE, TOTAL (AS F)	4	mg/L	10064	55-607713
22	0.5	ug/L		ug/L					10/18/1990	METHYL CHLORIDE (CHLOROMETHANE), TOTAL WATER	0.19	ug/L	10064	55-607713

note: ug/L = micrograms per liter, equivalent to parts per billion (ppb)
 mg/L = milligrams per liter, equivalent to parts per million (ppm)
 SU = Standard Units

ATTACHMENT B

03/17/04 WED 10:49 FAX 6022362987

GROUNDWATER

001

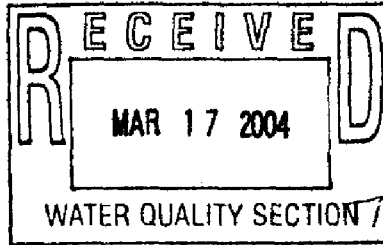
Analysis Results

3/17/200

3/17/04

Between: 01/01/1986 and 12/31/2004

		DBCP	TCE
18.5E-07.5 N	7/16/1986		9.36
	7/16/1987		4.8
	6/15/1988		3
	6/14/1989	BDL	2.4
	10/18/1990		0.9
	7/1/1991	BDL	BDL
	7/15/1992	BDL	BDL
	8/24/1993	BDL	BDL
	9/14/1994	BDL	BDL
	7/19/1995	BDL	BDL
	8/21/1996	BRL	BRL
	8/4/1998	BRL	BRL
	8/11/1999	BRL	BRL
	6/29/2000	BRL	BRL
	5/31/2001	BRL	BRL
	12/12/2002	BRL	BRL
	12/17/2003	BRL	BRL



1 page

To: Andrew Scott


From: Walker Milic:

SRP

602 236 5363

ATTACHMENT B

Phoenix AMA Memorandum

To: Darlene Sumpter-King
From: Scott Miller 
Date: March 15, 2004
Subject: Notice of Intent to Replace Well No. 55-607713 (Replacement Well No. 55-202398 – SRP)

I have reviewed the referenced application and it conforms to AMA policies and statutory requirements and with this memorandum recommend issuance of the permit.

ATTACHMENT B

| Carol Norton - 55-202398 SRP NOI to Replace

Page

3/8/4

From: Carol Norton
To: WRDts
Date: 3/8/04 9:56AM
Subject: 55-202398 SRP NOI to Replace

The Hydrology Division, Water Resources Section, is in receipt of the above referenced Notice of Intention to Replace a Well. The well being replaced is 55-607713. The diagram of the proposed replacement well meets the Minimum Construction Standards, will be within 660 feet of the original well and will not exceed historic pumpage. The Hydrology Division, Water Resources Section, supports issuance of this drill card.

CC: Modesto, Karen; WRjsm; Zachreson, Tana

ATTACHMENT B

ARIZONA DEPARTMENT OF WATER RESOURCES

Hydrology WQARF Unit
500 North Third Street, Phoenix, Arizona 85004
Telephone 602 417-2448
Fax 602 417-2425



JANET NAPOLITANO
Governor

HERB GUENTHER
Director

March 17, 2004

SRP
Attn: Walker Milici
P.O. Box 52025
Phoenix, AZ 85172-2025

COPY

Re: Notice of Intent to Drill a Non-Exempt Well
Well Registry #55-202398 (SRP 18.5E-7.5N)
T2N, R4E, Section 30 ACC

Dear Mr. Milici,

The Department of Water Resources recently approved a Notice of Intent to drill a non-exempt well registered as 55-202398. This well is to be located adjacent to an area of contaminated groundwater known as the East Central Phoenix Water Quality Assurance Revolving Fund (WQARF) remedial site. Please be aware that groundwater produced from the proposed well may not meet applicable federal, state, county or local water quality standards.

According to Arizona Administrative Code R12-15-851, you are required to notify the Department at least two (2) business days in advance of commencement of well drilling activities for the above referenced well(s). You may submit this required notice to the Department by either letter or facsimile, and the Department must receive it at least two (2) business days prior to drilling. If notice is sent via facsimile, please mail the original document to the Department.

Mailing Address:
Arizona Department of Water Resources
Hydrology/WQARF
500 N. 3rd Street
Phoenix, AZ 85004

Facsimile Number:
(602) 417-2425

If you have any questions, please contact the Hydrology Division at 602-417-2448 or me at extension 7273.

Sincerely,

A handwritten signature in black ink, appearing to read "AS" or "Andrew Scott".

Andrew Scott
Hydrology/WQARF Unit

ATTACHMENT B

**ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION**

500 North Third Street, Phoenix, Arizona 85004
Telephone 602 417-2470
Fax 602 417-2422



JANET NAPOLITANO
Governor

HERB GUENTHER
Director

March 15, 2004

Walker Milici, Geohydrologist
Salt River Project
P.O. Box 52025 – 16ST52
Phoenix, Arizona 85072-2025

RE: Notice of Intention to Replace an Existing Non-Exempt Well
Registration No. 55-202398; File No. A (2-4) 30 ACC

Dear Mr. Milici:

The Notice of Intention to Replace an Existing Non-Exempt Well in the Same Location within an Active Management Area for Salt River Project has been approved. A copy of the Notice is enclosed for your records. The on-site inspection has been completed and the drill card for the proposed well has been delivered to the driller you selected.

In the event that the location of the proposed well changes, you must notify the Department of Water Resources of the change in writing. A drill card with the correct proposed well location must be in possession of the driller before drilling may commence. If the proposed new well is to be more than 660 feet from the well that it is replacing, then you may be required to obtain a well permit.

Within 30 days of completion of the well, the well driller is required to furnish this Department with a complete and accurate log of the well. In addition, the well owner is required to submit the enclosed Completion Report within 30 days of installation of pump equipment.

Pursuant to the provisions of A.R.S. § 45-604, any person withdrawing groundwater from a well is required to use a water measuring device to record rates of withdrawal in order to provide or allow the computation of an annual volume of pumpage from the well. The total volume of pumpage from the well which is being replaced and the completed new well shall be reported on your Annual Water Withdrawal and Use Report for calendar year 2004.

The Department has issued the authorization to drill this well pursuant to A.R.S. 45-597 of the Groundwater Code. The legal nature of the water withdrawn from the well may be the subject of court action in the future as part of a determination of surface water rights in your area. If there are court proceedings that could affect your well, you will be notified and be given the opportunity to participate.

ATTACHMENT B

Salt River Project
March 15, 2004
Page two

Please be aware that the withdrawals of the proposed well cannot exceed the historic pumpage of the original well you wish to replace. The historic pumpage of the original well is 1050 acre-feet per year. In addition, if the original well will be used in conjunction with the proposed replacement well, the withdrawals from both wells cannot exceed the historic pumpage of the original well.

If the historic pumpage is exceeded in any calendar year, the well will no longer qualify as a replacement well in the same location, and will instead fall into the category of "new well." This means that you will not be able to pump the well again until you first submit a well impact analysis and obtain a determination from the Department that the well will not cause unreasonably increasing damage to other land and water users.

Hydrology/WQARF strongly recommends that, given the history of contamination at the well site and in the area, the well be completed entirely within the Upper Alluvial Aquifer and that if the bedrock is encountered during drilling, the borehole should be backfilled with neat cement or bentonite grout to a depth that is at least 5 feet above the top of the bedrock.

Under A.R.S. § 45-593, the person to whom a well is registered must notify this Department of any changes in ownership, status or physical characteristics to keep the Well Registry records current and accurate. For such future use, a Request to Change Well Information form is also enclosed.

If you have any questions, please contact Scott Miller at 602-417-2465.

Sincerely,



Darlene Sumpter-King
Water Resource Specialist

Enclosure

cc: Layne Christensen Company
Scott Miller, Phoenix Active Management Area

ATTACHMENT B

Registry	Name Addr	Drilling Auth	Permits	Water/Site	POU	Driller Log	Completion									
Drilling Authorities																
Registry ID	License #	Issue Date	Expiration Date													
55-11138B	7...	03/15/2004	03/01/2005													
Comments																
Driller Licenses																
Company				Qualifying Party												
LAYNE CHRISTENSEN COMPANY				SEE COMMENTS <input checked="" type="checkbox"/> Active License												
Address1				Address2												
1203D EAST RIGGS ROAD																
City	State	Zip Code	Phone	ROC Licenses												
CHANDLER	AZ	85249-37	480-895-9404	C53 & A-4												
Comments																
<table border="1"> <tbody> <tr> <td>DON SAWADE</td> <td>1999-2003</td> <td>ACTIVE</td> </tr> <tr> <td>LARRY G KRALL</td> <td>1999-2003</td> <td>ACTIVE</td> </tr> <tr> <td>RODMILLE MEDD</td> <td>1999-2003</td> <td>ACTIVE</td> </tr> </tbody> </table>								DON SAWADE	1999-2003	ACTIVE	LARRY G KRALL	1999-2003	ACTIVE	RODMILLE MEDD	1999-2003	ACTIVE
DON SAWADE	1999-2003	ACTIVE														
LARRY G KRALL	1999-2003	ACTIVE														
RODMILLE MEDD	1999-2003	ACTIVE														

ARIZONA DEPARTMENT OF WATER RESOURCES
WATER MANAGEMENT DIVISION
500 North Third Street
Phoenix, Arizona 85004

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-202398 REPLACES: 55-607713

AUTHORIZED DRILLER: LAYNE CHRISTENSEN COMPANY LICENSE NO: 7

A NOTICE OF INTENTION TO REPLACE AN EXISTING NON-EXEMPT WELL INSIDE THE PHOENIX ACTIVE MANAGEMENT AREA HAS BEEN GRANTED TO:

WELL OWNER: Salt River Project P.O. Box 52025 Phoenix, AZ 85072

The well(s) is/are to be located in the:

SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ Section 30 Township 2 North Range 4 East

No. of well(s) in this project: 1

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 1ST DAY OF MARCH, 2005.



MLJ.
WATER MANAGEMENT DIVISION

THE DRILLER MUST FILE A LOG OF THE WELL
WITHIN 30 DAYS OF COMPLETION OF DRILLING

ATTACHMENT B

STATE OF ARIZONA

DEPARTMENT OF
WATER RESOURCES

WELL DRILLER REPORT

This report should be prepared by the driller in all detail and filed with the Department within 30 days following completion of the well.

1. Owner DEAN D. PETERSON
Name
4215 E WHITTON PHOENIX ARIZONA 85018
Address

2. Lessee or Operator _____
Name
Address

3. Driller DEAN D. PETERSON
Name
4215 E WHITTON PHOENIX AZ 85018
Address

4. Location of well: 4215 E WHITTON

5. Permit No. _____
(if issued)

DESCRIPTION OF WELL

6. Total depth of hole 85 ft.

7. Type of Casing 4" PLASTIC PIPE (25') - Balance Uncoiled

8. Diameter and length of casing 4 in. from 0 to 25, _____ in from _____ to _____.

9. Method of sealing at reduction points _____

10. Perforated from 0 to _____, from _____ to _____, from _____ to _____

11. Size of cuts _____ Number of cuts per foot _____

12. If screen was installed: Length _____ ft. Diam _____ in. Type _____

13. Method of construction drilled
drilled, dug, driven, bored, jetted, etc.

14. Date started SEPT 15 1981
Month day year

15. Date completed Oct 10 1981
Month day year

16. Depth to water 19 ft. (If flowing well, so state.)

17. Describe point from which depth measurements were made, and give sea-level elevation if available. FROM CONCRETE PUMP BASE

18. If flowing well, state method of flow regulation _____

19. REMARKS: _____

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. 55.501994

Received _____ By _____

Entered 2-3-82 By h

File No. A(2.4)306ea

(Well log to appear on Reverse side)

MICROFILMED

ATTACHMENT B

2-73

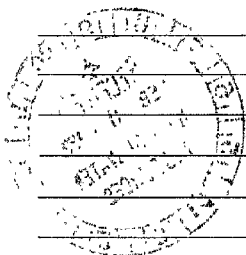
Date 1/18/82 Showing Casper 82018

Address 4215 E. Winton

Name Driller: Dean S. Peterson

I hereby certify that this well was drilled by me (or under my supervision), and that each and all of the statements herein contained are true to the best of my knowledge and belief.

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	4	Topsoil
4	8	Caliche
8	19	Clay
19	21	Sand (fine)
21	30	Clay
30	31	Sand (fine)
31	39	Clay
39	40	Sand (fine)
40	65	Clay
65	67	Sandy clay
67	75	Clay & caliche
75	78	Caliche with rock (very hard + fine)
78	85	Clay



LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

ATTACHMENT B
DEPARTMENT OF WATER RESOURCES
99 East Virginia
Phoenix, Arizona 85004

Registration No. 55-501994
Owner of
Well Site Dean Peterson
File No. A(2.4)30 bea

COMPLETION REPORT

1. Completion Report to be filed with the Department within 30 days after installation of pump equipment.
2. The tested pumping capacity of the well in gallons per minute for a non-flowing well should be determined by measuring the discharge of the pump after continuous operation for at least 4 hours and for a flowing well by measuring the natural flow at the land surface.
3. Drawdown of the water level for a non-flowing well should be measured in feet after not less than 4 hours of continuous operation and while still in operation and for a flowing well the shut-in pressure should be measured in feet above the land or in pounds per square inch at the land surface.
4. The static groundwater level should be measured in feet from the land surface immediately prior to the well capacity test.

LOCATION OF THE WELL

4215 E WHITTON

Date Well Completed OCT 1981 Depth of Well 85'



1. Well Test:

Test Pumping Capacity 10 to 12 Date Well Tested NOV 1981
(Gal. per min.)

Method of Discharge Measurement Stop Watch & 5 gal. can
(weir, orifice, current meter, etc.)

Static Groundwater Level 19 ft. Drawdown approx 11 ft.

Total Pumping Lift approx 30 ft. Drawdown _____ lbs.
(Flowing Well)

2. Equipment Installed:

Kind of Pump CONVERTIBLE Jet Pump Teek Model 3P648
(turbine, centrifugal, etc.)

Kind of Power ELECT H.P. Rating of Motor 1/2 HP
(Elec., Nat. Gas, Etc.)

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief.

Dean D Peterson
Signature
4215 E Whitton
Address

1/18, 1982
Date

Phoenix Arizona 85018
City State Zip

MICROFILMED

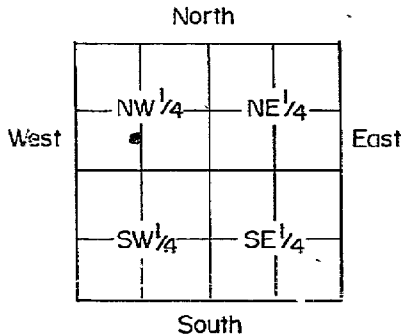
2-3-82 HP

EXEMPT WELL
FILING FEE: \$3.00

ATTACHMENT B
DEPARTMENT OF WATER RESOURCES
NOTICE OF INTENTION TO DRILL OR DEEPEN
AN EXEMPT WELL

EXEMPT WELL

Section 45-596, Arizona Revised Statutes, provides: A person may not drill or cause to be drilled any well or deepen or replace an existing well without first filing a Notice of Intention to Drill with the Department on a form prescribed and furnished by the Department. The well shall be completed within one year after the date of Notice. An exempt well means a well having a pump with a maximum design capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An exempt well may include the non-commercial irrigation of not more than 1 acre of land.



-Indicate Well Location by X
(Above diagram represents one
640 acre section)

WELL/LAND LOCATION:

1. Township 2N
2. Range 4E
3. Section 30
4. NE 1/4 SW 1/4 NW 1/4
10 acre sub-division
5. County MARICOPA
6. Owner of Well:
DEAN D PETERSON
Name
4215 E WHITTON
Address
PHOENIX ARIZONA 85018
City State Zip
7. Owner of Land:
DEAN D. PETERSON
Name
4215 E WHITTON
Address
PHOENIX ARIZONA 85018
City State Zip

DESCRIPTION OF WELL:

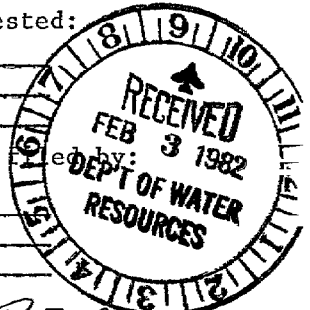
8. Diameter 4"
Depth 65'
9. Type of Casing
Class 40 Plastic
10. Principal use of Water.
irrigating yard
11. Other uses Intended
8,000 sq ft
(If for non-commercial irrigation, state approximate area being cultivated.)
12. Construction will start about:

Month 4 Year 07

DO NOT WRITE IN THIS SPACE
OFFICE RECORD
FILE NO. AC2-4730 bca
FILED 2-3-82 BY AM
INPUT 2-3-82 BY AM
DUPLICATE
MAILED _____ BY _____
REGISTRATION NO 55-501994
(AMA) NON EXPANSION AREA Phoenix

PLACE OF USE:

13. Township 2N
14. Range 4E
15. Section 30
16. Legal description of land water is to be used on:
4215 E WHITTON
17. Design Pump Capacity
10 GPM
18. Action Requested:
Drill X
Deepen _____
Replace _____
19. This notice filed by:
Owner X
Lessee _____
Driller _____



DEAN D PETERSON
Name
4215 E WHITTON
Address
PHOENIX ARIZONA 85018
City State Zip
20. Drillers name:
SAME
Name
Address
City State Zip

Department License Number

1. Fill out this form in duplicate and mail to P.O. Box 2600, Phoenix, Arizona, 85002, or deliver to 99 East Virginia, Suite 100, Phoenix, Arizona 85004.
2. If the Exempt Well is in fact a replacement (or deepening) well, state the registration number of the existing well.
3. Construction standards for new and replacement wells and the deepening and abandonment of existing wells, shall be in accordance with Department Rules and Regulations.

I, Dean D Peterson, state that the construction will be under the direct and personal supervision of the well driller designated on this form and that the designated driller holds a contractors license pursuant to ARS 46-1505

1/18/82
Date

Dean D Peterson
Signature of Person Filing

Dean D. Peterson
4215 East Whitton
Phoenix, Arizona 85018

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER RIGHTS ADMINISTRATION
99 EAST VIRGINIA
PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55	501994
	THRU

4

FUND SOURCE	ACCOUNT NO.			INT. ACCT	ITEM DESCRIPTION	RATE	\$ AMOUNT
	AGENCY	CHAPTER	DIV.				
					Filing Fee for Notice of Intention To		3.00
					Drill an Exempt Well		
					Water Rights (GW)	MICROFILMED	WAITER PAYMENT
					File No: A(2-4)30 bca		GUESTS 1
					Registration No: 55-501994		CHK NO 7160
							55-1 3.00
							TAX 0.00
							TOTL 3.00
							GEN.CHEK 3.00
					Check # 7160		

4232 R 13:02

2/3/82

TOTAL

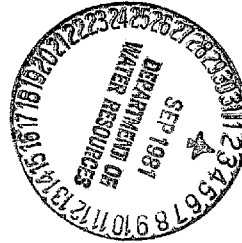
\$

3.00

HW

ATTACHMENT B

DEPARTMENT OF WATER RESOURCES
99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004



REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

07

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input checked="" type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input type="checkbox"/>

FOR OFFICE USE ONLY	
REGISTRATION NO. 55-	600537
FILE NO.	A(2-3)246d
FILED	9-23-81
(DATE)	AT (TIME)
INA	
AMA	

1. Name of Registrant:

LOUIS Q. + ANNA N. THOMAS
3302 E. CAMPBELL PHOENIX AZ 85018
(Address) (City) (State) (Zip)

2. File and/or Control Number under previous groundwater law:

(File Number) 35- (Control Number) BBB SW COR E2 SW4 NW4
SEC 24 TR 24 TWS/BLK 2N RANGE 40 SE N 395.10 E 346.20 S

3. a. The well is located within the SE 1/4 SW 1/4 NW 1/4, Section 24,
of Township 2N N/S, Range 3E E/W, G & SRB & M, in the
County of MARICOPA.

b. If in a subdivision: Name of subdivision _____,
Lot No. _____, Address _____.

