

ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES AND REMEDIAL WORK PLAN

FORMER FLINT OIL PROPERTY
APN 116-23-2070; TUCSON, ARIZONA

DECEMBER 17, 2017

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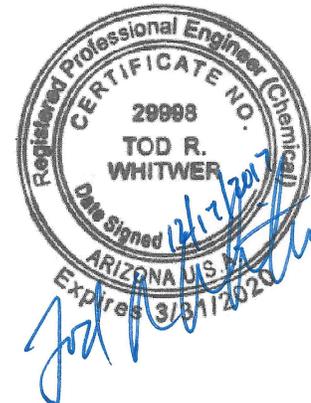


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1.0 INTRODUCTION AND BACKGROUND

1.1 PROPERTY LOCATION

The former Flint Oil facility is located in Tucson, Arizona, referred to as the Property in this document. A vicinity map showing the general location of the former Flint Oil facility is presented as Figure 1. The former Flint Oil facility was assigned Pima County Assessor's Parcel Number (APN) 116-23-2070 and covered approximately 1.29 acres. The center of the former Flint Oil facility was located at a latitude of approximately 32.2139° North and a longitude of approximately 110.9774° West. The former Flint Oil facility is in the west half of Section 13, Township 14 South, Range 13 East of the Gila and Salt River Baseline and Meridian System.

The City of Tucson – Environmental and General Services Department (COT) has conducted several assessments of the site and, based on these assessments, the site is subdivided into two sections based on the historical use of these areas. The northern portion (about two-thirds of the site by area) historically contained an office, several garages, and other features. This portion of the site is referred to as the Operations Area – Northern Portion of Former Flint Oil Property (Northern Portion) in this report. The southern portion (about one-third of the site by area) historically contained aboveground storage tanks and other containers. This portion of the site is referred to as the AST and Bulk Storage Area – Southern Portion of Former Flint Oil Property (Southern Portion) in this report.

1.2 PREVIOUS PROPERTY USE

In 1879, the City of Tucson (COT) deeded the Property to the Southern Pacific Company Railroad. The railroad, subsequently called the Union Pacific Company, owned the Property until 2002. In 2002, the Property was deeded back to the COT. The Property was occupied between 1925 and 2007 and tenants have included the Rio Grande Oil Company, possibly Continental Oil Company, Shell Oil Company, and Flint Oil Company. The Property was used as a bulk petroleum product distribution and storage facility. Three 6,000-gallon bulk oil underground storage tanks (USTs) were installed on the Property in 1983 and excavated and removed from the Property in 1999. Up to sixteen aboveground storage tanks (ASTs) had been located on the Property. The ASTs ranged in capacities from 1,000 to 34,256 gallons and were used to store fuel, oil, kerosene, solvents, and associated petroleum products. A dispensing area and warehouse with an elevated concrete platform used as a loading dock, two shop garages with hydraulic lifts, and a small office building were also located on the Property. By 2007, the buildings and ASTs had been removed from the Property except for the small office building. Figure 2 shows the current configuration of the Property.

1.3 PREVIOUS ASSESSMENT FINDINGS

Reports of previous environmental assessments of the Property were reviewed, and these reports are listed in Table 1. Key findings from these assessments are described below in the chronological order the work was performed.

TABLE 1 PREVIOUS ENVIRONMENTAL ASSESSMENT REPORTS		
Date	Prepared By Ref. No.	Title
October 17, 2006	SCS Engineers (SCS) SCS File No. 10.204058.08	<i>Phase I Environmental Site Assessment, Flint Oil Property, 500 (511 and 527) West Simpson Street, Tucson, Arizona</i>
March 12, 2008	Zonge Engineering & Research Organization, Inc. (Zonge) Zonge Job # 0816	<i>Geophysical Report, 511/527 West Simpson Street, Flint Oil Property, Electromagnetic Survey, Tucson, Arizona</i>
May 1, 2008	SCS SCS File No. 10.204058.21	<i>Asbestos Survey, Flint Oil Property, 500 West Simpson Street, Tucson Arizona</i>
May 21, 2008	SCS SCS File No. 10204058.18	<i>Surface Soil Sampling Report, Former Flint Oil Property, 500 West Simpson Street, Tucson, Arizona</i>
January 29, 2009	SCS SCS File No. 10204058.18	<i>Soil Sampling Report, Former Flint Oil Property, 500 West Simpson Street, Tucson, Arizona</i>
September 2, 2009	SCS SCS File No. 10204058.18	<i>Addendum to Soil Sampling Report, Demolition Observation, Soil Boring, and Soil Sampling Activities, Former Flint Oil Property, 505 (500, 511, or 527) West Simpson Street, Tucson, Arizona</i>
September 17, 2009	SCS SCS File No. 10207028.18	<i>Brownfields Site Assessment Summary, Former Flint Oil Property, 505 (500, 511, or 527) West Simpson Street, Tucson, Arizona</i>

1.3.1 October 17, 2006 SCS Engineers Phase I ESA

On October 7, 2006, SCS Engineers (SCS) completed a Phase I Environmental Site Assessment (ESA) on two parcels of land which included the Flint Oil Property for the COT. A copy of the SCS Executive Summary, conclusions, figures, and photographs of the Property taken by SCS during the site reconnaissance is included in Appendix A.

The Property was occupied at the time of the Phase I ESA by Flint Oil Company, a distributor of gasoline, diesel fuel, solvents, lubricants, and related products. In addition, some automotive repair and maintenance was performed on the Property. Structures on the Property at the time of the 2006 Phase I ESA included an office building, shop garage, warehouse, warehouse addition, a canopy on an elevated concrete platform, and storage garage. A hydraulic lift was located in the shop garage. A hydraulic lift may have also been located in the storage garage.

Seven vertical ASTs with capacities ranging from 12,500 to 25,000 gallons, staged on concrete pads, were observed on the Property. Five of the ASTs contained diesel fuel and gasoline. The other two ASTs were no longer in use but had been used to contain solvents. Underground piping from the ASTs led to a loading rack in the central portion of the Property. Six ASTs, each with a capacity of less than 1,000 gallons, were observed in various locations on the Property. These six ASTs were used to store unleaded gasoline, new oil, and used oil. Three concrete pads where ASTs had been located were present on the southern portion of the Property.

Approximately two hundred 55-gallon drums, labeled as containing racing gas, kerosene, mineral spirits, hydraulic oil, mineral oil, engine oil, and motor oil, were observed on the Property. More than half of

these drums were empty, and were reportedly returned to the supplier for conditioning and refilling. Other materials observed in use or stored on the Property included vehicle batteries, thinner, urethane reducer, paint, refrigerants, oils, aerosols, antifreeze, cleansers, glass cleaner, Freon, windshield washing fluid, grease and other lubricants, toluene, absorbent, tires, and fluorescent light fixtures and tubes.

Stained soil or pavement was observed at the following locations: fill ports for the five vertical fuel ASTs; at one of the pumps; at three new oil ASTs on the elevated platform; on the shop garage concrete floor; around the stack of empty drums on the southern portion of the Property; on the elevated platform in

the area of the canopy; on the concrete floor inside the warehouse; and, on the asphalt pavement in the northern portion of the Property.

The Property has had tenants since 1925 and the tenants identified included Rio Grande Oil Company, possibly Continental Oil Company, Shell Oil Company, and Flint Oil Company. These tenants were bulk distributors of fuel, oil, and associated products. Up to approximately 16 ASTs, ranging in size from 1,000- to 34,256-gallons, had been located on the Property⁶. The contents of these ASTs included gasoline, diesel fuel, kerosene, and solvents. In addition to the vertical ASTs observed by SCS, a cluster of up to five ASTs had been at the current location of the storage garage prior to 1974. The three currently vacant concrete pads were occupied by ASTs until approximately 1974. Three 6,000-gallon new oil USTs were installed in 1983 and removed in 1999. Soil samples collected during closure of the USTs did not indicate a release from the USTs. The dispensers and pipe runs associated with these USTs at the time of the 2006 reconnaissance.

Based on the results of the Phase I ESA, SCS identified several Recognized Environmental Conditions (RECs) at the Property:

- Evidence of releases of petroleum products on the Property (stained soil and pavement) were identified during the site reconnaissance. Due to the number of years bulk oil, fuel, and solvent distributors had operated on the Property, SCS concluded there was a potential impact to the Property and adjacent sites from historical releases having occurred on the Property.
- One below-grade hydraulic lift was present and there was evidence a second below-grade hydraulic lift had been located in the shop garage on the Property.
- Three new oil USTs had been installed on the Property and had been permanently removed from service in 1999. Sampling data did not indicate the presence of a release from these USTs. However, pumps and vent pipes were still present at the time of the SCS site reconnaissance. SCS did not find information indicating sampling had been performed to evaluate if the pipe runs or dispensers had leaked.
- The former Chevron asphalt facility west of the Property had petroleum product and/or hazardous substance releases which had impacted soil and groundwater. Because of the proximity of this facility to the Property, it is possible the subsurface at the Property has been impacted by the releases at the former Chevron facility.

1.3.2 March 12, 2008 Zonge Engineering and Research Organization, Inc. Geophysical Survey

On March 12, 2008, Zonge Engineering and Research Organization, Inc. (Zonge) completed a geophysical survey at the Property to identify subsurface features of potential concern including underground piping, unknown USTs, and possible septic systems and cesspools or other sewage disposal features associated with non-residential use.

The Property was not occupied at the time of the geophysical survey, and ASTs, vehicles, and other equipment had been removed from the Property. The survey identified several anomalies that were identified to be buried utilities. Five isolated anomalies were identified but none were determined to be large enough to represent a buried UST. Some of the anomalies were found to be linked to known features such as piping clusters or other surface metal.

1.3.3 May 1, 2008 SCS Asbestos Survey

SCS conducted an asbestos survey at the Property on several structures including shop buildings and the concrete platform that were scheduled to be demolished. SCS collected 18 bulk samples of suspect asbestos containing materials (ACMs). Analytical results did not detect asbestos at concentrations greater than one percent in the materials sampled.

1.3.4 May 21, 2008 SCS Surface Soil Sampling Report

SCS performed initial surface soil sampling on the former Flint Oil Property in February 2008. The purpose of the sampling was to investigate the nature and extent of potential impacts to surface soil associated with the following areas of observed staining: former drum storage areas, former fuel or other product dispensing locations, vehicle maintenance garages, areas adjacent to the warehouse concrete platform, stormwater runoff areas, and multiple AST locations and associated equipment. A total of 24 soil samples were collected by SCS personnel. Twenty-two of the 24 soil samples were collected from the surface to six-inches below ground surface (bgs). The remaining two soil samples were collected from existing excavations at the former fuel and oil dispensing areas located at the north and south sides of the former loading rack.

These 24 soil samples were analyzed for petroleum hydrocarbons C₁₀ – C₃₂ (PHs) using Arizona Department of Health Services (ADHS) Method 8015AZ, polynuclear aromatic hydrocarbons (PAHs) using Environmental Protection Agency (EPA) Method 8310, the Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) using EPA Methods 6010B/7471A, volatile organic compounds (VOCs) using EPA Method 8260B, and semi-VOCs (SVOCs) using EPA Method 8270C.

The following analytes were detected above their respective laboratory reporting limits: PHs; the PAHs benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, chrysene, fluoranthene, pyrene, and indeno[1,2,3-cd]pyrene; and the metals arsenic, barium, cadmium, chromium, lead, and mercury. No VOCs or SVOCs were detected in these soil samples at concentrations exceeding their respective laboratory reporting limits.

The laboratory analytical results for these samples were compared to the Arizona Department of Environmental Quality (ADEQ) 2007 Residential Soil Remediation Levels (RSRLs) and Non-Residential Soil Remediation Levels (NRSRLs) and the ADEQ Groundwater Protection Levels (GPLs). Currently, the RSRLs have three risk levels. The appropriate RSRL to be used is dependent on if a chemical is non-carcinogenic (RSRL), suspected or known carcinogen (10^{-5} or 10^{-6} RSRL), or if the current or intended use of a site is a school or childcare facility (10^{-6} RSRL). The future use of the Property is not known; therefore, the sample results were compared to all three RSRL risk levels. Currently, there are no Arizona RSRLs or NRSRLs for PHs, total chromium, or the PAH benzo[g,h,i]perylene. In addition, PHs and none of the PAHs have GPLs. The arsenic RSRLs and NRSRLs are the same concentration.

Three soil samples contained benzo[a]pyrene concentrations above the 10^{-6} RSRL but less than the 10^{-5} RSRL for benzo[a]pyrene, one soil sample contained a lead concentration in excess of the NRSRL for lead, two soil samples contained lead concentrations in excess of the RSRL for lead, two soil samples contained lead concentrations in excess of the GPL for lead, and three soil samples contained arsenic at concentrations which exceeded the arsenic RSRL and NRSRL.

A copy of the SCS letter report, figures showing sample locations, photographs of the Property taken by SCS, and the table summarizing analytical results is included in Appendix B.

1.3.5 January 29, 2009 – SCS Engineers, Soil Sampling Report

SCS performed additional assessment on the Property in 2008 and summarized the results in this 2009 report. A copy of the conclusions, recommendations, figures, photographs taken by SCS, and tables summarizing the analytical results are included in Appendix C.

SCS obtained an additional 54 surface soil samples at the Property and one sample of saturated sand located on top of a former AST concrete pad. These soil samples were analyzed for PHs using ADHS Method 8015AZ, PAHs using EPA Method 8310, the RCRA Metals using EPA Methods 6010B/7471A, VOCs using EPA Method 8260B, and/or SVOCs using EPA Method 8270. The analytical results are summarized in the following paragraphs:

- VOCs and SVOCs were not detected at concentrations which exceeded their respective laboratory reporting limits.
- PHs were detected in 18 of the 28 samples analyzed for this parameter, ranging from 30 milligrams per kilogram (mg/kg) to 14,000 mg/kg. The highest concentrations occurred in areas where there was staining, former drum storage, and the former AST and AST equipment areas. The Arizona SRLs and GPLs in effect as of the date of this report do not include PHs.
- PAHs were detected in 14 of the 51 samples analyzed samples for this parameter. The PAHs detected above their respective laboratory reporting limits were benz[a]anthracene, benzo[a]pyrene, pyrene, chrysene, benzo[b]fluoranthene, fluoranthene, benzo[g,h,i]perylene, anthracene, benzo[k]fluoranthene, and indeno[1,2,3-cd]pyrene. Ten of the 14 samples contained concentrations of PAHs that exceeded one or more of their respective SRLs.

The NRSRL for benzo[a]pyrene of 2.1 mg/kg was exceeded in one surface soil sample (FL-26-S) which contained a benzo[a]pyrene concentration of 2.2 mg/kg; two soil samples contained benzo[a]pyrene

concentrations which were less than benzo[a]pyrene NRSRL but exceeded the 10^{-5} RSRL for benzo[a]pyrene of 0.69 mg/kg; and, seven soil samples contained benzo[a] pyrene concentrations which were less than the 10^{-5} RSRL for benzo[a]pyrene but exceeded the 10^{-6} RSRL for benzo[a]pyrene of 0.069 mg/kg.

Indeno[1,2,3-cd]pyrene was not detected in these surface soil samples at concentrations which exceeded its NRSRL (21 mg/kg) or 10^{-5} RSRL (6.9 mg/kg). Three of the surface soil samples contained indeno[1,2,3-cd]pyrene concentrations which were less than the 10^{-5} RSRL for this PAH but exceeded its 10^{-6} RSRL of 0.69 mg/kg.

Benz[a]anthracene also was not detected in these surface soil samples at concentrations which exceeded its NRSRL (21 mg/kg) or 10^{-5} RSRL (6.9 mg/kg). One of the surface soil samples contained a benz[a]anthracene concentration which was less than the 10^{-5} RSRL for this PAH but exceeded its 10^{-6} RSRL of 0.69 mg/kg.

The concentrations of the PAH benzo[b]fluoranthene detected also did not exceed its NRSRL (21 mg/kg) or 10^{-5} RSRL (6.9 mg/kg) but) but one of the surface soil samples contained a benzo[b]fluoranthene concentration which was less than its 10^{-5} RSRL for this PAH but exceeded its 10^{-6} RSRL of 0.69 mg/kg.

PAHs do not have GPLs.

- The metals arsenic, barium, cadmium, chromium, lead, and/or mercury were detected in the soil samples analyzed for these parameters.

Arsenic exceeded the arsenic RSRL and NRSRL which are both 10 mg/kg, in nine of the analyzed soil samples. The maximum arsenic concentration detected was 380 mg/kg.

Lead was detected above its laboratory reporting limit in the 54 surface soil samples and one saturated sample analyzed for this RCRA metal. The detected lead concentrations exceeded the NRSRL for lead of 800 mg/kg in four of these soil samples, with the maximum lead concentration of 13,000 mg/kg. An additional six samples contained lead concentrations which exceeded the RSRL for lead of 400 mg/kg but were less than the NRSRL for lead. Lead is not classified as a human carcinogen and does not have a 10^{-5} or 10^{-6} RSLR. In addition, six of the samples analyzed for lead contained lead concentrations which exceeded the lead GPL of 290 mg/kg but were less than RSRL for lead.

Of the 53 surface soil and one sand sample analyzed for cadmium, none of the samples contained a cadmium concentration which exceeded the NRSRL for cadmium of 510 mg/kg. One soil sample contained a cadmium concentration which exceeded its RSRL of 39 mg/kg but was less the cadmium NRSRL. The cadmium concentration detected, 72 mg/kg, also exceeded the cadmium GPL of 29 mg/kg.

SCS contracted with Southwest Hazard Control to excavate 20 trenches at selected locations on the Property on August 12, 2008. Trenches were excavated at locations adjacent to former ASTs, AST pumps and piping, former drum storage area; areas of surface staining, and areas with previous surface soil sample results that exceeded Arizona SRLs. Trenches were excavated to a total depth 2 to 3 feet bgs. Five

soil samples were collected from the floor of selected trenches based on field observations and previous surface soil sample results.

Two excavations were present on the Property when SCS began work: one excavation was located adjoining the former loading rack to the north and one excavation was on the south portion of the Property where dispensers had previously been removed. SCS collected one sample from the floor of each excavation at approximately 5 feet bgs, and one sample was collected from the sidewall of the north excavation at 2 feet bgs. Six shallow subsurface soil samples were also collected by SCS from three locations on the south portion of the Property at depths of 0.5 and 1 foot bgs.

