



**PROPOSED UNDERGROUND STORAGE TANK (UST)
RELEASE CASE CLOSURE EVALUATION SUMMARY**

**LUST Case File #5116.01
Facility ID #0-005040
Navajo County**

**Speedway Store # 2999
410 West Hopi Drive
Holbrook, Arizona 86025**

Background:

The site is located at 410 West Hopi Drive, at the intersection of North 4th Avenue and I-40 in Holbrook, approximately 90 miles east of Flagstaff. The site has been used as an operating gasoline dispensing station since as early as 1976. It is currently a Speedway Store with four dispensing ports. It is surrounded by a residential property to the north, I-40 to the south, a commercial property to the west, across North 4th Avenue; and a commercial property to the east. The site is covered with concrete.

The Underground Storage Tank (UST) system was installed in 1976 and consisted of three 8,000-gallon unleaded gasoline USTs. The site is a former Thriftway convenience store with the facility owned by Marathon Petroleum Corporation (the successor in interest to Andeavor, Western Refining and Giant Industries), through its subsidiary Speedway, LLC. Giant Industries (Giant) purchased the site from Thriftway on April 18, 1997. In 1999, Giant conducted a Limited Phase II site assessment, which confirmed the presence of petroleum hydrocarbon contamination at the site. Leaking UST number 5116.01 was assigned to the release in September 1999 by the Arizona Department of Environmental Quality (ADEQ).

Animas Environmental Services (AES), the consultant for Giant, completed initial site characterization activities in July and August 2007, which included the installation of three soil borings, of which two were completed as groundwater monitor wells, MW-1 and MW-2. Giant completed upgrades at the site and removed the existing USTs and product piping in August 2007. The three 8,000-gallon tanks were removed from the site in August 2007, and replaced with two tanks in September 2007: a 12,000-gallon unleaded gasoline tank, and a 15,000-gallon split compartment tank (Compartment A: 7,000-gallon unleaded gasoline tank, Compartment B: 8,000-gallon diesel tank).

During site upgrade activities, Giant's contractors inadvertently removed and destroyed MW-1. AES installed MW-3 in June 2008 and two additional wells, MW-4 and MW-5, in January 2009.

ADEQ approved the original *Site Characterization Report* (SCR) for the site on February 22, 2010.

On September 23, 2020, ADEQ rescinded its site characterization approval citing that the site was not sufficiently characterized. Additional characterization activities were completed between February and April 2021 and an updated SCR was submitted on May 3, 2021. ADEQ disapproved this SCR on September 10, 2021, citing incomplete characterization of soil and groundwater contamination. Further investigation activities were completed between July 2021 and February 2022, and a revised SCR was submitted on June 13, 2022. An additional *Other Informational Report* (OIR) was submitted on July 29, 2022 with updated groundwater analytical results. ADEQ issued a Notice of Decision on August 24, 2022 declaring the site characterization adequate and directing Thriftway to complete a *Corrective Action Completion Report*.

Removal or Control of the Source of Contamination

In August 2007, three 8,000-gallon USTs were removed from the site. This involved the excavation measuring 42 feet (ft) by 33 ft by 10 ft deep, which removed approximately 513 cubic yards of materials (USTs, piping, and surrounding soils) from the site.

On September 10 and 11, 2014, ORC Advanced™ (ORC®) was injected in 10 direct push boreholes, five boreholes upgradient of monitoring well MW-3 and five boreholes upgradient of monitoring well MW-5, in an effort to remediate residual petroleum hydrocarbon concentrations at the site. Approximately 50 pounds (lbs) of ORC® was applied at each injection point as a slurry.

On July 31, 2018, ORC® was injected in 10 direct push boreholes, in a second effort to remediate residual petroleum hydrocarbon concentrations in groundwater at the site. A total of 320 lbs of ORC® was direct injected as a slurry into 10 points: five boreholes upgradient of monitoring well MW-3 and five boreholes upgradient of monitoring well MW-5, to depths of 14 to 17 ft. Approximately 32 lbs of ORC® were utilized at each injection point.

Characterization of the Groundwater Plume

Topography in the vicinity of the site is generally flat flood plains with sandy slopes. The site is approximately 5,085 ft above mean sea level. The facility lies above the Chinle Formation, which is composed of fluvial deposits that consist of soft sedimentary deposits such as clays, silts, mudstones and sandstones. The Chinle Formation is of the late Triassic and consists of four members, as follows in descending order: the Owl Rock Member, Petrified Forest Member, Sonsela Member, and the Blue Mesa Member.

The Blue Mesa Member consist of mudstones (purples, greys, greens and yellows) and minor sandstone beds known as the Newspaper Rock sandstone. Overlying the Blue Mesa is the Sonsela Member, which consists of white cross-bedded sandstones and cobbles from fluvial deposits and mudstones with brown cliff forming sandstones. The Petrified Forest Member is a thick reddish mudstone and brown

sandstone layer. The youngest layer of the Chinle is the Owl Rock Member with pinkish orange mudstones and thin layers of limestone.

Soils at the site consist of clays to fine grained sands. Reddish-brown to light brown silty clay, and greenish grey fine grain sands and brown silty sands were encountered in previous site work from below the ground surface (bgs) to approximately 12 ft bgs. Reddish to brown silty clays to brown lean clays were encountered between approximately 2 and 8 ft bgs. Site soils are apparently derived from the underlying bedrock.

AES completed initial site characterization activities in July and August 2007, which included the installation of three soil borings, of which two were completed as groundwater monitor wells, MW-1 and MW-2. However, during site upgrade activities, Giant contractors inadvertently removed and destroyed MW-1. AES installed MW-3 in June 2008 and two additional wells, MW-4 and MW-5, in January 2009.

Monitoring wells MW-6, MW-7 and MW-8 were installed in 2021 and 2022 at the request of ADEQ to aid in delineation of methyl tertiary butyl ether (MTBE).

Periodic groundwater sampling events were conducted at the Site between January 2018 and March 2023. Depth to groundwater at the site ranged from 13.09 ft at MW-7 to 14.28 ft at MW-8. Non-aqueous phase liquid (NAPL) is not present at the Site.

Historically, dissolved phase benzene concentrations have exceeded the Arizona Aquifer Water Quality Standard (AWQS) of 5 micrograms per liter ($\mu\text{g/L}$) at monitoring wells MW-3 and MW-8. In 2021-2022, only monitoring wells MW-3 and MW-8 reported exceedances. In March 2023, benzene concentrations exceeded its AWQS standard in MW-3 ($29 \mu\text{g/L}$). MTBE concentrations exceeded its Tier 1 Corrective Action Standard (CAS) of $94 \mu\text{g/L}$ at MW-3 ($460 \mu\text{g/L}$), MW-7 ($630 \mu\text{g/L}$), and MW-8 ($210 \mu\text{g/L}$). Monitoring wells MW-7 and MW-8 are located off-site and downgradient of the site. The presence of benzene at MW-8 is not contiguous with other areas of dissolved-phase benzene originating at the site and may represent an off-site contaminant plume.

The lateral extents of dissolved phase contamination have been established in all directions at the site, except for MTBE downgradient and to the west of MW-8. In a letter dated August 24, 2022, ADEQ stated that *“the lateral extent of the MTBE plume at concentrations equal to or less than $20 \mu\text{g/L}$, is considered to extend approximately 650 ft west (downgradient) of the source and approximately 250 ft north-south, (perpendicular to the flow direction)”*. However, based on the most recent sampling data from March 2023, it is believed that the plume is defined to the north-south by MW-4 and MW-5, and is approximately 50 ft wide, and that the plume extends approximately 300 ft west and downgradient from MW-3.

Groundwater Plume Stability

Dissolved-phase contamination is limited to on-site property, except for MTBE, which extends at least 300 ft west and downgradient of MW-3; to MW-8. The consultant has complied with A.R.S §49-1022 which is documented in the *Off-Site Access Documentation Form* which documents access agreements for the installation of monitoring wells MW-7 and MW-8, and attempts to secure access agreements for the installation of additional groundwater monitoring wells. Walt's Hardware Store located at 516 West Hopi Drive, west of the site, agreed with the installation of monitoring well MW-8, but refused to grant access for the installation of additional monitoring wells west of MW-8. Shumway Insurance Agency located at 518 West Hopi Drive (west of site) and Bucket of Suds LLC located at 505 West Hopi Drive (southwest of site) did not respond to requests for site access.