4. The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
DOMESTIC

5. If for irrigation use, number of acres irrigated from well 1.58.

6. Owner of land on which well is located. If same as Item 1, check this box ☒

(Address) (City) (State) (Zip)

7. Well data (If data not available, write N/A)

a. Depth of Well 137 feet
b. Diameter of casing 4 inches
c. Depth of casing N/A feet
d. Type of casing IRON
e. Maximum pump capacity N/A gallons per minute.
f. Depth to water 71 feet below land surface.
g. Date well completed ABOUT 1900
(Month) (Day) (Year)

8. The place(s) of use of water. If same as Item 3, check this box ☒

1/4 1/4 1/4, Section _____ Township _____ Range _____
1/4 1/4 1/4, Section _____ Township _____ Range _____

Attach additional sheet if necessary.

9. DATE 8-25-81 SIGNATURE OF REGISTRANT Louis Q. Thomas

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM

General Instructions

1. A person who owns an "Existing Well" shall register the well, pursuant to A.R.S. 45-593, by filing this form in duplicate with the Department of Water Resources not later than midnight June 14, 1982. The form must be completed and signed. Failure to do so will constitute a violation of A.R.S. 45-593, and may subject the well owner to injunction and/or civil penalties, pursuant to A.R.S. Title 45, Article 12.
2. An "Existing Well" means, (1) a well which was drilled on or before June 12, 1980 and which is not abandoned or sealed, or (2) a well which was not completed on or before June 12, 1980, but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on or before June 12, 1980.
3. No registration fee is required for Exempt Wells. A \$10.00 registration fee must accompany registration forms for all Non-Exempt Wells.
4. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An Exempt Well may include the non-commercial irrigation of not more than 1 acre of land.
5. A "Non-Exempt Well" means a well that is not an "Exempt Well".

INSTRUCTIONS FOR REGISTRATION QUESTIONS

1. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of this State.
2. If you own an existing irrigation well drilled at any time, or any other type of well drilled on or after June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2. If you do not know the number, please explain the reason on the form or on an attached sheet.
3.
 - a. Fill in the Section, Township and Range in all cases if it is available.
 - b. If the well is in a subdivision and you have this information, give the subdivision name, Lot Number, and Address.
4. Show all purposes for which the water is used.
5. If the well is used for irrigation, give the number of acres irrigated in 1980 from the well.
6. If the owner of the land is an individual, give the last name, first name, middle initial. If the owner of the land is a corporation, partnership, firm, etc., fill in the appropriate title.
7. Complete the section on Well Data with the most accurate information available to you. If the data is not available, write N/A in the blanks.
8. Give the legal description of the place of use of the water. If place of use is in a subdivision and legal description is not available, give the subdivision name, Lot Number and/or address on the blank line.
9. The person in whose name a well is registered shall notify the Department of any change in ownership and shall keep all information on the registration record current and accurate. A form entitled "Change of Well Information/Ownership" is available for this purpose. A blank form will be furnished with the returned duplicate copy of the registration form.

ATTACHMENT B

CHANGE OF WELL INFORMATION

Registration Number 55- 600537

I request the following information be changed in Well File Number A(2-3)24bcd

March 15, 1982
Date

Louis Q. Thomas
Signature of well owner

STATEMENT OF CHANGE OF WELL OWNERSHIP

I, LOUIS Q. THOMAS, state that I am (no longer) the (new)
owner of the well described below:

Township 2N Range 3E Section 24, SE 1/4 SW 1/4 NW 1/4.

Registration No. 55- 600537 File No. ~~9-113~~ A(2-3)24BCD

Conte. Corp.

LOUIS Q. THOMAS
Previous owner

American Continental Corporation
New Owner

3302 E. CAMPBELL
Address

2735 E. Camelback Road
Address

PHOENIX, ARIZONA 85018
City State Zip

Phoenix AZ 85016
City State Zip

NOTE: ARS 45-594 requires that the Department be notified of change of well ownership and that the well owner is required to keep the Department's well registration records current and accurate. Well data and ownership changes must be submitted within 30 days after changes take place.

DEPARTMENT OF WATER RESOURCES

99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004

REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input checked="" type="checkbox"/>

ARIZONA
DEPT. OF

MAY 18 AM 10:02

WATER
RESOURCES

FOR OFFICE USE ONLY	
REGISTRATION NO. 55-	607672
FILE NO.	4(2-3)25 dec
FILED	5-18-82 AT 11:02a
(DATE)	(TIME)
INA	
AMK	Phoenix

1. Name of Registrant:

Salt River Project Agricultural Improvement and Power District

P. O. Box 1980	Phoenix	Arizona	85001
(Address)	(City)	(State)	(Zip)

2. File and/or Control Number under previous groundwater law:

A02003025DCCGS1	35-
(File Number)	(Control Number)

3. a. The well is located within the SW 1/4 SW 1/4 SE 1/4, Section 25,
of Township 2N N/S, Range 3E E/W, G & SRB & M, in the
County of Maricopa.

b. If in a subdivision: Name of subdivision _____,
Lot No. _____, Address _____.

4. The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
Irrigation and non-irrigation uses by SRP

5. If for irrigation use, number of acres irrigated from well SRP member lands

6. Owner of land on which well is located. If same as Item 1, check this box ☒

(Address)	(City)	(State)	(Zip)
-----------	--------	---------	-------

7. Well data (If data not available, write N/A)

a. Depth of Well 202 feet

b. Diameter of casing 12 inches

c. Depth of casing 188 feet

d. Type of casing 10 ga double wall stovepipe

e. Maximum pump capacity 563 gallons per minute.

f. Depth to water 89 static (Jan. 1982) feet below land surface.

g. Date well completed October 1923.
(Month) (Day) (Year)

8. The place(s) of use of water. If same as Item 3, check this box ☐

1/4 1/4 1/4, Section _____ Township _____ Range _____

1/4 1/4 1/4, Section _____ Township _____ Range _____

SRP member lands through distribution system.

Attach additional sheet if necessary.

9. DATE MAY 17 1982 SIGNATURE OF REGISTRANT

MAY 17 1982

SALT RIVER PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM

General Instructions

1. A person who owns an "Existing Well" shall register the well, pursuant to A.R.S. 45-593, by filing this form in duplicate with the Department of Water Resources not later than midnight June 14, 1982. The form must be completed and signed. Failure to do so will constitute a violation of A.R.S. 45-593, and may subject the well owner to injunction and/or civil penalties, pursuant to A.R.S. Title 45, Article 12.
2. An "Existing Well" means, (1) a well which was drilled on or before June 12, 1980 and which is not abandoned or sealed, or (2) a well which was not completed on or before June 12, 1980, but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on or before June 12, 1980.
3. No registration fee is required for Exempt Wells. A \$10.00 registration fee must accompany registration forms for all Non-Exempt Wells.
4. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An Exempt Well may include the non-commercial irrigation of not more than 1 acre of land.
5. A "Non-Exempt Well" means a well that is not an "Exempt Well".

INSTRUCTIONS FOR REGISTRATION QUESTIONS

1. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of this State.
2. If you own an existing irrigation well drilled at any time, or any other type of well drilled on or after June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2. If you do not know the number, please explain the reason on the form or on an attached sheet.
3.
 - a. Fill in the Section, Township and Range in all cases if it is available.
 - b. If the well is in a subdivision and you have this information, give the subdivision name, Lot Number, and Address.
4. Show all purposes for which the water is used.
5. If the well is used for irrigation, give the number of acres irrigated in 1980 from the well.
6. If the owner of the land is an individual, give the last name, first name, middle initial. If the owner of the land is a corporation, partnership, firm, etc., fill in the appropriate title.
7. Complete the section on Well Data with the most accurate information available to you. If the data is not available, write N/A in the blanks.
8. Give the legal description of the place of use of the water. If place of use is in a subdivision and legal description is not available, give the subdivision name, Lot Number and/or address on the blank line.
9. The person in whose name a well is registered shall notify the Department of any change in ownership and shall keep all information on the registration record current and accurate. A form entitled "Change of Well Information/Ownership" is available for this purpose. A blank form will be furnished with the returned duplicate copy of the registration form.

FORM W-2 10-45 JAHN-TYLER

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REGISTRATION OF WELL

Registration of well existing as of Oct. 3, 1945 is hereby made and filed with the State Land Commissioner as required by Section 5, Chapter 12, Senate Bill No. 3, Seventeenth Legislature, First Special Session 1945.

1. Owner SALT RIVER VALLEY WATER USERS' ASSOCIATION
Name
Phoenix, Arizona
Address
2. Lessee or Operator _____
Name
Address
3. Driller E. N. Brown Drilling Company
Name
Phoenix, Arizona
Address
4. Location of well: Twp. 2N Rge. 3E Section 25 SW 1/4 SW 1/4 SE 1/4
17E-7N 10-acre subdivision

DESCRIPTION OF WELL

5. Total depth of hole 202 ft.
6. Type of casing stovepipe
7. Diameter and length of casing 12 in. from _____ to _____ in. from _____ to _____ in. from _____ to _____
8. Method of sealing at reduction points _____
9. Perforated from 192 to 50 from _____ to _____ from _____ to _____ from _____ to _____
10. Size of cuts 3/4 x 4" holes Number cuts per foot 6 holes every 6 inches
11. If screen was installed: Length _____ ft. Diam. _____ in. Type _____
12. Method of construction drilled
drilled, dug, driven, bored, jetted, etc.
13. Date completed October, 1923
Month _____ Year _____ Despaned _____ Month _____ Year _____
14. Depth to water when drilled 7-1/2 ft.
If flowing well, so state.
15. Present depth to water 20.0 ft. Date of measurement December 19, 1945
If flowing well, so state.
16. Describe point from which depth measurements were made, and give sea-level elevation if available pumphouse floor - 1,170.3
17. If flowing well, state method of flow regulation _____

DISCHARGE DATA

18. Well discharge 422 G.P.M.
gal. per min. or cu. ft. per sec. or miner's inches.
19. Method of discharge measurement weir
weir, orifice, current meter, etc.
20. Drawdown 31.80 ft.
21. Annual discharge in acre-feet, or number of hours pumped: 1944 561 a.f. or _____ hrs. 1945 574 a.f. or _____ hrs.
22. Purpose of use Irrigation
23. Place of use: Twp. _____ Rge. _____ Section _____ Acres _____
[See 24] Legal subdivision _____
Twp. _____ Rge. _____ Section _____ Acres _____
Legal subdivision _____
24. If well is part of irrigation system of Irrigation District, Association or Company, omit 23 and give name of project.
SALT RIVER VALLEY WATER USERS' ASSOCIATION
Name of Project (A-2-3) 25

EQUIPMENT DATA

25. Kind of pump turbine
turbine, centrifugal, etc.
26. Kind of power electric
electric, natural gas, etc.
27. Horsepower rating of motor 20

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Received 2-1-46 by 11

Filed 2-5-46 by 11

File No. (A-2-3) 25 d c c

Cross-referenced (Name) _____ by _____

Cross-referenced (Basin) _____ by _____

Cross-referenced _____ by _____

(See Other Side)

LOG OF WELL

Indicate depth at which water was first encountered, and the depth and thickness of water bearing beds. If water is artesian, indicate depth at which encountered, and depth to which it rose in well.

[illegible]

I hereby certify that I have read the foregoing statements, and that each and all of the items therein contained are true to the best of my knowledge and belief.

SALT RIVER VALLEY WATER USERS' ASSOCIATION

SALT RIVER VALLEY WATER USERS' ASSOCIATION

By H. J. Lawson
H. J. LAWSON ~~General Superintendent~~
General Superintendent and Chief Engineer
Phoenix, Arizona

Address

Date February 1, 1948

ARIZONA DEPARTMENT OF WATER RESOURCES WELL REPORT

In Date: 05/01/2006

Most Recent									
Auth. Issued:									
Reg. Wtr. Use shed Log CRT									
Org. Drill Date									
Lic No Issue Date									
Pump (GPM)									
Water Level									
Case Diameter									
Well Depth									
Case Depth									
202	188	12	89	563	0	10/01/1923	AB	07	
Well Type: NON-EXEMPT									
B/M/P: PO BOX 1980 PHOENIX, AZ 85001									
202	188	0	0	0	533	08/03/2000		T	07
Cancelled: Y B/M/P: 3726 E THOMAS RD PHOENIX, AZ 85018									
Well Type: MONITOR									
202	188	0	0	0	533	08/03/2000		T	07
Cancelled: Y B/M/P: 3726 E THOMAS RD PHOENIX, AZ 85018									
Well Type: MONITOR									
202	188	55	35	4	30	0	533	02/14/2001	02/27/2001 T 07 X
Cancelled: Y B/M/P: 3726 E THOMAS RD PHOENIX, AZ 85018									
Well Type: MONITOR									
202	188	55	35	4	30	0	533	02/14/2001	02/26/2001 T 07 X
Cancelled: Y B/M/P: 3726 E THOMAS RD PHOENIX, AZ 85018									
Well Type: MONITOR									
202	188	0	0	0	533	08/03/2000		T	07
Cancelled: Y B/M/P: 3726 E THOMAS RD PHOENIX, AZ 85018									
Well Type: MONITOR									
202	188	65	30	2	27	0	319	08/10/1993	M 07 X N
Cancelled: Y B/M/P: 3632 E PASADINA PHOENIX, AZ 85018									
Well Type: MONITOR OR PIEZOMETER									
202	188	32	20	5	22	0	263	04/20/1987	T 07 X N
Cancelled: Y B/M/P: 2502 E UNIVERSITY PHOENIX, AZ 85034									
Well Type: EXPLORATION									
202	188	31	20	5	18	0	263	04/20/1987	T 07 X N
Cancelled: Y B/M/P: 2502 E UNIVERSITY PHOENIX, AZ 85034									
Well Type: EXPLORATION									
202	188	42	20	4	23	0	533	08/18/1992	M 07 X N
Cancelled: Y B/M/P: 7167 S ALTON WAY ENGLEWOOD, CO 80112									
Well Type: MONITOR OR PIEZOMETER									
202	188	0	0	0	0	0	533		M 07 N
Cancelled: Y B/M/P: 7167 S ALTON WAY ENGLEWOOD, CO 80112									
Well Type: MONITOR OR PIEZOMETER									

ATTACHMENT B

Salt River Project Agricultural Impr. &
Power District
P O Box 1980
Phoenix AZ 85001

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER RIGHTS ADMINISTRATION
99 EAST VIRGINIA
PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55 -	607704
	THRU
55 -	607743

FUND SOURCE	ACCOUNT NO.			INT. ACCT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
	AGENCY	CHAPTER	DIV.				
					Filing Fee for Registration of Existing		
					Wells	10.00	400.00
					File # Various		
						WRITER PAYMENT	
						GUESTS 40	
						CHK NO 60934	
						400 10.00	
						55-I 400.00	
						TAX 0.00	
						TOTL 400.00	
						GEN.CHEK 400.00	
					Paid Check #060934		

5-20-82

TOTAL

8224 R 13116
\$ 400.00

pb

DEPARTMENT OF WATER RESOURCES

99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004

REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input checked="" type="checkbox"/>

FOR OFFICE USE ONLY	
ARIZONA DEPT. OF WATER RESOURCES	REGISTRATION NO. 55- <u>607731</u> FILE NO. <u>A(2-3)25cbb</u> '82 MAY 18 10:47 (DATE) AT 10:47 (TIME) INA <u>Phoenix</u>

- Name of Registrant:
Salt River Project Agricultural Improvement and Power District
P. O. Box 1980 Phoenix Arizona 85001
 (Address) (City) (State) (Zip)
- File and/or Control Number under previous groundwater law:
A02003025CBBGS2 35- None
 (File Number) (Control Number)
- The well is located within the NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$, Section 25, of Township 2N N/S, Range 3E E/W, G & SRB & M, in the County of Maricopa.
 - If in a subdivision: Name of subdivision _____, Lot No. _____, Address _____.
- The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
Irrigation and non-irrigation uses by SRP
- If for irrigation use, number of acres irrigated from well SRP member lands
- Owner of land on which well is located. If same as Item 1, check this box ☒

 (Address) (City) (State) (Zip)
- Well data (If data not available, write N/A)
 - Depth of Well 400 feet
 - Diameter of casing 18 inches
 - Depth of casing 400 feet
 - Type of casing 5/16 wall steel pipe--pre-perforated
 - Maximum pump capacity 1196 gallons per minute.
 - Depth to water 53 static (Jan. 1982) feet below land surface.
 - Date well completed April 21 1962
 (Month) (Day) (Year)
- The place(s) of use of water. If same as Item 3, check this box ☐.
 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____
 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____
SRP member lands through distribution system
 Attach additional sheet if necessary.
- DATE MAY 17 1982 SIGNATURE OF REGISTRANT Carl E. Spaul

SALT RIVER PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM

General Instructions

1. A person who owns an "Existing Well" shall register the well, pursuant to A.R.S. 45-593, by filing this form **in duplicate** with the Department of Water Resources not later than midnight June 14, 1982. The form must be completed and signed. Failure to do so will constitute a violation of A.R.S. 45-593, and may subject the well owner to injunction and/or civil penalties, pursuant to A.R.S. Title 45, Article 12.
2. An "Existing Well" means, (1) a well which was drilled on or before June 12, 1980 and which is not abandoned or sealed, or (2) a well which was not completed on or before June 12, 1980, but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on or before June 12, 1980.
3. No registration fee is required for Exempt Wells. A \$10.00 registration fee must accompany registration forms for all Non-Exempt Wells.
4. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An Exempt Well may include the non-commercial irrigation of not more than 1 acre of land.
5. A "Non-Exempt Well" means a well that is not an "Exempt Well".

INSTRUCTIONS FOR REGISTRATION QUESTIONS

1. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of this State.
2. If you own an existing irrigation well drilled at any time, or any other type of well drilled on or after June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2. If you do not know the number, please explain the reason on the form or on an attached sheet.
3.
 - a. Fill in the Section, Township and Range in all cases if it is available.
 - b. If the well is in a subdivision and you have this information, give the subdivision name, Lot Number, and Address.
4. Show all purposes for which the water is used.
5. If the well is used for irrigation, give the number of acres irrigated in 1980 from the well.
6. If the owner of the land is an individual, give the last name, first name, middle initial. If the owner of the land is a corporation, partnership, firm, etc., fill in the appropriate title.
7. Complete the section on Well Data with the most accurate information available to you. If the data is not available, write N/A in the blanks.
8. Give the legal description of the place of use of the water. If place of use is in a subdivision and legal description is not available, give the subdivision name, Lot Number and/or address on the blank line.
9. The person in whose name a well is registered shall notify the Department of any change in ownership and shall keep all information on the registration record current and accurate. A form entitled "Change of Well Information/Ownership" is available for this purpose. A blank form will be furnished with the returned duplicate copy of the registration form.

55-6072-31

17E-7½ N

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REPORT OF WELL DRILLER

IMPORTANT! ✓

Please complete & return.

This report should be prepared by the driller in all detail and filed with the State Land Commissioner following completion of the well.