Of the 14 samples that were collected from the trenches, excavations, and shallow subsurface: seven samples were analyzed for PHs using ADHS Method 8015AZ; three were analyzed for PAHs using EPA Method 8310; eight were analyzed for total RCRA metals using EPA Methods 6010/7471; six were analyzed only for arsenic and lead using EPA Method 6010; and seven were analyzed for VOCs using EPA Method 8260 and SVOCs using EPA Method 8270. The analytical results for these samples are summarized in the following paragraphs:

- PAHs, VOCs, and SVOCs were not detected above their respective laboratory reporting limits in the samples analyzed for these compounds.
- PHs were detected in four of the seven samples analyzed for this parameter. Three of these samples had PH concentrations of less than 300 mg/kg. One sample, which had been collected at 3 feet bgs, had a PH concentration of 16,800 mg/kg (this sample had been collected from an area where a leaking AST pump had previously been observed on the south portion of the Property). As previously stated, there are currently no SRLs for PHs.
- Arsenic, barium, chromium, and lead were detected in the samples analyzed for these constituents, and mercury was detected in three of the soil samples analyzed for RCRA metals. Barium, chromium, lead, and mercury were not detected in concentrations which exceeded their respective RSRLs or NRSRLs. The RSRL and NRSRL for arsenic was exceeded in three samples collected at 0.5 or 1.0 feet bgs, with concentrations of 11 and 13 mg/kg. These sample locations were adjacent to the former ASTs on the south portion of the Property.

SCS collected three composite concrete samples on July 16, 2008 for purposes of waste characterization of concrete pads prior to demolition activities. Each sample was a composite collected from three groups of concrete pads. These three groups included an elevated concrete pad containing the warehouse and drum storage area; shop garage, storage garage, and loading rack concrete pads; and concrete pads for the 10 former ASTs located in the southern portion of the Property. These concrete samples were analyzed for leachable concentrations of lead and arsenic using EPA Methods 1311 and 6010B. None of the composite concrete samples contained leachable concentrations of lead or arsenic above their respective laboratory reporting limits. Therefore, these concrete pads should be considered non-hazardous solid waste and not require special management.

To evaluate impact of some contaminants to the deeper subsurface soil at selected locations throughout the Property, fifteen direct push soil borings were installed in November 2008 at or adjacent to locations of former ASTs, AST pumps, or AST piping; a former UST area; former drum storage areas; areas of surface

staining; and areas with previous surface soil sample results detected a chemical of concern that exceeded one or more of its Arizona SRLs.

Twenty-two of the 28 samples collected from these direct push soil borings were analyzed for PHs using ADHS Method 8015AZ, 21 samples were analyzed for PAHs using EPA Method 8310, 14 samples were analyzed for total arsenic and lead concentrations using EPA Method 6010, and 17 samples were analyzed for VOCs using EPA Method 8260 and SVOCs using EPA Method 8270. Analytical results for these soil samples are discussed in the following paragraphs:

- PHs were detected above their respective laboratory reporting limits in 2 of the 22 samples, with a maximum PH concentration detected of 6,200 mg/kg.
- PAHs were detected in 3 of the 21 samples. The PAHs detected above their respective laboratory reporting limits were benzo[a]pyrene, pyrene, fluorene, indeno[1,2,3-cd]pyrene), benz[a]anthracene, fluoranthene, naphthalene, and phenanthrene. The 10^{-6} RSRL for benzo[a]pyrene was exceeded in one soil sample and the 10^{-6} RSRL for benz[a]anthracene was exceeded in two soil samples. Neither these PAHs or the other PAHs detected were present in concentrations which exceeded their 10^{-5} RSRLs.
- Arsenic was detected in 12 of the 14 analyzed for this parameter but the RSRL and NRSRL for arsenic of 10 mg/kg was exceeded in only one sample.
- Lead was detected in 13 of the 14 analyzed samples. The lead concentrations detected did not exceed the lead SRLs or lead GPL.
- VOCs and SVOCs were detected in 1 of the 17 samples analyzed for these parameters. VOCs detected above their respective laboratory reporting limits were n-butylbenzene, sec-butylbenzene, ethylbenzene, 4-isopropyltoluene, naphthalene, n-propylbenzene, 1,2,4-trimethylbenzene, total xylenes, and 1,3,5-trimethylbenzene. The SVOCs detected above their laboratory reporting limits included 2-methylnaphthalene, naphthalene, and phenanthrene. None of the detected VOCs or SVOCs exceeded their respective SRLs. None of the other surface or subsurface samples collected on the Property and analyzed for VOCs or SVOCs contained detectable concentrations of these constituents.

A summary of SCS' description of the distribution of the chemicals of concern on the Property is provided in the following paragraphs:

- **Arsenic** - Surface soil samples containing arsenic above the RSRL and NRSRL for arsenic extend through most of the area containing the former ASTs along the south portion of the Property, an area northwest of the shop garage, and an area adjoining the shop garage to the northeast and east. Within the AST area on the south portion of the Property were two locations that also exceeded the arsenic RSRL and NRSRL in subsurface samples at 0.5 foot bgs, and one of these locations also exceeded the RSRL and NRSRL for arsenic at 1 foot bgs. An additional location north of the AST containment area exceeded the arsenic RSRL and NRSRL at 5 feet bgs.

The lateral extent of arsenic contamination is generally defined on the Property, except for an area

northwest of the shop garage and two locations where contamination may extend off the Property to the driveway to the east and the vacant area to the south.

The vertical extent of arsenic contamination was less than 1 foot bgs at one location, less than 2 feet bgs at one location, and less than 5 feet bgs at three locations. At one location, the surface sample concentration did not exceed arsenic SRLs, but arsenic concentrations in excess of 10 mg/kg was located between 3 feet and 10 feet bgs. The vertical extent for arsenic concentrations of 10 mg/kg was not defined at seven locations where the surface soil sample concentrations exceeded the arsenic SRLs and subsurface soil was not sampled; however, SCS concluded the vertical extent at these locations is not expected to extend deeper than 5 feet bgs.

- **Lead and Cadmium** - Surface soil samples containing lead above the lead RSRL and NRSRL were located northwest of the shop garage; adjoining the shop garage to the east and northeast; adjoining the storage garage to the north, east, and south; and in the former AST area on the south portion of the Property. An area where cadmium exceeded the RSRL for cadmium in surface soil adjoins the shop garage to the west. Lead and cadmium did not exceed their respective SRLs in subsurface soil samples.

The lateral extent of lead contamination is generally defined on the Property, except for locations northeast and northwest of the shop garage, south and north of the storage garage, and one area north of the AST containment. The lateral extent of cadmium contamination is generally defined.

The vertical extent of lead contamination was less than 0.5 foot bgs at one location, less than 2 feet bgs at one location, and less than 5 feet bgs at five locations. The vertical extent was not defined at six locations where surface soil sample concentrations of lead exceeded the SRLs for lead and subsurface soil was not sampled; however, SCS concluded the vertical extent of lead concentrations in soil in excess of its respective SRLs at these locations is not expected to extend deeper than 5 feet bgs. The vertical extent of cadmium contamination in soil in excess of its SRL was not determined at the one location where cadmium exceeded the cadmium RSRL, but cadmium concentrations in soil in excess of the cadmium SRLs is not expected to extend deeper than 5 feet bgs.

- **PAHs** - Surface soil samples containing various PAHs above their respective 10^{-6} RSRLs are located through the north-central portion of the Property and in three locations in the south portion of the Property. The 10^{-5} RSRL for benzo[a]pyrene was exceeded in two surface samples: one in the central portion of the Property and one in the southeast portion of the Property. One surface sample exceeded the NRSRL for benzo[a]pyrene in the north-central portion of the Property.

Three locations had a subsurface sample with a PAH concentration that exceeded its respective 10^{-6} RSRL, but the surface sample did not exceed that PAH SRLs: one sample in the north portion of the Property from 5 feet bgs exceeded the 10^{-6} RSRL for benzo[a]pyrene and two samples in the south portion of the Property from 15 feet bgs exceeded the 10^{-6} RSRL for benz[a]anthracene.

The lateral extent of PAH contamination is defined in some areas on the Property, but was not defined in the paved area in the central portion of the Property, and in three areas where it may extend off the Flint Oil Property to the north, south, and southeast.

The vertical extent of PAH contamination was less than 5 feet bgs at one location and less than 10 feet bgs at one location. The vertical extent of PAH concentrations in excess of their respective SRLs was not defined at 11 locations where one or more PAH surface soil sample concentrations exceeded their respective SRLs and subsurface soil was not sampled. SCS concluded the vertical extent of PAH concentrations in excess of their respective SRLs at these locations is not expected to extend deeper than 5 feet bgs, and is likely shallower.

At a location in the north portion of the Property, PAH impact in excess of SRLs was identified as occurring at 5 feet bgs, but not at the ground surface or at 15 feet bgs. At a location in the south portion of the Property, PAH impact in excess of SRLs was identified at 15 feet bgs, but not at the ground surface or 5, 10, or 20 feet bgs. At another location in the south portion of the Property, PAH impact in excess of SRLs was identified at 15 feet bgs, but not at the ground surface or 10 feet bgs; the vertical extent of PAH impact in excess of SRLs was not defined at this location, but is expected to be less than 20 feet bgs. At these three areas, the lateral extent of subsurface contamination may not be completely defined.

- Based on the distribution of soil contamination on the Property, SCS concluded contamination for the PAHs versus lead, arsenic, and cadmium generally occur in different portions of the Property, with some overlap. It was SCS' opinion this is likely due to use and storage of different types of materials in different portions of the Property when the Property had been an active facility. In addition, benz[a]anthracene was detected at a concentration in excess of its SRLs at 15 feet bgs in two locations but only one surface sample contained this PAH above its SRLs. SCS did not determine if this location was related to the subsurface contamination.

Based on the analytical results, SCS concluded the extent of contamination on the Property has been generally defined, although there are areas that could be further refined by additional soil sampling. Some areas where the lateral extent of contamination has not been defined extend outside the Property.

1.3.6 September 2, 2009 – SCS Addendum to Soil Sampling Report, Demolition Observation, Soil Boring, and Soil Sampling Activities

SCS conducted oversight during demolition of the structures and concrete pads on April 13 through 17, 2009, and performed subsequent soil testing on June 2009 after all structures were cleared on the Property. SCS observed demolition activities to ensure demolition contractor minimally disturbed areas of surface and subsurface soil contamination. After the structures were cleared on the Property, SCS performed subsurface soils testing to further delineate the lateral and vertical extent of impacted soils beneath former buildings and concrete pads that were not accessible during previous soils testing events.

SCS collected four samples from the soil fill beneath the elevated warehouse concrete pad, one sample from beneath the hydraulic lift cylinder in the shop garage, one sample from beneath the floor drain of the storage garage, and one sample from beneath the subsurface wastewater drainage feature. The samples were analyzed for PHs using ADHS Method 8015 AZ, PAHs using EPA Method 8310, total RCRA metals using EPA Method 6010B/7471A, and VOCs using EPA Method 8260. The two samples from the hydraulic lift and the floor drain were also analyzed for polychlorinated biphenyls (PCBs) using EPA Method 8082.

PHs were detected in three of the elevated concrete pad samples, the hydraulic lift sample, and the wastewater drainage feature sample. The PAHs benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene were detected in one sample from the elevated warehouse pad fill soil. The metals arsenic, barium, cadmium, chromium, lead, and mercury were detected in the seven soil samples collected by SCS after building demolition activities. For constituents with SRLs, none of the detected constituents exceeded their respective SRLs. VOCs and PCBs were not detected in these soil samples above their respective laboratory reporting limits.

A direct push drill rig was used to install 19 subsurface soil borings to a maximum depth of 5 feet bgs, and three borings to a maximum depth of 10 feet bgs. Three surface soils samples were also collected by SCS south of the former Flint Oil Property to define the extent of impacted soil by PAHs, lead, and arsenic above their respective Arizona SRLs along the Property boundaries, an area off-Property to the south, an area where a subsurface soil sample was not previously defined, and in areas that were previously not accessible prior to demolition activities where there was asphalt pavement.

Continuous soil cores were collected to the total depths prescribed for this sampling event. Two soil samples were collected from each boring location; at the surface or near surface soil in three borings, and from 5 feet bgs in nineteen borings, for a total of forty-four soil samples collected. Additional soil samples were collected in two borings at 0.5 feet bgs, and 5 feet and 10 feet bgs in three borings. According to the SCS report, there was no evidence of staining or odors observed in the borings. Compounds detected in the samples included the PAH benzo[a]pyrene, and the metals arsenic and lead. Four surface samples and one sample from 5 feet bgs had concentrations of benzo[a]pyrene which exceeded the 10^{-6} RSRL for benzo[a]pyrene. Arsenic was detected in all but 3 of the 44 samples, with two samples collected at 5 feet bgs exceeding the arsenic RSRL and NRSRL of 10 mg/kg. Lead was detected in all 44 samples, but the lead concentrations did not exceed the SRLs for lead.

Relevant portions of this report are included in Appendix D.

1.3.7 September 17, 2009 SCS Brownfields Site Assessment Summary

This SCS summarized previous Property environmental site assessment reports. The Brownfields EPA Grant was used to characterize the former Flint Oil Property to identify areas that could potentially present a threat to human health or the environment. This characterization was necessary in preparation for redevelopment under the Rio Nuevo Downtown Redevelopment Project. The investigations indicated that areas of the Property contain arsenic, lead, cadmium, and PAHs concentrations in soil above their respective Arizona SRLs.

According to this SCS report, arsenic exceeded the arsenic RSRL and NRSRL at the ground surface in areas east of the elevated platform, east and northeast of the shop garage, and within the AST area on the southern portion of the Property. The lateral extent of the arsenic contamination in excess of 10 mg/kg is generally defined in most areas of the Property. SCS reported the vertical extent of arsenic concentrations in soil in excess of the arsenic RSRL and NRSRL was not clearly defined at six locations on the Property where surface soils sample concentrations exceeded the arsenic SRLs, and subsurface soil was not sampled. However, the vertical extent at these locations where arsenic exceeded the RSRL and NRSRL for arsenic is not expected to extend beyond a depth of 5 feet bgs.

Lead exceeded the lead RSRL and/or NRSRL at the ground surface in areas of the elevated platform; north, east, and south of the storage garage; north and northeast of the shop garage; and in the AST area on the southern portion of the Property. SCS reported the lateral extent of lead in soil at concentrations which exceed the lead SRLs is generally defined in most of these areas. However, the vertical extent of soil with lead concentrations in excess of the lead SRLs at these locations is not expected to exceed a total depth of 5 feet bgs.

Cadmium exceeded the cadmium RSRL at one surface location west of the shop garage. Cadmium was not detected in subsurface soil samples at concentrations which exceeded the cadmium SRLs. SCS reported the lateral extent of cadmium in soil at concentrations in excess of the SRL for cadmium is generally defined, but the vertical extent has not been fully delineated. However, SCS did not anticipate the vertical extent of cadmium in soil at concentrations in excess of the SRL for cadmium to extend deeper than 5 feet bgs.

The PAH benzo[a]pyrene exceeded the NRSRL for benzo[a]pyrene at one surface sample location in the north-central portion of the Property. Two surface samples in the southeast and central portions of the Property exceeded the 10^{-5} RSRL for benzo[a]pyrene. Fourteen surface samples in the northwest, central, southwest, and southeast portions of the Property contained benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and/or indeno[1,2,3-cd]pyrene above their respective 10^{-6} RSRL.

SCS reported the lateral extent of PAHs in soil at concentrations in excess of their various 10^{-6} RSRL are defined in most areas of the Property, but was not clearly defined in three areas that may extend off the former Flint Oil Property. The vertical extent of PAHs in soil exceeding their respective SRLs was less than 5 feet bgs at three locations, less than 10 feet bgs at two locations, and less than 15 feet bgs at one location. The vertical extent of PAHs in soil at concentrations in excess of their various SRLs was not defined at 13 locations where surface soil concentrations exceeded the various SRLs and subsurface soil was not sampled. However, the vertical extent at these locations is not expected by SCS to extend deeper than 15 feet bgs.

At three locations surface sample concentrations of PAHs did not exceed the various PAH SRLs. However, deeper samples collected at the same location contained the PAHs benzo[a]pyrene and benz[a]anthracene at concentrations which exceeded the 10^{-6} RSRLs for these PAHs. The vertical extent of soil containing these PAHs at concentrations in excess of their SRLs at these locations were no deeper than 10 feet and 20 feet bgs. The vertical extent of soil containing these PAHs at concentrations in excess of their SRLs was not clearly defined at one location, but is not expected to be deeper than 20 feet bgs. SCS reported that in these three areas, the lateral extent of subsurface contamination may not be completely delineated.

2.0 PROJECT SUMMARY

2.1 SUMMARY OF REQUIRED REMEDIATION

The extent of Property soil with chemicals of concern at concentrations in excess of their respective GPL, 10^{-5} RSRL, or RSRL have generally been delineated, and are benzo[a]pyrene, arsenic, cadmium, and lead. The SCS figures from the September 2, 2009 SCS report showing the approximate areas of soil containing chemicals of concern in concentrations in excess of their respective RSRLs are included in Appendix E. Table 2 (appended to end of report) provides a summary of the calculations used to estimate the area and volume of impacted soil for each of the eighteen areas identified by SCS as containing one or more of the chemical of concern at levels exceeding the RSRL or NRSRL (10^{-5} risk factor).

The approximate boundaries of the Northern Portion and the Southern Portion of the Property are shown on Figure 3. These boundaries were chosen based on the apparent impact from two primary uses on the site: building, maintenance, and operations in the Northern Portion and bulk storage in the Southern Portion. The approximate areas and volumes of impacted soil within each of these two portions of the Property are shown in Table 3 below:

Measurement	Southern Portion	Northern Portion
Area (square feet)	16,045	12,311
Volume (cubic feet)	690	634
Weight (tons)	759	697

2.2 PROPERTY REUSE GOAL

A Property reuse plan has been developed as part of a larger redevelopment plan that is focused in the Downtown Tucson Business District. The reuse planned for the Property will be mixed land use which will integrate commercial and residential land uses that will meet the needs of the community for this area. Conceptually, the COT has considered retail shops, farmers market, and affordable housing for the Site that will include other adjacent properties.

3.0 APPLICABLE REGULATIONS AND CLEANUP STANDARDS

3.1 CLEANUP OVERSIGHT RESPONSIBILITY

The oversight for the cleanup will be conducted by a qualified environmental firm under the oversight of the COT. A qualified subcontractor(s) certified to remove, haul, and dispose of the types of materials to be removed from the Property will be contracted to conduct the cleanup. Appropriate documentation and reports for the Property will be provided to the COT.

3.2 CLEANUP STANDARDS FOR MAJOR CONTAMINANTS

Soil remediation in Arizona is regulated under the soil remediation rules promulgated by the ADEQ in December 1997 and revised in May 2007. ADEQ was directed by statute to create risk-based soil remediation standards. The SRLs are risk-based levels calculated using the EPA Region 9 Preliminary Remediation Goals (PRG) guidance. The SRLs are based on toxicological characteristics of a number of compounds and were calculated considering inhalation, dermal, and ingestion routes of exposure. For contaminants without proven human carcinogenic effects, the lifetime excess cancer risk is 10^{-5} , and for known human carcinogens, the lifetime excess cancer risk is 10^{-6} . SRLs were initially established for both residential and non-residential exposures. The 2007 rule revisions included some changes to the RSRL and NRSRL numeric standards and also added a new category of regulatory limits for school and daycare facilities that are lower than the residential SRLs. The SRLs are used for soil assessment and remediation provided groundwater is protected from impact.