AES performed Mann-Kendall analyses for several pairs of wells and contaminants to determine trends in contaminant concentrations. Each trend (for a specific contaminant at a specific well) is categorized as "Increasing", "Decreasing", or "No Trend". Overall, with a 95 percent confidence interval, 8 trends were determined to be "Decreasing", 3 trends were determined to demonstrate "No Trend", and 2 trends were determined to be "Increasing". From these results, AES concludes that biodegradation is reducing concentrations of Volatile Organic Compounds (VOCs) (i.e., primarily MTBE) in groundwater over time. The "Increasing" and "No Trend" results for tertiary butyl alcohol (TBA) in MW-3 and MW-7, respectively, support this conclusion, as TBA is a daughter product of MTBE biodegradation, and its concentrations rise as MTBE is consumed, only to drop when it is consumed in its turn.

The increasing trend in MTBE concentrations at MW-3 is correlated with decreases in groundwater elevation, with a Pearson's coefficient of -0.749 between MTBE concentrations and groundwater elevations. Groundwater elevation at this location has dropped approximately 2.65 ft from June 2008 to March 2023. Despite this trend, soil analytical results near MW-3, from February 2022, show that very little MTBE remains. UST system components were removed in August 2007, leaving no ongoing source of contamination.

Natural Attenuation

In the presence of petroleum-impacted soil and groundwater, the contaminants of concern (COCs) serve as the primary electron donor. For respiration, dissolved oxygen (DO), nitrate, manganic manganese, ferric iron, and sulfate serve as Terminal Electron Acceptors (TEAs), generally in that order of preference. The bacteria will respire utilizing these compounds, generally in the order listed, going from aerobic to anaerobic conditions.

Groundwater samples were collected from all the monitor wells in the Site's network on October 14, 2022. These samples were analyzed for several natural attenuation parameters: dissolved manganese, dissolved iron, nitrate, sulfate, and methane. Additionally, dissolved oxygen concentrations were measured in the field during the sampling event conducted on March 8, 2023. Biodegradation of

hydrocarbons can be evaluated by comparing the concentrations of these analytes to hydrocarbon COC concentrations.

Based on the most recent groundwater sampling results from March 2023, and interpolation of monitoring well data, the plume is estimated to extend approximately 300 ft west and downgradient from MW-3 (located upgradient of source area) and 250 ft north to south.

Benzene contamination over the AWQS is isolated on-site, only in MW-3. Benzene concentrations are below the AWQS downgradient of the property boundary as shown in MW-7 and MW-8.

MTBE contamination over the Tier 1 Corrective Action Standard has migrated downgradient off-site. The highest concentration of MTBE on-site is located in MW-3.

Overall, the geochemical environment at the Site indicates that anaerobic conditions are widely prevalent. Dissolved oxygen and nitrate, and to a lesser extent ferric iron and sulfate, are being consumed as electron acceptors for microbial activity. Methane is being generated by methanogenic bacterial activity. These conditions appear to exist throughout the dissolved-phase plume and provide strong secondary lines of evidence that natural attenuation is occurring at the Site.

Threatened or Impacted Drinking Water Wells

AES reviewed the Arizona Department of Water Resources (ADWR) Wells-55 Registry on June 9, 2022, and it showed that there were 114 registered wells within a ¼-mile radius of the Site. Eight wells are associated with the Site. Of the remaining 106 wells, the majority have been completed as groundwater monitor wells associated with other Leaking UST sites.

ADEQ expanded the well search to ½ mile radius. There are 468 registered wells within a ½ mile radius of the site. Of those, 467 are associated with UST sites. There is one registered “exempt” well (55-647499) located east (up-gradient) of the Leaking UST site. According to the 1982 *Registration of Existing Wells*, the well is capped and was originally used as an irrigation well.

According to the most recent *Consumer Confidence Report (2021)*, the City of Holbrook provides municipal potable water to the site and its vicinity, which is extracted from three wells located on McLaws Road. McLaws Road is located more than 1.5 miles southwest of the Site, on the other side of the Little Colorado River. Based on this information, it is unlikely that the Site is hydraulically connected to the municipal wells on McLaws Road.

Other Exposure Pathways

Surface water in the area consists of the Little Colorado River, which runs from the east to the west and then southwest. The Little Colorado River is located approximately 1,500 ft south and cross gradient of the Site.

Soil samples collected from site investigations in 2007 through 2022, show that the vertical and lateral extents of soil contamination were fully defined, except for benzene in shallow soils (3 ft-bgs) near the dispensers. Borings L-1 through L-4 were advanced in August 2007, adjacent to the dispensers. Soil samples were collected at a depth of 3 ft from these borings. Borings L-1, L-2 and L-4 showed benzene concentrations of 1.2, 2.9 and 0.90 milligrams per kilogram (mg/kg) at 3 ft respectively, exceeding the Soil Remediation Level (SRL) of 0.65 mg/kg for benzene.

In February 2022, borings SB-10, SB-11, SB-13 and SB-14 were advanced around the dispenser islands to help characterize the contamination detected in August 2007. Soil samples were collected from 5, 10 and 15 ft. No exceedances of the Tier 1 SRLs were detected, except for benzene and 1,2,4-Trimethylbenzene (1,2,4-TMB) in SB-10 at 5 ft. At this location, benzene and 1,2,4-TMB were detected at 2.8 mg/kg and 61 mg/kg respectively. SB-10 is located 10 ft north of borings L-1 and L-2. The samples collected at L-1 and L-2 (2007) and SB-10 (2022) at 10 ft and 15 ft were below laboratory detection levels for benzene, indicating that the area exceeding the SRLs is limited to a small area of surficial soils. The entire site, including the dispenser area, is paved with concrete which appears intact with minimal cracking. This minimizes the dermal and ingestion risk at the site.

ADEQ calculated an alternative Groundwater Protection Limit (GPL) using ADEQ's GPL Model, which is a screening method to determine the soil concentrations protective of groundwater quality. ADEQ utilized benzene data (2.9 mg/kg) from the deepest sample in which the benzene concentration exceeded the minimum GPL (SB-10 at 5 ft.). The GPL Model used a depth of 5 ft (152 cm) for the benzene exceedance, and a depth of 13.68 ft (416 cm) for the average depth to groundwater at the site (from March 2023). The model returned an alternative GPL of 5.95 mg/kg for benzene, which is greater than the remaining benzene contamination of 2.8 mg/kg.

Soil vapor samples were collected from around the onsite building in April 2021 (SVW-1, SVW-2 and SVW-3). During this sampling event, a sample could not be collected from SVW-4 due to issues with the Summa™ canister being used for SVW-4. In July 2021, the soil vapor survey was redone with the collection of soil vapor samples from SVW-1 through SVW-4. During this event, an indoor air sample was collected from inside the storeroom of the on-site building from approximately 10 inches above the floor. Samples were collected appropriately, following ADEQ Soil Vapor Guidance. Three ambient air samples were collected from the site including from within the onsite building.

The data collected in July 2021 was evaluated with the USEPA Johnson and Ettinger model to determine the cancer risk. These samples did not demonstrate a completed exposure pathway from soil vapor to indoor air, with a total cancer risk of 1.00E-06 and a hazard quotient of below 1.

Three schools were identified within a ¼-mile radius of the Site. Holbrook Junior High School is located approximately 667 ft north and cross-gradient of the Site. Hulet Elementary School is located approximately 1,000 ft northwest and cross-gradient of the Site and Holbrook Headstart, a preschool, is located approximately 1,022 ft east-northeast and upgradient of the Site. Two additional schools, Sheldon Elementary and Living Word Christian School, are located more than ¼ mile upgradient from the Site. No hospitals, nursing homes, or day care facilities are located within a ¼-mile radius of the

Site. Most of the surrounding area is developed with residential and commercial properties. No off-site soil contamination associated with this Leaking UST site is present, so there is no risk to these off-site receptors.