1. OWNER SALT RIVER VALLEY WATER USERS' ASSOCIATION
Name
P. O. Box 1980, Phoenix, Arizona
Address
2. Lessee or Operator _____
Name
Address
3. DRILLER Roscoe Moss Company
Name
4360 Worth Street, Los Angeles, Calif.
Address
4. Location of well: Twp 2N Rge 3E Section 25 NW ¼ NW ¼ SW ¼
16-acre subdivision
5. Intention to Drill File No. _____ Permit No. S-666

DESCRIPTION OF WELL

6. Total depth of hole 400 ft.
7. Type of casing Mild steel plate
8. Diameter and length of casing 28 in. from 0 to 72 18 in. from 0 to 400 in. from _____ to _____
9. Method of sealing at reduction points _____
10. Perforated from 40 to 65 28" casing from 150 to 400 18" casing from _____ to _____
11. Size of cuts 1/4 x 2-1/2 Number of cuts per foot 19 per 5'
12. If screen was installed: Length _____ ft. Diam. _____ in. Type _____
13. Method of construction Drilled
drilled, dug, driven, bored, jetted, etc.
14. Date started March 13, 1962
Month Day Year
15. Date completed April 21, 1962
Month Day Year
16. Depth of water 40 ft.
If flowing well, so state.
17. Describe point from which depth measurements were made, and give sea-level elevation if available.
Ground Surface.
18. If flowing well, state method of flow regulation _____

19. REMARKS: _____

DO NOT WRITE IN THIS SPACE

OFFICE RECORD

Received 5-25-62 by K
Filed 5-31-62 by K
File No. (A-2-3)25 cbb

(Well Log to Appear on Reverse Side)

ATTACHMENT B

Application No. S-683 File No. (A-2-3)25 cbb Permit No. S-666

Filed March 20, 1962
(Applicant must not fill in the above blanks)

This application shall be submitted to the State Land Department, Water Division, Phoenix, Arizona, in accordance with the provisions of Article 7, Chapter 1, Title 45, Arizona Revised Statutes, and the rules and regulations of the State Land Department.

Applications must be accompanied by fees made payable to the STATE LAND DEPARTMENT as follows:

Application Fee ---- \$ 3.00
Permit Fee ----- \$ 5.00

APPLICATION FOR A PERMIT

() TO DRILL)
() TO DEEPEN) AN IRRIGATION WELL IN A CRITICAL AREA
(X) TO REPLACE) WITHIN THE STATE OF ARIZONA

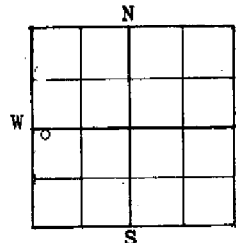
I, We, SALT RIVER VALLEY WATER USERS' ASSOCIATION
(Owners Name)

of P. O. Box 1980, County of Maricopa
(Post Office Address)
State of Arizona, do hereby make application for a permit to

() Drill new well, () Deepen or (X) Replace the following described well
in the Salt River Valley Critical Area.

1. Location and description of proposed well: 17E-7-1/2N Well #298 Location of Proposed Well

Twp. 2N Rge. 3E Sec. 25; NW 1/4 NW 1/4 SW 1/4
(10 Ac. Subdiv.)
Depth 400 ft. Type of casing 5/16" Plate pipe
Proposed Withdrawal 2000
(Ac.ft. per year)



Name and Address of Driller:

Roscoe Moss Co.
Los Angeles, California

2. Location and description of existing well: (Indicate location of well)

Twp. 2N Rge. 3E Sec. 26; NE 1/4 NE 1/4 NE 1/4
(10 Ac. Subdiv.)

Depth 200 ft. Diameter 12 in.

Date drilled Oct., 1923

Driving Unit 20 HP electric motor H.P.

Rating of Motor _____

Discharge when Drilled 422 GPM
(g.p.m.)

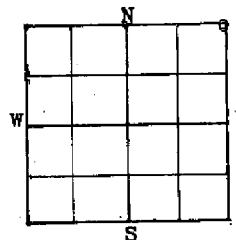
Present Discharge 496 GPM
(g.p.m.)

Static Water Level 42.6 ft.
(below ground surface)

Depth of Pump Setting submersible installation @ 139'

Pumping Lift 104.7 ft.

Location of Existing Well



ATTACHMENT B

3. Reason new well required Supplement water supply.
4. Land to be irrigated: Lands within Association boundaries
 Twp. _____ Rge. _____ Sec. _____
 (Legal Subdivision Description) _____ (Acres) _____
 Twp. _____ Rge. _____ Sec. _____
 (Legal Subdivision Description) _____ (Acres) _____
5. Above described land is now irrigated as follows: Project Canals & wells
6. Record of cultivation and irrigation of land described herein:
All lands within Project under cultivation prior to 1948.
7. It is understood that the permit, if granted, will be in accordance with the Groundwater Code of 1948, and the Permittee will be bound by the provisions of such law, and the provisions of the permit issued herefor.

CERTIFICATE

8. I, We, SALT RIVER VALLEY WATER USERS' ASSOCIATION
 the applicant named in the above and foregoing application, do hereby certify under the penalty of perjury, that the information contained and statements therein made are, to the best of my knowledge and belief, true, correct, and complete.

DATED THIS March 15th day of March 1962

SALT RIVER VALLEY WATER USERS' ASSOCIATION
 (Owner or his authorized agent)

P. O. Box 1980, Phoenix, Arizona
 (Post Office address)

BY J. F. Griswold
 J. F. Griswold, Secretary



4673

ATTACHMENT B

Application No. S-683 File No. (A-2-3)25 chb Permit No. S-666

PERMIT

TO DRILL AN IRRIGATION WELL IN A CRITICAL AREA
WITHIN THE STATE OF ARIZONA

SALT RIVER VALLEY WATER USERS' ASSOCIATION, PHOENIX, ARIZONA

STATE OF ARIZONA }
County of MARICOPA } ss.

This is to Certify that I have examined the above numbered application and do hereby approve the same and grant to the applicant a permit to DRILL the well described therein, subject to the following limitations and conditions:

1. Water shall be limited to use on lands described as follows:

<u>Legal Subdivision</u>	<u>Acres</u>
--------------------------	--------------

LANDS WITHIN ASSOCIATION BOUNDARIES.

Total Acres

- () 2. No right is granted by this permit for the irrigation of lands which on September 1, 19 51, were not irrigated, or had not been cultivated within five years prior thereto.
- (x) 3. The well for which permit is granted hereunder shall be completed and in operation within one year from the date hereof.
- () 4. Other Limitations:

WITNESS my hand and seal of office this 22nd day of March, 19 62

S E A L

Acting Deputy


STATE LAND COMMISSIONER

OBED M. LASSEN
STATE LAND COMMISSIONER
PHONE 271-4621

STATE LAND DEPARTMENT

STATE OF ARIZONA
STATE OFFICE BUILDING
PHOENIX 7, ARIZONA



March 22, 1962

SALT RIVER VALLEY WATER USERS' ASSOCIATION
c/o J. F. Griswold, Secretary
P. O. Box 1980
Phoenix, Arizona

Re: File No. (A-2-3)25-ebb
Application No. S-683
Permit No. S-666

Gentlemen:

Your application for a permit to drill a well in Twp. 2 North, Rge. 3 East, Section 25, NW 1/4 NW 1/4 SW 1/4 has been approved. Your permit is enclosed.

Also enclosed are a:

WELL DRILLING CARD, which should be in the hands of the driller before construction of the well is started;

REPORT OF WELL DRILLER form, which shall be filled in and sent to us within thirty days after completion of the well;

REPORT OF EQUIPMENT INSTALLED form, which shall be filled in and sent to us within thirty days after the installation of the pumping equipment.

In the event it is necessary to change the location of the proposed well you should obtain the written permission of the State Land Commissioner before proceeding with the drilling.

Very truly yours,

WATER DIVISION

By:
Donald LeMaster

Enclosure: G-301
G-304
G-306
cc: USGS, Tucson

ATTACHMENT B

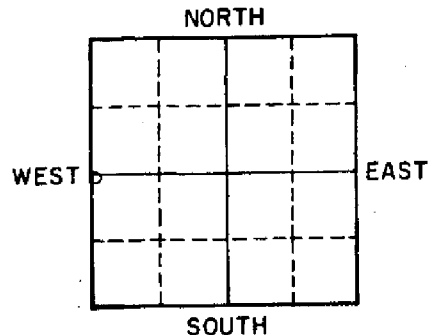
Important

STATE LAND DEPARTMENT Please complete & return.
 Water Division
 Phoenix 7, Arizona

17E-7 1/2 N #198

Location of Well

File No. (A-2-3)25 cbb



(Indicate Well Location
by a circle "o" in the
above Section Plat)

REPORT OF EQUIPMENT INSTALLED

OWNER Salt River Valley Water Users' Association

LOCATION OF WELL:

NW 1/4 NW 1/4 SW 1/4, Sec. 25 Twp. 2N Rge. 3EDate Well Completed: April, 1962 Depth 4001. Well Test:

Discharge: 1196 Date Well Tested: 8/1/62
 (Gal. Per Min.)

Method of Discharge Measurement: Pitot
 (weir, orifice, current meter, etc.)

Static Water Level: 54.6 ft. Drawdown 65.1 ft.

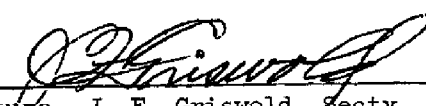
Total Pumping Lift 119.77 ft.

2. Equipment Installed:

Kind of Pump: Turbine
 (turbine, centrifugal, etc.)

Kind of Power: Electric H. P. Rating of Motor 100
 (Elec., Nat. Gas, Etc.)

I HEREBY CERTIFY that all the above statements are true to the best of my knowledge and belief.


 Signature J. F. Griswold, Secty.
SALT RIVERY VALLEY WATER USERS' ASSOCIATION
P. O. Box 1980, Phoenix 1, Arizona
 Address

Date August 7, 19 62.

ATTACHMENT B



12477

ARIZONA DEPARTMENT OF WATER RESOURCES WELL REPORT

In Date: 05/01/2006

Well Data															Well Construction				Well Completion				Well Production				
Well No.	Well Name	Well Type	Well Depth (ft)	Well Diameter (in)	Well Level (ft)	Well Pump (GPM)	Well Issue	Well Date	Well Wtr	Well Reg	Well Wtr	Well Use	Well Shed	Well Log	Well CRT	Most recent											
																Auth. Issued:	Drill	Issue	Date								
1	2.0 3.0 25 B C B 55-539841	EXPLOSION	252	252	6	0	0	392	10/05/1993	N	07	X	N														
Well Name: SOUTHWEST GAS CORP., 9 S 43RD AVE, PHOENIX, AZ 85009																											
2	2.0 3.0 25 C B B 55-607731	MONITOR	400	400	18	53	1,196	0	04/21/1962	AB	07																
Well Name: SALT RIVER PROJECT, PO BOX 1980, PHOENIX, AZ 85001																											
3	2.0 3.0 25 C C C 55-550237	PIEZOMETER	58	37	4	40	0	175	07/25/1995	M	07	X	N														
Well Name: CIRCLE K CORP., 3003 N CENTRAL AVE, PHOENIX, AZ 85013																											
4	2.0 3.0 25 C C C 55-550241	PIEZOMETER	0	0	0	0	0	175																			
Well Name: CIRCLE K CORP., 3003 N CENTRAL AVE, PHOENIX, AZ 85013																											
5	2.0 3.0 25 C C C 55-554017	PIEZOMETER	0	0	0	0	0	175																			
Well Name: CIRCLE K STORES INC., 3003 N CENTRAL AVE, PHOENIX, AZ 85013																											
6	2.0 3.0 25 C C C 55-554019	PIEZOMETER	0	0	0	0	0	175																			
Well Name: CIRCLE K STORES INC., 3003 N CENTRAL AVE, PHOENIX, AZ 85013																											
7	2.0 3.0 25 C C C 55-554021	PIEZOMETER	0	0	0	0	0	175																			
Well Name: CIRCLE K STORES INC., 3003 N CENTRAL AVE, PHOENIX, AZ 85013																											
8	2.0 3.0 25 C C C 55-554023	PIEZOMETER	60	55	2	45	0	78	03/05/2001	04/10/2001	T	07	X														
Well Name: CONOCOPHILLIPS COMPANY, P O BOX 52085, PHOENIX, AZ 85072																											
9	2.0 3.0 25 C C C 55-578962	MONITOR	0	0	0	0	0	7	01/19/2000																		
Well Name: PROFESSIONAL MOBILE CLEANING, ATTN SCOTT STEVENS, 5501 E CALLE CAMELIA, PHOENIX, AZ 85018																											
10	2.0 3.0 25 C C C 55-578961	MONITOR	0	0	0	0	0	7	01/19/2000																		
Well Name: PROFESSIONAL MOBILE CLEANING, ATTN SCOTT STEVENS, 5501 E CALLE CAMELIA, PHOENIX, AZ 85018																											
11	2.0 3.0 25 C C C 55-578960	MONITOR	0	0	0	0	0	7	01/19/2000																		
Well Name: PROFESSIONAL MOBILE CLEANING, ATTN SCOTT STEVENS, 5501 E CALLE CAMELIA, PHOENIX, AZ 85018																											

ATTACHMENT B

Salt River Project Agricultural Impr. &
Power District
P O Box 1980
Phoenix AZ 85001

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER RIGHTS ADMINISTRATION
99 EAST VIRGINIA
PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55 -	607704
	THRU
55 -	607743

ACCOUNT NO.				INT. ACCT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
FUND SOURCE	AGENCY	CHAPTER	DIV.				
					Filing Fee for Registration of Existing		
					Wells	10.00	400.00
					File # Various	WAITER PAYMENT GUESTS 40 CHK NO 60934 40@ 10.00 55-I 400.00 TAX 0.00 TOTL 400.00 GEN.CHEK 400.00	
					Paid Check #060934		

5-20-82

TOTAL

# 8224 R	13:16
\$	400.00

pb

ATTACHMENT B

Arizona Department of Water Resources
Operations Division
500 N. 3rd St.
Phoenix, AZ 85004-3903

DWR AR22 - Nov 84
Date Received: _____
Received By : _____
AMA : _____
Date Routed to AMA: _____

MEASURING DEVICE MALFUNCTION REPORT FORM PART1 - NOTIFICATION

INSTRUCTIONS

A.C.R.R. R12-15-905 Requires that a report must be made in writing to Department of Water Resources within (7) seven calendar days of Discovering that a water measuring device has malfunctioned, if the malfunction lasts 72 hours or longer.

Well Owner/Operator: SALT RIVER PROJECT

Address: P.O. Box 52025 Phoenix, AZ 85072-2025

Telephone Number: (602) 236-2612

Well Registration Number: 55607748

SRP Coordinate Location: 19.0E-08.1N

SRP Pump Number: 113

Measuring Device Type: Flow Meter

Malfunctioned on: 5/3/07

For the reason that: Low mA reading

Should be back in service: ³
5/8/07

Signed: *Refer* *Ant*

Date: 5-7-07

ATTACHMENT B

Arizona Department of Water Resources
Operations Division
500 N. 3rd St.
Phoenix, AZ 85004-3903

DWR AR22 - Nov 84
Date Received: _____
Received By : _____
AMA : _____
Date Routed to AMA: _____

MEASURING DEVICE MALFUNCTION REPORT FORM PART1 - NOTIFICATION

INSTRUCTIONS

A.C.R.R. R12-15-905 Requires that a report must be made in writing to Department of Water Resources within (7) seven calendar days of Discovering that a water measuring device has malfunctioned, if the malfunction lasts 72 hours or longer.

Well Owner/Operator: SALT RIVER PROJECT

Address: P.O. Box 52025 Phoenix, AZ 85072-2025

Telephone Number: (602) 236-2612

Well Registration Number: 55607748

SRP Coordinate Location: 19.0E-08.1N

SRP Pump Number: 113

Measuring Device Type: Flow Meter

Malfunctioned on: 4/26/2006

For the reason that: no signal

Steve K. Loney

5/30/06

DEPARTMENT OF WATER RESOURCES

99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004

REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING

PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input checked="" type="checkbox"/>

ARIZONA
DEPT. OF

82 MAY 18 AM 51

WATER
RESOURCES

07 FOR OFFICE USE ONLY	
REGISTRATION NO. 55-	607748
FILE NO. A(2-4)20	ccc
FILED 5-18-82	AT 10:51a
(DATE)	(TIME)
INA	
Phoenix	

1. Name of Registrant:

Salt River Project Agricultural Improvement and Power District

P. O. Box 1980	Phoenix	Arizona	85001
(Address)	(City)	(State)	(Zip)

2. File and/or Control Number under previous groundwater law:

(File Number)	35-	(Control Number)
---------------	-----	------------------

3. a. The well is located within the SW 1/4 SW 1/4 SW 1/4, Section 20, of Township 2N N/S, Range 4E E/W, G & SRB & M, in the County of Maricopa.

- b. If in a subdivision: Name of subdivision _____, Lot No. _____, Address _____.

4. The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial) Irrigation and non-irrigation uses by SRP

5. If for irrigation use, number of acres irrigated from well SRP member lands

6. Owner of land on which well is located. If same as Item 1, check this box ☒

(Address)	(City)	(State)	(Zip)
-----------	--------	---------	-------

7. Well data (If data not available, write N/A)

- a. Depth of Well 305 feet
- b. Diameter of casing 18 inches
- c. Depth of casing 305 feet
- d. Type of casing steel casing with louvered perforations
- e. Maximum pump capacity 808 gallons per minute.
- f. Depth to water 17 static (Jan. 1982) feet below land surface.
- g. Date well completed June 18 1971
(Month) (Day) (Year)

8. The place(s) of use of water. If same as Item 3, check this box ☐.

1/4 1/4 1/4, Section _____ Township _____ Range _____

1/4 1/4 1/4, Section _____ Township _____ Range _____

SRP member lands through distribution system

Attach additional sheet if necessary.

9. DATE MAY 17 1982 SIGNATURE OF REGISTRANT Carl Parker

SALT RIVER PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM

General Instructions

1. A person who owns an "Existing Well" shall register the well, pursuant to A.R.S. 45-593, by filing this form **in duplicate** with the Department of Water Resources not later than midnight June 14, 1982. The form must be completed and signed. Failure to do so will constitute a violation of A.R.S. 45-593, and may subject the well owner to injunction and/or civil penalties, pursuant to A.R.S. Title 45, Article 12.
2. An "Existing Well" means, (1) a well which was drilled on or before June 12, 1980 and which is not abandoned or sealed, or (2) a well which was not completed on or before June 12, 1980, but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on or before June 12, 1980.
3. No registration fee is required for Exempt Wells. A \$10.00 registration fee must accompany registration forms for all Non-Exempt Wells.
4. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An Exempt Well may include the non-commercial irrigation of not more than 1 acre of land.
5. A "Non-Exempt Well" means a well that is not an "Exempt Well".

INSTRUCTIONS FOR REGISTRATION QUESTIONS

1. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of this State.
2. If you own an existing irrigation well drilled at any time, or any other type of well drilled on or after June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2. If you do not know the number, please explain the reason on the form or on an attached sheet.
3.
 - a. Fill in the Section, Township and Range in all cases if it is available.
 - b. If the well is in a subdivision and you have this information, give the subdivision name, Lot Number, and Address.
4. Show all purposes for which the water is used.
5. If the well is used for irrigation, give the number of acres irrigated in 1980 from the well.
6. If the owner of the land is an individual, give the last name, first name, middle initial. If the owner of the land is a corporation, partnership, firm, etc., fill in the appropriate title.
7. Complete the section on Well Data with the most accurate information available to you. If the data is not available, write N/A in the blanks.
8. Give the legal description of the place of use of the water. If place of use is in a subdivision and legal description is not available, give the subdivision name, Lot Number and/or address on the blank line.
9. The person in whose name a well is registered shall notify the Department of any change in ownership and shall keep all information on the registration record current and accurate. A form entitled "Change of Well Information/Ownership" is available for this purpose. A blank form will be furnished with the returned duplicate copy of the registration form.