Test results will be compared to the RSRLs, because there are additional regulatory requirements for remediation to the NRSRLs and the planned project involves excavation work across the Property. Allwyn will not utilize the 10^{-6} RSRLs as cleanup standards unless the COT does decide to construct a school or day care facility on the Property. Allwyn will also compare analytical results to the ADEQ GPLs. The metal concentrations will be compared to typical background or natural metals concentrations for Arizona. Analytical results will also be compare to appropriate GPLs to ensure the Property is adequately remediated.

3.3 LAWS AND REGULATIONS APPLICABLE TO THE CLEANUP

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, state environmental law, and COT by-laws. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed.

In addition, appropriate permits will to perform the work proposed at the Property obtained prior to the work commencing including the following:

- Public underground utility location via Arizona 811
- Preparation of a project and Property-specific Stormwater Pollution Prevention Plan (SWPPP)
- Obtain a dust control permit
- Develop and implement an erosion control plan
- Develop and implement a project and Property-specific health and safety plan (HASP)

4.0 EVALUATION OF CLEANUP ALTERNATIVES

4.1 CLEANUP ALTERNATIVES CONSIDERED

Three cleanup alternatives were considered to address the contamination at the Property:

- *Alternative #1: No Action*
No action will be taken, the Property will be left as is with no remediation actions taken.
- *Alternative #2: Capping*
A relatively impermeable cap will be placed on the Property to prevent Property occupants from coming into contact with the chemicals of concern
- *Alternative #3: Excavation and Disposal of Soil Off the Property.*
Soil containing the chemicals of concern at concentrations in excess of their respective remediation levels is excavated, transported off the Property, and property disposed at a facility licensed to accept this type of waste stream.

4.2 COST ESTIMATE OF CLEANUP ALTERNATIVES

4.2.1 Effectiveness

- *Alternative #1: No Action*
No Action for the Property is not an effective control measure to prevent the potential migration of soil contamination. Given the proximity of residential owners to the Property, No Action would not prevent the possible exposure of receptors to the soil contamination at the Property.
- *Alternative #2: Capping*
Capping the Property surface is an effective method to prevent recreational and residential receptors from coming into direct contact with the chemicals of concern. The cap would require ongoing inspection and maintenance to ensure it is intact and does not erode from wind and/or episodic storm events. However, if the Property is to be developed for commercial and/or residential use, the surface and subsurface soils will be disturbed to install underground utilities, and building foundations. Alternative #2 is not an effective method of eliminating exposure to receptors from soil contamination, and can cause health risks for residents in the immediate area. Additionally, an institutional control (land-use restriction) would need to be recorded in the deed to prevent residential use of the Property requiring the involvement of the ADEQ and the additional expense to be part of the ADEQ Voluntary Remediation Program.
- *Alternative #3: Excavation and Disposal of Soil Off the Property.*
Excavation, transportation, disposal of impacted soil off the Property is an effective method of eliminating risk associated with the impacted soil on the Property. If contaminated soils are removed from the surface and subsurface, it would eliminate the exposure pathways for potential receptors, and allow future development plans for commercial and residential use. Additionally, this alternative would most likely earn full support from residents who live in the immediate area.

4.2.2 Implementability

- *Alternative #1: No Action*
No Action is a simple implementation process since no actions will be conducted to eliminate the potential health risks to receptors.
- *Alternative #2: Capping*
Capping is a relatively easy method to implement, although ongoing monitoring and maintenance of the cap will require periodic coordination and reporting to document the condition of the cap. In addition, a land-use restriction would be required, meaning the involvement of ADEQ. Therefore, this alternative is considered the most difficult to implement.
- *Alternative #3: Excavation and Disposal of Soil Off the Property.*
Excavation, transportation, disposal of impacted soil off the Property is an effective method of eliminating risk associated with the impacted soil on the Property. Given the proximity of residents in the immediate area, close coordination with neighborhood residents and businesses would be required to implement suitable work day hours for short-term noise and heavy-duty truck traffic, and ensure adequate dust suppression and air quality monitoring is conducted during cleanup activities. The noise from construction vehicles, and dust generated from excavation activities in the immediate area (depending on wind speed and direction), could create an inconvenience to area residents. Haul trucks would need to haul out contaminated soils and return with clean fill material for placement in excavated areas. Since the impacted soils will be generated from a City-owned property, and if the impacted soil meets the criteria for acceptance into a Subtitle D municipal landfill, the excavated soil could be hauled to the City Los Reales Landfill and used as alternative daily cover. This could reduce the overall costs for disposal if the COT chose to waive the tipping fees. The COT could potentially see additional cost-savings for the cleanup project if the COT decided to use clean-fill material stockpiled at the Los Reales Landfill. The clean soil would be loaded onto haul trucks that are delivering impacted soil from the Property, and return to the Property with clean fill, thus reducing costs and turn-around time if clean fill were to come from another off-site source.

If contaminated soils are removed from the surface and subsurface, it would eliminate the exposure pathways for potential receptors, and allow future development plans for commercial and residential use. Additionally, this alternative would most likely earn full support from residents who live in the immediate area. The close proximity of the Property to a preferred route for haul trucks, which will have easy access to the Interstate 10 (I-10), the most direct route to the Los Reales Landfill. The convenience of having quick access to I-10 would reduce travel time from and to the Property, and greatly expedite the completion of the cleanup. Additionally, long-term monitoring and maintenance will not be required for this alternative after the Property has been remediated. This alternative also eliminates health-risk exposure to potential receptors, and allows the COT to develop the Property for its planned use with minimal restrictions.

4.2.3 Costs

- *Alternative #1: No Action*
No cost is associated with this alternative \$0.00

- *Alternative #2: Capping*
The estimated cost for capping the entire Property and obtaining a deed restriction is estimated to be (see Table 4): \$286,100
- *Alternative #3: Excavation and Disposal of Soil Off the Property.*
The estimated cost for excavation and disposal of soil is estimated to be (see Table 4): \$353,400¹

4.2.4 Recommended Clean Up Alternative

Based on the planned end-use for the Property, the recommended cleanup alternative is Alternative #3: Excavation, Haul, and Offsite Disposal for the following reasons:

- *Alternative #1: No Action*
No Action cannot be recommended for the Property since it does not adequately address potential risks and does not eliminate the exposure pathways to receptors.
- *Alternative #2: Capping*
Capping is less costly than excavating contaminated soils and hauling and disposing off the Property. However, Alternative #2 would require ongoing monitoring and maintenance of the cap to ensure the cap is intact. The Property owner would be burdened with inspecting and documenting the condition of the cap for perpetuity and implement land-use restrictions through recorded deed restrictions. The conditions associated with Alternative #2 would make it difficult to implement and achieve the planned Property use.
- *Alternative #3: Excavation and Disposal of Soil Off the Property.*
Excavated soils are assumed to meet the screening criteria for acceptance into a RCRA Subtitle D municipal landfill, and will be transported to the Los Reales Municipal Landfill. The cost estimate assumes commercial disposal fees will be charged by Los Reales; however, significant cost savings will be realized if the landfill waives or reduces tipping fees at the landfill since the soil is generated from a COT-owned parcel. Alternative #3: Excavation, Haul, and Disposal Offsite is the recommended alternative for the Property.

¹ This cost assumes that excavated soil will be characterized as a Solid Waste or a Special Waste for disposal at the COT Los Reales Landfill.

5.0 REMEDIAL ACTION PLAN

This section describes the Remedial Action Plan (RAP) including the remedial strategy, pre-field activities, and field procedures to complete the soil remediation outlined in Alternative 3.

5.1 REMEDIAL STRATEGY

Property soil with chemicals of concern at concentrations in excess of their respective GPL, 10^{-5} RSRL, or RSRL, whichever is lower, will be excavated and removed from the Property for disposal at a landfill permitted to accept this type of wastes. The chemicals of concern identified for the Property are:

- PAHs: benzo[a]pyrene
- Metals: arsenic, cadmium, and lead
- Tetraethyl lead²

The SCS figures from the September 2, 2009 SCS report (discussed in more detail in Section 1.3.6), showing the approximated areas of soil containing chemicals of concern in concentrations in excess of their respective RSRLs are included in Appendix E. These areas will be remediated by excavating the soil with concentrations of the chemicals of concern exceeding RSRLs and then obtaining soil samples from the areas of excavation and analyzing these soil samples for the appropriate chemicals of concern. The excavated soils should be removed from the Property and disposed in a licensed landfill. Prior to transport off the Property, the excavated soil should be profiled and approved for acceptance at the landfill.

Excavation will be conducted at the locations that are generally defined for the lateral extent and portions of the Property that are not clearly defined for the vertical extent. As shown in the figures in Appendix E, it is anticipated six areas will be remediated for the PAH benzo[a]pyrene (four surface excavations [Figure 11, Appendix E] and two subsurface excavations [Figure 12, Appendix E]), eight areas will be remediated for arsenic (three surface excavations [Figure 8, Appendix E] and five subsurface excavations [Figure 9, Appendix E]), seven areas will be remediated for lead (surface excavations only, see Figure 10, Appendix E, both blue and red shaded areas), and one area will be remediated for cadmium (surface excavation only, see Figure 10, Appendix E, green shaded area). There will be overlap of some of the areas.

Debris and/or features discovered during excavation activities will be removed from the ground and disposed off the Property at a licensed landfill or recycling facility. If USTs are discovered that were not identified from previous field testing and/or excavation, these USTs should be removed in accordance with regulatory requirements, including appropriate regulatory notifications. Visually impacted soils should also be removed from the ground and stockpiled on the Property pending waste profiling for appropriate off-site disposal.

5.2 PREFIELD ACTIVITIES

Pre-field activities will include preparation of a project and Property-specific HASP, utility clearance, confirmation of property boundaries, and contractor solicitation and selection.

² Assessment for the presence of tetraethyl lead has not been conducted, and the compound was not identified as a chemical of concern. However, leaded gasoline stored on the site may have contained tetraethyl lead.

5.2.1 HASP

The planned activities at the Property are likely subject to the provisions of the federal Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations (HAZWOPER) statutes (Title 40 Code of Federal Regulations Part 1910 [40 CFR 1910] – “HAZWOPER Standard”). In accordance with these requirements, the HASP will be developed and prepared to assign responsibilities, to establish personnel protection standards and mandatory safety practices and procedures, and to provide for contingencies that may arise while operations are conducted at the Property. Prior to the start of field work, a copy of the HASP will be reviewed by appropriate personnel, and the potential hazards will be discussed with the field crew. The HASP will be kept on the Property during the field activities.

5.2.2 Utility Clearance

Property utilities will be located in the field prior to the commencement of the field activities. An Arizona 811 (formerly Arizona Blue Stake) order for the Property will be made and Arizona 811 markings will be evaluated to determine if there may be potential conflicts with encountering underground utilities during excavation activities. Based on the previous utility clearance activities and the relatively shallow excavation depths planned for soil remediation, it is anticipated there will be no conflicts with existing known utilities. However, the potential for encountering unknown non-metallic pipes and/or lines, or other unknown lines still exists. Contingency provisions for encountering utilities during field work will be included in the HASP (Section 4.2.1).

5.2.3 Remedial Excavation Delineation

The boundaries of the excavation areas will be marked on the Property prior to implementing excavation activities using flags, wooden markers, string lines, or equivalent. After the work is complete, field measurements will be collected to confirm and document the excavation limits.

5.2.4 Waste Soil Profiling/Acceptance for Disposal

The excavated soils will be transported and disposed in a licensed landfill. It is anticipated initial characterization samples will need to be collected and analyzed prior to commencement of field work so the soil can be profiled for disposal at the landfill. It is anticipated the soil can be approved for disposal as a solid waste or a special waste at the COT Los Reales Landfill, located within 11 miles of the Property.

Soil generated during excavation activities, will be stockpiled on the Property pending analytical results for waste profiling for disposal at the selected landfill.

5.2.5 Contractor Selection and Permits

The excavation contractor should be licensed through the Arizona Registrar of Contractors for the anticipated excavation and transportation services. In addition, it is Allwyn’s opinion the excavation contractor should have HAZWOPER trained personnel for the excavation and transportation portion of the work. **The contractor should obtain permits required to complete the anticipated work, including a dust control permit, a SWPPP, and required transportation permits.** The contractor will also need to make arrangements for a water source at or near the Property.

5.3 SOIL EXCAVATION AND HANDLING

The following describes the soil remediation field activities including excavation, dust control, erosion control, site security, and transportation and disposal of the soil. Although it is not anticipated that other subsurface piping and/or tanks will be encountered, excavation activities will be closely monitored to ensure subsurface debris encountered is removed and properly managed.

5.3.1 PAH, Lead, Arsenic, and Cadmium Impacted Soil Excavation and Loading

The areas of the Property to be excavated are shown in the SCS figures included in Appendix E. Several of the excavations will overlap. Excavation depths will range from 1 foot bgs to 10 feet bgs. Table 5 summarizes the approximate locations of the areas to be excavated and the associated dimensions:

TABLE 5 SUMMARY OF AREA LOCATIONS, DIMENSIONS OF AREA EXCAVATIONS, AND RELATED CHEMICAL OF CONCERN		
Chemical of Concern	Area and Approximate Location of Area	Dimensions and Depth of Area to be Excavated (feet [north/south] by feet [east/west] by feet bgs)
Arsenic	Area 1 – Former AST area on south portion of Property, see Figure 8, Appendix E	35' by 115' by 1'
	Area 2 – East of former elevated platform, see Figure 8, Appendix E	75' by 30' by 1'
	Area 3 – East/North of Shop Garage, see Figure 8, Appendix E	50' by 23' to 27' by 1'
	Area 4 – North of former elevated platform, see Figure 9, Appendix E	20' by 20' by 6'
	Area 5 – West of former elevated platform, see Figure 9, Appendix E	20' by 20' by 6'
	Area 6 – North of former AST area on south portion of Property, see Figure 9, Appendix E	20' by 20' by 6'
	Area 7 – Southwest of former AST area on south portion of Property, see Figure 9, Appendix E	20' by 20' by 3'
	Area 8 – Southeast of former AST area on south portion of Property, see Figure 9, Appendix E, this excavation part of Area 1	35' by 115' by 1'
Lead	Area 9 – East of former elevated platform, see Figure 10, Appendix E, same as Area 2, Arsenic	75' by 30' by 1'
	Area 10 – South of former elevated platform, see Figure 10, Appendix E	50' by 30' to 40' by 1'
	Area 11 – North side of former AST area on south portion of Property, west end, see Figure 10, Appendix E	35' by 25' to 30' by 1'
	Area 12 – Former AST area on south portion of Property, see Figure 10, Appendix E, this excavation part of Area 1	35' by 115' by 1'
	Area 13 - Former AST area on south portion of Property, eastern end, see Figure 10, Appendix E, portion of this excavation part of Area 1	35' by 37' by 1'
	Area 14 – East/North of former Shop Garage, see Figure 10, Appendix E, excavation part of Area 3	50' by 23'to 27' by 1'
Cadmium	Area 15 – West of former Shop Garage, see Figure 10, Appendix E	33' by 27' by 1'
Benzo[a]pyrene	Area 16 – East of former elevated platform, west side of buried concrete pad, see Figure 11, Appendix E	38' by 15' by 2'
	Area 17 – East of former elevated platform, northeast of loading rack, see Figure 11, Appendix E	15' by 15' by 2'
	Area 18 - Former AST area on south portion of Property, eastern end, see Figure 11, Appendix E, portion of this excavation part of Areas 1 and 13	25' by 25' by 1'
Tetraethyl Lead	Area 16 – East of former elevated platform, west side of buried concrete pad, see Figure 11, Appendix E	38' by 15' by 2'

Soil will not be remediated to the 10^{-6} RSRL for the chemicals of concern. The remediation limit for each chemical of concern is listed in Table 3 in this section. **If COT elects to remediate to the 10^{-6} RSRL because the COT considers it possible a day care could be constructed on the Property, additional areas of the Property will need to be excavated and evaluated.**

Soil excavation oversight will be provided by an environmental consultant. The boundaries of the remedial excavation will be confirmed using the survey markings described in Section 4.2.3. The depth of each excavation will be determined using a steel tape or yardstick graduated in inches or tenths of a foot. Excavation depth will be measured regularly during excavation relative to the existing ground surface. If encountered, ballast/slag materials would be removed during the remedial excavation work. If required, the consultant should direct the remedial contractor to deepen the excavation in areas of observed ballast or slag materials.

Soil samples will be collected from the excavation floor and sidewalls as needed and submitted to a laboratory for benzo[a]pyrene, lead, arsenic, cadmium, and/or tetraethyl lead analysis depending on the chemical(s) of concern associated with an area to be excavated.³ The benzo[a]pyrene analysis will be performed using EPA Method 8310 while the lead, arsenic, and cadmium analyses will be performed using EPA Method 6010B. The tetraethyl lead analysis will be performed using California Method HML-939M. The following chemical of concern concentrations will be used as guidelines to evaluate if an area has been adequately remediated or if additional excavation needs to be performed:

Chemical of Concern Remediation Limit	Remediation Limit
Benzo[a]pyrene	0.69 mg/kg (10^{-5} RSRL, the 10^{-6} RSRL for benzo[a]pyrene is 0.069 mg/kg)
Arsenic	10 mg/kg (10^{-6}, 10^{-5}, and non-carcinogen RSRL and NRSRL)
Cadmium	29 mg/kg (GPL, the cadmium GPL is less than the non-carcinogen RSRL for cadmium of 39 mg/kg , cadmium is not a carcinogen and does not have a 10^{-6} or 10^{-5} RSRL)
Lead	290 mg/kg (GPL, the lead GPL is less than the non-carcinogen RSRL for lead of 400 mg/kg , lead is not a carcinogen and does not have a 10^{-6} or 10^{-5} RSRL)
Tetraethyl Lead	00061 mg/kg (RSRL, there is no GPL for tetraethyl lead, tetraethyl lead is not a carcinogen and does not have a 10^{-6} or 10^{-5} RSRL)

If the concentration of each chemical of concern in a sample is less than its remediation limit listed in Table 6, the excavation will be backfilled. If the concentration of one or more chemicals of concern in a sample from an excavated area exceeds its respective remediation limit listed in Table 6, additional excavation will be conducted and samples will be collected from the deepened excavation floor and/or sidewall and analyzed for the chemical of concern with an exceedance. This process will be repeated until soil samples collected from the excavation floor and/or sidewall do not have concentrations of the chemicals of concern in excess of the remediation limits listed in Table 6.

³ Additional samples will be collected for analysis of tetraethyl lead in the area of the former USTs only.