Requirements of A.R.S. §49-1005(D) and (E):

The results of the groundwater data from the site assure protection of public health, welfare and the environment, to the extent practicable, and allow for the maximum beneficial use of the site, while being reasonable, necessary and cost effective.

Other information that is pertinent to the LUST case closure approval:

The facility and LUST files were reviewed for information regarding prior cleanup activities, prior site uses and operational history of the UST system.

Groundwater data tables:

AWQS - Arizona Water Quality Standard

NA – Not Available

MTBE – Methyl Tertiary Butyl Ether

µg/l – micrograms per liter

MW-1 was destroyed during site upgrade activities.

MW-6 (installed in 2021) (cross gradient) has never had concentrations greater than the AWQS.

Total Depth 23 ft, Screen 8 to 23 ft.

WELL ID	Depth to Water (ft)	Date Sampled	Benzene	Methyl tertiary butyl ether (MTBE)
		AWQS/ Tier 1 Corrective Action Standard (µg/l)	5	94
MW-2 (installed 07/2007) Most Upgradient Total Depth: 24 ft. Screen: 9 to 24 ft.	12.12	8/15/2007	<1.0	1.1
	11.32	6/17/2008	<1.0	<1.0
	11.93	2/25/2009	<1.0	<1.0
	12.51	5/27/2010	<1.0	<1.0
	13.36	2/7/2013	<1.0	<1.0
	13.95	10/28/2014	<1.0	<1.0
	13.66	4/2/2015	<1.0	<1.0
	14.54	8/21/2017	<1.0	1.6
	15.05	9/26/2018	<1.0	<1.0
	14.69	9/3/2019	<1.0	1.8
	15.04	9/30/2020	<1.0	1.8
	15.20	10/19/2021	<1.0	<1.0
	14.48	10/14/2022	<1.0	<1.0
14.04	3/8/2023	<1.0	<1.0	

WELL ID	Depth to Water (ft)	Date Sampled	Benzene	Methyl tertiary butyl ether (MTBE)	
		AWQS/ Tier 1 Corrective Action Standard (µg/l)	5	94	
MW-3 (installed in 2008) Upgradient of source Total Depth: 17 ft. Screen: 7 to 17 ft.	11.59	6/17/2008	340	26	
	12.22	2/25/2009	290	86	
	12.78	5/27/2010	220	<5.0	
	13.63	2/7/2013	310	71	
	13.69	2/27/2014	230	220	
	<i>September 2014 ORC® injection event</i>				
	14.19	10/28/2014	250	360	
	13.91	4/2/2015	160	290	
	14.77	8/21/2017	53	170	
	15.1	1/31/2018	14	900	
	<i>July 2018 ORC® injection event</i>				
	15.29	9/26/2018	3.9	930	
	14.93	9/3/2019	9.2	500	
	15.27	9/30/2020	10	1400	
	15.44	10/19/2021	17	1100	
	14.75	10/14/2022	31	840	
	14.24	3/8/2023	29	460	

WELL ID	Depth to Water (ft)	Date Sampled	Benzene	Methyl tertiary butyl ether (MTBE)
		AWQS/ Tier 1 Corrective Action Standard (µg/l)	5	94
MW-4 (installed in January 2009) Cross gradient Total Depth: 23 ft. Screen: 8 to 23 ft.	11.93	2/25/2009	<1.0	81
	12.51	5/27/2010	<1.0	74
	13.36	2/7/2013	<1.0	58
	13.44	2/27/2014	<1.0	11
	13.94	10/28/2014	<1.0	35
	13.65	4/2/2015	<1.0	33
	14.54	8/21/2017	<1.0	52
	15.06	9/26/2018	<1.0	14
	14.7	9/3/2019	<1.0	24
	15.06	9/30/2020	<1.0	19
	15.21	10/19/2021	<1.0	7.1
	14.50	10/14/2022	<1.0	21
	14.00	3/8/2023	<1.0	12

WELL ID	Depth to Water (ft)	Date Sampled	Benzene	Methyl tertiary butyl ether (MTBE)	
		AWQS/ Tier 1 Corrective Action Standard (µg/l)	5	94	
MW-5 (installed in January 2009) Source Total Depth: 23 ft. Screen: 8 to 23 ft.	11.3	2/25/2009	<1.0	240	
	11.88	5/27/2010	<1.0	110	
	12.73	2/7/2013	<1.0	320	
	12.8	2/27/2014	<1.0	350	
	<i>September 2014 ORC® injection event</i>				
	12.97	4/2/2015	<1.0	250	
	13.84	8/21/2017	<1.0	150	
	<i>July 2018 ORC® injection event</i>				
	14.33	9/26/2018	<1.0	80	
	13.96	9/3/2019	<1.0	97	
	14.31	9/30/2020	<1.0	71	
	14.46	10/19/2021	<1.0	1.1	
	13.59	10/14/2022	<1.0	<1.0	
	13.30	3/8/2023	<1.0	4.2	

WELL ID	Depth to Water (ft)	Date Sampled	Benzene	Methyl tertiary butyl ether (MTBE)
		AWQS/ Tier 1 Corrective Action Standard (µg/l)	5	94
MW-7 (installed in 2021) downgradient off-site Total Depth: 23 ft. Screen: 8 to 23 ft.	14.35	3/18/2021	<1.0	490
	14.45	7/1/2021	<1.0	460
	14.29	10/19/2021	<1.0	460
	13.92	2/23/2022	<1.0	710
	13.81	6/16/2022	<2.0	700
	13.59	10/14/2022	<5.0	570
	13.09	3/8/2023	<5.0	630

WELL ID	Depth to Water (ft)	Date Sampled	Benzene	Methyl tertiary butyl ether (MTBE)
		AWQS/ Tier 1 Corrective Action Standard (µg/l)	5	94
MW-8 (installed in 2022) downgradient of MW-7 off-site Total Depth: 25 ft. Screen: 10 to 25 ft.	15.14	2/23/2022	3.6	150
	15.02	6/16/2022	26	70
	14.82	10/14/2022	<5.0	220
No additional offsite downgradient wells installed due to meeting requirements of ARS §49-1022	14.28	3/8/2023	<5.0	210



AERIAL SOURCE: © 2022 GOOGLE EARTH PRO, AERIAL DATE: MAY 24, 2019.



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DRAWN BY: C. Lameman	DATE DRAWN: June 9, 2022
REVISIONS BY: C. Lameman	DATE REVISED: November 28, 2022
CHECKED BY: A. Ledgerwood	DATE CHECKED: November 28, 2022
APPROVED BY: E. McNally	DATE APPROVED: November 28, 2022

FIGURE 2

**SITE LOCATION MAP AND
SURROUNDING FACILITIES**
FORMER THRIFTWAY #193
(GIANT MUSTANG #7193)
410 HOPI DRIVE
HOLBROOK, ARIZONA
Facility ID # 0-005040 LUST ID # 5116.01