ATTACHMENT B

Salt River Project Agricultural Impr. &
Power District
P O Box 1980
Phoenix AZ 85001

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER RIGHTS ADMINISTRATION
99 EAST VIRGINIA
PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55 -	607704
	THRU
55 -	607743

FUND SOURCE	ACCOUNT NO.			INT. ACCT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
	AGENCY	CHAPTER	DIV.				
					Filing Fee for Registration of Existing		
					Wells	10.00	400.00
					File # Various		WRITER PAYMENT GUESTS 40 CHK NO 60934 400 10.00 55-I 400.00 TAX 0.00 TOTL 400.00 GEN.CHEK 400.00
					Paid Check #060934		

5-20-82

TOTAL

# 8224 A	13116
\$	400.00

pb

DEPARTMENT OF WATER RESOURCES

99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004REGISTRATION OF EXISTING WELLSREAD INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input checked="" type="checkbox"/>

ARIZONA
DEPT. OF

82 MAY 11 A3:22

WATER
RESOURCES

FOR OFFICE USE ONLY	
REGISTRATION NO. 55-	608431
FILE NO.	A(2-3)25666
FILED	5/11/82
(DATE)	AT 3:22
(TIME)	
INA	
AMA	PHOENIX

07

1. Name of Registrant:

Salt River Project Agricultural Improvement and Power District
P. O. Box 1980 Phoenix Arizona 85001
 (Address) (City) (State) (Zip)

2. File and/or Control Number under previous groundwater law:

A02003025BBGS1 35- None
 (File Number) (Control Number)

3. a. The well is located within the NW 1/4 NW 1/4 NW 1/4, Section 25, of Township 2N N/S, Range 3E E/W, G & SRB & M, in the County of Maricopa.

b. If in a subdivision: Name of subdivision _____
 Lot No. _____, Address _____

4. The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
Irrigation and non-irrigation uses by SRP5. If for irrigation use, number of acres irrigated from well SRP member lands6. Owner of land on which well is located. If same as Item 1, check this box ☒

 (Address) (City) (State) (Zip)

7. Well data (If data not available, write N/A)

a. Depth of Well 250 feet
 b. Diameter of casing 18 inches
 c. Depth of casing 250 feet
 d. Type of casing 5/16 ga steel pipe with punched slots
 e. Maximum pump capacity 1232 gallons per minute.
 f. Depth to water 52 static (Jan. 1982) feet below land surface.
 g. Date well completed August 20 1964
 (Month) (Day) (Year)

8. The place(s) of use of water. If same as Item 3, check this box ☐

1/4 1/4 1/4, Section _____ Township _____ Range _____
1/4 1/4 1/4, Section _____ Township _____ Range _____
SRP Member lands through distribution system.

Attach additional sheet if necessary.

9. DATE MAY 11 1982 SIGNATURE OF REGISTRANT

SALT RIVER PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM

General Instructions

1. A person who owns an "Existing Well" shall register the well, pursuant to A.R.S. 45-593, by filing this form in duplicate with the Department of Water Resources not later than midnight June 14, 1982. The form must be completed and signed. Failure to do so will constitute a violation of A.R.S. 45-593, and may subject the well owner to injunction and/or civil penalties, pursuant to A.R.S. Title 45, Article 12.
2. An "Existing Well" means, (1) a well which was drilled on or before June 12, 1980 and which is not abandoned or sealed, or (2) a well which was not completed on or before June 12, 1980, but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on or before June 12, 1980.
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4. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An Exempt Well may include the non-commercial irrigation of not more than 1 acre of land.
5. A "Non-Exempt Well" means a well that is not an "Exempt Well".

INSTRUCTIONS FOR REGISTRATION QUESTIONS

1. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of this State.
2. If you own an existing irrigation well drilled at any time, or any other type of well drilled on or after June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2. If you do not know the number, please explain the reason on the form or on an attached sheet.
3.
 - a. Fill in the Section, Township and Range in all cases if it is available.
 - b. If the well is in a subdivision and you have this information, give the subdivision name, Lot Number, and Address.
4. Show all purposes for which the water is used.
5. If the well is used for irrigation, give the number of acres irrigated in 1980 from the well.
6. If the owner of the land is an individual, give the last name, first name, middle initial. If the owner of the land is a corporation, partnership, firm, etc., fill in the appropriate title.
7. Complete the section on Well Data with the most accurate information available to you. If the data is not available, write N/A in the blanks.
8. Give the legal description of the place of use of the water. If place of use is in a subdivision and legal description is not available, give the subdivision name, Lot Number and/or address on the blank line.
9. The person in whose name a well is registered shall notify the Department of any change in ownership and shall keep all information on the registration record current and accurate. A form entitled "Change of Well Information/Ownership" is available for this purpose. A blank form will be furnished with the returned duplicate copy of the registration form.

55-608431

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REPORT OF WELL DRILLER

IMPORTANT
PLEASE COMPLETE & RETURN

This report should be prepared by the driller in all detail and filed with the State Land Commissioner following completion of the well.

1. OWNER SALT RIVER VALLEY WATER USERS' ASSOCIATION
Name
P. O. BOX 1980 - PHOENIX, ARIZONA 85001
Address
2. Lessee or Operator Roscoe Moss Co.
Name
5909 E. Lafayette Phoenix Ariz
Address
3. DRILLER James P. Law
Name
154 E. Santa Cruz Tempe Ariz
Address
4. Location of well: Twp. 2 N. Rge. 3 E. Section 25 N.W. 1/4 NW 1/4 NW 1/4
10-acre subdivision
5. Intention to Drill File No. _____ Permit No. S-759

DESCRIPTION OF WELL

6. Total depth of hole 250 ft.
7. Type of casing 5/8 plate
8. Diameter and length of casing 18 in. from 0 to 250 in. from _____ to _____ in. from _____ to _____
9. Method of sealing at reduction points _____
10. Perforated from 150 to 250, from _____ to _____, from _____ to _____
11. Size of cuts 1/8" openings 3" Number of cuts per foot _____
12. If screen was installed: Length _____ ft. Diam _____ in. Type _____
13. Method of construction Drilled
drilled, dug, driven, bored, jetted, etc.
14. Date started 7/23/64
Month Day Year
15. Date completed 8/10/64
Month Day Year
16. Depth of water 45'
ft.
If flowing well, so state.
17. Describe point from which depth measurements were made, and give sea-level elevation if available _____
18. If flowing well, state method of flow regulation _____

19. REMARKS:

DO NOT WRITE IN THIS SPACE

OFFICE RECORD

Received 8-18-64 by K
Filed 8-19-64 by K
File No. A(2-3)25 bbb

(Well Log to Appear on Reverse Side)

LOG OF WELL

FROM (FEET)	TO (FEET)	DESCRIPTION OF FORMATION MATERIAL
0	7	sandy clay
7	30	clastic
30	125	sandy clay & gravel
125	115	consolidated sand & gravel
115	-	formation

Driller. James P. Laatz
Name
154 E Santa Cruz, Tempe Ariz
Address
Date 8/11/64

55507

9.9.496

ATTACHMENT B

X Done

S-776

A(2-3)25 bbb

S-759

Application No. S-776 File No. A(2-3)25 bbb Permit No. S-759
 Filed 6-24-64 June 24, 1964

(Applicant must not fill in the above blanks)

This application shall be submitted to the State Land Department, Water Division, Phoenix, Arizona, in accordance with the provisions of Article 7, Chapter 1, Title 45, Arizona Revised Statutes, and the rules and regulations of the State Land Department.

Applications must be accompanied by fees made payable to the STATE LAND DEPARTMENT as follows:

Application Fee ----- \$3.00
 Permit Fee ----- \$5.00

OK 6-24-64
 JCR

APPLICATION FOR A PERMIT

- () TO DRILL
 () TO DEEPEN
 (X) TO REPLACE

AN IRRIGATION WELL IN A CRITICAL AREA
 WITHIN THE STATE OF ARIZONA

K(We), SALT RIVER VALLEY WATER USERS' ASSOCIATION
 (Owners Name)

of P. O. Box 1980, Phoenix, County of Maricopa
 (Post Office Address)

State of Arizona, do hereby make application for a permit to

() Drill new well, () Deepen or (X) Replace the following described well in the
Salt River Valley Critical Area.

1. Location and description of proposed well:

Location of Proposed Well

Twp. 2N Rge. 3E Sec. 25; NW 1/4 NW 1/4 NW 1/4 A(2-3)25 bbb
 (10 Ac. Subdiv.)

17.0E-08.0N
 NORTH

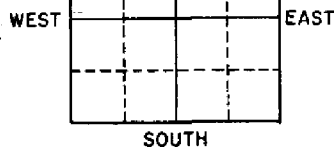
Dept. 300 ft. Type of casing 18" plate pipe

Proposed Withdrawal 1010
 (Ac. ft. per year)

Name and Address of Driller:

Roscoe Moss Company

Los Angeles, California



2. Location and description of existing well:

(Indicate location of well)

Twp. 2N Rge. 3E Sec. 25; NW 1/4 NW 1/4 NW 1/4
 (10 Ac. subdiv.)

Dept. 205 ft. Diameter 12 in.

Date drilled November, 1920

Driving Unit Electric H. P.

Rating of Motor 10

Discharge when Drilled 427
 (g.p.m.)

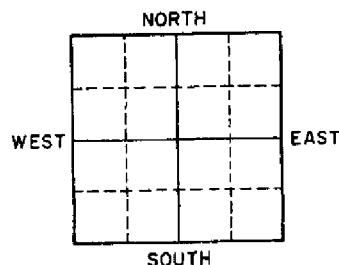
Present Discharge 337
 (g.p.m.)

Static Water Level 50.1 ft.
 (below ground surface)

Depth of Pump Setting 90'

Pumping Lift 65.1 ft.

17.0E-08.0N
 Location of Existing Well



ATTACHMENT B

3. Reason new well required supplement water supply
4. Land to be irrigated: Land within Association boundaries.
 Twp. _____ Rge. _____ Sec. _____

 (Legal Subdivision Description) (Acres)
 Twp. _____ Rge. _____ Sec. _____

 (Legal Subdivision Description) (Acres)
5. Above described land is now irrigated as follows: Project canals & wells.
6. Record of cultivation and irrigation of land described herein: _____
All lands within Project under cultivation prior to 1948.
7. It is understood that the permit, if granted, will be in accordance with the Groundwater Code of 1948, and the Permittee will be bound by the provisions of such law, and the provisions of the permit issued herefor.

CERTIFICATE

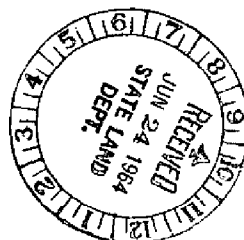
8. I (We), SALT RIVER VALLEY WATER USERS' ASSOCIATION
 the applicant named in the above and foregoing application, do hereby certify under the penalty of perjury, that the information contained and statements therein made are to the best of my knowledge and belief true, correct and complete.

DATED THIS 19th day of June, 19 64.

Salt River Project
 (Owner or his authorized agent)

P. O. Box 1980, Phoenix, Arizona 85001
 (Post Office Address)

BY A. L. Monette
 A. L. Monette, Secretary



62892

ATTACHMENT B

JUL--2-64 132541

e49512 Ck

24.00

STATE OF ARIZONA
STATE LAND DEPARTMENT
STATE OFFICE BUILDING - PHOENIX, ARIZONA

OFFICE COPY

ACCOUNT NO.		CARRYING CAPACITY OR STATIC WATER LEVEL	SEE OTHER SIDE FOR CODE DESCRIPTION			BILLING DESCRIPTION	RATE	ACRES	\$	AMOUNT
GRANT	FUND		LAND CODE	CROP CODE	WATER CODE					

SECTION	TOWNSHIP	RANGE

RIND ENTRY	LEASE - REFERENCE NO.

CERTIFICATE OF PURCHASE
\$ UNPAID BALANCE

BILLING			PERIOD		
NO.	DAY	YR.	NO.	DAY	YR.

DATE BILLED		
MO.	DAY	YR.

DATE DUE		
MO.	DAY	YR.

TOTAL ACRES

TOTAL AMOUNT
\$

IF PAYMENT IS MADE ON OR BEFORE THIS DATE



PAY THIS AMOUNT

SEE OTHER SIDE FOR LAW PERTAINING TO PENALTY AND INTEREST - A. R. S. SEC. 37-288.

RENTAL AMOUNT SUBJECT TO PENALTY AND INTEREST IF NOT PAID ON OR BEFORE DATE DUE

PENALTY AND INTEREST DISTRIBUTION	

5% PENALTY OF RENTAL AMOUNT	\$
TOTAL RENTAL AMOUNT PLUS PENALTY	(\$)
10% INTEREST PER ANNUM OF RENTAL AMOUNT	
AND PENALTY - NUMBER OF DAYS DELINQUENT ()	\$
TOTAL AMOUNT DUE INCLUDING PENALTY AND INTEREST	\$
CASH RECEIVED	\$
BALANCE DUE OR OVERPAYMENT	\$

TOTAL PENALTY AND INTEREST

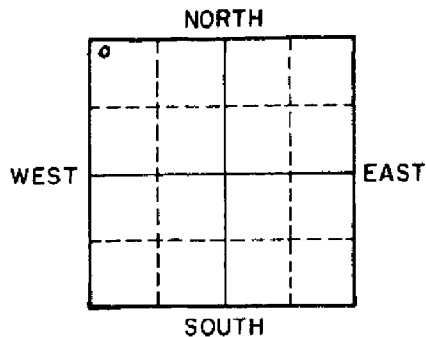
IMPORTANT

PLEASE COMPLETE & RETURN

STATE LAND DEPARTMENT
Water Division
Phoenix 7, Arizona

17E-08,0N

Location of Well

File No. A(2-3)25 bbb

(Indicate Well Location
by a circle "o" in the
above Section Plat)

REPORT OF EQUIPMENT INSTALLED

OWNER Salt River Valley Water Users' Association

LOCATION OF WELL:

NW 1/4 NW 1/4 NW 1/4, Sec. 25 Twp. 2N Rge. 3EDate Well Completed: Sept. 1964 Depth 250'1. Well Test:

Discharge: 1030 Date Well Tested: 10/30/64
(Gal. Per Min.)

Method of Discharge Measurement: Pitot
(weir, orifice, current meter, etc.)

Static Water Level: 51.0 ft. Drawdown 34.6 ft.

Total Pumping Lift 85.6 ft.

2. Equipment Installed:

Kind of Pump: Turbine
(turbine, centrifugal, etc.)

Kind of Power: 75 Electric H. P. Rating of Motor 75 HP
(Elec., Nat. Gas, Etc.)

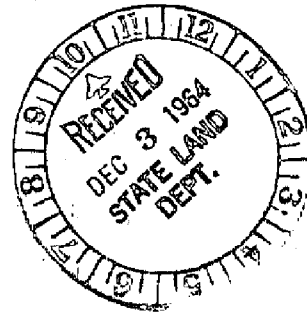
I HEREBY CERTIFY that all the above statements are true to the best of my knowledge and belief.

SALT RIVER VALLEY WATER USERS' ASSOCIATION

A. L. Monette
Signature A. L. Monette, Secretary

Date December 2, 1964, 1964

P. O. Box 1980, Phoenix, Arizona 85001
Address



10735

ATTACHMENT B



SALT RIVER PROJECT

P. O. BOX 1980
PHOENIX 1, ARIZONA
VICTOR I. CORBELL, PRESIDENT
FLOYD N. SMITH, VICE-PRESIDENT

A. L. MONETTE, SECRETARY
L. H. DWERLKOTTE, TREASURER

June 23, 1964

NEW CARD
#36K

State Land Department
Water Division
Phoenix, Arizona 85007

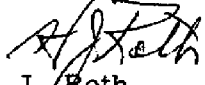
Attention: Mr. F. C. Ryan

Gentlemen:

Enclosed is our check for \$24.00 for the filing and
permit fees to cover applications for three wells,
as specified on your Form No. G-303-IM-12-56.

Very truly yours,

SALT RIVER VALLEY
WATER USERS' ASSOCIATION

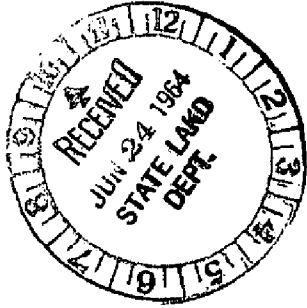

H. J. Roth
Assistant Secretary
Association

HJR:mb
Enclosure

a set on 4/6

ATTACHMENT B

65828



ATTACHMENT B

Application No. S-776 File No. A(2-3)25 bbb Permit No. S-759

PERMIT

TO DRILL (Replace) AN IRRIGATION WELL IN A CRITICAL AREA
WITHIN THE STATE OF ARIZONA

SALT RIVER VALLEY WATER USERS' ASSOCIATION - P. O. Box 1980 - Phoenix, Arizona

STATE OF ARIZONA }
County of MARICOPA } ss.

This is to Certify that I have examined the above numbered application and do hereby
approve the same and grant to the applicant a permit to DRILL (Replace) the well des-
cribed therein, subject to the following limitations and conditions:

1. Water shall be limited to use on lands described as follows:

Legal Subdivision

Acres

ON LANDS WITHIN THE ASSOCIATION'S BOUNDARIES

Total Acres

- () 2. No right is granted by this permit for the irrigation of lands which on
September 1, 1951, were not irrigated, or had not been cultivated within
five years prior thereto.
- (x) 3. The well for which permit is granted hereunder shall be completed and in oper-
ation within one year from the date hereof.
- () 4. Other Limitations:

WITNESS my hand and seal of office this 24th day of June, 1964.

SEAL

Expires: 6-24-65

Deputy

STATE LAND COMMISSIONER

STATE LAND DEPARTMENT

OBED M. LASSEN
STATE LAND COMMISSIONER
PHONE 271-4621

STATE OF ARIZONA
STATE OFFICE BUILDING
PHOENIX 7, ARIZONA



June 24, 1964

Re: File No. A(2-3)25 bbb
Application No. S-776
Permit No. S-759

Salt River Valley Water Users' Association
H. J. Roth, Assistant Secretary
P. O. Box 1980
Phoenix, Arizona 85001

Gentlemen:

Your application for a permit to drill a well in Twp. 2 North , Rge. 3 East ,
Section 25 , NW 1/4 NW 1/4 NW 1/4 has been approved. Your permit is enclosed.

Also enclosed are a:

WELL DRILLING CARD, which should be in the hands of the driller
before construction of the well is started;

REPORT OF WELL DRILLER form, which shall be filled in and
sent to us within thirty days after completion of the well;

REPORT OF EQUIPMENT INSTALLED form, which shall be filled
in and sent to us within thirty days after the installation of the
pumping equipment.

In the event it is necessary to change the location of the proposed well you should
obtain the written permission of the State Land Commissioner before proceeding
with the drilling.

Very truly yours,

WATER DIVISION

By:
F. C. Ryan, Supervisor
kh

Enclosure: G-301
G-304
G-306
cc: USGS, Tucson

ATTACHMENT B

FORM W-2 10-45 JAHN-TYLER

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REGISTRATION OF WELL

Registration of well existing as of Oct. 3, 1945 is hereby made and filed with the State Land Commissioner as required by Section 5, Chapter 12, Senate Bill No. 3, Seventeenth Legislature, First Special Session 1945.