5.3.2 Dust Control

A water wagon/trailer or water truck will be used to supply water for dust control during soil excavation. Procedures for dust control will be performed in general conformance with the Pima County Department of Environmental Quality, Title 17 Air Quality Control requirements. The excavated soils will be placed into haul trucks (either dump trucks or end dumps) using a loader. Dust control with water spray will be maintained as necessary during the loading process. In consultation with the truck driver, the loader operator will be instructed not to overload soil into the truck so that its weight will meet legal limits and that dust generation can be minimized during transport to the landfill. In addition, loads of soil with impacted materials should be covered during transport to reduce the potential for dust generation. The contractor will take measures to prevent track-out of soil into the surrounding streets in accordance with the dust permit.

5.3.3 Erosion Control

The areas to be excavated are generally flat but with a slight slope to the south and east. There is a potential for stormwater run-on to the remediation areas. In addition, temporary soil stockpiles that are generated from the excavation are subject to potential erosion and runoff. Therefore, to the extent practicable, the soil excavation work will be performed during periods of dry weather. To protect against sediment runoff due to possible stormwater contact with stockpiles, silt fences and/or wattles will be placed along the boundary of the Property. The fences will be removed at the end of the program to complete excavation along the boundaries.

5.4 TRANSPORTATION AND DISPOSAL OF SOIL

Excavated soil from the Property will be transported in trucks to a licensed landfill for disposal. Each truckload with soil will be covered by the driver using a tarp to minimize dust generation during transport. A non-hazardous waste manifest will be provided to the truck driver that will document the soil transportation and disposal. Typically, the manifest will be coded with a unique profile approval number assigned by the owner of the landfill, so the waste can be identified for disposal acceptance. The truck driver will be required to properly fill-out information pertaining to the "Transporter" section of the manifest including dating and signing the manifest.

At the scale house entry point to the landfill, the truck will be weighed and the non-hazardous waste manifest will be signed by a representative of the landfill. After the soil is disposed at the appropriate designated area of the landfill, the truck will be re-weighed at the scale house exit point to determine the weight of the disposed soil (i.e., the difference between the entry and exit truck weight is the soil weight), and the associated disposal tipping fee. A copy of each completed manifest and each landfill weight ticket will be collected as documentation of the final disposition of the soil. The contractor should provide the manifests and weight tickets to the environmental consultant for the final report.

6.0 REPORTING

A report will be prepared to document completion of soil remediation activities implemented at the Property, as well as exploratory excavation findings. The content of the report will include, but not be limited to, the following information:

- Introduction;
- Project Background;
- Summary of Completed Pre-Field Activities;
- Description of Remedial Soil Excavation Procedures;
- Description of Soil Transportation and Disposal;
- Figures including a vicinity map, a parcel map, and a figure showing the remedial soil excavation limits;
- An appendix with a photographic log; and
- An appendix with waste disposal documentation (manifests and weigh tickets).

The report will be prepared under the supervision of a Registered Geologist and/or a Professional Engineer licensed in the State of Arizona. The report will be issued in draft for review and comment by the COT.

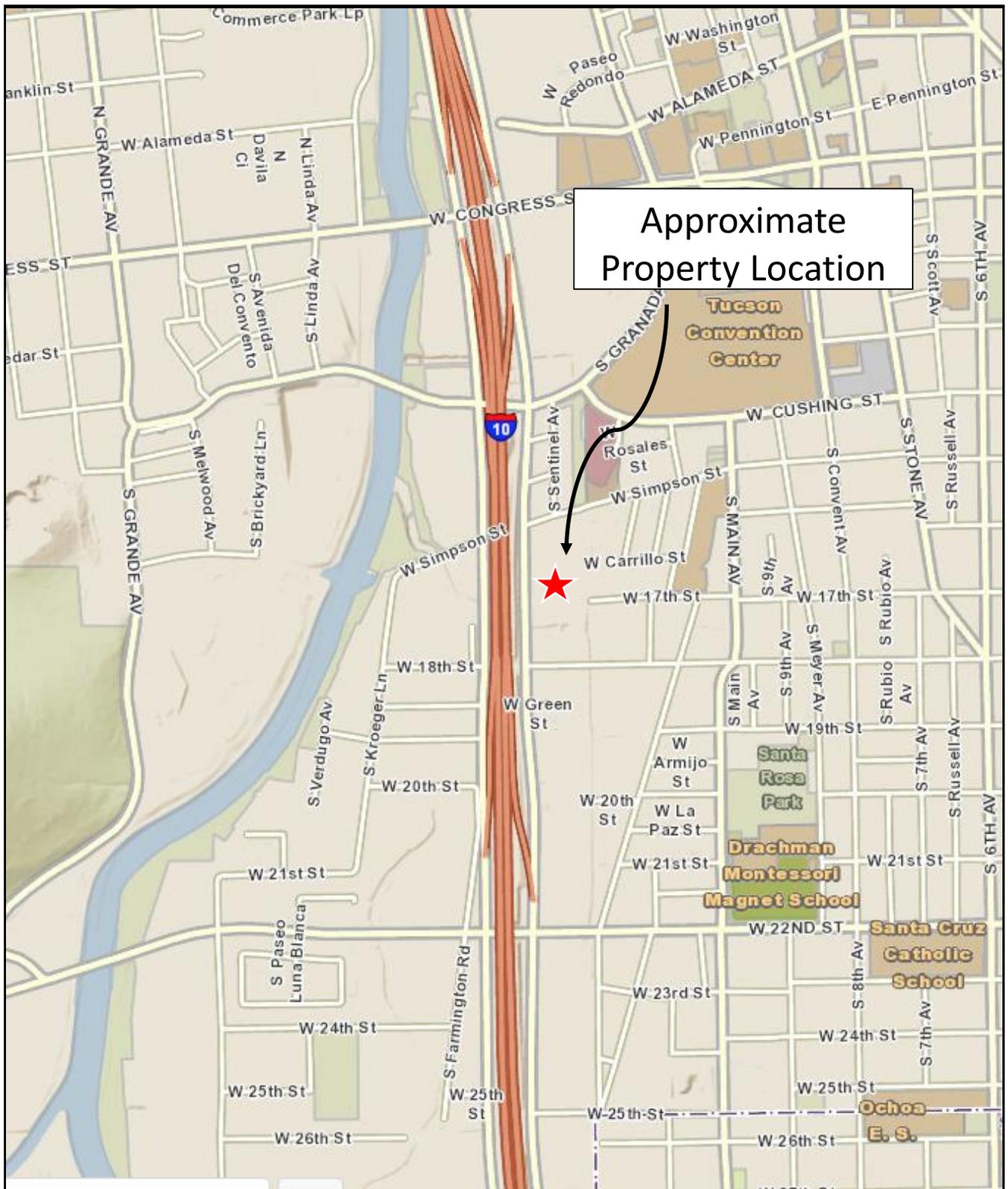
7.0 REFERENCES

Soil Remediation Levels, Arizona Administrative Code, Title 18, Chapter 7, Appendix A, March 30, 2007.

A Screening Method to Determine Soil Concentrations Protective of Groundwater Quality, Arizona Department of Environmental Quality Leachability Working Group of the Cleanup Standards/Policy Task Force, September 1996.

Evaluation of Background Metals Concentrations in Arizona Soils, The Earth Technology Corporation, June 1991.

FIGURES



610 S. Park Avenue
Tucson, AZ 85719
www.allwynllc.com/

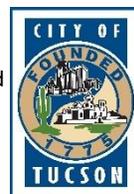
Figure 1
Property Vicinity Map

ABCA and Remedial Work Plan
Former Flint Oil – Northern Portion
APN 116-23-20170; Tucson, Arizona

Project Number: 0002-0169

December 17, 2017

City of Tucson
Environmental and
General Services
Department
P.O. Box 27210
Tucson, AZ 85726



Not to Scale



610 S. Park Avenue
Tucson, AZ 85719
www.allwynllc.com/

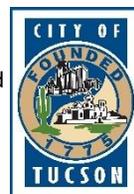
Figure 2
Property Aerial Photograph

ABCA and Remedial Work Plan
Former Flint Oil – Northern Portion
APN 116-23-20170; Tucson, Arizona

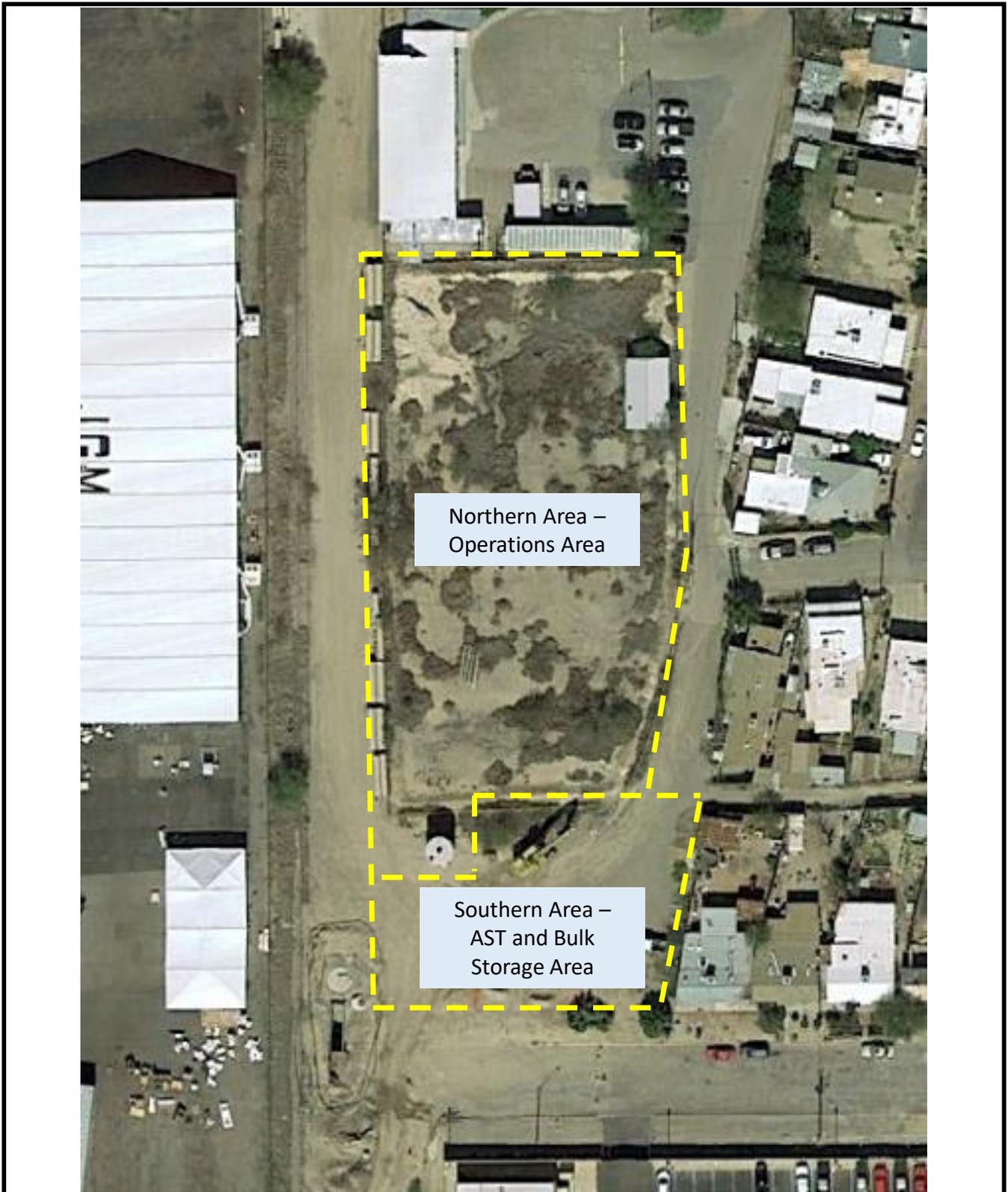
Project Number: 0002-0169

December 17, 2017

City of Tucson
Environmental and
General Services
Department
P.O. Box 27210
Tucson, AZ 85726



Not to Scale



Northern Area –
Operations Area

Southern Area –
AST and Bulk
Storage Area



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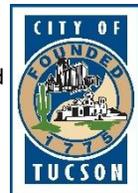
**Figure 3
Remediation Areas**

**ABCA and Remedial Work Plan
Former Flint Oil – Northern Portion
APN 116-23-20170; Tucson, Arizona**

Project Number: 0002-0169

December 17, 2017

City of Tucson
Environmental and
General Services
Department
P.O. Box 27210
Tucson, AZ 85726



Not to Scale

TABLES

TABLE 2
 REMEDIATION REQUIREMENT CALCULATIONS

Chemical of Concern	Area	Description	A1 (ft)	A2 (ft)	Depth (ft)	Vol (ft ³)	Vol (yd ³)		
Arsenic	1	Former AST area on south portion of Property, see Figure 8, Appendix E	35	115	1	4,025	149		
	2	East of former elevated platform, see Figure 8, Appendix E	75	30	1	2,250	83		
	3	East/North of Shop Garage, see Figure 8, Appendix E	50	27	1	1,350	50		
	4	North of former elevated platform, see Figure 9, Appendix E	20	20	6	2,400	89		
	5	West of former elevated platform, see Figure 9, Appendix E	20	20	6	2,400	89		
	6	North of former AST area on south portion of Property, see Figure 9, Appendix E	20	20	6	2,400	89		
	7	Southwest of former AST area on south portion of Property, see Figure 9, App E	30	20	3	1,800	67		
	8	SE of former AST area on south portion of Property, see Figure 9, App E, this excavation part of Area 1	35	115	1	4,025	149		
	9	East of former elevated platform, see Figure 10, App E, same as Area 2, Arsenic	75	30	1	2,250	83		
Lead	10	South of former elevated platform, see Figure 10, Appendix E	50	40	1	2,000	74		
	11	N side of former AST area on S portion of Property, west end, see Figure 10, App E	35	30	1	1,050	39		
	12	Former AST area on S portion of Property, see Fig 10, App E, this excavation part of Area 1	35	115	1	4,025	149		
	13	Former AST area on S portion of Property, E end, see Fig 10, App E, portion of this excavation part of Area 1	35	37	1	1,295	48		
	14	East/North of former Shop Garage, see Fig 10, App E, excavation part of Area 3	50	27	1	1,350	50		
Cadmium	15	Area 15 – West of former Shop Garage, see Figure 10, Appendix E	33	27	1	891	33		
Benzo[a]pyrene	16	E of former elevated platform, W side of buried concrete pad, see Fig 11, App E	38	15	2	1,140	42		
	17	E of former elevated platform, NE of loading rack, see Fig 11, App E	15	15	2	450	17		
	18	Former AST area on S portion of Property, E end, see Fig 11, App E, portion of this excavation part of Areas 1 and 13	25	25	1	625	23		
								Total (yd ³)	848
								Total (yd ³)	360
								Total (yd ³)	33
								Total (yd ³)	82

TABLE 2
 REMEDIATION REQUIREMENT CALCULATIONS

SOUTH PORTION OF FORMER FLINT OIL SITE								
Chemical of Concern	Area	Description	A1 (ft)	A2 (ft)	Area (ft ²)	Depth (ft)	Vol (ft ³)	Vol (yd ³)
Arsenic	1	Former AST area on south portion of Property, see Figure 8, Appendix E	35	115	4,025	1	4,025	149
Arsenic	6	North of former AST area on south portion of Property, see Figure 9, Appendix E	20	20	400	6	2,400	89
Arsenic	7	Southwest of former AST area on south portion of Property, see Figure 9, App E	30	20	600	3	1,800	67
Arsenic	8	SE of former AST area on south portion of Property, see Figure 9, App E, this excavation part of Area 1	35	115	4,025	1	4,025	149
Lead	11	N side of former AST area on S portion of Property, west end, see Figure 10, App E	35	30	1,050	1	1,050	39
Lead	12	Former AST area on S portion of Property, see Fig 10, App E, this excavation part of Area 1	35	115	4,025	1	4,025	149
Lead	13	Former AST area on S portion of Property, E end, see Fig 10, App E, portion of this excavation part of Area 1	35	37	1,295	1	1,295	48
Benzo[a]pyrene	18	Former AST area on S portion of Property, E end, see Fig 11, App E, portion of this excavation part of Areas 1 and 13	25	25	625	1	625	23
NORTH PORTION OF FORMER FLINT OIL SITE								
Chemical of Concern	Area	Description	A1 (ft)	A2 (ft)	Area (ft ²)	Depth (ft)	Vol (ft ³)	Vol (yd ³)
Arsenic	2	East of former elevated platform, see Figure 8, Appendix E	75	30	2,250	1	2,250	83
Arsenic	3	East/North of Shop Garage, see Figure 8, Appendix E	50	27	1,350	1	1,350	50
Arsenic	4	North of former elevated platform, see Figure 9, Appendix E	20	20	400	6	2,400	89
Arsenic	5	West of former elevated platform, see Figure 9, Appendix E	20	20	400	6	2,400	89
Arsenic	9	East of former elevated platform, see Figure 10, App E, same as Area 2, Arsenic	75	30	2,250	1	2,250	83
Lead	10	South of former elevated platform, see Figure 10, Appendix E	50	40	2,000	1	2,000	74
Lead	14	East/North of former Shop Garage, see Fig 10, App E, excavation part of Area 3	50	27	1,350	1	1,350	50
Cadmium	15	Area 15 – West of former Shop Garage, see Figure 10, Appendix E	33	27	891	1	891	33
Benzo[a]pyrene	16	E of former elevated platform, W side of buried concrete pad, see Fig 11, App E	38	15	570	2	1,140	42
Benzo[a]pyrene	17	E of former elevated platform, NE of loading rack, see Fig 11, App E	15	15	225	2	450	17
Benzo[a]pyrene	18	Former AST area on S portion of Property, E end, see Fig 11, App E, portion of this excavation part of Areas 1 and 13	25	25	625	1	625	23

SOUTH PORTION	
Area (ft ²)	16,045
Total (yd ³)	713
Total (tons)	1,069
Backfill (+10%)	784

NORTH	
Area (ft ²)	12,311
Total (yd ³)	634
Total (tons)	950
Backfill (+10%)	697

TABLE 4
 REMEDIAL OPTION COSTS

Task	Rate	Units	Capping (North Area)		Capping (South Area)		Off-Site Disposal (North Area)		Off-Site Disposal (South Area)	
			Number	Cost	Number	Cost	Number	Cost	Number	Cost
Mob/Demob	\$10,000	ea	1	\$10,000	1	\$10,000	1	\$10,000	1	\$10,000
VRP Permitting/Closure	\$40,000	ls	1	\$40,000	1	\$40,000	1	\$40,000	1	\$40,000
Excavate	\$25	yd ³	0	\$0	100	\$2,500	634	\$15,839	713	\$17,819
Transportation and Disposal	\$80	ton	0	\$0	0	\$0	950	\$76,027	1069	\$85,533
Backfill	\$15	yd ³	0	\$0	0	\$0	697	\$10,454	784	\$11,761
Cap	\$4.50	ft ²	12,311	\$55,400	16,045	\$72,203	0	\$0	0	\$0
Analytical Laboratory - Capping	\$5,000	ls	1	\$5,000	1	\$5,000	0	\$0	0	\$0
Analytical Laboratory - Off-Site Disposal	\$10,000	ls	0	\$0	0	\$0	1	\$10,000	1	\$10,000
Engineering Fees - Capping	\$15,000	ls	1	\$15,000	1	\$15,000	0	\$0	0	\$0
Taxes	\$8,000	ls	1	\$8,000	1	\$8,000	1	\$8,000	1	\$8,000
TOTAL				\$133,400		\$152,703		\$170,319		\$183,114

Total \$286,102

Total \$353,433

APPENDIX A

**PHASE I ENVIRONMENTAL SITE ASSESSMENT
FLINT OIL PROPERTY
500 (511 AND 527) WEST SIMPSON STREET
TUCSON, ARIZONA**

Prepared For:

CITY OF TUCSON
Environmental Services
100 North Stone Avenue
2nd Floor
Tucson, Arizona 85701

Prepared By:

SCS ENGINEERS
2410 West Ruthrauff Road
Suite 110
Tucson, Arizona 85705

October 17, 2006
AAI Date: February 6, 2006
File No. 10.204058.08



EXECUTIVE SUMMARY

The City of Tucson (COT) retained SCS Engineers (SCS) to perform a Phase I Environmental Site Assessment (ESA) of all or portions of two parcels of land currently owned by the City of Tucson and occupied by Flint Oil Company (Flint Oil) at 500 West Simpson Street, The Handlers of Tucson (The Handlers) at 511 (527) West Simpson Street, and vacant land and driveways located in Tucson, Pima County, Arizona (site). The Pima County Assessor's Parcel Numbers [APNs] for the site are 117-14-356 and 117-19-060; the address listed by the Assessor's office for APN 117-14-356 is 527 West Simpson Street. The northernmost portion of APN 117-14-356, also occupied by The Handlers of Tucson, was not included in this assessment. The ESA consisted of a site reconnaissance; interviews; review of environmental, historical, and physical records pertaining to activities on and adjacent to the site; and interpretation and reporting of findings.