FIGURE 3

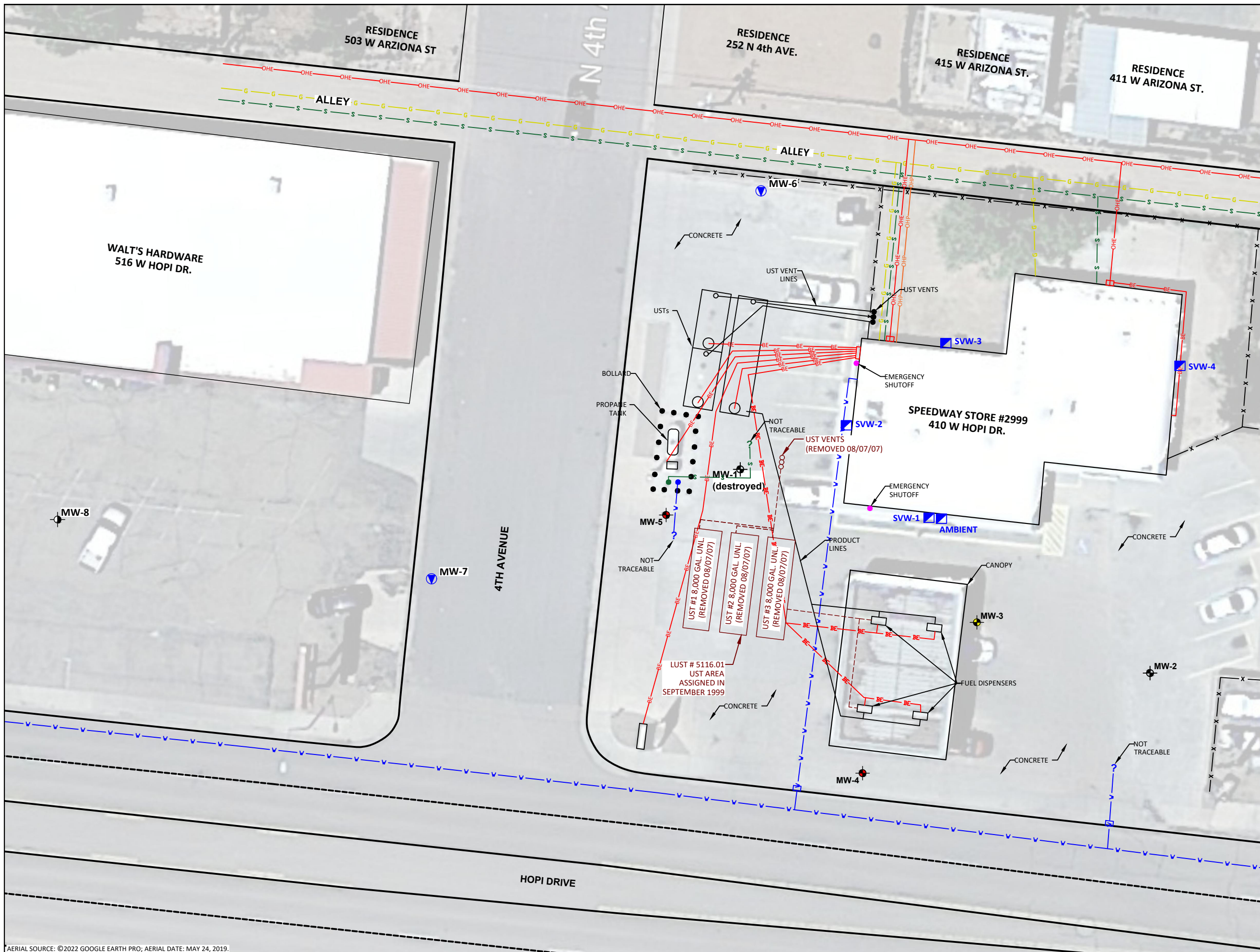
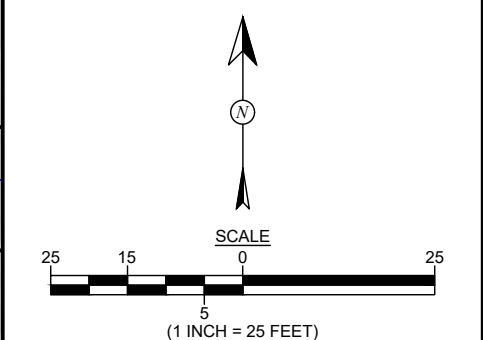
SITE PLAN
 FORMER THRIFTWAY #193
 (GIANT MUSTANG #7193)
 410 HOPI DRIVE
 HOLBROOK, ARIZONA
 Facility ID # 0-005040 LUST ID # 5116.01



DRAWN BY: C. Lameman	DATE DRAWN: June 9, 2022
REVISIONS BY: C. Lameman	DATE REVISED: June 9, 2022
CHECKED BY: E. McNally	DATE CHECKED: June 9, 2022
APPROVED BY: E. McNally	DATE APPROVED: June 9, 2022

LEGEND

- MONITOR WELL LOCATION (INSTALLED IN JULY 2007)
- MONITOR WELL LOCATION (INSTALLED IN JUNE 2008)
- MONITOR WELL LOCATION (INSTALLED IN JANUARY 2009)
- MONITOR WELL LOCATION (INSTALLED IN 2021)
- SOIL VAPOR POINT LOCATION (MARCH 2021)
- MONITOR WELL LOCATION (INSTALLED IN FEBRUARY 2022)
- OVERHEAD POWER LINE
- OVERHEAD PHONE LINE
- BURIED ELECTRIC LINE
- GAS LINE
- WATER LINE
- SEWER LINE



AERIAL SOURCE: ©2022 GOOGLE EARTH PRO; AERIAL DATE: MAY 24, 2019.

FIGURE 10

SOIL SAMPLING LOCATIONS AND ANALYTICAL RESULTS
 FORMER THRIFTWAY #193
 (GIANT MUSTANG #7193)
 410 HOPI DRIVE
 HOLBROOK, ARIZONA
 Facility ID # 0-005040 LUST ID # 5116.01



DRAWN BY: C. Lameman	DATE DRAWN: June 9, 2022
REVISIONS BY: C. Lameman	DATE REVISED: June 9, 2022
CHECKED BY: E. McNally	DATE CHECKED: June 9, 2022
APPROVED BY: E. McNally	DATE APPROVED: June 9, 2022

- LEGEND**
- SOIL BORING (AUGUST 1999)
 - ⊕ SOIL BORING/MONITOR WELL LOCATION (INSTALLED IN JULY 2007)
 - ⊕ SOIL BORING/MONITOR WELL LOCATION (INSTALLED IN JUNE 2008)
 - ⊕ SOIL BORING/MONITOR WELL LOCATION (INSTALLED IN JANUARY 2009)
 - MONITOR WELL LOCATION (INSTALLED IN 2021)
 - SOIL VAPOR POINT LOCATION (MARCH 2021)
 - ⊕ MONITOR WELL LOCATION (INSTALLED FEBRUARY 2022)
 - UST CLOSURE SAMPLES (SS-1 TO SS-6), AUGUST 2007
 - PRODUCT LINE CLOSURE SAMPLES (L-1 TO L-6), AUGUST 2007
 - SOIL BORING (FEBRUARY 2022)
 - B Benzene
 - T Toluene
 - E Ethylbenzene
 - X Xylene
 - MTBE Methyl-T-Butyl Ether
 - PAHs Polynuclear Aromatic Hydrocarbons
 - ND or < Analyte Not Detected Above Listed Method Limits
 - GRO Gasoline Range Organics
 - DRO Diesel Range Organics

NOTE: ALL RESULTS REPORTED AS mg/kg (PPM).