1. Owner SALT RIVER VALLEY WATER USERS' ASSOCIATION
Name Phoenix, Arizona
Address _____
2. Lessee or Operator _____
Name _____
Address _____
3. Driller E. N. BROWN DRILLING COMPANY
Name Phoenix, Arizona
Address _____
4. Location of well: Twp. 2N Rge. 3E Section 25 NW 1/4 NW 1/4 NW 1/4
17E-8N 10-acre subdivision

DESCRIPTION OF WELL

5. Total depth of hole 205 ft.
6. Type of casing stovepipe
7. Diameter and length of casing 12 in. from _____ to _____ in. from _____ to _____ in. from _____ to _____
8. Method of sealing at reduction points _____
9. Perforated from 40 to 150 from _____ to _____ from _____ to _____ from _____ to _____
10. Size of cuts 1/2 x 4" holes Number cuts per foot 8 holes per foot
11. If screen was installed: Length _____ ft. Diam. _____ in. Type _____
12. Method of construction drilled drilled, dug, driven, bored, jetted, etc.
13. Date completed December 10, 1920 Deepened _____
Month _____ Year _____ Month _____ Year _____
14. Depth to water when drilled _____ ft.
If flowing well, so state.
15. Present depth to water 21.0 ft. Date of measurement December 20, 1945
If flowing well, so state.
16. Describe point from which depth measurements were made, and give sea-level elevation if available pumphouse floor -- 1,186.5'
17. If flowing well, state method of flow regulation _____

DISCHARGE DATA

18. Well discharge 427 g.p.m. gal. per min. or cu. ft. per sec. or miner's inches.
19. Method of discharge measurement weir weir, orifice, current meter, etc.
20. Drawdown 85.88 ft.
21. Annual discharge in acre-feet, or number of hours pumped: 1944 599 a.f. or _____ hrs. 1945 623 a.f. or _____ hrs.
22. Purpose of use Irrigation
23. Place of use: Twp. _____ Rge. _____ Section _____ Acres _____
(See 24) Legal subdivision _____
Twp. _____ Rge. _____ Section _____ Acres _____
Legal subdivision _____
24. If well is part of irrigation system of Irrigation District, Association or Company, omit 23 and give name of project.
SALT RIVER VALLEY WATER USERS' ASSOCIATION
Name of Project (A-2-3)25 bbb

EQUIPMENT DATA

25. Kind of pump turbine
turbine, centrifugal, etc.
26. Kind of power electric
electric, natural gas, etc.
27. Horsepower rating of motor 20

DO NOT WRITE IN THIS SPACE OFFICE RECORD

Received 2-1-46 by lj
Filed 2-5-46 by lj
File No. (A-2-3)25 bbb
Cross-referenced (Name) _____ by _____
Cross-referenced (Basin) _____ by _____
Cross-referenced _____ by _____

(See Other Side)

LOG OF WELL

[illegible]

SALT RIVER VALLEY WATER USERS' ASSOCIATION

Address

Date February 1, 1946

ARIZONA DEPARTMENT OF WATER RESOURCES WELL REPORT

										Most Recent																
										Auth. Issued:		Org.														
										Drill Issue		Drill Date														
										Lic No		Use														
										Date		shd														
												Log														
												CRT														
Quad	Town	Range	Sect	Q160	Q40	Q10	Reg No.	Registered Full Name & Address		Well	Depth	Case	Depth	Case	Diameter	Water	Pump	Drill	Issue	Org.	Reg	Wtr	Wtr	shd	Log	CRT
A	2.0	3.0	25	B	B	B	55 - 577234	TOSCO MARKETING COMPANY 1500 N PRIEST DRIVE TEMPE, AZ 85281		60	47	2	35	0	78	09/29/1999	11/20/1999	T	07	X						
Well Type: MONITOR																										
A	2.0	3.0	25	B	B	B	55 - 571530	TOSCO MARKETING COMPANY 1500 N PRIEST DRIVE TEMPE, AZ 85281		60	60	4	37	0	78	10/15/1999	12/09/1998	N	07	X						A
Cancelled: Y B/M/P: 127-34-134B																										
Well Type: MONITOR																										
A	2.0	3.0	25	B	B	B	55 - 571529	TOSCO MARKETING COMPANY 1500 N PRIEST DRIVE TEMPE, AZ 85281		60	60	4	37	0	269	12/28/1998	12/09/1998	T	07	X						
Well Type: MONITOR																										
A	2.0	3.0	25	B	B	B	55 - 560317	CONOCO PHILLIPS COMPANY 1230 W WASHINGTON ST STE 2 TEMPE, AZ 85281		0	0	0	0	0	269					M	07					N
Well Type: MONITOR OR PIEZOMETER																										
A	2.0	3.0	25	B	B	B	55 - 560316	CONOCO PHILLIPS COMPANY 1230 W WASHINGTON ST STE 2 TEMPE, AZ 85281		55	55	2	37	0	269		12/18/1996	M	07	X						N
Well Type: MONITOR OR PIEZOMETER																										
A	2.0	3.0	25	B	B	B	55 - 560314	CONOCO PHILLIPS COMPANY 1230 W WASHINGTON ST STE 2 TEMPE, AZ 85281		55	55	2	37	0	269		12/18/1996	M	07	X						N
Well Type: MONITOR OR PIEZOMETER																										
A	2.0	3.0	25	B	B	B	55 - 566223	CONOCO PHILLIPS COMPANY 1230 W WASHINGTON STE 212 TEMPE, AZ 85281		0	0	0	0	0	269	01/08/1998		M	07							
Cancelled: Y B/M/P:																										
Well Type: MONITOR																										
A	2.0	3.0	25	B	B	B	55 - 566222	CONOCO PHILLIPS COMPANY 1230 W WASHINGTON STE 212 TEMPE, AZ 85281		0	0	0	0	0	269	01/08/1998		M	07							
Cancelled: Y B/M/P:																										
Well Type: MONITOR																										
A	2.0	3.0	25	B	B	B	55 - 608431	SALT RIVER PROJECT, PO BOX 1980 PHOENIX, AZ 85001		250	250	18	52	1,232	0		08/20/1964	AB	07							
Well Type: NON-EXEMPT																										
A	2.0	3.0	25	B	B	B	55 - 560320	TOSCO CORPORATION PO BOX 52085 PHOENIX, AZ 85072		0	0	0	0	0	269			M	07							N
Well Type: MONITOR OR PIEZOMETER																										
A	2.0	3.0	25	B	B	B	55 - 560313	TOSCO CORPORATION PO BOX 52085 PHOENIX, AZ 85072		55	55	2	37	0	269		12/18/1996	M	07	X						N
Well Type: MONITOR OR PIEZOMETER																										
A	2.0	3.0	25	B	B	B	55 - 548570	TOSCO CORPORATION PO BOX 52085 PHOENIX, AZ 85072		45	0	0	43	0	498		03/23/1995	N	07	X						N
Well Type: EXPLORATION																										

ATTACHMENT B

Salt River Project Agricultural
Improvement & Power District
P O Box 1980
Phoenix, Arizona 85001

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER RIGHTS ADMINISTRATION
99 EAST VIRGINIA
PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55	608398
	THRU
55	608437

ACCOUNT NO.				INT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
FUND SOURCE	AGENCY	CHAPTER	DIV.	ACCT.			
					Filing Fee for Registration of	10.00	400.00
					Existing Wells		
						WAITER PAYMENT	
						GUESTS 40	
						CHK NO 59924	
					File No.:A(3-1)14 ddd	55-I 400.00	
					A(3-2)30 dad	TAX 0.00	
					A(3-2)30 ccc	TOTL 400.00	
					A(3-2)30 baa	GEN.CHEK 400.00	
					A(3-2)29 dda		
					Various		
					Check #059924	# 9494 A 12:52	

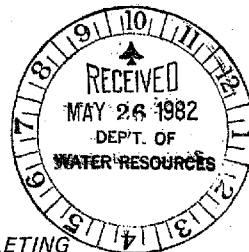
May 26, 1982
sg

TOTAL

\$

400.00

DEPARTMENT OF WATER RESOURCES
99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004



REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

07

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input checked="" type="checkbox"/>

FOR OFFICE USE ONLY	
REGISTRATION NO. 55-	617825
FILE NO.	A(2-3)24ada
FILED	5-26-82 AT 10-
(DATE)	(TIME)
INA	PHX
AMA	

- Name of Registrant:
Salt River Project Agricultural Improvement and Power District
P. O. Box 1980 Phoenix Arizona 85001
(Address) (City) (State) (Zip)
- File and/or Control Number under previous groundwater law:
35-
(File Number) (Control Number)
- The well is located within the NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 24, of Township 2N N/S, Range 3E E/W, G & SRB & M, in the County of Maricopa.
 - If in a subdivision: Name of subdivision _____, Lot No. _____, Address _____.
- The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
Irrigation and non-irrigation uses by SRP
- If for irrigation use, number of acres irrigated from well SRP member lands
- Owner of land on which well is located. If same as Item 1, check this box ☒

(Address) (City) (State) (Zip)
- Well data (If data not available, write N/A)
 - Depth of Well 417 feet
 - Diameter of casing 20" to 362', 16" to 417' inches
 - Depth of casing 417 feet
 - Type of casing steel pipe with mills knife perforations
 - Maximum pump capacity 1457 gallons per minute.
 - Depth to water 37 static (Jan. 1982) feet below land surface.
 - Date well completed 1945
(Month) (Day) (Year)
- The place(s) of use of water. If same as Item 3, check this box ☐.
 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____
 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____
SRP member lands through distribution system
Attach additional sheet if necessary.
- DATE MAY 25 1982 SIGNATURE OF REGISTRANT Carl E. Park

SALT RIVER PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM

General Instructions

1. A person who owns an "Existing Well" shall register the well, pursuant to A.R.S. 45-593, by filing this form in duplicate with the Department of Water Resources not later than midnight June 14, 1982. The form must be completed and signed. Failure to do so will constitute a violation of A.R.S. 45-593, and may subject the well owner to injunction and/or civil penalties, pursuant to A.R.S. Title 45, Article 12.
2. An "Existing Well" means, (1) a well which was drilled on or before June 12, 1980 and which is not abandoned or sealed, or (2) a well which was not completed on or before June 12, 1980, but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on or before June 12, 1980.
3. No registration fee is required for Exempt Wells. A \$10.00 registration fee must accompany registration forms for all Non-Exempt Wells.
4. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An Exempt Well may include the non-commercial irrigation of not more than 1 acre of land.
5. A "Non-Exempt Well" means a well that is not an "Exempt Well".

INSTRUCTIONS FOR REGISTRATION QUESTIONS

1. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of this State.
2. If you own an existing irrigation well drilled at any time, or any other type of well drilled on or after June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2. If you do not know the number, please explain the reason on the form or on an attached sheet.
3.
 - a. Fill in the Section, Township and Range in all cases if it is available.
 - b. If the well is in a subdivision and you have this information, give the subdivision name, Lot Number, and Address.
4. Show all purposes for which the water is used.
5. If the well is used for irrigation, give the number of acres irrigated in 1980 from the well.
6. If the owner of the land is an individual, give the last name, first name, middle initial. If the owner of the land is a corporation, partnership, firm, etc., fill in the appropriate title.
7. Complete the section on Well Data with the most accurate information available to you. If the data is not available, write N/A in the blanks.
8. Give the legal description of the place of use of the water. If place of use is in a subdivision and legal description is not available, give the subdivision name, Lot Number and/or address on the blank line.
9. The person in whose name a well is registered shall notify the Department of any change in ownership and shall keep all information on the registration record current and accurate. A form entitled "Change of Well Information/Ownership" is available for this purpose. A blank form will be furnished with the returned duplicate copy of the registration form.

ATTACHMENT B

Salt River Project
P. O. Box 1980
Phoenix, AZ 85001

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER RIGHTS ADMINISTRATION
99 EAST VIRGINIA
PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55	617781
	THRU
55	617830

ACCOUNT NO.				INT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
FUND SOURCE	AGENCY	CHAPTER	DIV.	ACCT.			
					Filing fees for fifty (50) registration of existing wells	10.00	500.00
File No.				File No.	File No.		
A(13-25) 24 dbb				A(13-26) 7 dbd	A(13-27) 21 acc		
A(13-27) 21 dbb				A(13-26) 18 cbb	A(13-27) 22 dbb		
A(13-27) 17 cac				A(13-29) 5baa	A(1-1) 36aad		
A(13-27) 9 bca				A(13-28) 3 ddb	A(2-1) 1dda		
A(13-27) 17 dbb				A(13-26) 7ac	A(3-1) 36ddd		
A(13-27) 15 bdc				A(13-26) 8 bcc	A(3-2) 18aac		
A(13-29) 9 bdd				A(13-26) 18cad	A(3-2) 18aad		
A(14-29) 38 bbb				A(13-26) 18aaa	D(1-6) 17 dcc		
A(13-20) 3acc				A(13-26) 24 cad	A(3-2) 26dcb		
A(13-29) 6pad				A(14-29) 33 bbb	A(2-3) 17bbb		
A(13-29) 10 bdd				A(13-28) 12 bdc	A(2-3) 24ada		
A(13-27) 9cca				A(13-28) 11bdc	D(1-4) 9bdc		
A(13-27) 22 dbb				A(13-29) 6aac	D(1-4) 10cad		
A(13-26) 17 bdd				A(13-29) 5bba	D(1-4) 36bb		
A(13-26) 8cbb				A(13-29) 3aba	A(2-4) 12bdd		
A(13-29) 1ccc				A(13-27) 15bdd	A(1-4) 1aba		
TOTAL						\$	500.00

WRITER PAYMENT
QUESTS 50
CHK NO 60942
500 10.00
55-1 500.00
TAX 0.00
TOTL 500.00
GEN.CHEK 500.00

1340 A 13:24-
\$ 500.00

CHECK NO. 060942

8-18-82 vf

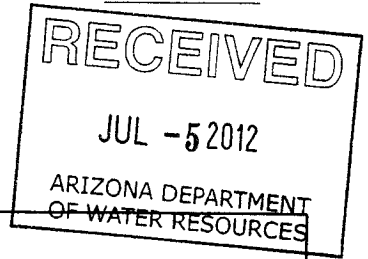
ATTACHMENT B

55-617857

Arizona Department of Water Resources
Operations Division
500 N. 3rd St.
Phoenix, AZ 85004-3903

DWR AR22 - Nov 84
Date Received: _____
Received By : _____
AMA : _____
Date Routed to AMA: _____

MEASURING DEVICE MALFUNCTION REPORT FORM
PART 1 - NOTIFICATION



INSTRUCTIONS

A.C.R.R. R12-15-905 Requires that a report must be made in writing to Department of Water Resources within (7) seven calendar days of Discovering that a water measuring device has malfunctioned, if the malfunction lasts 72 hours or longer.

Well Owner/Operator: SALT RIVER PROJECT

Address: P.O. Box 52025 Phoenix, AZ 85072-2025

Telephone Number: (602) 236-2612

Well Registration Number:
55617857

SRP Coordinate Location: 17.9E-07.5N


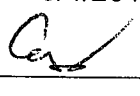
SRP Pump Number: 112

Measuring Device Type: Flow Meter

Malfunctioned on: 6/4/2012

For the reason that: New discharge pipe

Should be back in service: 6/4/2012

Signed:  

Date: 6/22/12

FLOWMETER CHANGEOUT REPAIR DATA SHEETLOCATION 17.9E-7.5NYEAR 2012CHARGE NUMBER: W13-58094-15**INSTALLED FLOWMETER:**Date Installed: 6-5-12Manufacture: WSSerial No.: 903284-10"Size: 10Flowmeter install read: 176648

11378

Flowmeter to be installed in (SRP pipeline) or CITY pipelineType of flowmeter: (Saddle) Vertical or High Pressure or Mag Meter**REMOVED FLOWMETER:**Date Removed: 6-4-12Manufacture: WSSerial No.: 10021743Size: 10"Flowmeter removed read: 556Date Installed: 5/21/03

Groundwater Clearance Number: _____

14224

Reason for flowmeter removal:

New discharge pipe, years of use.**REPAIR REPORT:**

What was found? _____

Repairs required: _____

DATA ENTRY:Flowmeter removed/installed by: TKDate: 6-4-12

Flowmeter repair by: _____

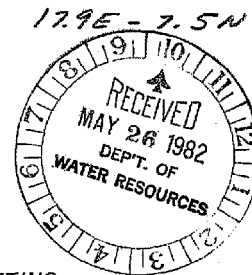
Date: _____

Data entered by: Taylor CoxDate: 6-22-12Sent to Water Accounting by Taylor CoxDate: 6-22-12

Flowmeter sht

ATTACHMENT B

DEPARTMENT OF WATER RESOURCES
99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004



REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input checked="" type="checkbox"/>

07

FOR OFFICE USE ONLY	
REGISTRATION NO.	617857
FILE NO.	A(2-3)25 daa
FILED	5-26-82 AT 10 (TIME)
INA	PLX
AMA	

- Name of Registrant:
Salt River Project Agricultural Improvement and Power District
P. O. Box 1980 Phoenix Arizona 85001
(Address) (City) (State) (Zip)
- File and/or Control Number under previous groundwater law:
A02003025DAAGS1 35
(File Number) (Control Number)
- a. The well is located within the NE 1/4 NE 1/4 SE 1/4, Section 25,
of Township 2N N/S, Range 3E E/W, G & SRB & M, in the
County of Maricopa.
b. If in a subdivision: Name of subdivision _____
Lot No. _____, Address _____
- The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
Irrigation and non-irrigation uses by SRP
- If for irrigation use, number of acres irrigated from well SRP member lands
- Owner of land on which well is located. If same as Item 1, check this box ☒

(Address) (City) (State) (Zip)

- Well data (If data not available, write N/A)
 - Depth of Well 300 feet
 - Diameter of casing 18 inches
 - Depth of casing 300 feet
 - Type of casing 5/16 wall steel pipe
 - Maximum pump capacity 1114 gallons per minute.
 - Depth to water 24 static (Jan. 1982) feet below land surface.
 - Date well completed May 4 1965
(Month) (Day) (Year)

- The place(s) of use of water. If same as Item 3, check this box ☐.
1/4 1/4 1/4, Section _____ Township _____ Range _____
1/4 1/4 1/4, Section _____ Township _____ Range _____
SRP member lands through distribution system

Attach additional sheet if necessary.

MAY 25 1982

- DATE _____ SIGNATURE OF REGISTRANT Carol E. Farber

SALT RIVER PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM

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2. An "Existing Well" means, (1) a well which was drilled on or before June 12, 1980 and which is not abandoned or sealed, or (2) a well which was not completed on or before June 12, 1980, but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on or before June 12, 1980.
3. No registration fee is required for Exempt Wells. A \$10.00 registration fee must accompany registration forms for all Non-Exempt Wells.
4. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An Exempt Well may include the non-commercial irrigation of not more than 1 acre of land.
5. A "Non-Exempt Well" means a well that is not an "Exempt Well".

INSTRUCTIONS FOR REGISTRATION QUESTIONS

1. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of this State.
2. If you own an existing irrigation well drilled at any time, or any other type of well drilled on or after June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2. If you do not know the number, please explain the reason on the form or on an attached sheet.
3.
 - a. Fill in the Section, Township and Range in all cases if it is available.
 - b. If the well is in a subdivision and you have this information, give the subdivision name, Lot Number, and Address.
4. Show all purposes for which the water is used.
5. If the well is used for irrigation, give the number of acres irrigated in 1980 from the well.
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ATTACHMENT B

Salt River Project
P. O. Box 1980
Phoenix, Arizona 85001

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
WATER RIGHTS ADMINISTRATION
99 EAST VIRGINIA
PHOENIX, ARIZONA 85004

RECEIPT

KIND ENTRY	FILE REFERENCE NO.
55	617831
	THRU
55	617870

ACCOUNT NO.				INT. ACCT.	ITEM DESCRIPTION	RATE	\$ AMOUNT
FUND SOURCE	AGENCY	CHAPTER	DIV.				
					Forty (40) filing fees for registration of existing wells	\$10.00	400.00
A(1-6) 21bcc				A(1-5) 35baa	D(1-5) 8acc		
D(2-5) 4add				D(1-5) 32cab	D(1-4) 11bcc		
D(1-5) 22ccc				D(1-5) ccc	D(1-4) 12acc		
D(1-5) 3ccc				D(1-2) 3cdd	D(1-4) 14ccc		
D(1-5) 9dabb				D(2-3) 36aaa	D(1-4) 22bcc		
D(1-5) 19ccc				A(2-2) 25bcd	A(1-6) 32cca		
A(1-5) 19bdd				D(1-3) 6caa	A(1-6) 7abb		
D(1-5) 21 bdc				D(1-4) 3bbb	D(1-6) 7ddc		
D(1-5) 29dbc				D(1-4) 3cdd	A(1-6) 30aba		
A(1-5) 33cdd				D(1-4) 10bdd	A(1-6) 32bba		
A(1-5) 16qcd				D(1-5) 7add	A(1-6) 8ccd		
A(1-5) 17aaa				D(1-4) 24aaa	A(1-6) 17acc		
A(2-4) 11dcc				A(2-3) 25daa			
A(2-4) 11aad				A(1-5) 2cdd			
TOTAL						\$	400.00

WAITER PAYMENT
QUESTS 40
CHK NO 60941
400 10.00
55-I 400.00
TAX 0.00
TOTL 400.00
GEN.CHEK 400.00

1628 A 13:50

Check No. 060941
8-25-82 vf

95-617857

LAND DEPARTMENT
WATER DIVISION
STATE OF ARIZONA

REPORT OF WELL DRILLER

This report should be prepared by the driller in all detail and filed with the State Land Commissioner following completion of the well.