CURRENT CONDITIONS

Flint Oil Property--

The central portion of the site was occupied by Flint Oil, a distributor of gasoline, diesel fuel, solvents, lubricants, and related products; some automotive repair and maintenance was also performed on the site. Structures on this property included an office building; shop garage; warehouse, warehouse addition and canopy on an elevated concrete platform; and storage garage. A hydraulic lift was located in the shop garage; the storage garage may also have previously contained a hydraulic lift. Vent pipes and pumps for three removed 6,000-gallon new oil USTs were located on the northern portion of the property.

Seven vertical aboveground storage tanks (ASTs) on concrete pads (12,500- to 25,000-gallon sizes) and three former AST concrete pads were located on the southern portion of the property. Five of the ASTs were used for diesel fuel and gasoline and two former solvent ASTs were no longer in use. Underground piping from the ASTs led to a loading rack in the



central portion of the property. Six ASTs (less than 1,000-gallon sizes) for unleaded gasoline, new oil, and used oil were located in various locations on the property.

Numerous 55-gallon drums (approximately 200) for racing gas, kerosene, mineral spirits, hydraulic oil, mineral oil, engine oil, and motor oil were observed on the property; more than half of these drums were empty, and were reportedly stored and returned to the supplier for conditioning and refilling. Other materials observed in use or stored on the property included vehicle batteries, thinner, urethane reducer, paint, refrigerants, oils, aerosols, antifreeze, cleansers, glass cleaner, Freon, windshield washing fluid, grease and other lubricants, toluene, absorbent, tires, and fluorescent light fixtures and tubes.

Stained soil or pavement was observed at the fill ports for the five vertical fuel ASTs, and at one of the pumps, at three new oil ASTs on the elevated platform, on the shop garage concrete floor, around the stack of empty drums on the southern portion of the property, on the elevated platform in the area of the canopy, on the concrete floor inside the warehouse, and on the asphalt pavement in the northern portion of the property

The Handlers Property--

The northern portion of the site was occupied by The Handlers, which provides day programs for treatment and training of developmentally disabled adults. The property was occupied by a main building, trailers used as offices, and a paved driveway and parking area. Concrete pads from former ASTs associated with the former use of the property as a bulk fuel and oil facility were located adjacent to and under a trailer on the southern portion of the property.

Other Portions of the Site--

An unpaved driveway, parking areas, and a concrete drainage channel were located along the eastern side of the site from Simpson Street south to Carrillo Street. The driveway extended across the vacant area on the southern portion of the site, south of the Flint Oil property, to the intersection of 17th Street and the railroad corridor.



HISTORICAL REVIEW

The COT deeded the site to Southern Pacific Company in 1879; the railroad, later called the Union Pacific Company, owned the site until 2002, at which time the site was deeded back to the COT.

Occupants of the Flint Oil portion of the site since 1925 have included Rio Grande Oil Company, possibly Continental Oil Company, Shell Oil Company, and Flint Oil Company, all of which were bulk distributors of fuel, oil, and associated products. Up to approximately 16 ASTs, ranging in size from 1,000- to 34,256-gallons, have been located on the site. Contents have included gasoline, diesel fuel, kerosene, and solvents. In addition to the current locations of the vertical ASTs, a cluster of up to approximately five ASTs was at the current location of the storage garage prior to 1974. The three currently vacant concrete AST pads were occupied by ASTs until approximately 1974. Three 6,000-gallon new oil underground storage tanks (USTs) were installed in 1983 and removed in 1999; samples collected during closure of the USTs did not indicate a release.

Occupants of The Handlers portion of the site included Richfield Oil Company, Atlantic Richfield Company, or ARCO (1940-1984) and Handler's of Tucson (1984-2006). Up to approximately seven ASTs ranging in size from 4,400 to 20,000 gallons were located at this property. The ASTs were removed by 1980, although the tank foundations are still present.

Based on the ages of the buildings and other structures on the site, asbestos-containing materials (ACMs) and lead-based paint (LBP) may be present.

The southern portion of the site and the driveway area have apparently never been developed. The northeast portion of the site is included within the Barrio Historico historic district.



In 1998, three 15-foot deep soil borings were drilled during an investigation by AGRA (1998) west of the Flint Oil property within the railroad corridor in an area where product was reportedly off-loaded from railcars for storage in drums or ASTs. Total petroleum hydrocarbons (TPHs) were not detected in soil samples collected from the borings.

ADJOINING PROPERTIES

The former railroad west of the site was reportedly constructed sometime between 1909 and 1919. Properties adjoining the site have consisted of oil or fuel distribution facilities, an asphalt facility, a paper products recycler, a restaurant grease recycler, a scrap metal recycler, residential properties, vacant land, The Handlers, a church, a COT facility, the former railroad corridor, and parking lots. The Handlers facility located north of the site reportedly had one 2,000-gallon UST installed in 1967; this UST was not identified as being registered with Arizona Department of Environmental Quality (ADEQ) and it was not determined if it was still present.

Previous environmental investigations of properties in the vicinity of the site have included closure and investigations of UST releases at six facilities; these cases have been closed by ADEQ. Four additional facilities in the area had USTs that may or may not have been removed or investigated. A geophysical survey and exploratory test pits were previously performed at the Tidewater Associated Oil Company property and soil borings and soil sample collection and analysis for TPH or other constituents were previously performed at the former Tidewater Associated Oil Company, U.S. Recycling Industries, Chevron asphalt facility, Asphalt Products Transport Company, and Standard Oil Company facilities; these facilities are located along the railroad corridor adjacent to and up to 0.4 mile from the site.

Releases of product from ASTs and pipelines were reported at the former Chevron asphalt facility west of the site. Groundwater monitoring previously performed at this facility had identified hydrocarbons, benzene, toluene, ethylbenzene, xylenes, bis(2-ethylhexyl)phthalate, 1,2,4-trimethylbenzene, 1,1-dichloroethene, chloroform, acenaphthene, phenanthrene, pyrene,



benz(a)anthracene, and chrysene in samples; benzene and bis(2-ethylhexyl)phthalate concentrations exceeded the AWQS during one sampling event. Concentrations of arsenic, cadmium, chromium, mercury, and nickel also exceeded the AWQS in groundwater samples; however, when samples were filtered by the laboratory prior to analysis, the detected metal concentrations were significantly lower and did not exceed the AWQS, which indicated that it was likely that the metals may be naturally occurring in the aquifer formation. A diesel fuel odor was noted during sampling of MW-3, which is the monitoring well on the east side of the Chevron property, closest to the subject site.

Significant releases have not been identified during investigations performed at the majority of the properties discussed above. Investigations at the former Chevron asphalt facility west of the site identified impacts to soil and groundwater by hydrocarbons and related compounds, which may be of concern to the site and/or may indicate that the site and/or railroad easement is a source of contaminants.

REGULATORY REVIEW

The site was identified in the environmental database listings as a facility with three removed registered USTs. Other environmental regulatory database listings identified in the vicinity of the site included: two Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) / No Further Remedial Action Planned (NFRAP) sites, one Resource Conservation and Recovery Act (RCRA) Generator facility, one Water Quality Assurance Revolving Fund (WQARF) site, two landfills, nine leaking underground storage tank (LUST) facilities, two Arizona Indoor Radon tests, and 16 registered well listings. Based on the status of the listings and locations relative to the site, the listed facilities are not likely to have a direct environmental impact on the site.

Known diesel fuel, gasoline, and other contamination from various and multiple co-mingled sources occurs in the perched groundwater aquifer in the downtown Tucson area. It is also known that the perched aquifer may have formerly occurred at depths of 25 or 30 feet bgs.



Falling levels of contaminated groundwater can create a “smear zone” of soil contamination in the range between the former and existing groundwater depths.

RECOGNIZED ENVIRONMENTAL CONDITIONS

SCS has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-05 and COT specifications for the Flint Oil Property (APNs 117-14-356 and 117-19-060). Any exceptions to, or deletions from, this practice are described in Sections 1, 10, and 11 of this report. This assessment has identified no evidence of RECs in connection with the site except for the following:

- The site has been occupied by bulk oil, fuel, and solvent distributors on the Flint Oil property from 1925 to 2006 and on The Handlers property from about 1940 to 1984. The facilities currently and formerly had multiple large and small ASTs, pumps, underground and aboveground piping, dispensers, and loading racks. Large numbers of drums were also stored on the Flint Oil property. Materials stored and distributed on the site have included gasoline, diesel fuel, solvents, lubricants, and related products. In addition, materials associated with repair and maintenance of vehicles have been used and stored on the site.
- Evidence of releases of petroleum products on the site (stained soil and pavement) were identified during the site reconnaissance. Due to the number of years that bulk oil, fuel, and solvent distributors have been operating on the site, there is a potential for historical releases having occurred on the site. Because containment walls and berms around the AST areas were likely not present until relatively recently and because there are no barriers to stormwater runoff leaving the site, there is also the potential for releases or residues from releases to have been carried to adjoining properties.
- One or two hydraulic lifts were present in the garages on the Flint Oil property.



- Based on the ages of the buildings and other structures on the site, ACMs and LBP may be present.
- Three new oil USTs were previously located on the Flint Oil property. Sampling performed during the closure investigation did not indicate the presence of a release beneath the USTs or product piping. However, the pumps and vent pipes were still present at the time of the site reconnaissance and the sampling investigation did not include these areas.
- A number of properties in the vicinity of the site have performed bulk storage of materials similar to that stored on the site and currently or historically had USTs and ASTs. Review of previous environmental reports has not identified significant releases from the majority of these properties. Investigations at the former Chevron asphalt facility west of the site identified impacts to soil and groundwater by hydrocarbons and related compounds.

RECOMMENDATIONS

Based on the findings of this Phase I ESA for the site, SCS recommends that a Phase II ESA be performed to investigate the RECs identified for the site. SCS recommends that this investigation include the following:

- Drill soil borings or perform excavations at the Flint Oil and The Handlers properties adjacent to and beneath the current and former ASTs and the AST pumps, fill ports, underground and aboveground piping, dispensers, and loading racks. In addition, soil borings or excavations should be placed adjacent to and beneath the drum storage areas, garages, warehouse platform, areas of stained soil, and areas where runoff occurs on site or leaves the site onto adjoining or nearby properties. At a minimum, soil samples should be collected and analyzed for petroleum hydrocarbons, volatile organic compounds (VOCs), semi-VOCs (SVOCs), and RCRA metals.



- Drill soil borings or excavate beneath the hydraulic lifts in the two garages. Soil samples should be collected and analyzed for petroleum hydrocarbons, VOCs, SVOCs, and polychlorinated biphenyls (PCBs).
- Perform comprehensive sampling surveys of the site structures for ACMs and LBP.
- Perform a geophysical survey on the site to identify subsurface features of potential concern, including unknown USTs and possible septic systems, cesspools, or other sewage disposal features that may have been associated with non-residential use. If such features are identified, then subsurface investigations should be performed.
- Excavate and remove the former UST pumps and any remaining piping and collect soil samples beneath these features. Soil samples should be analyzed for petroleum hydrocarbons.
- Previous investigations of the adjoining Chevron property identified contaminants in groundwater from a monitoring well located near the site. Based on the results of the Phase II ESA investigations, if the site appears to be a potential source of groundwater contamination, install groundwater monitoring wells in order to evaluate whether groundwater contamination is located beneath the site and if so, whether the source is located on the site or off site. Groundwater samples should be analyzed for petroleum hydrocarbons, VOCs, and SVOCs.



SECTION 9 CONCLUSIONS

RECOGNIZED ENVIRONMENTAL CONDITIONS

SCS has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-05 and COT specifications for the Flint Oil Property (APNs 117-14-356 and 117-19-060). Any exceptions to, or deletions from, this practice are described in Sections 1, 10, and 11 of this report. This assessment has identified no evidence of RECs in connection with the site except for the following:

- The site has been occupied by bulk oil, fuel, and solvent distributors on the Flint Oil property from 1925 to 2006 and on The Handlers property from about 1940 to 1984. The facilities currently and formerly had multiple large and small ASTs, pumps, underground and aboveground piping, dispensers, and loading racks. Large numbers of drums were also stored on the Flint Oil property. Materials stored and distributed on the site have included gasoline, diesel fuel, solvents, lubricants, and related products. In addition, materials associated with repair and maintenance of vehicles have been used and stored on the site.
- Evidence of releases of petroleum products on the site (stained soil and pavement) were identified during the site reconnaissance. Due to the number of years that bulk oil, fuel, and solvent distributors have been operating on the site, there is a potential for historical releases having occurred. Because containment walls and berms around the AST areas were likely not present until relatively recently and because there are no barriers to stormwater runoff leaving the site, there is also the potential for releases or residues from releases to have been carried to adjoining properties.
- One or two hydraulic lifts were present in the garages on the Flint Oil property.



- Based on the ages of the buildings and other structures on the site, ACMs and LBP may be present.
- Development of the site may have occurred before sewer systems extended to this area, indicating that septic systems, cesspools, or other sewage disposal methods may have been used at that time.
- Three new oil USTs were previously located on the Flint Oil property. Sampling performed during the closure investigation did not indicate the presence of a release beneath the USTs or product piping. However, the pumps and vent pipes were still present at the time of the site reconnaissance and the sampling investigation had not extended to these areas.
- A number of properties in the vicinity of the site have performed bulk storage of materials similar to that stored on the site and currently or historically had USTs and ASTs. Review of previous environmental reports has not identified significant releases from the majority of these properties. Investigations at the former Chevron asphalt facility west of the site identified impacts to soil and groundwater by hydrocarbons and related compounds.

RECOMMENDATIONS

Based on the findings of this Phase I ESA for the site, SCS recommends that a Phase II ESA be performed to investigate the RECs identified for the site. SCS recommends that this investigation include the following:

- Drill soil borings or perform excavations at the Flint Oil and The Handlers properties adjacent to and beneath the current and former ASTs and the AST pumps, fill ports, underground and aboveground piping, dispensers, and loading racks. In addition, soil borings or excavations should be placed adjacent to and beneath the drum storage

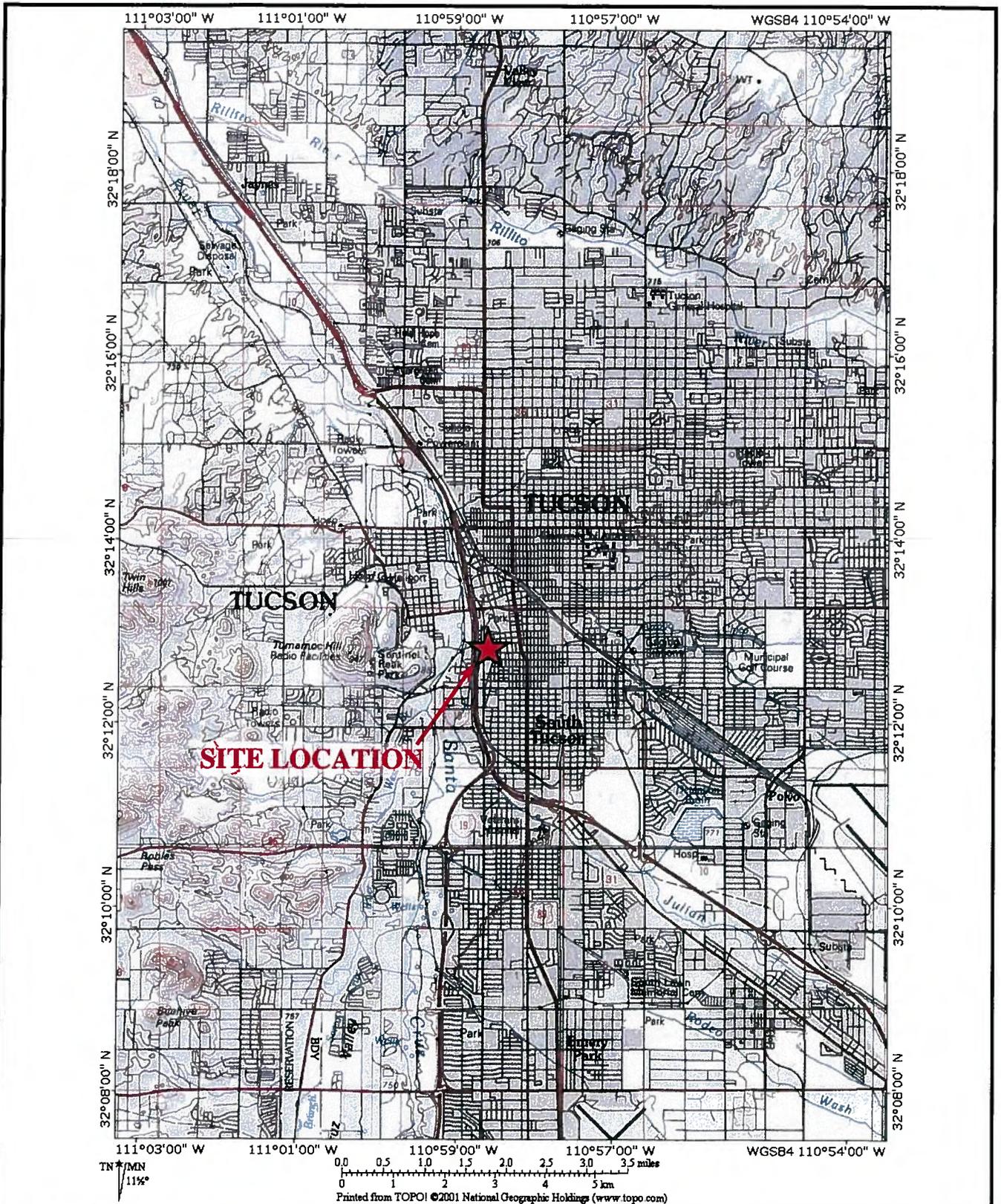


areas, garages, warehouse platform, areas of stained soil, and areas where runoff occurs on site or leaves the site onto adjoining or nearby properties. At a minimum, soil samples should be collected and analyzed for petroleum hydrocarbons, VOCs, SVOCs, and RCRA metals.