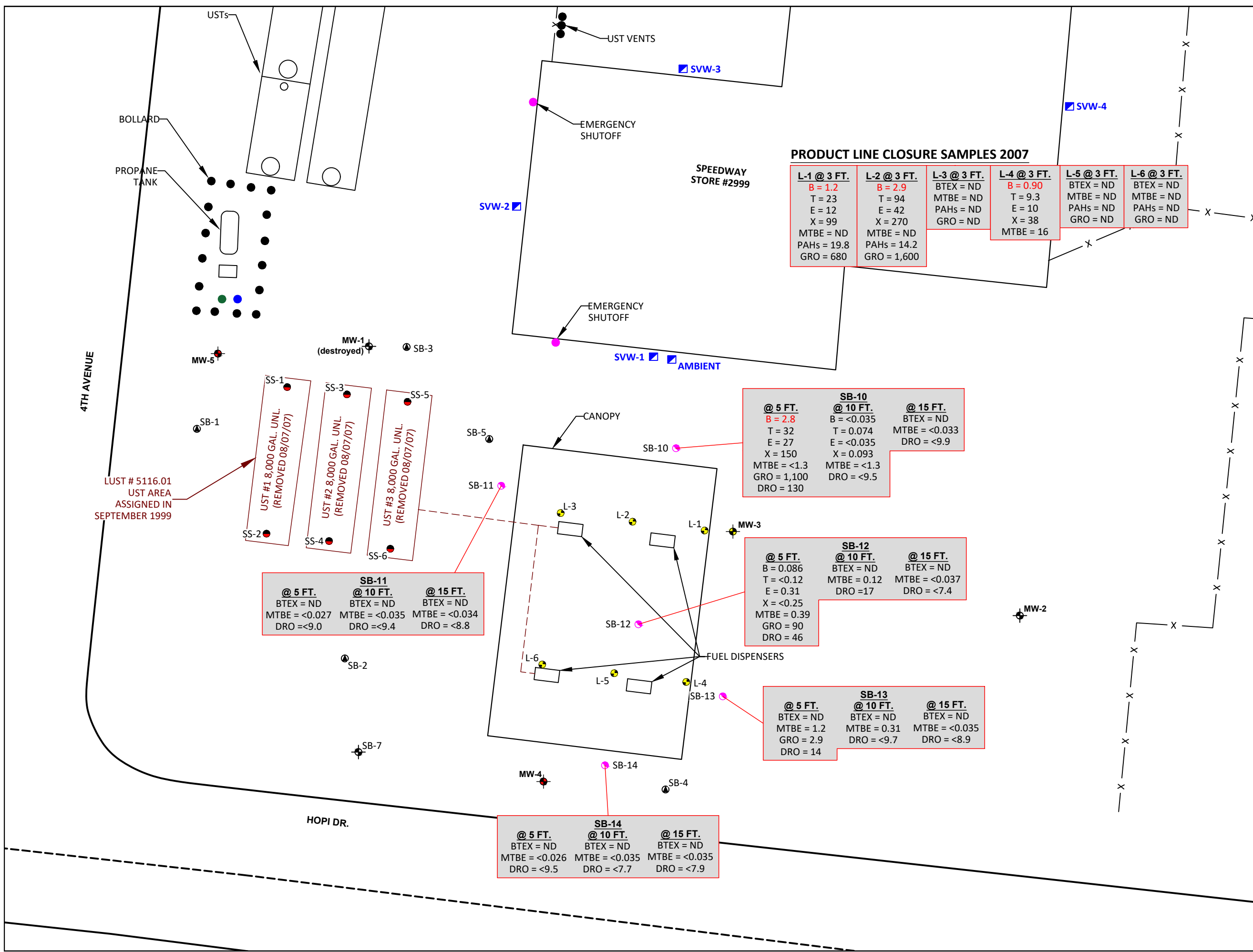
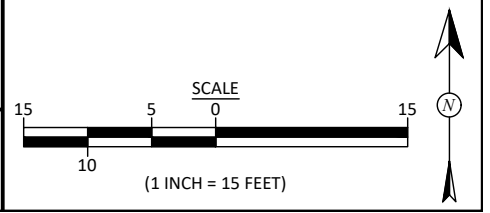


FIGURE 3

GROUNDWATER CONTAMINANT CONCENTRATIONS, MARCH 2023

FORMER THRIFTWAY #193
 (GIANT MUSTANG #7193)
 410 HOPI DRIVE
 HOLBROOK, ARIZONA
 Facility ID # 0-005040 LUST ID # 5116.01



DRAWN BY: C. Lameman	DATE DRAWN: February 11, 2013
REVISIONS BY: C. Lameman	DATE REVISED: April 28, 2023
CHECKED BY: A. Ledgerwood	DATE CHECKED: April 28, 2023
APPROVED BY: E. McNally	DATE APPROVED: April 28, 2023

LEGEND

- MONITOR WELL LOCATION (INSTALLED IN JULY 2007)
- MONITOR WELL LOCATION (INSTALLED IN JUNE 2008)
- MONITOR WELL LOCATION (INSTALLED IN JANUARY 2009)
- MONITOR WELL LOCATION (INSTALLED IN 2021)
- SOIL VAPOR POINT LOCATION (MARCH 2021)
- MONITOR WELL LOCATION (INSTALLED IN FEBRUARY 2022)
- B BENZENE
- T TOLUENE
- E ETHYLBENZENE
- X TOTAL XYLENE
- MTBE METHYL-T-BUTYL ETHER
- EDC 1,2-DICHLOROETHANE
- EDB 1,2-DIBROMOETHANE
- NAPH NAPHTHALENE
- NA NOT ANALYZED
- ND NOT DETECTED
- < NOT DETECTED ABOVE LISTED METHOD LIMIT

NOTE: ALL SAMPLES COLLECTED ON MARCH 8, 2023. ALL SAMPLES ANALYZED PER EPA METHOD 8260B AZ, AND ANALYSIS RESULTS REPORTED AS µg/L (PPB).

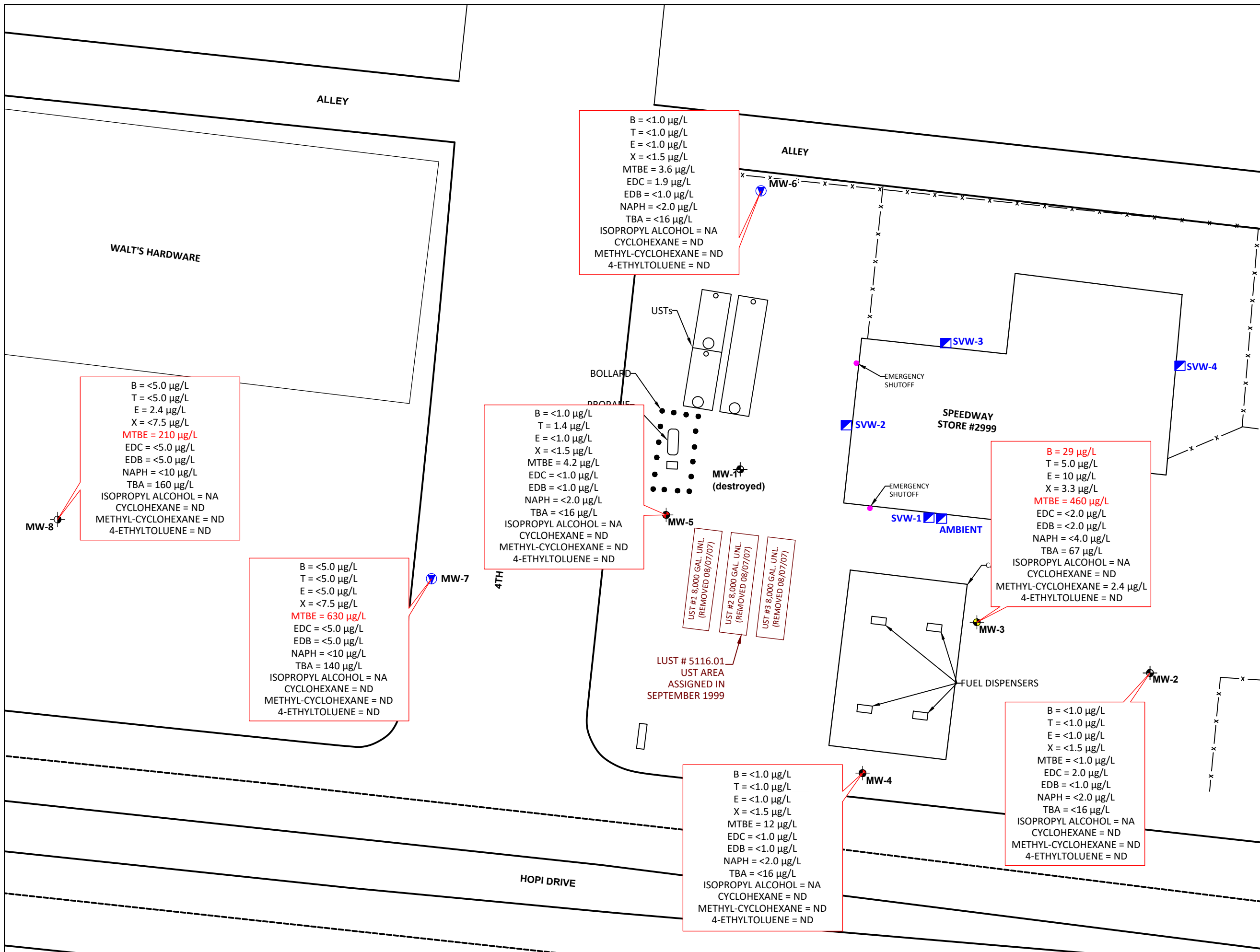
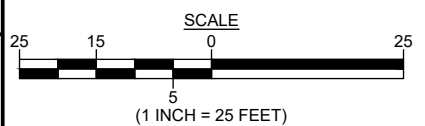