1. OWNER ROSCOE MOSS COMPANY (SRV WUA)
4360 Worth Street Los Angeles, Ca.
 Name
 Address

2. Lessee or Operator
 Name
 Address

3. DRILLER J. O. EVANS
Phoenix
 Name
 Address

4. Location of well: Twp. 2N Rge. 3E Section 25 NE 1/4 NE 1/4 SE 1/4
 10-acre subdivision

5. Intention to Drill File No. A(2-3)25 daa appl. # S-791 2-16-65
 File No.

DESCRIPTION OF WELL

6. Total depth of hole 300 ft.

7. Type of casing 5/16" plate pipe

8. Diameter and length of casing 18 in. from to in. from to in. from to

9. Method of sealing at reduction points

10. Perforated from 100 to 300 from to from to from to

11. Size of cuts 3/16 x 2-1/2 Number of cuts per foot 10 holes per 45 inches

12. If screen was installed: Length ft. Diam. in. Type

13. Method of construction Cable tool
 drilled, dug, driven, bored, jetted, etc.

14. Date started March 30, 1965
 Month Day Year

15. Date completed May 4, 1965
 Month Day Year

16. Depth of water 30 ft.
 If flowing well, so state.

17. Describe point from which depth measurements were made, and give sea-level elevation if available.

18. If flowing well, state method of flow regulation.

19. REMARKS:

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Received by

Filed by

File No. A(2-3)25 daa

(Well Log to Appear on Reverse Side)

ATTACHMENT B

STATE OF ARIZONA
STATE LAND DEPARTMENT
STATE OFFICE BUILDING - PHOENIX, ARIZONA

OFFICE COPY

SECTION	TOWNSHIP	RANGE

KIND ENTRY	LEASE - REFERENCE NO.

ACCOUNT NO.		CARRYING CAPACITY OR STATIC WATER LEVEL	SEE OTHER SIDE FOR CODE DESCRIPTION			BILLING DESCRIPTION	RATE	ACRES	\$	AMOUNT
GRANT FUND	REV		LAND CODE	CROP CODE	WATER CODE					
						File				

CERTIFICATE OF PURCHASE UNPAID BALANCE
\$

BILLING			PERIOD		
FROM	TO		FROM	TO	
MO.	DAY	YR.	MO.	DAY	YR.

DATE BILLED		
MO.	DAY	YR.

DATE DUE		
MO.	DAY	YR.

TOTAL ACRES

TOTAL AMOUNT
\$

IF PAYMENT IS MADE ON OR BEFORE THIS DATE  **PAY THIS AMOUNT**

SEE OTHER SIDE FOR LAW PERTAINING TO PENALTY AND INTEREST — A. R. S. SEC. 37-288.

RENTAL AMOUNT SUBJECT TO PENALTY AND INTEREST IF NOT PAID ON OR BEFORE DATE DUE (\$

PENALTY AND INTEREST		DISTRIBUTION	
		\$	

5% PENALTY OF RENTAL AMOUNT	\$			
TOTAL RENTAL AMOUNT PLUS PENALTY	(\$			
10% INTEREST PER ANNUM OF RENTAL AMOUNT				
AND PENALTY — NUMBER OF DAYS DELINQUENT () \$			
TOTAL AMOUNT DUE INCLUDING PENALTY AND INTEREST	\$			
CASH RECEIVED	\$			
BALANCE DUE OR OVERPAYMENT	\$			

TOTAL PENALTY AND INTEREST

ATTACHMENT B

17.9E-7.5N

According to our records this report was furnished to your office in May, 1965 --
If you do not locate, please forms and we will furnish duplicates.



JACK WILLIAMS
GOVERNOR

Arizona State Land Department

1824 WEST ADAMS
PHOENIX, ARIZONA 85007
602 - 271-4634

WATER RESOURCE OPERATIONS
R. Juetten, Supv.



ANDREW L. BETTWEY
STATE LAND COMMISSIONER

May 6, 1974

Salt River Valley Water Users' Assoc. Re: Application for Permit to
P. O. Box 1980 Drill for Well S-791
Phoenix, AZ 85001 File # A(2-3)25 daa
Dated 2-16-65

Gentlemen:

The State Land Department, Water Rights Division is engaged in the processes of bringing its well files up to date.

Arizona Revised Statutes 45-306, 45-307, and 45-313 deal with Applications for Permit to Construct Irrigation Well, Filing of Log by Driller, Failure or Refusal to File Reports on Notices and Penalty.

Critical information included in these statutes requires that:

1. A well must be completed within one year of filing (in case of failure to complete a well within one year a new Application for Permit to Construct Irrigation Well may be filed);
2. Upon completion of drilling, a copy of the log, and other pertinent data shall be filed by the driller with the State Land Department; and
3. A person who fails or refuses to make any of these reports, give the notices required, or cooperate with the Department, is guilty of a misdemeanor and subject to a fine.

In the event the referenced well has been completed, please forward log, and other pertinent completion data to this Department within 30 days.

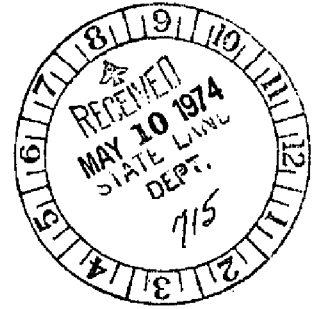
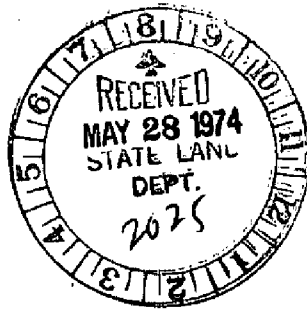
If no response is forthcoming, we will be compelled to assume that the well is not complete and the related file retired as cancelled.

Yours very truly,

Andrew L. Bettwey

NOTE: We usually receive the Report of Equipment Report covering the wells but not the Driller's report. That is the report we must have to complete
5-73 your files. Water Division

ATTACHMENT B





JACK WILLIAMS
GOVERNOR

Arizona
State Land Department

1624 WEST ADAMS
PHOENIX, ARIZONA 85007
602 - 271-4634



ANDREW L. BETTWEY
STATE LAND COMMISSIONER

May 6, 1974

Salt River Valley Water Users' Assoc. Re: Application for Permit to
P. O. Box 1980 Drill for Well **S-791**
Phoenix, AZ 85001 File # **A(2-3)25 daa**
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Yours very truly,

Andrew L. Bettwey

STATE LAND DEPARTMENT

ORED M. LASSEN
STATE LAND COMMISSIONER
PHONE 271-4621

STATE OF ARIZONA
STATE OFFICE BUILDING
PHOENIX 7, ARIZONA



February 16, 1965

Salt River Valley Water Users' Association
P. O. Box 1980
Phoenix, Arizona 85001

Re: File No. A(2-3)25 daa
Application No. S-791
Permit No. S-774

Attention: Mr. A. L. Monette, Secretary

Gentlemen:

Your application for a permit to drill a well in Twp. 2 North , Rge. 3 East ,
Section 25 , NE 1/4 NE 1/4 SE 1/4 has been approved. Your permit is enclosed.

Also enclosed are a:

WELL DRILLING CARD, which should be in the hands of the driller
before construction of the well is started;

REPORT OF WELL DRILLER form, which shall be filled in and
sent to us within thirty days after completion of the well;

REPORT OF EQUIPMENT INSTALLED form, which shall be filled
in and sent to us within thirty days after the installation of the
pumping equipment.

In the event it is necessary to change the location of the proposed well you should
obtain the written permission of the State Land Commissioner before proceeding
with the drilling.

Very truly yours,

WATER DIVISION

By:

F. C. Ryan, Supervisor
kh

Enclosure: G-301
G-304
G-306
cc: USGS, Tucson

ATTACHMENT B

Application No. 5-791 File No. A(2-3)25 daa Permit No. 5-774
 Filed 2-16-65

(Applicant must not fill in the above blanks)

This application shall be submitted to the State Land Department, Water Division, Phoenix, Arizona, in accordance with the provisions of Article 7, Chapter 1, Title 45, Arizona Revised Statutes, and the rules and regulations of the State Land Department.

Applications must be accompanied by fees made payable to the STATE LAND DEPARTMENT as follows:

Application Fee ----- \$3.00
 Permit Fee ----- \$5.00

APPLICATION FOR A PERMIT

- () TO DRILL
 () TO DEEPEN
 (X) TO REPLACE

AN IRRIGATION WELL IN A CRITICAL AREA
 WITHIN THE STATE OF ARIZONA

I (We), SALT RIVER VALLEY WATER USERS' ASSOCIATION
 (Owners Name)

of P. O. Box 1980 85001 County of Maricopa
 (Post Office Address)

State of Arizona, do hereby make application for a permit to

() Drill new well, () Deepen or (X) Replace the following described well in the

Salt River Valley Critical Area, a(2-3)25 daa

1. Location and description of proposed well: Location of Proposed Well

Twp. 2N Rge. 3E Sec. 25; NE 1/4 NE 1/4 SE 1/4
 (10 Ac. Subdiv.) a a d

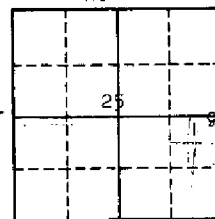
Dept. 300 ft. Type of casing Stovepipe

Proposed Withdrawal 1048
 (Ac. ft. per year)

Name and Address of Driller:

Roscoe Moss Co.

Los Angeles, California



2. Location and description of existing well:

(Indicate location of well)

Twp. 2N Rge. 3E Sec. 25; NE 1/4 NE 1/4 SE 1/4
 (10 Ac. subdiv.)

Dept. 165' ft. Diameter 12 in.

Date drilled 10/4/1920

Driving Unit 15 Electric H. P.

Rating of Motor 15

Discharge when Drilled 370
 (g. p. m.)

Present Discharge 370
 (g. p. m.)

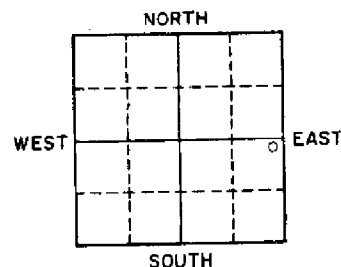
Static Water Level 40.5 ft.
 (below ground surface)

Depth of Pump Setting 110'

Pumping Lift 65.0 ft.

18.0E-07.5N A

Location of Existing Well



ATTACHMENT B

3. Reason new well required Supplement water supply.
4. Land to be irrigated: Land within Association boundaries.
Twp. _____ Rge. _____ Sec. _____

(Legal Subdivision Description) (Acres)
Twp. _____ Rge. _____ Sec. _____

(Legal Subdivision Description) (Acres)
5. Above described land is now irrigated as follows: _____
Project canals and wells.
6. Record of cultivation and irrigation of land described herein: _____
All lands within Project under cultivation prior 1948.
7. It is understood that the permit, if granted, will be in accordance with the Groundwater Code of 1948, and the Permittee will be bound by the provisions of such law, and the provisions of the permit issued herefor.

CERTIFICATE

8. K(We), Salt River Valley Water Users' Association
the applicant named in the above and foregoing application, do hereby certify under the penalty of perjury, that the information contained and statements therein made are to the best of my knowledge and belief true, correct and complete.

DATED THIS 11th day of February, 19 65.

SALT RIVER VALLEY WATER USERS' ASSOCIATION
(Owner or his authorized agent)
P. O. Box 1980, Phoenix, Arizona 85001

(Post Office Address)

BY

A. L. Monette
A. L. Monette, Secretary



0029

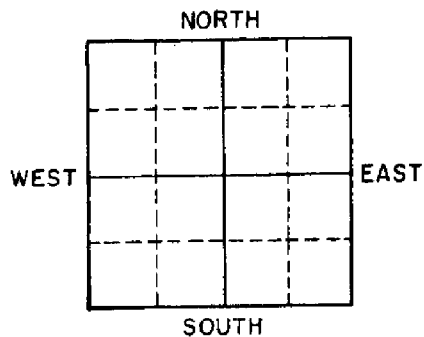
ATTACHMENT B

17.9E-07.5'N A

IMPORTANT

PLEASE COMPLETE & RETURN TO THIS
OFFICESTATE LAND DEPARTMENT
Water Division
Phoenix 7, Arizona

Location of Well

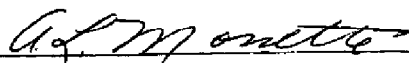
File No. A(2-3)25 daa(Indicate Well Location
by a circle "o" in the
above Section Plat)REPORT OF EQUIPMENT INSTALLED
Salt River Valley Water Users' Association
Phoenix, Arizona

OWNER

LOCATION OF WELL:

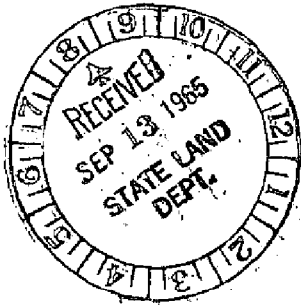
NE 1/4 NE 1/4 SE 1/4, Sec. 25 Twp. 2N Rge. 3EDate Well Completed: May, 1965 Depth 3001. Well Test:Discharge: 1130 Date Well Tested: 8/13/65
(Gal. Per Min.)Method of Discharge Measurement: Pitot
(weir, orifice, current meter, etc.)Static Water Level: 29.3 ft. Drawdown 69.8 ft.Total Pumping Lift 99.1 ft.2. Equipment Installed:Kind of Pump: Turbine
(turbine, centrifugal, etc.)Kind of Power: Electric H. P. Rating of Motor 40
(Elec., Nat. Gas, Etc.)I HEREBY CERTIFY that all the above statements are true to the best of my
knowledge and belief.

SALT RIVER VALLEY WATER USERS' ASSOCIATION


 Signature A. L. Monette, Secty.
Date Sept. 9, 19 65.P. O. Box 1980, Phoenix, Arizona
Address

ATTACHMENT B

85975



14

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23

ATTACHMENT B



SALT RIVER PROJECT

P.O. BOX 1980
PHOENIX, ARIZONA 85001

VICTOR I. CORBELL, PRESIDENT
FLOYD N. SMITH, VICE-PRESIDENT

A. L. MONETTE, SECRETARY
K. J. KNAUER, TREASURER

February 15, 1965

Mr. F. C. Ryan
State Land Department
Water Division
Phoenix, Arizona 85007


Dear Mr. Ryan:

Enclosed is our check for \$8.00 for the filing and permit fee to cover application to replace one of our irrigation wells in the NE NE SE, Section 25, T-2N, R-3E.

This in conformance with the attached Form No. G-303-1M-12-56.

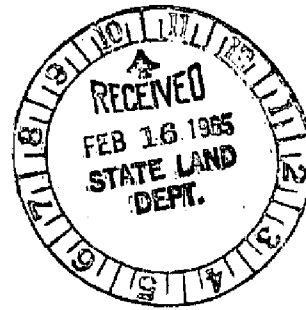
Very truly yours,

SALT RIVER VALLEY
WATER USERS' ASSOCIATION


H. J. Roth
Assistant Secretary

HJR:mb
Enclosure

5200



ATTACHMENT B

Application No. S-791 File No. A(2-3)25 daa Permit No. S-774

PERMIT

TO.....DRILL.....(Replace).....AN IRRIGATION WELL IN A CRITICAL AREA
WITHIN THE STATE OF ARIZONA

SALT RIVER VALLEY WATER USERS' ASSOCIATION - P. O. Box 1980 - Phoenix, Arizona

STATE OF ARIZONA }
County of MARICOPA } ss.

This is to Certify that I have examined the above numbered application and do hereby approve the same and grant to the applicant a permit to.....DRILL (Replace)..... the well described therein, subject to the following limitations and conditions:

1. Water shall be limited to use on lands described as follows:

Legal Subdivision

Acres

On all lands within the boundaries of the Salt River Project

Total Acres

() 2. No right is granted by this permit for the irrigation of lands which on.....
.....September 1....., 19..51.., were not irrigated, or had not been cultivated within
five years prior thereto.

(x) 3. The well for which permit is granted hereunder shall be completed and in operation within one year from the date hereof.

() 4. Other Limitations:

WITNESS my hand and seal of office this.....16th day of.....February....., 19...65

S E A L

Expires: 2-16-66

Deputy

STATE LAND COMMISSIONER

REGISTRATION OF WELL

Registration of well existing as of Oct. 3, 1945 is hereby made and filed with the State Land Commissioner as required by Section 5, Chapter 12, Senate Bill No. 3, Seventeenth Legislature, First Special Session 1945.

1. Owner SALT RIVER VALLEY WATER USERS' ASSOCIATION
Name
Phoenix, Arizona
Address
2. Lessee or Operator _____
Name
Address
3. Driller _____
Name
Address
4. Location of well: Twp. 2N Rge. 3E Section 25 NE 1/4 NE 1/4 SE 1/4
18E-7N 10-acre subdivision

DESCRIPTION OF WELL

5. Total depth of hole 185 ft.
6. Type of casing stovepipe
7. Diameter and length of casing 12 in. from _____ to _____ in. from _____ to _____
8. Method of sealing at reduction points _____
9. Perforated from 40 to 144 from _____ to _____ from _____ to _____
10. Size of cuts 1/2 x 4" holes Number cuts per foot 8 holes per foot
11. If screen was installed: Length _____ ft. Diam. _____ in. Type _____
12. Method of construction drilled
drilled, dug, driven, bored, jetted, etc.
13. Date completed Nov. 8, 1920 Deepened _____
Month Year Month Year
14. Depth to water when drilled _____ ft.
If flowing well, so state.
15. Present depth to water 13.4 ft. Date of measurement December 19, 1945
If flowing well, so state.
16. Describe point from which depth measurements were made, and give sea-level elevation if available pumphouse floor -- 1,194.4
17. If flowing well, state method of flow regulation _____

DISCHARGE DATA

18. Well discharge 370 g.p.m.
gal. per min. or cu. ft. per sec. or miner's inches.
19. Method of discharge measurement weir
weir, orifice, current meter, etc.
20. Drawdown 67.66 ft.
21. Annual discharge in acre-feet, or number of hours pumped: 1944 457 a.f. or _____ hrs. 1945 512 a.f. or _____ hrs.
22. Purpose of use irrigation
23. Place of use: Twp. _____ Rge. _____ Section _____ Acres _____
(See 24) Legal subdivision
Twp. _____ Rge. _____ Section _____ Acres _____
Legal subdivision
24. If well is part of irrigation system of Irrigation District, Association or Company, omit 23 and give name of project.
SALT RIVER VALLEY WATER USERS' ASSOCIATION
Name of Project (A-2-3)25 daa

EQUIPMENT DATA

25. Kind of pump turbine
turbine, centrifugal, etc.
26. Kind of power electric
electric, natural gas, etc.
27. Horsepower rating of motor 15

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Received 2-1-46 by lj
Filed 2-5-46 by lj
File No. (A-2-3)25 daa
Cross-referenced (Name) _____ by _____
Cross-referenced (Basin) _____ by _____
Cross-referenced _____ by _____

LOG OF WELL

[illegible]

Date February 1, 1948

ATTACHMENT B

TEAR OFF ON THIS LINE AND DEPOSIT ABOVE CHECK. CHECK ATTACHED IS SENT YOU IN FULL SETTLEMENT OF THE FOLLOWING ACCOUNT.
 SALT RIVER VALLEY WATER USERS' ASSOCIATION