- Drill soil borings or excavate beneath the hydraulic lifts in the two garages. Soil samples should be collected and analyzed for petroleum hydrocarbons, VOCs, SVOCs, and PCBs.
- Perform comprehensive sampling surveys of the site structures for ACMs and LBP.
- Perform a geophysical survey on the site to identify subsurface features of potential concern, including unknown USTs and possible septic systems, cesspools, or other sewage disposal features that may have been associated with non-residential use. If such features are identified, then subsurface investigations should be performed.
- Excavate and remove the former UST pumps and any remaining piping and collect soil samples beneath these features. Soil samples should be analyzed for petroleum hydrocarbons.
- Previous investigations of the adjoining Chevron property identified contaminants in groundwater from a monitoring well located near the site. Based on the results of the Phase II ESA investigations, if the site appears to be a potential source of groundwater contamination, install groundwater monitoring wells in order to evaluate whether groundwater contamination is located beneath the site and if so, whether the source is located on the site or off site. Groundwater samples should be analyzed for petroleum hydrocarbons, VOCs, and SVOCs.



APPENDIX A
FIGURES



Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

SCS ENGINEERS <i>"Superior Customer Service"</i>	Site Location Map Phase I Environmental Site Assessment Flint Oil Property 500 (511 and 527) West Simpson Street Tucson, Arizona	Project Number 10.204058.08
		Figure 1



--- Flint Oil Property

Source: City of Tucson Department of Transportation web site, 2005

Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.



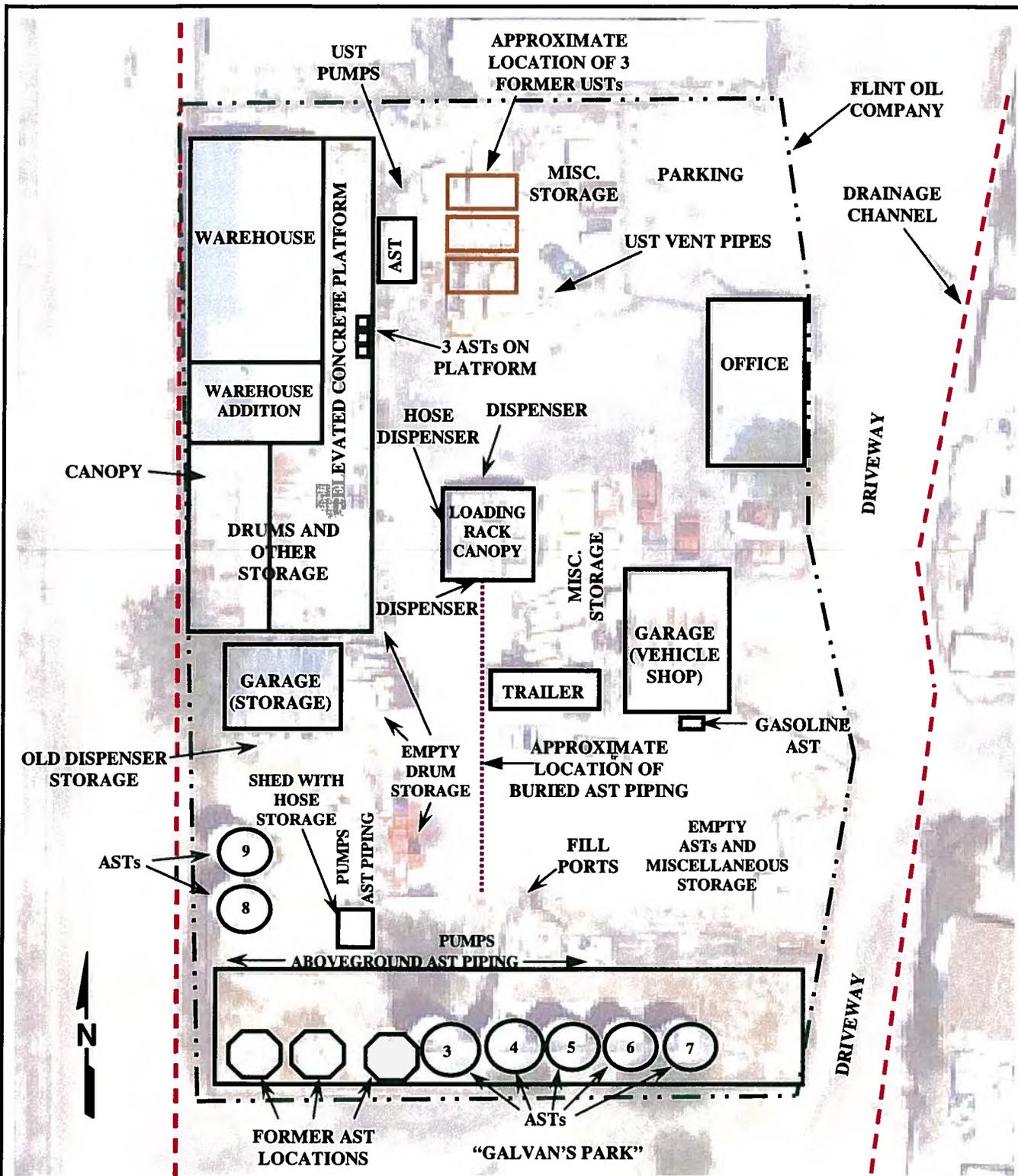
APPROXIMATE SCALE IN FEET

SCS ENGINEERS
"Superior Customer Service"

Site and Vicinity Map
 Phase I Environmental Site Assessment
 Flint Oil Property
 500 (511 and 527) West Simpson Street
 Tucson, Arizona

Project Number
 10.204058.08

Figure 2



--- Flint Oil Property

Source: City of Tucson Department of Transportation web site, 2005

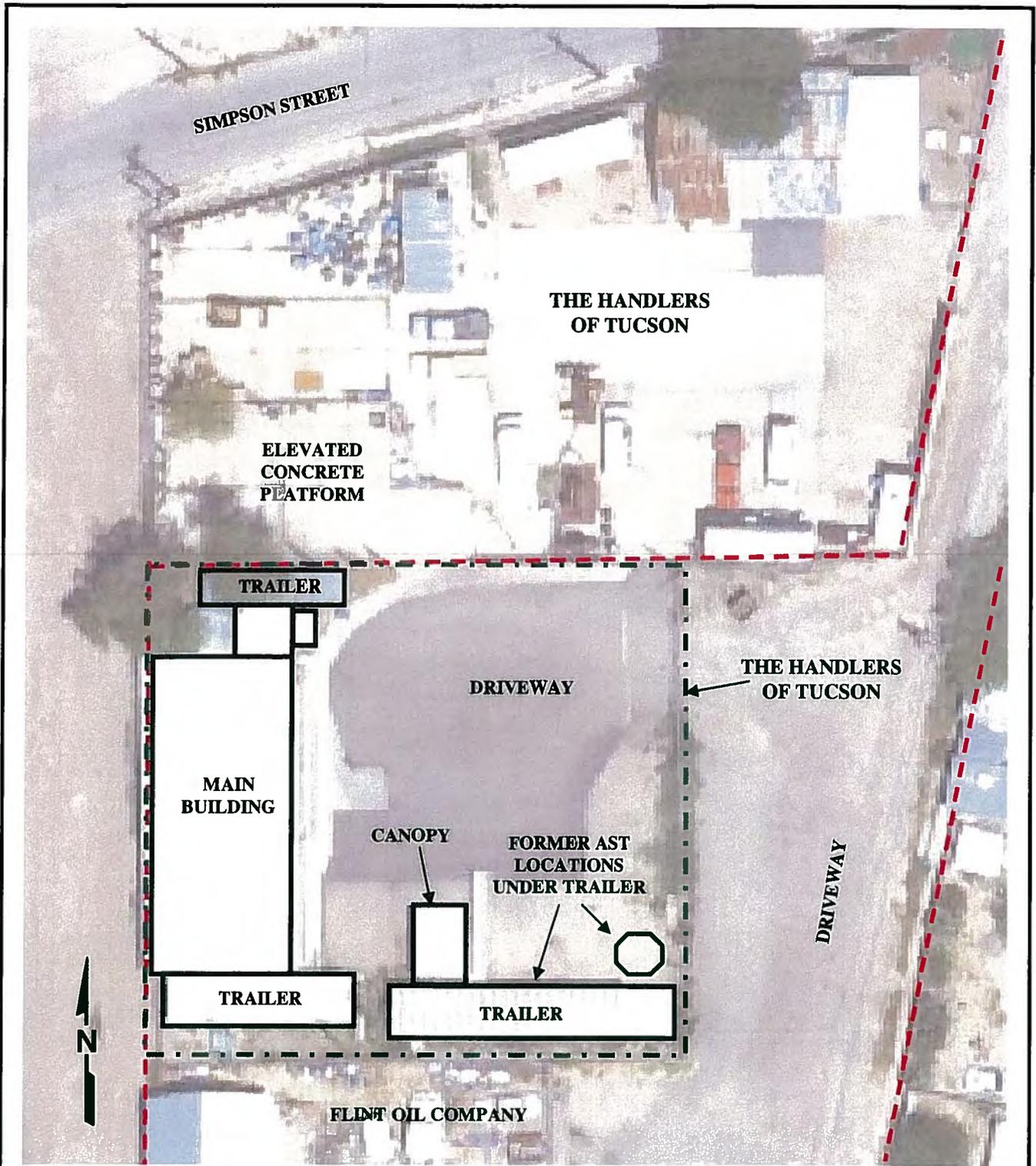
Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

0 50
APPROXIMATE SCALE IN FEET

SCS ENGINEERS
"Superior Customer Service"

Site Plan - Flint Oil Company
Phase I Environmental Site Assessment
Flint Oil Property
500 (511 and 527) West Simpson Street
Tucson, Arizona

Project Number
10.204058.08
Figure 3



- - - Flint Oil Property

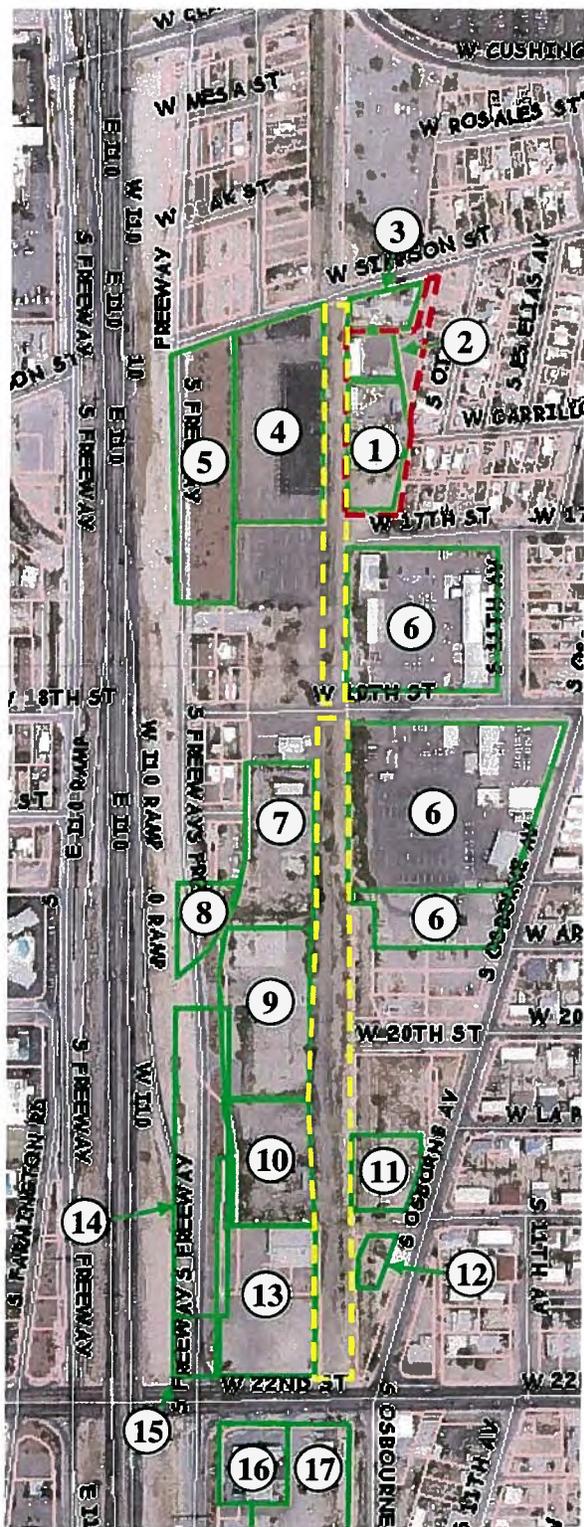
Source: City of Tucson Department of Transportation web site, 2005

Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.



APPROXIMATE SCALE IN FEET

SCS ENGINEERS	<i>Site Plan – The Handlers of Tucson</i>	Project Number 10.204058.08
	Phase I Environmental Site Assessment Flint Oil Property 500 (511 and 527) West Simpson Street Tucson, Arizona	Figure 4
<i>“Superior Customer Service”</i>		



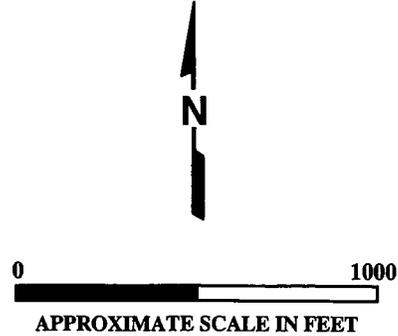
EXPLANATION

- FLINT OIL PROPERTY
- FORMER RAILROAD EASEMENT
- VARIOUS FACILITIES (see below)

- 1 Flint Oil Company
Former Shell Oil Company
Former Rio Grande Oil Company
Possibly Former Continental Oil Company
- 2 The Handlers of Tucson
Former Atlantic Richfield Company (ARCO)
- 3 The Handlers of Tucson
Former The Texas Company
- 4 Former Chevron Asphalt Company
Former American Bitumuls & Asphalt Co.
Former Stancal Bitumules & Asphalt Co.
Former General Petroleum Co.
Former Pima Oil
- 5 Former Ralph's Transfer and Storage
Former North American Van Lines
- 6 City of Tucson – Tucson Water Operations & Maintenance Facilities
- 7 Former Asphalt Products Transport Company
- 8 Former Arizona Highway Safety Specialists
Former GELCO Truck Leasing
- 9 Former US Recycling Industries
- 10 Former Western Emulsions
- 11 Former Standard Oil Company
- 12 Former Tidewater Associated Oil Company
- 13 Former El Campo Tire
- 14 Former auto salvage yard
- 15 Former Mobil and Circle K gas stations
- 16 Circle K gas station
Former Exxon gas station
- 17 Express It

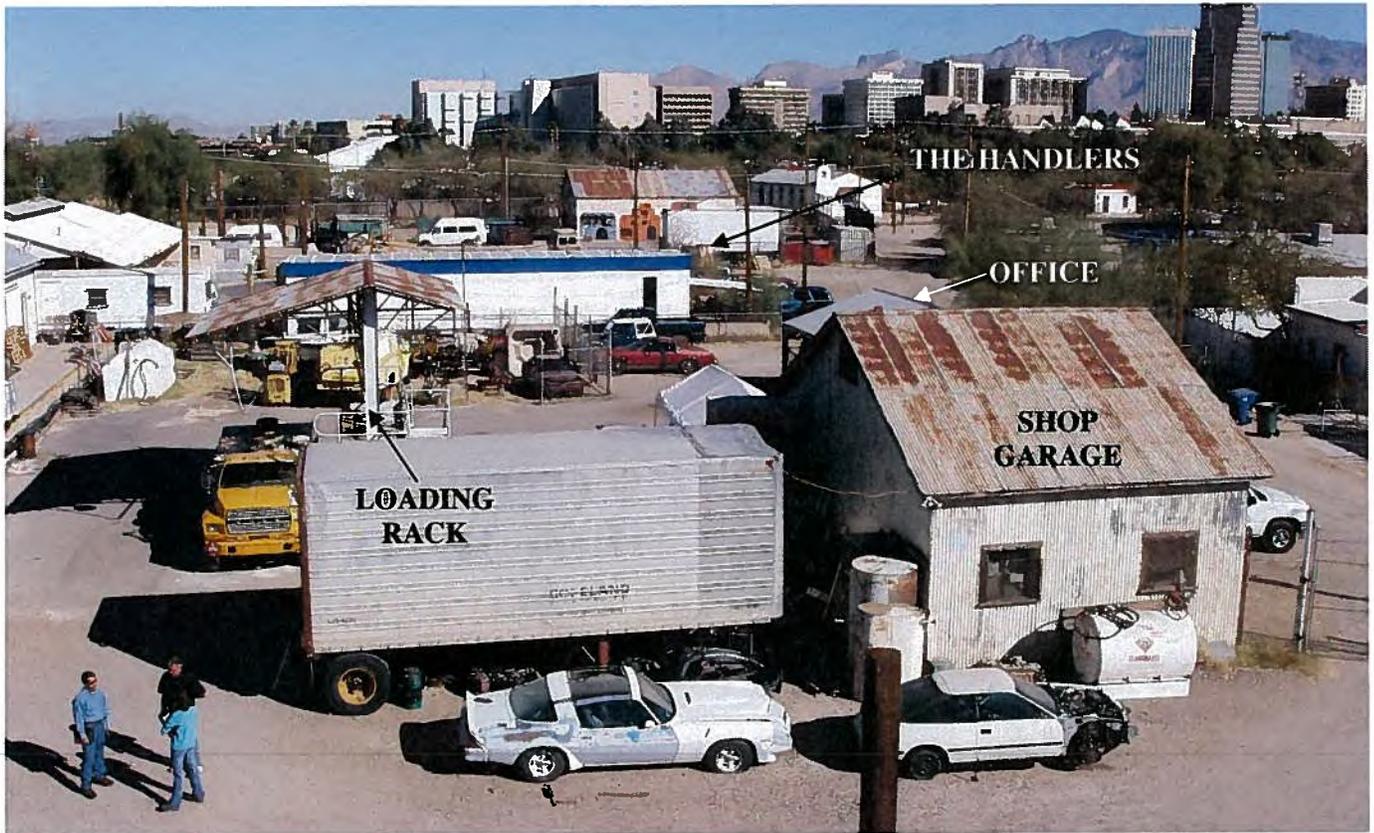
Source: City of Tucson Department of Transportation web site, 2005

Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

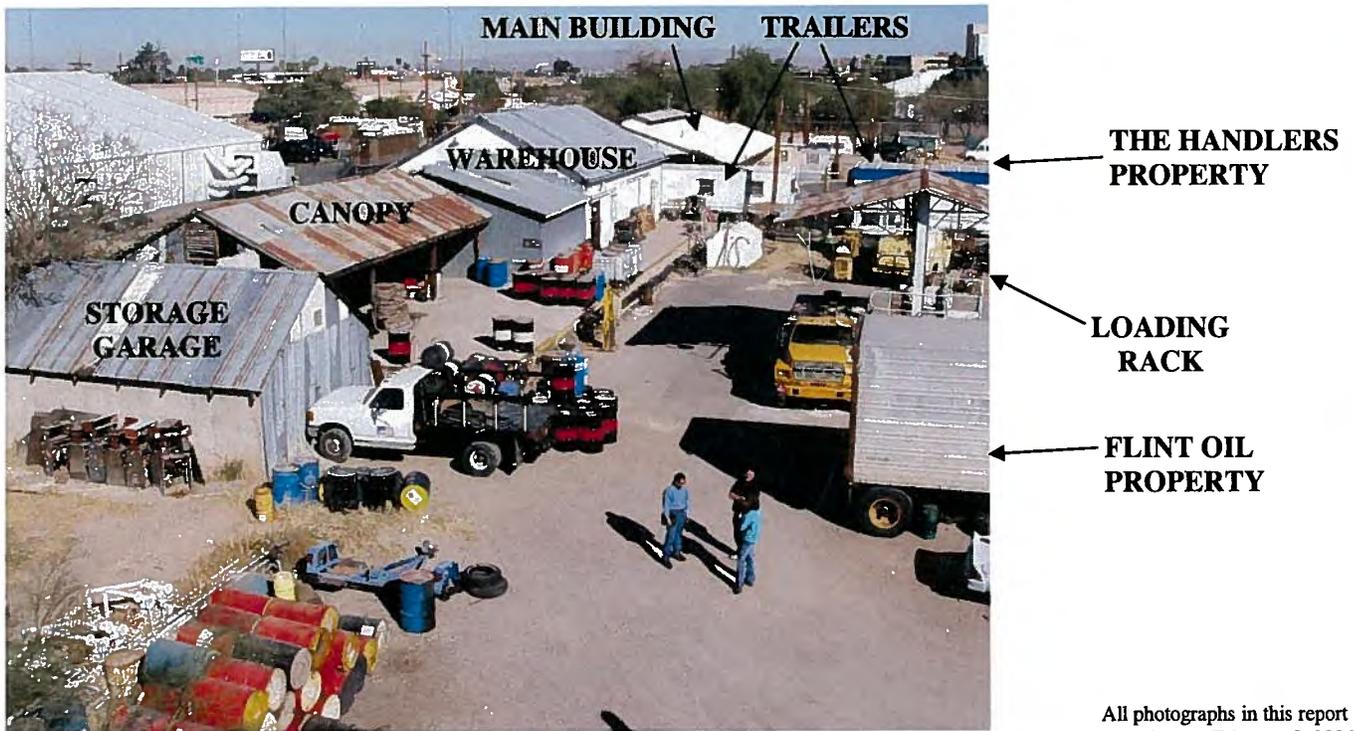


SCS ENGINEERS "Superior Customer Service"	<i>Current and Historic Facility Locations Map</i> Phase I Environmental Site Assessment Flint Oil Property 500 (511 and 527) West Simpson Street Tucson, Arizona	Project Number 10.204058.08
		Figure 5

APPENDIX C
PHOTOGRAPHS



1 and 2. Views of the site showing the northern portion of the Flint Oil property and The Handlers property to the north; views to the north and northwest.



All photographs in this report were taken on February 8, 2006.

SCS ENGINEERS

"Superior Customer Service"

Site and Adjoining Properties Photographs
 Phase I Environmental Site Assessment
 Flint Oil Property
 500 (511 and 527) West Simpson Street
 Tucson, Arizona

Project Number:
 10.204058.08

Page 1



3. Driveway into The Handlers property on the northern portion of the site; view to the west.



4. The main building and northern trailer on The Handlers property; view to the northwest.



5. Former concrete AST pads under the trailer and the containment wall in the southern portion of The Handlers property; view to the east.



6. Former concrete AST pads and containment wall in the southeast portion of The Handlers property; view to the southeast.



7. Driveway and concrete drainage channel along the east side of the site; view to the northeast.



8. Driveway and entrance to the Flint Oil property on the central portion of the site; view to the southwest.



9. Vehicle and equipment storage area on the north portion of the Flint Oil property; view to the north.



10. Empty new oil AST east of the warehouse on the north portion of the Flint Oil property; view to the northwest.



11. Pump equipment for the former new oil USTs east of the warehouse; view to the northwest.



12. Three new oil ASTs east of the warehouse; view to the northwest.



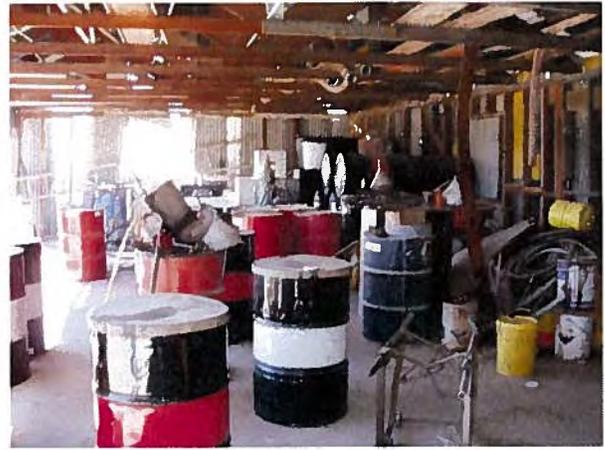
13. Stored materials inside the warehouse on the west side of the Flint Oil property.



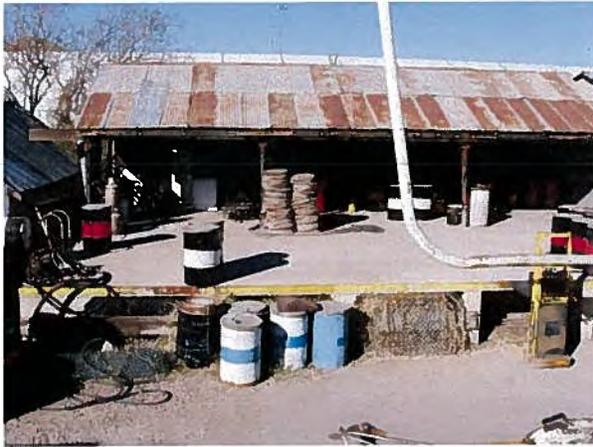
14. Stored materials inside the warehouse on the west side of the Flint Oil property.



15. Materials stored in the warehouse addition on the west side of the Flint Oil property.



16. Drums and other materials stored under the warehouse canopy on the west side of the Flint Oil property; view to the south.



17. Drums stored east of the elevated platform and warehouse canopy; view to the west.



18. Drums stored at the southeast corner of the elevated platform; view to the south.



19 and 20. Loading rack in the central portion of the Flint Oil property; used to dispensing product using hose dispensers and two fuel dispensers located at each end of the rack.



SCS ENGINEERS

"Superior Customer Service"

Site and Adjoining Properties Photographs
 Phase I Environmental Site Assessment
 Flint Oil Property
 500 (511 and 527) West Simpson Street
 Tucson, Arizona

Project Number:
 10.204058.08

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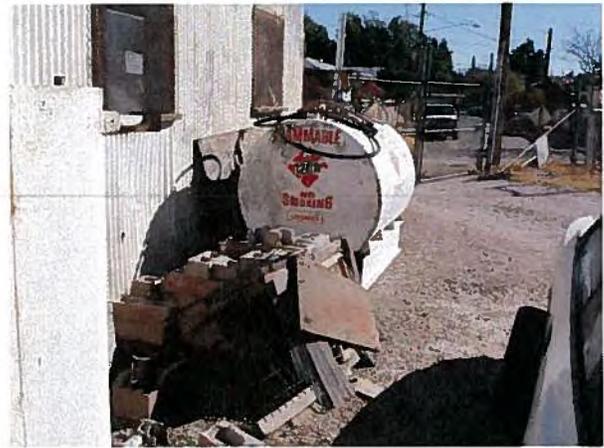
21. Concrete vault at the base of the loading rack showing below grade piping from the ASTs.



22. Old vehicles, truck trailer, and stored equipment west of the shop garage; view to the east.



23. Batteries, drums, and other materials stored under the truck trailer, southwest of the shop garage; view to the northwest.



24. Gasoline AST south of the shop garage; view to the east.



25. Hydraulic lift, parts washer, parts, tools, and equipment inside the shop garage; view to the south.



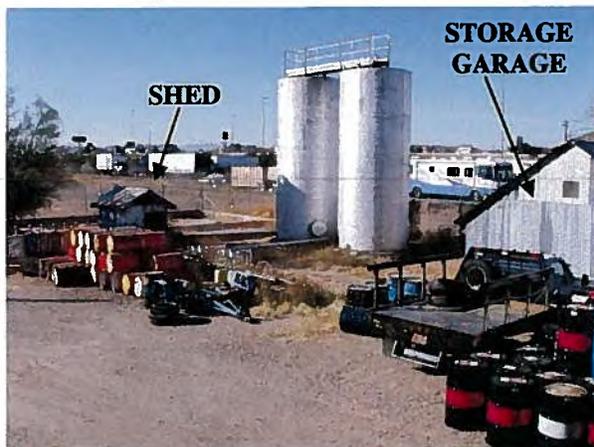
26. Interior of the shop garage; view to the southwest.



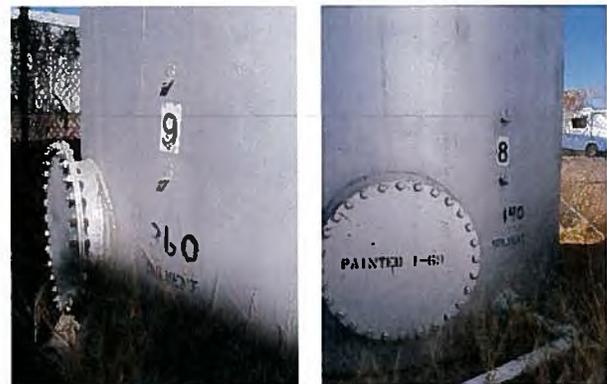
27. Materials stored in the storage garage south of the elevated platform on the west side of the Flint Oil property; view to the west.



28. Hole in the floor of the storage garage, possibly a former hydraulic lift location.



29. Two former solvent ASTs and drum storage areas in the southwest portion of the Flint Oil property; view to the southwest.



30 and 31. The two former solvent ASTs in the southwest portion of the Flint Oil property.



32. Concrete pads for three former ASTs in the southwest portion of the Flint Oil property; view to the east.



33. Five ASTs on the southern portion of the Flint Oil property; view to the west.



34. Fill pipes for the five ASTs on the southern portion of the Flint Oil property; view to the south.



35. Pumps for ASTs in the southern portion of the Flint Oil property; view to the southwest.



36. Piping north of the ASTs on the southern portion of the Flint Oil property.



37. Vacant portion of the site south of the Flint Oil property; view to the north.



38. Driveway in the northeast portion of the site and adjacent Simpson Street and San Cosme church or chapel north of the site; view to the northeast.



39. Vacant lot and parked vehicles east of the northern portion of the site; view to the northeast.



40. Empty ASTs on the eastern portion of the site, the site driveway, and the residential neighborhood east of the site; view to the northeast.



41. The vacant southern portion of the site and the neighborhood east of the site; view to the northeast.



42. The vacant southern portion of the site and the adjoining 17th Street and City of Tucson property to the south; view to the south.



43. Former railroad easement and a parking lot southwest of the site; view to the southwest.



44. Former railroad easement and temporary gem and mineral show tent west of the site; view to the northwest.



45. The site and the portion of The Handlers property located north of the site; view to the northeast.

APPENDIX B

SCS ENGINEERS

May 21, 2008
File No. 10204058.18

Mr. David Barraza
City of Tucson Environmental Services
100 North Stone Avenue, 2nd Floor
Tucson, Arizona 85701

Subject: Surface Soil Sampling Report
Former Flint Oil Property
500 West Simpson Street
Tucson, Arizona

Dear Mr. Barraza:

SCS Engineers (SCS) is pleased to submit this letter report summarizing the results of surface soil sampling performed at the former Flint Oil property located at 500 West Simpson Street in Tucson, Arizona. Former bulk distributors of fuel, oil, and associated products businesses operated on the site from about 1925 to 2007. The purpose of the sampling was to investigate the nature and extent of potential impacts to surface soil associated with areas of observed staining, former drum storage areas, former fuel or other product fill or dispenser locations, vehicle maintenance garages, areas adjacent to the warehouse platform, runoff areas, and locations of aboveground storage tanks (ASTs) and associated equipment. At the time of the sampling investigation, the site was no longer occupied and the ASTs and other equipment had been removed from the site. A Site Location Map and Sample Location Map are provided as Figures 1 and 2 in Attachment 1 and site photographs are included in Attachment 2.

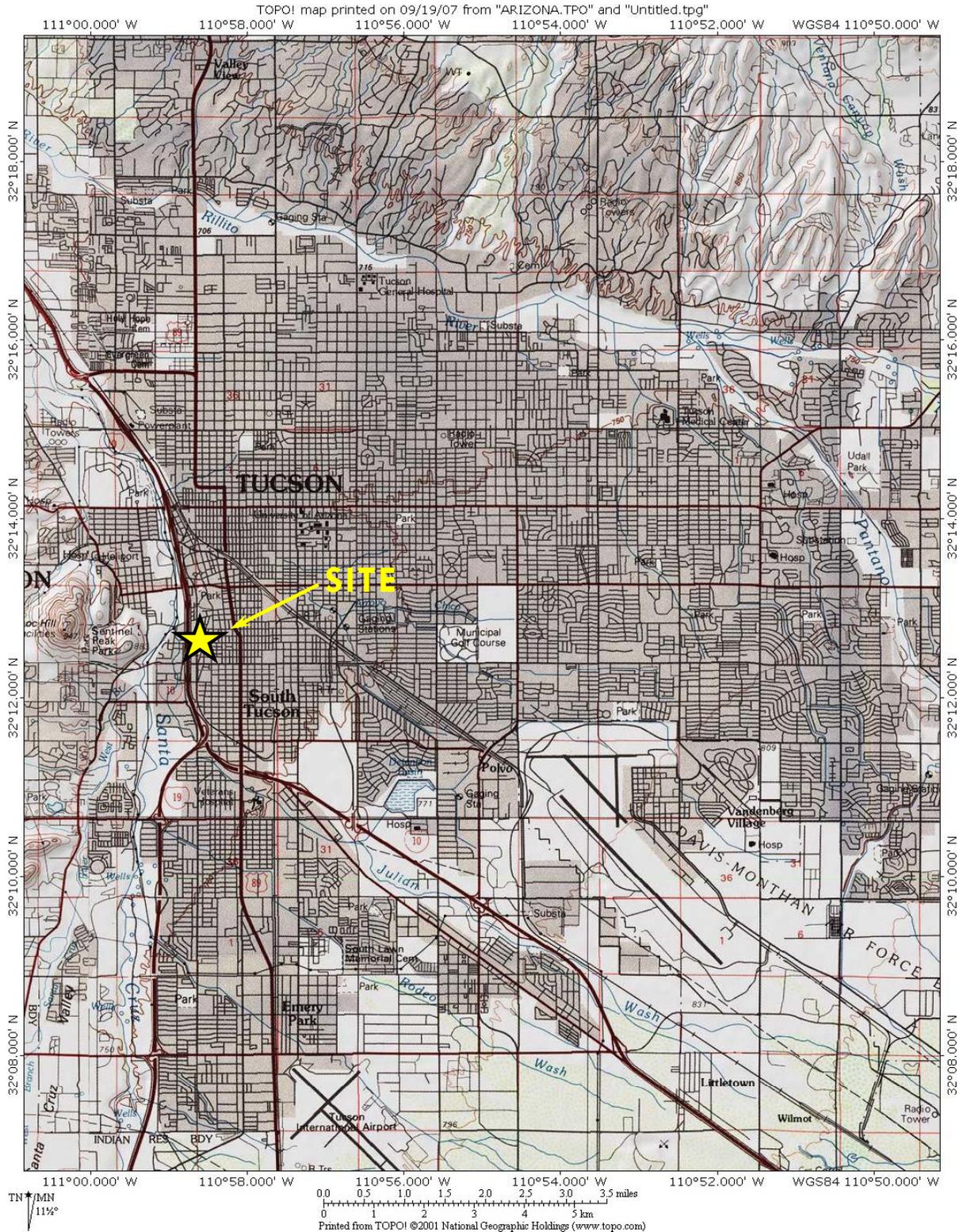
SOIL SAMPLING METHODOLOGY

Ms. Patricia Hartshorne, RG marked the locations for sample collection on the site based on field observations of staining or other visible impacts and knowledge of previous areas of hazardous material storage at the site. Ms. Hartshorne and Mr. Stephen James of SCS collected soil samples on the site on February 5, 2008. A description of the sample locations is provided below.