FIGURE 4

DISSOLVED MTBE CONCENTRATION CONTOURS, MARCH 2023

FORMER THRIFTWAY #193
 (GIANT MUSTANG #7193)
 410 HOPI DRIVE
 HOLBROOK, ARIZONA
 Facility ID # 0-005040 LUST ID # 5116.01



DRAWN BY: C. Lameman	DATE DRAWN: February 11, 2013
REVISIONS BY: C. Lameman	DATE REVISED: April 28, 2023
CHECKED BY: A. Ledgerwood	DATE CHECKED: April 28, 2023
APPROVED BY: E. McNally	DATE APPROVED: April 28, 2023

LEGEND

- MONITOR WELL LOCATION (INSTALLED IN JULY 2007)
- MONITOR WELL LOCATION (INSTALLED IN JUNE 2008)
- MONITOR WELL LOCATION (INSTALLED IN JANUARY 2009)
- MONITOR WELL LOCATION (INSTALLED IN 2021)
- SOIL VAPOR POINT LOCATION (MARCH 2021)
- MONITOR WELL LOCATION (INSTALLED IN FEBRUARY 2022)
- 500 DISSOLVED MTBE CONCENTRATION (µg/L)
- 20 DISSOLVED MTBE CONCENTRATION (µg/L)
- INFERRED CONTOURING

NOTE: ALL SAMPLES COLLECTED ON MARCH 8, 2023. ALL SAMPLES ANALYZED PER EPA METHOD 8260B AZ, AND ANALYSIS RESULTS REPORTED AS µg/L (PPB).

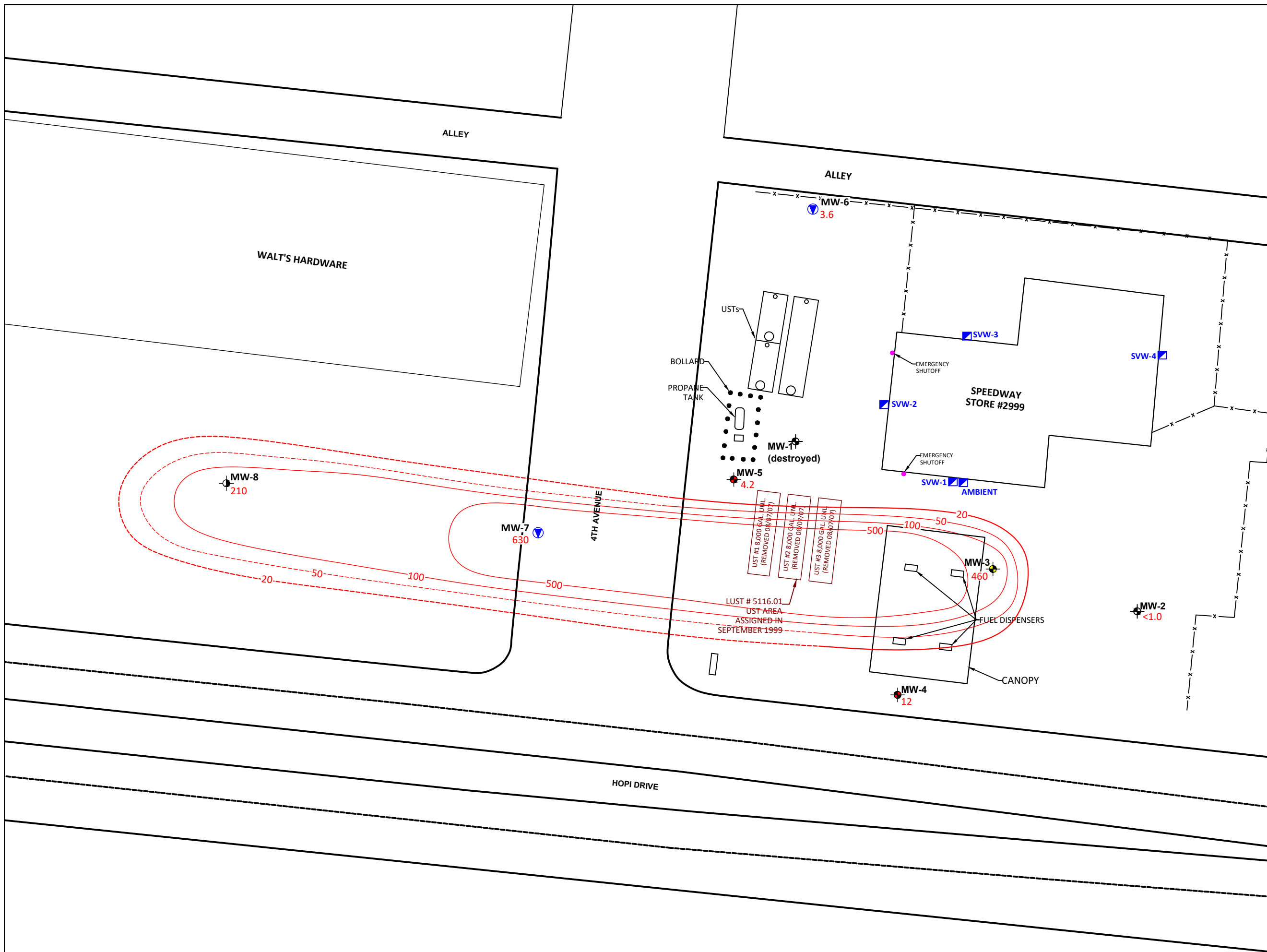
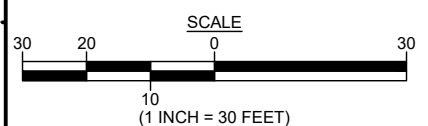


FIGURE 2

GROUNDWATER ELEVATION CONTOURS, MARCH 2023
 FORMER THRIFTWAY #193
 (GIANT MUSTANG #7193)
 410 HOPI DRIVE
 HOLBROOK, ARIZONA
 Facility ID # 0-005040 LUST ID # 5116.01