CHECK
NUMBER 4286

	GROSS AMOUNT	DISCOUNT	NET AMOUNT
FEES FOR ONE WELL DRILLING APPLICATIONS AND 2 PERMITS			8.00


PLEASE CASH WITHIN 60 DAYS

ARIZONA DEPARTMENT OF WATER RESOURCES WELL REPORT

Print Date: 05/01/2006

													Most Recent										
													Auth. Issued:										
													Drill	Issue	Reg								
													Date	Use	Wtr								
													Lic No	Date	shd								
															Log								
															CRT								
ad	Town	Range	Sec	Q160	Q40	Q10	Reg No.	Registered Full Name & Address					Well	Case	Case	Water	Pump	Drill	Issue	Reg			
												Depth	Depth	Diameter	Level	(GPM)	Lic No	Date	Use	Wtr			
2.0	3.0	25	C	C	C	C	55 - 558214	CIRCLE K STORES 2857, 3003 N CENTRAL AVE PHOENIX, AZ 85013					53	33	4	37	0	175	07/11/1996	M	07	X	N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 558213	CIRCLE K STORES 2857, 3003 N CENTRAL AVE PHOENIX, AZ 85013					53	33	4	37	0	175	07/10/1996	M	07	X	N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 558212	CIRCLE K STORES 2857, 3003 N CENTRAL AVE PHOENIX, AZ 85013					53	23	4	37	0	175	07/11/1996	M	07	X	N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 554024	CIRCLE K STORES INC, 3003 N CENTRAL AVE PHOENIX, AZ 85013					0	0	0	0	0	175		M	07		N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 554022	CIRCLE K STORES INC, 3003 N CENTRAL AVE PHOENIX, AZ 85013					0	0	0	0	0	175		M	07		N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 554020	CIRCLE K STORES INC, 3003 N CENTRAL AVE PHOENIX, AZ 85013					0	0	0	0	0	175		M	07		N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 554018	CIRCLE K STORES INC, 3003 N CENTRAL AVE PHOENIX, AZ 85013					0	0	0	0	0	175		M	07		N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 550242	CIRCLE K CORP, 3003 N CENTRAL AVE PHOENIX, AZ 85013					57	27	4	40	0	175	07/31/1995	M	07	X	N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 550240	CIRCLE K CORP, 3003 N CENTRAL AVE PHOENIX, AZ 85013					59	29	4	40	0	175	07/28/1995	M	07	X	N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 550239	CIRCLE K CORP, 3003 N CENTRAL AVE PHOENIX, AZ 85013					58	28	7	40	0	175	07/27/1995	M	07	X	N
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	C	C	C	C	55 - 550238	CIRCLE K CORP, 3003 N CENTRAL AVE PHOENIX, AZ 85013					300	300	18	24	1,114	0	05/04/1965	A	07		
Well Type: MONITOR OR PIEZOMETER																							
2.0	3.0	25	D	A	A	A	55 - 617857	SALT RIVER PROJECT, PO BOX 1980 PHOENIX, AZ 85001					300	300	18	24	1,114	0	05/04/1965	A	07		
Well Type: NON-EXEMPT																							

ATTACHMENT B

 Arizona Department of Water Resources Water Management Support Section P.O. Box 33589 Phoenix, Arizona 85067-3589 (602) 771-8500 • (800) 352-8488 www.azwater.gov	Request to Change Well Information
--	---

- ❖ Review instructions prior to completing form in black or blue ink.
 - ❖ You must include with your Notice:
 - check or money order for any required fee(s)
 - ❖ Authority for fee: A.A.C. R12-15-151(B)(4)(a), A.R.S. § 45-113(B)
- ** PLEASE PRINT CLEARLY ****

RECEIVED

NOV 21 2007

INFO MGMT

FILE NUMBER A(2-4)30CCA
WELL REGISTRATION NUMBER 55-634799

SECTION 1. REGISTRY INFORMATION						
Well Owner				Location of Well		
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL Reid W. Teeples				WELL LOCATION ADDRESS (IF ANY) 4101 E. Avalon Dr., Phoenix, AZ 85018		
MAILING ADDRESS 2065 N. DORAN				TOWNSHIP (N/S)	RANGE (E/W)	SECTION
CITY / STATE / ZIP CODE Mesa AZ 85203				2N	4E	30
CONTACT PERSON NAME AND TITLE Reid W. Teeples				160 ACRE	40 ACRE	10 ACRE
TELEPHONE NUMBER 480-629-5312				SW ¼	SW ¼	NE ¼
FAX				LATITUDE		
				Degrees	Minutes	Seconds
				LONGITUDE		
				Degrees	Minutes	Seconds
				METHOD OF LATITUDE/LONGITUDE (CHECK ONE)		
				<input type="checkbox"/> *GPS: Hand-Held <input type="checkbox"/> USGS Quad Map <input type="checkbox"/> Conventional Survey <input type="checkbox"/> *GPS: Survey-Grade *IF GPS WAS USED, GEOGRAPHIC COORDINATE DATUM (CHECK ONE) <input type="checkbox"/> NAD-83 <input type="checkbox"/> Other (please specify):		
				COUNTY ASSESSOR'S PARCEL ID NUMBER		COUNTY WHERE WELL IS LOCATED
				BOOK 127	MAP 14	PARCEL 038
				Maricopa		

Type of Request (CHECK ONE)		
<input type="checkbox"/> Change of Well Drilling Contractor (Fill out Section 2)	<input checked="" type="checkbox"/> Change of Well Ownership (Fill out Section 3)	<input type="checkbox"/> Change of Well information (location, use, etc.) (Fill out Section 4)

SECTION 2. REQUEST TO CHANGE WELL DRILLING CONTRACTOR (\$10 Fee Required)	\$10 FEE
♦ If drilling or abandoning a well, the Department must receive this request and issue authorization to the new drilling firm prior to the commencement of well drilling or abandonment.	

Current Well Drilling Contractor		New Well Drilling Contractor	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL	
DWR LICENSE NUMBER		DWR LICENSE NUMBER	ROC LICENSE CATEGORY
TELEPHONE NUMBER	FAX	TELEPHONE NUMBER	FAX

SECTION 3. STATEMENT OF CHANGE OF WELL OWNERSHIP (\$10 Fee Required)	\$10 FEE
♦ If this change pertains to more than one well and the names are the same, only one \$10 fee is required.	

Previous Well Owner		New Well Owner	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL Same as Section 1		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL David Ross Abbey & Mary Louise Abbey	
MAILING ADDRESS		MAILING ADDRESS 495 N. 42nd Street	
CITY / STATE / ZIP CODE		CITY / STATE / ZIP CODE Phoenix, AZ. 85018	
CONTACT PERSON NAME AND TITLE		CONTACT PERSON NAME AND TITLE Marilyn Zembsch	
TELEPHONE NUMBER	FAX	TELEPHONE NUMBER 480/503-1104	FAX

SECTION 4. CHANGE OF WELL INFORMATION (No Fee Required)	NO FEE
--	---------------

NOTE: Applies only to wells that have already been drilled. For proposed wells, an amended Notice of Intent to Drill a Well must be filed. EXPLAIN

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief.		
TYPE OR PRINT NAME AND TITLE REID W. TEEPLES	SIGNATURE OF WELL OWNER <i>Reid W. Teeples</i>	DATE 11/20/07

ATTACHMENT B

DEPARTMENT OF WATER RESOURCES
99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004



REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input type="checkbox"/>

07

FOR OFFICE USE ONLY	
REGISTRATION NO. 55-	634799
FILE NO.	A(2-4)30CCQ
FILED	5-26-82 AT 1PM
(DATE) (TIME)	
INA	
AMA	PHOENIX

1. Name of Registrant:

Reid W. Teeples
4101 E. Avalon Drive Phoenix AZ 85018
(Address) (City) (State) (Zip)

2. File and/or Control Number under previous groundwater law:

(File Number) 35- (Control Number)

3. a. The well is located within the NE ¼ SW ¼ SW ¼, Section 30
of Township 2N N/S, Range 4E E/W, G & SRB & M, in the
County of Maricopa

b. If in a subdivision: Name of subdivision Rancho Ventura #12
Lot No. 311 Address 4101 E. Avalon Drive, Phoenix, Arizona, 85018

4. The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
Watering lawn and garden only.

5. If for irrigation use, number of acres irrigated from well

6. Owner of land on which well is located. If same as Item 1, check this box ☒

(Address) (City) (State) (Zip)

7. Well data (If data not available, write N/A)

a. Depth of Well 100 feet
b. Diameter of casing 4 inches
c. Depth of casing 70 feet
d. Type of casing PVC Schedule 40
e. Maximum pump capacity 10 gallons per minute.
f. Depth to water 23 feet below land surface.
g. Date well completed October 1979
(Month) (Day) (Year)

8. The place(s) of use of water. If same as Item 3, check this box ☒

¼ ¼ ¼, Section Township Range
¼ ¼ ¼, Section Township Range

Attach additional sheet if necessary.

9. DATE 5/25/82 SIGNATURE OF REGISTRANT Reid W. Teeples

ATTACHMENT B

Printed: 11/21/2007 11:49:16 AM

Store 0010
Sale Receipt #
11/21/2007
Page 1

Arizona Department of Water Resources

3550 N Central Ave
Phoenix AZ 85012

LAND AMERICA LAWYERS

Date: 11/21/2007

Cashier: WRPAB

7450 E PINNACLE PEAK RD

SUITE 254

Type: Mail

SCOTTSDALE, AZ

85255

480-502-1106

DCS/INV#	DESCRIPTION	ATTR	SIZE	QTY	PRICE	EXT PRICE
F 78	4439-12 CHANGE OF WELL OWNERSHIP	15238		1	10.00	10.00
				1 Unit(s)	Subtotal:	10.00
					RECEIPT TOTAL:	10.00
					Tendered:	10.00

Check #: 10.00 # 00096029

55-634799

We Appreciate Your Business!

ATTACHMENT B

DEPARTMENT OF WATER RESOURCES
99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004



REGISTRATION OF EXISTING WELLS

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

07

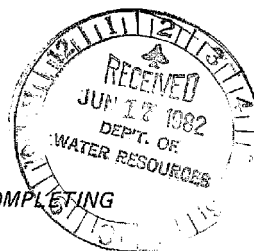
REGISTRATION FEE (CHECK ONE)	
EXEMPT WELL (NO CHARGE)	<input type="checkbox"/>
NON-EXEMPT WELL - \$10.00	<input type="checkbox"/>

FOR OFFICE USE ONLY	
REGISTRATION NO. 55-	634799
FILE NO.	A(2-4)30CC9
FILED	5-26-82 AT 1PM
	(DATE) (TIME)
INA	
AMA	PHOENIX

- Name of Registrant:
Reid W. Teeple
4101 E. Avalon Drive Phoenix AZ 85018
(Address) (City) (State) (Zip)
 - File and/or Control Number under previous groundwater law:
35-
(File Number) (Control Number)
 - The well is located within the NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$, Section 30, of Township 2N N/S, Range 4E E/W, G & SRB & M, in the County of Maricopa.
 - If in a subdivision: Name of subdivision Rancho Ventura #12
Lot No. 311, Address 4101 E. Avalon Drive, Phoenix, Arizona, 85018
 - The principal use(s) of water (Examples: irrigation - stockwater - domestic - municipal - industrial)
Watering lawn and garden only.
 - If for irrigation use, number of acres irrigated from well _____.
 - Owner of land on which well is located. If same as Item 1, check this box ☒

(Address) (City) (State) (Zip)
 - Well data (If data not available, write N/A)
 - Depth of Well 100 feet
 - Diameter of casing 4 inches
 - Depth of casing 70 feet
 - Type of casing PVC Schedule 40
 - Maximum pump capacity 10 gallons per minute.
 - Depth to water 23 feet below land surface.
 - Date well completed October 1979
(Month) (Day) (Year)
 - The place(s) of use of water. If same as Item 3, check this box ☒
 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____
 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$, Section _____ Township _____ Range _____
- Attach additional sheet if necessary.
9. DATE 5/25/82 SIGNATURE OF REGISTRANT _____

DEPARTMENT OF WATER RESOURCES
99 EAST VIRGINIA AVENUE
PHOENIX, ARIZONA 85004



READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE COMPLETING
PRINT OR TYPE - FILE IN DUPLICATE

REGISTRATION FEE (CHECK ONE)

EXEMPT WELL (NO CHARGE) ☒

NON-EXEMPT WELL - \$10.00 ☐

FOR OFFICE USE ONLY

REGISTRATION NO. 55- 639997 L

FILE NO. A(2-3) 24 aba

FILED 6-17-82 AT 2p

(DATE) (TIME)

INA Phoenix

AMA

- [illegible]

Attach additional sheet if necessary.

9. DATE 6/14/82 SIGNATURE OF REGISTRANT *Linda Tucker*

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM

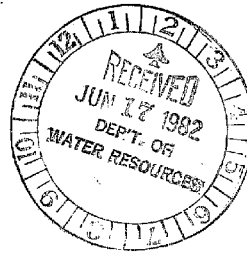
General Instructions

1. A person who owns an "Existing Well" shall register the well, pursuant to A.R.S. 45-593, by filing this form in duplicate with the Department of Water Resources not later than midnight June 14, 1982. The form must be completed and signed. Failure to do so will constitute a violation of A.R.S. 45-593, and may subject the well owner to injunction and/or civil penalties, pursuant to A.R.S. Title 45, Article 12.
2. An "Existing Well" means, (1) a well which was drilled on or before June 12, 1980 and which is not abandoned or sealed, or (2) a well which was not completed on or before June 12, 1980, but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on or before June 12, 1980.
3. No registration fee is required for Exempt Wells. A \$10.00 registration fee must accompany registration forms for all Non-Exempt Wells.
4. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater. An Exempt Well may include the non-commercial irrigation of not more than 1 acre of land.
5. A "Non-Exempt Well" means a well that is not an "Exempt Well".

INSTRUCTIONS FOR REGISTRATION QUESTIONS

1. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of this State.
2. If you own an existing irrigation well drilled at any time, or any other type of well drilled on or after June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2. If you do not know the number, please explain the reason on the form or on an attached sheet.
3.
 - a. Fill in the Section, Township and Range in all cases if it is available.
 - b. If the well is in a subdivision and you have this information, give the subdivision name, Lot Number, and Address.
4. Show all purposes for which the water is used.
5. If the well is used for irrigation, give the number of acres irrigated in 1980 from the well.
6. If the owner of the land is an individual, give the last name, first name, middle initial. If the owner of the land is a corporation, partnership, firm, etc., fill in the appropriate title.
7. Complete the section on Well Data with the most accurate information available to you. If the data is not available, write N/A in the blanks.
8. Give the legal description of the place of use of the water. If place of use is in a subdivision and legal description is not available, give the subdivision name, Lot Number and/or address on the blank line.
9. The person in whose name a well is registered shall notify the Department of any change in ownership and shall keep all information on the registration record current and accurate. A form entitled "Change of Well Information/Ownership" is available for this purpose. A blank form will be furnished with the returned duplicate copy of the registration form.

ATTACHMENT B



6/14/82

Gentlemen:

Upon purchasing my home, I was informed by the previous owner that there was a well on the property. I believe the well is plumbed for irrigation purposes only; however due to the fact that a pump has never been attached, I am unable to provide you with any statistical information.

* My property consists of a little less than 1 acre. In the event I ever wish to have the well operational, I am forwarding this application to you. Further if you deem this well as a "non-exempt" well, please contact me and I will forward the registration fee.

Thank you,

Linda Riskas
Linda Riskas
3713 E. Camelback
Phoenix, AZ 85018

ATTACHMENT B
ARIZONA DEPARTMENT OF WATER RESOURCES
GROUNDWATER MANAGEMENT SUPPORT SECTION
MAIL TO: P.O. BOX 458, PHOENIX, ARIZONA 85001-0458
For Information: Call Monica Ortiz at (602)417-2470
REGISTRATION OF WELLS

RECEIVED
AUG 24 1999

READ INSTRUCTIONS ON BACK OF THIS FORM BEFORE GROUNDWATER MGT
PRINT (Blue or Black Ink) OR TYPE: FILE IN DUPLICATE

PRIOR TO COMPLETING THIS SECTION, SEE GENERAL INSTRUCTION ON REVERSE SIDE OF FORM

FILING FEE FOR REGISTRATION: (check one)

EXEMPT WELL LATE REGISTRATION FEE \$10.00 _____

NON-EXEMPT WELL REGISTRATION FEE \$10.00 _____

LATE FEE \$10.00 _____

TOTAL \$20.00 X

FOR DEPARTMENT USE ONLY

REGISTRATION NO. 55- 867925

FILE No. A(2-3)24 DBC

FILED 8-24-99 By gm

(Date)

INA _____

AMA Phoenix

WS 07 SB 04

Gm W-XX

1. Name of Well Owner: LARRY THIERER Telephone: 602. 955. 4854

4315 N. 36TH ST PHX AZ 85018
Mailing Address City State Zip

2. File and/or Control Number under previous groundwater law: _____ Control Number: 35- _____

3. County Assessor's Parcel ID. Information: Book: 170 File No. _____ Map: 26 Parcel: 023A Control No. _____

4. The well is located within the SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 24 Township 2N N/S Range 3E E/W
10 Acre 40 Acre 160 Acre
in the County of Maricopa (The above description is required for processing, see 5. under "Information" on reverse side)

5. Is the wellsite within 100 feet of a septic tank system, sewer, disposal area, landfill, hazardous materials or petroleum storage area & tanks?
Yes _____ No X Domestic

6. The principal use(s) of water: Domestic (Examples: irrigation, stockwater, domestic, municipal, industrial)

7. If for irrigation use, number of acres irrigated from well: 1/3 Acres

8. Owner of land on which well is located. If same as Item 1, please check X

Name _____ Telephone No. _____

Mailing Address _____ City _____ State _____ Zip _____

9. Well data:

a. Depth of well 34 feet b. Depth to water: 24 feet below land surface

c. Type of casing(s) installed: X steel _____ PVC _____ other _____

d. Casing diameter(s): 4 inch to a depth of _____ feet, _____ inch to a depth of _____ feet

e. Maximum pump capacity: _____ gallons per minute NO PUMP

f. Date well completed: BEFORE 1980 (required for processing see #7 under "Instructions" on reverse side)
(Month) (Day) (Year)

10. The place(s) of use of water. If same as Item 3, please check X.

1/4 1/4 1/4 Section _____ Township _____ N/S Range _____ E/W
10 Acre 40 Acre 160 Acre

I STATE THAT THIS REGISTRATION IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT I UNDERSTAND THE LIMITATIONS AND CONDITIONS SET FORTH ON THE REVERSE SIDE OF THIS FORM.

11. LARRY THIERER
TYPED OR PRINTED NAME

12. [Signature]
SIGNATURE OF WELL OWNER

13. 8-24-99
DATE

ATTACHMENT B

INSTRUCTIONS FOR COMPLETING REGISTRATION FORM GENERAL INSTRUCTIONS

1. Pursuant to Arizona Revised Statute (A.R.S.) § 45-593(A), all known wells within the State of Arizona were to be registered with the Department of Water Resources no later than midnight, June 12, 1982. Accordingly, all wells that are discovered after that date must be registered with the Department. Use this form in lieu of a Notice of Intention to Drill form for all wells drilled after June 12, 1980.
2. An "existing well" must be registered with the Department. An "existing well" is a well which was drilled before June 12, 1980 and which is not abandoned or sealed or a well which was not completed on June 12, 1980 but for which a Notice of Intention to Drill was on file with the Arizona Water Commission on June 12, 1980.
3. A well drilled after June 12, 1980 without first filing a Notice Of Intention to Drill pursuant to A.R.S. § 45-596 or obtaining a well permit pursuant to A.R.S. § 45-599 must also be registered with the Department.
4. Pursuant to A.R.S. § 45-593(D), "within thirty days after a change of ownership of real property, the new owner shall notify the Director in writing of the existence of any open well or wells on the property which the new landowner has discovered. Thereafter, the owner shall report the existence of any open well on the property within ten days after the owner discovers the well."
5. An "Exempt Well" means a well having a pump with a maximum capacity of not more than 35 gallons per minute which is used to withdraw groundwater for a non-irrigation use, including the application of groundwater on less than two (2) acres of land to grow crops for sale or human consumption or for use as feed for livestock, range livestock or poultry. A "Non-Exempt Well" means a well that is not an "Exempt Well".
6. In accordance with A.A.C. R12-15-151(B)(4), a \$10 registration fee and a \$10 late fee is required for Non-Exempt wells. For Registration of exempt wells, only a \$10 late fee is required. Check the appropriate well type on the front of this form, submit the fee, and mail to P.O. Box 458, Phoenix, Arizona 85001-0458 or hand deliver to 500 North 3rd Street, Phoenix, Arizona.

INFORMATION FOR REGISTRATION QUESTIONS

1. This form must be filed in duplicate with original signatures on both copies.
2. The Registrant must be the owner of the well and may be an individual, public or private corporation, company, partnership, firm, association, society, estate, trust, any other private organization or enterprise, the United States, any state, territory or country or a governmental entity, political subdivision or municipal corporation organized under or subject to the constitution and laws of the State.
3. If you own any type of well drilled on or after June 20, 1968, or an existing irrigation well drilled prior to June 20, 1968, you should have an assigned control and/or file number. Write these numbers in item 2.
4. Provide the Assessor's I.D. Number. This information can be obtained from your recorded deed, or by contacting your county assessor's office.
5. Furnish complete well location to include the ¼ ¼ ¼ sections, Section Number, Township, and Range (**Required**). If this required information is not known, you may contact the Mapping Division of the County Assessor's Office in which the property is located.
6. If the owner of the land is an individual, give the last name, first name, middle initial. If the owner of the land is a corporation, partnership, firm, etc., **provide the appropriate title of person signing.**
7. Complete the section on Well Data (item 9) with the most accurate information available to you. If data for items (a) thru (f) is not available, write "unknown" in the appropriate blank. **For Item f, if the month and day are unknown, at least an approximate year the well was completed is required.**
8. Provide the legal description of where the water will be used.
9. The person in whose name a well is registered shall notify the Department of any change in ownership and shall keep all information on the registration record current and accurate. A form entitled "Change of Well Information/Ownership" is available for this purpose. A blank form will be furnished.

ATTACHMENT B

ARIZONA DEPARTMENT OF WATER RESOURCES

500 North Third Street, Phoenix, Arizona 85004

Telephone (602) 417-2450

Fax (602) 417-2401



September 30, 1999

JANE DEE HULL
Governor

RITA P. PEARSON
Director

LARRY THIER
4315 N 36TH STREET
PHOENIX AZ 85018

RE: Well Registration No. 55- 807925 File (location) No. A(2-3) 24 DBC

Dear Well Owner:

Enclosed is a copy of the Well Registration form recently submitted to this Department. Your cancelled check can serve as your receipt. The Registration Number assigned is referenced above.

Also enclosed is a blank Change of Well Information form. This form should be used for any **future** changes to this well, as follows:

- Change of ownership of the well; (lower half of form)
- CHANGE OF ADDRESS
- Change in well data, such as pump capacity
- CORRECTION of legal description as to location of the well
- Change of well driller, PRIOR to drilling the well
- Amending information previously filed

Please contact this office if further assistance or information is required.

Sincerely,

Gloria Moss
Groundwater Management Support Section

Enclosures



HARGIS + ASSOCIATES, INC.

APPENDIX G

REMEDIAL OBJECTIVES REPORT

**REMEDIAL OBJECTIVES REPORT
40TH STREET AND INDIAN SCHOOL ROAD
WATER QUALITY ASSURANCE REVOLVING FUND
REGISTRY SITE
PHOENIX, ARIZONA**



Arizona Department of Environmental Quality
Remedial Projects Unit
1110 West Washington
Phoenix, Arizona 85007

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APPENDICES

APPENDIX A	Comments Received From Oral and Written Solicitations For Proposed Remedial Objectives
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LIST OF ABBREVIATIONS & ACRONYMS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AMA	Active Management Area
A.R.S.	Arizona Revised Statutes
AWQS	Aquifer Water Quality Standard
CAB	Community Advisory Board
COC	Chemicals of Concern
COP	City of Phoenix
ERA	Early Response Action
FS	Feasibility Study
H+A	Hargis + Associates, Inc.
Use Report	Land and Water Use Report
PCE	Tetrachloroethene
RO	Remedial Objective
RI	Remedial Investigation
the Site	40th Street and Indian School Road
SRL	Soil Remediation Level
SRP	Salt River Project
SVE	Soil Vapor Extraction
µg/L	Micrograms per liter
VOCs	Volatile Organic Compounds
WQARF	Water Quality Assurance Revolving Fund

1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this Remedial Objectives (ROs) Report for the 40th Street and Indian School Road Water Quality Assurance Revolving Fund (WQARF) Registry Site (the Site) to meet requirements established under Arizona Administrative Code (A.A.C.) R18-16-406. This RO Report relies upon the Land and Water Use Study Report (Use Report) dated April 2014. The Use Report is contained in Appendix F of the Site Remedial Investigation (RI) Report prepared by Hargis + Associates, Inc. (H+A) for ADEQ.

ROs are established for the current and reasonably foreseeable uses of land and waters of the state that have been or are threatened to be affected by a release of a hazardous substance. Pursuant to A.A.C. R18-16-406(D), it is specified that reasonably foreseeable uses of land are those likely to occur at the site and the reasonably foreseeable uses of water are those likely to occur within one hundred years unless site-specific information suggests a longer time period is more appropriate.

Reasonably foreseeable uses are those likely to occur, based on information provided by water providers, well owners, land owners, government agencies, and others. Not every use identified in the Use Report will have a corresponding RO. Uses identified in the Use Report may or may not be addressed based on information gathered during the public involvement process, limitations of WQARF, and whether the use is reasonably foreseeable.

The ROs must be stated in the following terms: (1) protecting against the loss or impairment of each use; (2) restoring, replacing, or otherwise providing for each use; (3) when action is needed to protect or provide for the use; and (4) how long action is needed to protect or provide for the use.

The ROs chosen for the site will be evaluated, during remedy screening, in the feasibility study (FS) phase of the WQARF process. The FS will evaluate specific remedial measures and strategies required to meet ROs. A remedial strategy is one or a combination of six general strategies identified in Paragraph B.4 of Arizona Revised Statutes (A.R.S.) 49-282-06; plume remediation, physical containment, controlled migration, source control, monitoring, and no action. A remedial measure is a specific action taken in conjunction with remedial strategies to achieve one or more ROs, for example, well replacement, well modification, water treatment, water supply replacement, and engineering controls.

The FS will propose at least three remedies; a reference remedy and two alternative remedies, capable of meeting ROs. A reference remedy is a combination of remedial strategies and measures capable of achieving ROs, and is compared with alternative remedies for purposes of selecting a proposed remedy. An alternative remedy is a combination of remedial strategies and measures different from the reference remedy; alternative remedies are compared with the reference remedy for purposes of selecting a proposed remedy. Proposed remedies will also be generally compatible with future land use specified by land owners.

Public comments were reviewed and will be considered in the development of the final remedy.

2.0 REMEDIAL OBJECTIVES FOR LAND USE

The Site is located in the City of Phoenix (COP) and is bounded approximately by Devonshire Avenue to the north, 40th Street to the east, East Piccadilly Road to the south and 38th Place to the west. The contaminant of concern (COC) for the Site is tetrachloroethene (PCE). However, trichloroethene (TCE) has been historically detected in Site area media. After several years of investigations, the source area of the PCE was determined to be at the Kachina Cleaners facility and the former Allen's Cleaners facility.

Early Response Actions (ERAs) performed at the Site included installation of three soil vapor extraction (SVE) wells and six air sparge (AS) wells in addition to the operation of a SVE/AS system. These ERAs reduced the PCE detected in the groundwater and vadose zone soil at the Site. In 2005, the SVE/AS system was decommissioned and removed from the former Allen's Cleaners removing approximately 33 pounds of PCE from the vadose zone throughout its operation.

Typically, ROs for land use are established for those properties known to be contaminated with hazardous substances above a Soil Remediation Level (SRL) or a risk-based level. Several phases of investigation have been conducted including soil and soil vapor sample collection, and groundwater monitoring well installation and sampling. The results of these investigations have indicated that volatile organic compounds (VOCs), primarily PCE, are present in soil, soil vapor, and groundwater in the vicinity of the Site.

2.1 Summary of Current and Reasonably Foreseeable Land Use

Generally, the Site is located in a mixed urban, commercial and residential area. Based on the current zoning maps provided by the COP, the Site is zoned as residential (single and multiple family) and commercial (restricted, retail, intermediate, and high density). Based on future land use plans provided by the COP, there are no immediate plans to change the land use or zoning for the areas of the COP within and adjacent to the Site.

2.2 Soil Remedial Objective

Although the former drycleaner property is currently zoned for commercial use, reasonably foreseeable use may be residential. Therefore, residential SRLs apply and the ROs for land use at the former drycleaner property are:

To restore soil conditions to the remediation standards for intended end use specified in A.A.C. R18-7-203 (specifically background remediation standards prescribed in R18-7-204, predetermined remediation standards prescribed in R18-7-205, or site specific remediation standards prescribed in R18-7-206) that are applicable to the hazardous substances identified (PCE). This action is needed for the present time and for as long as the level of contamination in the soil threatens its intended end use.

3.0 REMEDIAL OBJECTIVES FOR GROUNDWATER USE

The groundwater use portion of the Use Report is an inclusive summary of information gathered from the Arizona Department of Water Resources (ADWR), water providers and municipalities. The water providers within the Site are the COP and SRP.

3.1 Summary of Current and Reasonably Foreseeable Groundwater Use

The Site lies within the Phoenix Active Management Area (AMA). The Phoenix AMA was created by the Arizona Groundwater Management Code passed in 1980 and covers approximately 5,646 square miles in central Arizona. All groundwater withdrawn from any AMA must occur under a groundwater right or permit, unless groundwater is being withdrawn from an exempt well.

According to ADWR records, there are seven (7) non-exempt withdrawal wells located within one mile of the Site; all owned and operated by SRP. ADWR records indicate ADWR records indicate that there are five (5) exempt withdrawal wells located within one-mile of the Site; all five wells have an intended use for domestic irrigation. There are no grandfathered rights in the Site. The City of Phoenix and SRP have service area rights in the Site, however, of the two, only SRP is currently pumping groundwater in the Site.

Questionnaires were mailed to the COP, Maricopa County and SRP to obtain information regarding current and future uses of groundwater within the Site. The following sections identify current and foreseeable groundwater uses within the Site and proposed ROs.

The Site is in the COP and the Phoenix AMA, an area where groundwater use is controlled and regulated. The COP does not have groundwater wells within the Site but has indicated that it may install future municipal wells, within the Site, in the future. Currently a portion of the groundwater within the Site is contaminated with PCE that would restrict use of the groundwater by the COP if the city wanted to use the groundwater for municipal purposes.

SRP operates and maintains seven (7) irrigation wells within approximately one-mile of the Site boundaries. The last groundwater sample collected from SRP well 17E-8N in June 2011 contained PCE at a concentration of 2.2 µg/L, and in April 2013, SRP reported PCE at a concentration of 3 µg/L in well 17.9E-7.5N. Groundwater quality data collected from these wells indicates that PCE concentrations in these two SRP wells are below the AWQS of 5 µg/L. Groundwater pumpage at these wells has been intermittent in the recent past, but the wells can be activated at any time.

Although recent use of the irrigation wells in and adjacent to the Site has been intermittent, SRP has no plans to eliminate any of these wells from their system. Based on demand analysis, SRP has indicated it will continue to need the wells in the area to remain operational, especially during dry years. SRP anticipates all its properties in the vicinity of ECP WQARF Area will remain in use over the next 100 years. Additionally, SRP anticipates that its groundwater supply wells that are in the vicinity will likely transition from irrigation to municipal service (potable supply) within this time period.

3.2 Groundwater Remedial Objective

Current groundwater use in the Site is for irrigation, however, the regional aquifer is considered to be a drinking water source for the COP and SRP. Therefore, the current and future use of the regional aquifer must be protected.

The remedial objective for regional groundwater at the site is to protect for the use of the groundwater supply by the COP and SRP from contamination at the Site. This action is currently needed and will be needed if/when groundwater use changes to municipal/drinking water uses. This action will be needed for as long as the level of contamination in the groundwater threatens the use of the regional groundwater for municipal/drinking water uses.

4.0 REMEDIAL OBJECTIVES FOR SURFACE WATER USE

The surface water use portion of the Use Report indicates that surface water usage within the Site is for residential irrigation. The surface water source comes from groundwater wells outside the Site.

4.1 Summary of Current and Reasonably Foreseeable Surface Water Use

Surface water for use in the Site is provided/distributed by an active flood irrigation district of SRP, for residential irrigation. This water is supplied, by the SRP, from sources outside the Site.

The Site area is situated within an active flood irrigation district of SRP. SRP lateral 6.1 receives water from the Arizona Canal, SRP well 17.9E-7.5N, and SRP 17E-8N. Water from SRP lateral 6.1 is used for irrigation and also discharges into the Grand Canal. Grand Canal, also used for irrigation, is located approximately two (2) miles southwest of the Site. Future plans for the Grand Canal include a drinking water treatment plant that may be constructed at the end of the Grand Canal. The construction of the treatment plant would change the end use of the canal water requiring that water discharged to the canal meet stricter water quality criteria than what is currently required.

4.2 Surface Water Remedial Objective

Current surface water use in the Site is for irrigation and comes from groundwater sources outside the site; therefore no RO is necessary at this time.

APPENDIX A

COMMENTS RECEIVED FROM ORAL AND WRITTEN SOLICITATIONS FOR
PROPOSED REMEDIAL OBJECTIVES

**A COMMENTS RECEIVED FROM ORAL AND WRITTEN SOLICITATIONS FOR
PROPOSED REMEDIAL OBJECTIVES**

As per A.A.C. R18-16-406(I), a community advisory board (CAB) meeting was held at Arcadia High School on February 5, 2015 during the 45-day to 90-day public solicitation period for the ROs. The purpose of the meeting was to solicit and consider proposed ROs for the East Central Phoenix 40th Street and Indian School Road WQARF Site. The meeting gave a public forum for oral and written comments to be submitted. ADEQ received two oral comments on the ROs during the meeting.

Mr. Nathan Nelson

1) Mr. Nelson indicated that there were not any concentration levels referenced and wondered if there was a target in mind. Mr. Nelson's comment is to make sure the clean-up goals are whatever standard is set for the intended use.

Ms. Jolene Morris

1) Ms. Morris asked if the RO is a living document due to the fact, if a standard changes in the future (either higher or lower) then the new standard will be followed/used.



HARGIS + ASSOCIATES, INC.

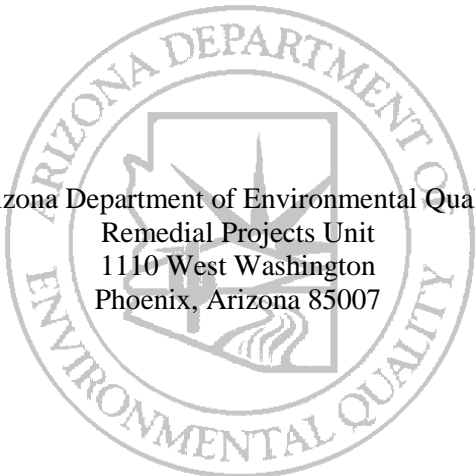
APPENDIX H

REMEDIAL OBJECTIVES RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

REMEDIAL OBJECTIVES REPORT

**40TH STREET AND INDIAN SCHOOL ROAD WQARF REGISTRY SITE
PHOENIX, ARIZONA**



Arizona Department of Environmental Quality
Remedial Projects Unit
1110 West Washington
Phoenix, Arizona 85007

Prepared By:

Arizona Department of Environmental Quality
Remedial Projects Unit

April 30, 2015

RESPONSIVENESS SUMMARY

REMEDIAL OBJECTIVES REPORT

40TH STREET AND INDIAN SCHOOL ROAD WQARF REGISTRY SITE
PHOENIX, ARIZONA

INTRODUCTION

Pursuant to the requirements of the Arizona Administrative Code (ACC) R-18-16406(H) the Arizona Department of Environmental Quality (ADEQ) has prepared this comprehensive responsiveness summary for comments received regarding the remedial objectives for the *Draft Remedial Investigation Report, 40th Street and Indian School Road WQARF Site, Phoenix, Arizona* dated November 25, 2015. The 40th Street and Indian School Road Water Quality Assurance Revolving Fund (WQARF) site (Site) Draft Remedial Investigation (RI) Report was made available for public review and comment on December 18, 2015 for 60 days. A community advisory board (CAB) meeting was held at Arcadia High School on February 5, 2015 during the 60-day public comment period. The purpose of the meeting was to receive oral and/or written comments on the Draft RI Report and to solicit and consider proposed remedial objectives. Regarding the solicited remedial objectives for 38th Street and Indian School Road Draft RI Report, ADEQ received two oral comments and no written comments, during the CAB meeting on February 5, 2015.

Oral Comments

Nathan Nelson

1. Mr. Nelson indicated that there were not any concentrations levels referenced and wondered if there was a target in mind. ADEQ indicated it was applied by the resource use and the current RO clean-up goal is set by whatever use it is intended for (e.g. drinking water as opposed to irrigation water). Mr. Nelson's comment is to make sure the clean-up goals are whatever standard is set for the intended use.
- ADEQ Response: Comment is noted.

Jolene Morris

1. Ms. Morris asked if the RO is a living document due to the fact, if a standard changes in the future (either higher or lower) then the new standard will be followed/used. ADEQ stated that was correct.
- ADEQ Response: Should new standards be developed for the targeted resource use that could change the established RO clean-up goal, ADEQ will evaluate the necessity for an update to the clean-up goal.

Written Comments

None Received



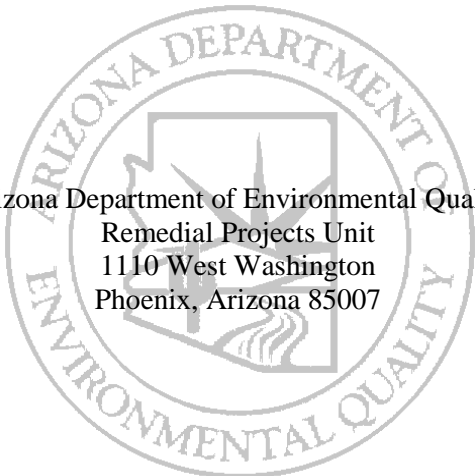
HARGIS + ASSOCIATES, INC.

APPENDIX I

REMEDIAL INVESTIGATION RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

REMEDIAL INVESTIGATION REPORT 40TH STREET AND INDIAN SCHOOL ROAD WQARF REGISTRY SITE PHOENIX, ARIZONA



Arizona Department of Environmental Quality
Remedial Projects Unit
1110 West Washington
Phoenix, Arizona 85007

Prepared By:

Arizona Department of Environmental Quality
Remedial Projects Unit

April 23, 2015

RESPONSIVENESS SUMMARY

REMEDIAL INVESTIGATION REPORT

40TH STREET AND INDIAN SCHOOL ROAD WQARF REGISTRY SITE
PHOENIX, ARIZONA

INTRODUCTION

Pursuant to the requirements of the Arizona Administrative Code (ACC) R-18-16406(H) the Arizona Department of Environmental Quality (ADEQ) has prepared this comprehensive responsiveness summary for comments received on the *Draft Remedial Investigation Report, 40th Street and Indian School Road WQARF Site, Phoenix, Arizona* dated November 25, 2015. The 40th Street and Indian School Road Water Quality Assurance Revolving Fund (WQARF) site (Site) Draft Remedial Investigation (RI) Report was made available for public review and comment on December 18, 2015 for 60 days. A community advisory board (CAB) meeting was held at Arcadia High School on February 5, 2015 during the 60-day public comment period. The purpose of the meeting was to receive oral and/or written comments on the Draft RI Report and to solicit and consider proposed remedial objectives. ADEQ did not receive oral or written comments from CAB members during the CAB meeting on February 5, 2015, regarding the 40th Street and Indian School Road Draft RI Report.

Oral Comments

None Received

Written Comments

None Received