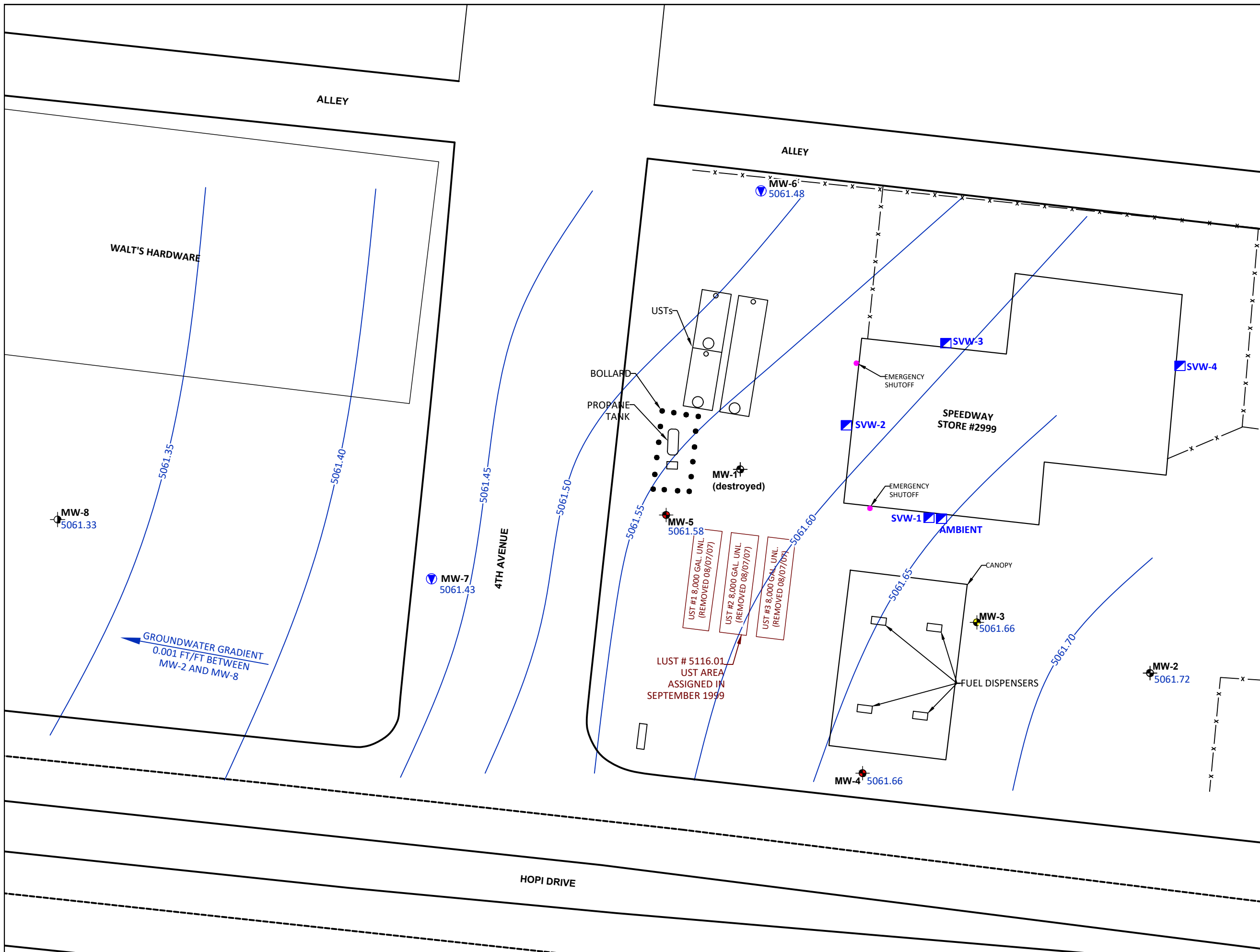
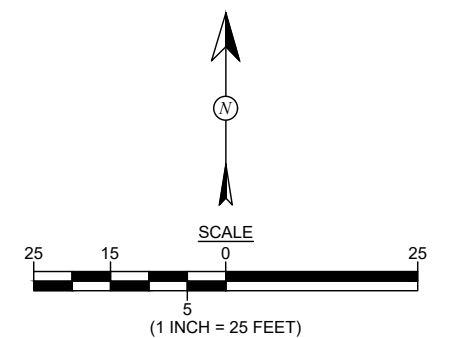


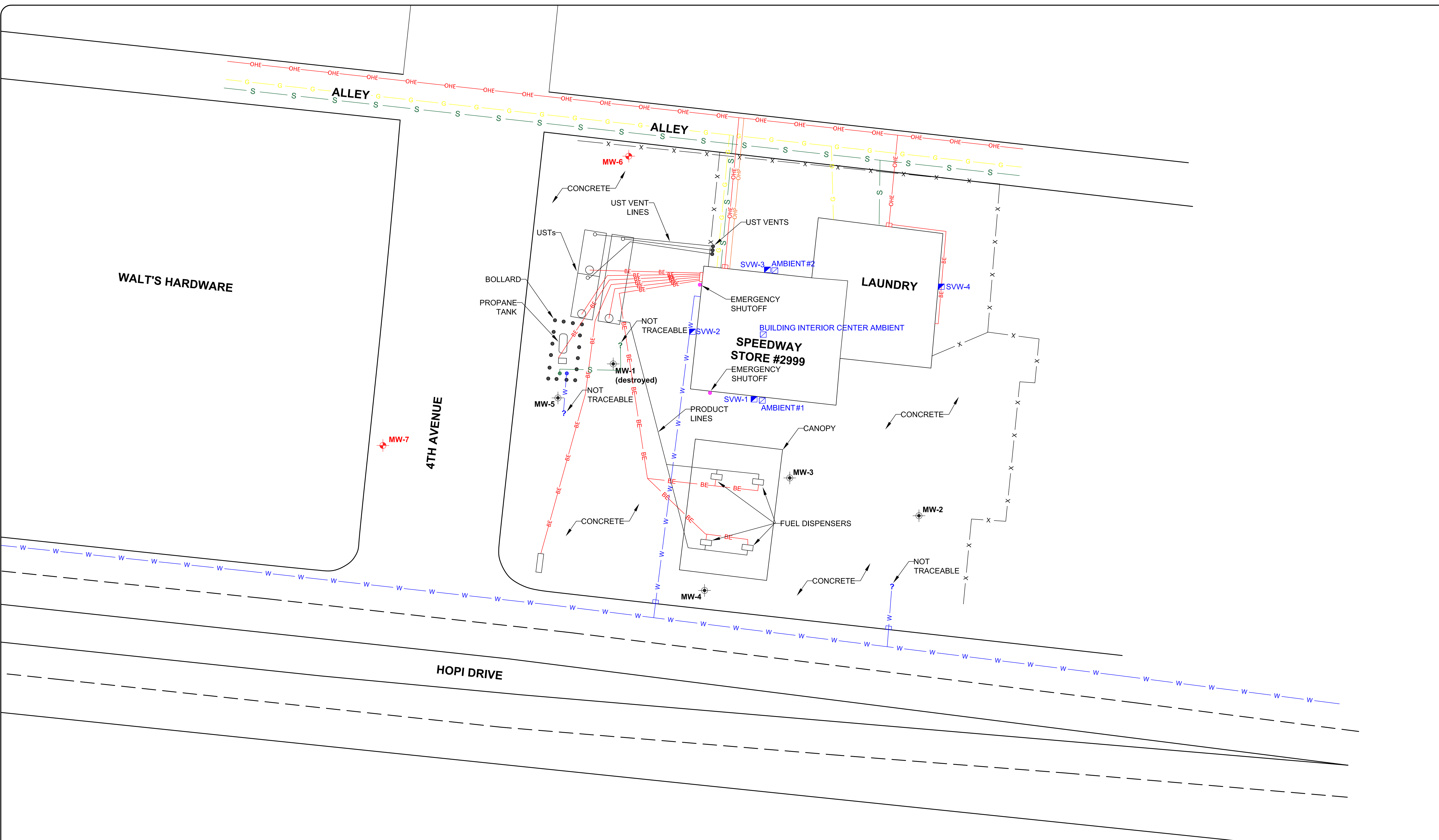
DRAWN BY: C. Lameman	DATE DRAWN: February 11, 2013
REVISIONS BY: C. Lameman	DATE REVISED: April 28, 2023
CHECKED BY: A. Ledgerwood	DATE CHECKED: April 28, 2023
APPROVED BY: E. McNally	DATE APPROVED: April 28, 2023

LEGEND

- MONITOR WELL LOCATION (INSTALLED IN JULY 2007)
- MONITOR WELL LOCATION (INSTALLED IN JUNE 2008)
- MONITOR WELL LOCATION (INSTALLED IN JANUARY 2009)
- MONITOR WELL LOCATION (INSTALLED IN 2021)
- SOIL VAPOR POINT LOCATION (MARCH 2021)
- MONITOR WELL LOCATION (INSTALLED IN FEBRUARY 2022)
- 5061.72 GROUNDWATER ELEVATION IN FEET (AMSL)
- 5061.65- GROUNDWATER ELEVATION CONTOURS IN FEET (AMSL)

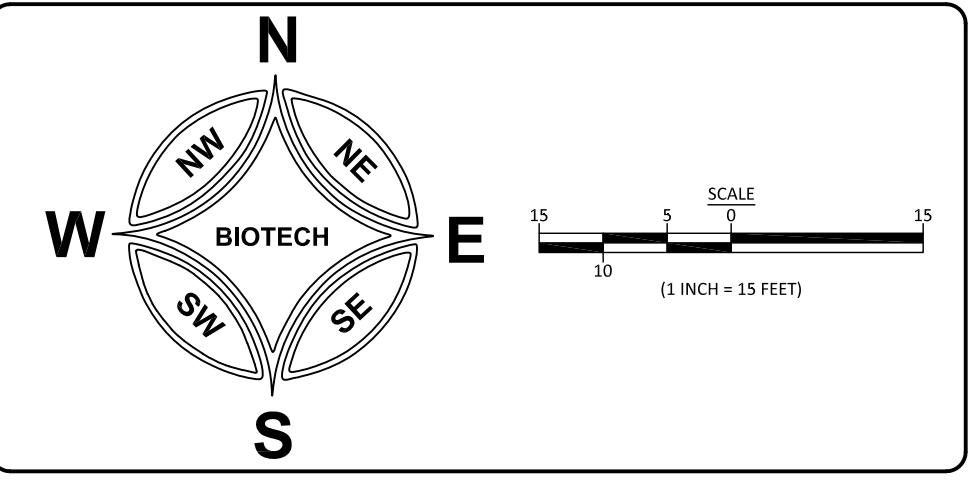
NOTE: ALL GROUNDWATER MEASUREMENTS WERE MADE ON MARCH 8, 2023.





LEGEND

— OHE —	— OHE —	OVERHEAD ELECTRIC
— OHP —	— OHP —	OVERHEAD PHONE
— BE —	— BE —	BURIED ELECTRIC
— G —	— G —	GAS
— S —	— S —	SEWER
— W —	— W —	WATER
— X —	— X —	FENCE
⊙		EXISTING MONITOR WELL
⊙		NEW MONITOR WELL, FEBRUARY 2021
⊙		SOIL VAPOR WELL, APRIL 2021
⊙		AMBIENT AIR SAMPLE LOCATION



SITE PLAN WITH UTILITIES, MONITOR WELL AND SOIL VAPOR WELL LOCATIONS

FORMER THRIFTWAY #193
410 HOPI DRIVE
HOLBROOK, ARIZONA

FIGURE

1

DRAWING NOTES

DRAWN BY: MRK
DATE: 10/21/21
REV.: MRK
DATE: 07/12/21

Mann-Kendall Trend Test: Benzene at MW-3



Mann-Kendall Trend Analysis	
n	22
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	35.4636
Standardized Value of S	-2.8198
M-K Test Value (S)	-101
Tabulated p-value	0.0020
Approximate p-value	0.0024

OLS Regression Line (Blue)	
OLS Regression Slope	-0.0628
OLS Regression Intercept	312.8939

Theil-Sen Trend Line (Red)	
Theil-Sen Slope	-0.0488
Theil-Sen Intercept	215.5309

Statistically significant evidence of a decreasing trend at the specified level of significance.

Mann-Kendall Trend Test: MTBE at MW-3



Mann-Kendall Trend Analysis

n	22
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	35.4354
Standardized Value of S	3.8380
M-K Test Value (S)	137
Tabulated p-value	0.0000
Approximate p-value	0.0001

OLS Regression Line (Blue)

OLS Regression Slope	0.2109
OLS Regression Intercept	-111.9595

Theil-Sen Trend Line (Red)

Theil-Sen Slope	0.1826
Theil-Sen Intercept	-92.9218

Statistically significant evidence of an increasing trend at the specified level of significance.

Mann-Kendall Trend Test: MTBE at MW-7



Mann-Kendall Trend Analysis

n	7
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	6.5828
Standardized Value of S	0.7596
M-K Test Value (S)	6
Tabulated p-value	0.1910
Approximate p-value	0.2238

OLS Regression Line (Blue)

OLS Regression Slope	0.2622
OLS Regression Intercept	483.9127

Theil-Sen Trend Line (Red)

Theil-Sen Slope	0.2340
Theil-Sen Intercept	489.9574

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test: MTBE at MW-8



Mann-Kendall Trend Analysis

n	4
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	2.9439
Standardized Value of S	0.3397
M-K Test Value (S)	2
Tabulated p-value	0.3750
Approximate p-value	0.3670

OLS Regression Line (Blue)

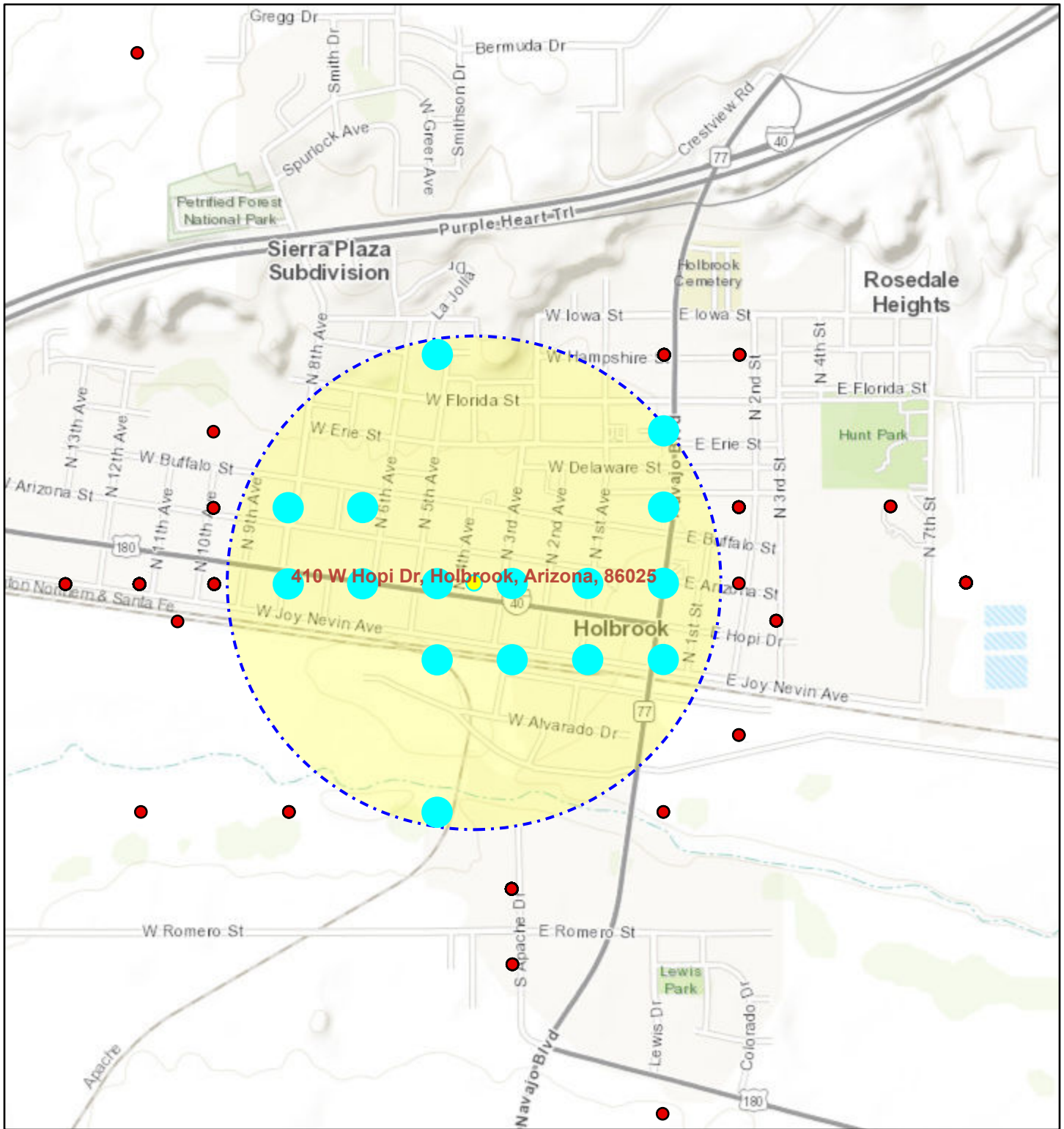
OLS Regression Slope	0.2649
OLS Regression Intercept	114.5533

Theil-Sen Trend Line (Red)

Theil-Sen Slope	0.2296
Theil-Sen Intercept	140.2827

Insufficient statistical evidence of a significant trend at the specified level of significance.

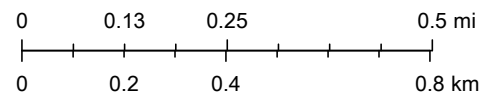
Registry of Wells in AZ (0.5 miles) 410 Hopi Drive, Holbrook, AZ



December 7, 2022

1:18,056

- Well_Registry
- City Boundaries



Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, METI/NASA, EPA, USDA