Sample Location Descriptions

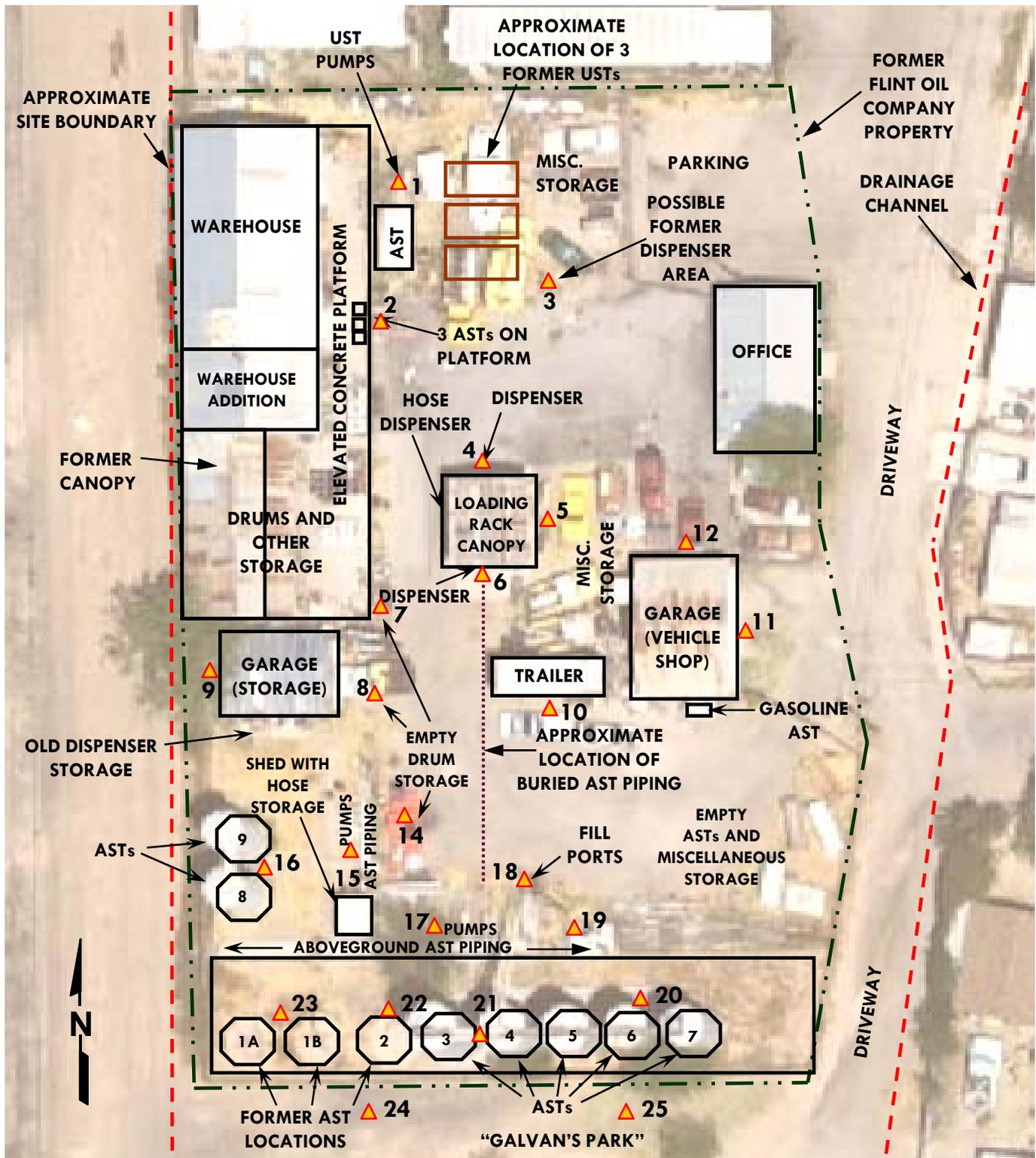
Sample ID	Description
FL-1-S	Former UST pump area
FL-2-S	Stained area at former ASTs location adjacent to elevated concrete platform
FL-3-S	Possible former dispenser area
FL-4-S	Excavation at former dispenser location north of loading rack (5 feet below ground surface)
FL-5-S	East of former loading rack
FL-6-S	Excavation at former dispenser location south of loading rack (5 feet below ground surface)
FL-7-S	Former drum storage area at southeast corner of elevated platform





Source: TOPO! Map printed from "ARIZONA.TPO"

Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

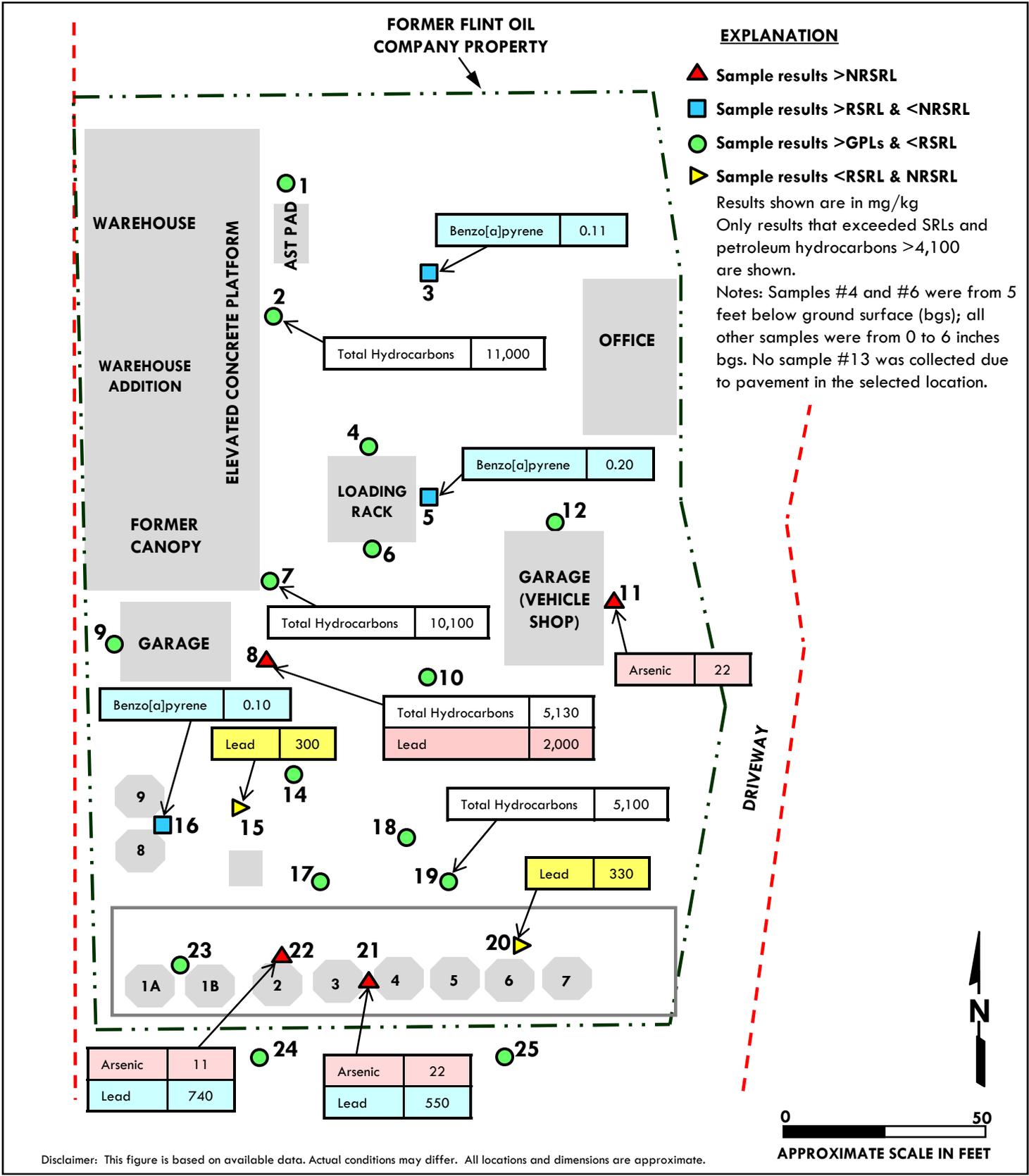


21 ▲ Surface Soil Sample Location

Source: City of Tucson Department of Transportation web site, 2005

Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.





Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

ATTACHMENT 2
PHOTOGRAPHS



Area east of the site warehouse in the general area of Sample locations #1, 2, and 3; view to the west.



Former loading rack location. Samples #4 and 6 were collected from excavations at former dispenser locations north and south of the structure and Sample #5 was collected from surface soil east of the structure; view to the southwest.



Location of Sample #7 at the southeast corner of the elevated concrete platform; view to the northwest.



Locations of Samples #8 and 9 east and west of the former storage garage; view to the northwest.



Locations of Samples #10, 11, and 12 southwest, north, and east of the vehicle maintenance garage; view to the east.



Location of Sample #14 in former drum storage area; view to the north.



Location of Sample #15 in former AST pump and piping area, view to the north.



Location of Sample #16 between former solvent ASTs; view to the west.



Location of Sample #17 in former AST pump and piping area; view to the west.



Location of Sample #18 in the former AST fill ports area; view to the south.



Location of Sample #19 in the former AST area; view to the south.



Location of Sample #20 in the former fuel AST area; view to the south.



Location of Sample #21 between former fuel ASTs; view to the south.



Location of Sample #22 in former fuel ASTs area; view to the southwest.



Location of Sample #23 in former fuel ASTs area; view to the southwest.



Location of Samples #24 and 25 in "Galvan's Park" area south of AST containment; view to the east.

TABLE 1. SUMMARY OF SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH	HYDROCARBONS (8015AZ)				PAH (8310)							METALS (6010B/7471A)						
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	Benzo[a] pyrene	Benzo[b] fluoranthene	Benzo[g,h,i] perylene	Chrysene	Fluor-anthene	Indeno[1,2,3-cd]pyrene	Pyrene	As	Ba	Cd	Cr ¹	Cr ²	Pb	Hg
FL-1-S	2/5/08	S	24	220	1,400	1,620	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	7.0	91	1.7	7.5	NA	27	<0.083
FL-2-S	2/5/08	S	<200	1100	9,900	11,000	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	<5.0	110	2.2	11	NA	61	<0.083
FL-3-S	2/5/08	S	<20	80	180	260	0.11	<0.40	<0.40	<0.40	<0.40	0.50	<0.40	<5.0	49	<1.0	<5.0	NA	32	<0.083
FL-4-S	2/5/08	5 ft	<20	<30	<100	<130	<0.010	<0.040	<0.040	<0.040	<0.040	<0.020	<0.040	5.7	110	<1.0	9.1	NA	38	<0.083
FL-5-S	2/5/08	S	<20	41	160	201	0.20	0.22	0.20	<0.20	0.32	0.29	0.39	5.3	97	<1.0	7.0	NA	53	<0.083
FL-6-S	2/5/08	5 ft	<20	140	<100	140	<0.010	<0.040	<0.040	<0.040	<0.040	<0.020	<0.040	7.1	130	<1.0	7.4	NA	12	<0.083
FL-7-S	2/5/08	S	<200	1,100	9,000	10,100	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.9	100	1.3	14	NA	200	<0.083
FL-8-S	2/5/08	S	<100	530	4,600	5,130	0.056	<0.080	0.12	<0.080	<0.080	0.11	<0.080	5.8	190	2.5	15	NA	2,000	<0.083
FL-9-S	2/5/08	S	<100	<150	<500	<650	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	6.5	130	1.5	11	NA	70	<0.083
FL-10-S	2/5/08	S	<100	<150	<500	<650	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.3	120	<1.0	13	NA	110	0.16
FL-11-S	2/5/08	S	<100	<150	<500	<650	<0.050	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	22	98	<1.0	34	<0.50	180	0.41
FL-12-S	2/5/08	S	<200	<300	1,400	1,400	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.9	92	1.6	8.5	NA	210	9.9
FL-14-S	2/5/08	S	<200	<300	<1000	<1300	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	<5.0	78	<1.0	5.7	NA	100	<0.083
FL-15-S	2/5/08	S	<20	250	<100	250	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	7.8	130	2.7	25	NA	300	<0.083
FL-16-S	2/5/08	S	<20	<30	<100	<130	0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	6.7	130	1.5	11	NA	230	0.11
FL-17-S	2/5/08	S	<20	460	780	1,240	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	5.4	130	1.5	8.8	NA	210	<0.083
FL-18-S	2/5/08	S	<20	300	350	650	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	<5.0	84	<1.0	5.2	NA	91	<0.083
FL-19-S	2/5/08	S	<20	3,300	1,800	5,100	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.6	89	<1.0	5.5	NA	55	<0.083
FL-20-S	2/5/08	S	<20	46	140	186	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	8.7	180	1.6	14	NA	330	0.15
FL-21-S	2/5/08	S	<20	64	<100	<130	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	22	130	1.2	12	NA	550	<0.083
FL-22-S	2/5/08	S	<20	50	<100	<130	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	11	190	1.2	22	NA	740	<0.083
FL-23-S	2/5/08	S	<20	<30	<100	<130	0.010	<0.040	<0.040	<0.040	<0.040	0.029	<0.040	8.2	170	<1.0	11	NA	120	0.10
FL-24-S	2/5/08	S	<20	61	<100	<130	0.027	0.040	<0.040	<0.040	<0.040	0.043	0.066	6.2	85	<1.0	8.5	NA	130	<0.083
FL-25-S	2/5/08	S	<100	<150	<500	<650	0.060	0.079	0.077	0.056	0.061	0.10	0.050	6.7	150	1.0	11	NA	74	<0.083
RSRL (10 ⁻⁶ Risk)			none	none	none	none	0.069	0.69	none	68	none	0.69	none	10	none	none	none	30	none	none
RSRL (10 ⁻³ Risk)			none	none	none	none	0.69	6.9	none	680	none	6.9	none	10	none	none	none	none	none	none
RSRL (Non-carcinogen)			none	none	none	none	none	none	none	2,300	none	2,300	10	15,000	39	none	none	400	23	
NRSRL			none	none	none	none	2.1	21	none	2,000	22,000	21	29,000	10	170,000	510	none	65	800	310
GPL			none	none	none	none	none	none	none	none	none	none	none	290	12,000	29	590	none	290	12

Notes: Only compounds with detected concentrations are shown
 All sample results are in milligrams per kilogram (mg/kg)
 NA = Not analyzed
 FL-1, FL-2, etc. in the Sample ID denotes the sample location number and the -S or -5 denotes the sample depth (surface or five feet).
 C10-C22 DRO = Carbon range of diesel fuel petroleum hydrocarbons
 C22-C32 DRO = Carbon range of oil petroleum hydrocarbons
 C10-C32 SRL = Carbon range of former Arizona Soil Remediation Level for petroleum hydrocarbons
 PAH = Polynuclear Aromatic Hydrocarbons
 RSRL = Residential Soil Remediation Level
 NRSRL = Non-Residential Soil Remediation Level
 GPL = Groundwater Protection Level
 none = There is no Arizona SRL or GPL for this compound
 Highlighted sample results exceed the RSRLs or NRSRLs
 There is no sample #13 because the selected location was surfaced with pavement.

As = Arsenic
 Ba = Barium
 Cd = Cadmium
 Cr¹ = Total Chromium
 Cr² = Chromium VI
 Pb = Lead
 Hg = Mercury

Sample Location Descriptions

Sample ID	Description
FL-8-S	Former drum storage area east of the storage garage
FL-9-S	Adjacent to west side of the storage garage where drainage from the garage would flow
FL-10-S	Former material storage area southwest of the vehicle maintenance garage
FL-11-S	Adjacent to the east side of the maintenance garage where drainage from the garage would flow
FL-12-S	Adjacent to the north side of the maintenance garage
FL-14-S	Adjacent to west side of concrete pad south of shop building, dried paint residues
FL-15-S	Solvent AST piping and pump area east of ASTs #8 and 9
FL-16-S	East of former solvent ASTs #8 and 9
FL-17-S	Fuel AST pump and piping area near former leaking pump
FL-18-S	North of fuel AST fill ports
FL-19-S	North of fuel ASTs containment wall
FL-20-S	North of fuel AST #6
FL-21-S	Between fuel ASTs #3 and 4
FL-22-S	North of AST #2
FL-23-S	North of ASTs #1A and 1B
FL-24-S	South of fuel AST containment area in "Galvan's Park"
FL-25-S	South of fuel AST containment area in "Galvan's Park"

A total of 24 grab soil samples were collected directly into clean decontaminated brass sampling sleeves and sealed with Teflon™, aluminum foil, and plastic end caps. Each sample was labeled with a unique identification code indicating the type of sample and location number. The sample was then placed into a sample cooler with ice pending delivery to the laboratory. All but two of the samples were collected from surface soil (up to 6 inches deep); samples FL-4-5 and FL-6-5 were collected from existing excavations located at the former locations of dispensers at the north and south sides of the former loading rack.

LABORATORY ANALYSES

The collected samples were transported to Transwest Geochem, Inc. (TGI) for analysis. The laboratory is certified under Arizona Department of Health Services (ADHS) laboratory license number AZ0133/AZ0667. Chain of custody documentation was maintained.

Samples were analyzed for petroleum hydrocarbons (C₁₀-C₃₂) using ADHS Method 8015AZ, volatile organic compounds (VOCs) using EPA Method 8260B, semi-volatile organic compounds (SVOCs) using EPA Method 8270C, polynuclear aromatic hydrocarbons (PAHs) using EPA Method 8310, and eight RCRA metals using EPA Methods 6010B/7471A. The samples to be analyzed for VOCs were extracted within 72 hours of collection.

RESULTS AND CONCLUSIONS

Compounds detected in the samples included hydrocarbons; the PAHs benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, chrysene, fluoranthene, indeno[1,2,3-cd]pyrene, and pyrene; and the metals arsenic, barium, cadmium, chromium, lead, and mercury. VOCs and SVOCs were not detected at concentrations exceeding the laboratory reporting limits in the soil samples.

Seven of the samples had concentrations of chemicals that exceeded the current Arizona Residential Soil Remediation Levels (RSRLs) or Non-Residential Soil Remediation Levels (NRSRLs). The RSRLs were exceeded in three of the samples for benzo[a]pyrene, in two of the samples for lead, and in three of the samples for arsenic. The NRSRLs were exceeded in one of the samples for lead and in three of the samples for arsenic (Note: the RSRL and NRSRL for arsenic are the same concentration). In addition, two samples exceeded the groundwater protection limit (GPL) for lead.

Figure 3 in Attachment 1 shows the sample locations and results. Table 1 in Attachment 3 provides a detailed summary of the laboratory analytical results. The complete laboratory reports are included in Attachment 4.

RECOMMENDATIONS

Based on the above results, SCS recommends collection of an additional 24 surface soil samples to better define the lateral extent of chemical concentrations that exceed the RSRLs, NRSRLs, and GPLs; the proposed sample locations are shown on Figure 4 in Attachment 1. Once the lateral extent is defined, SCS recommends collection of approximately seven shallow sub-surface soil samples (1 to 2 feet below grade) at the surface soil locations with the highest concentrations of chemicals in order to define the vertical extent of contamination.

CLOSING

SCS Engineers appreciates the opportunity to assist you with this project. Should you have any questions regarding this report, please contact Ms. Hartshorne at (520) 696-1617.

Sincerely,

Patricia M. Hartshorne, RG
Senior Project Geologist

David F. Laney, CHMM
Manager of Environmental Services
SCS ENGINEERS

APPENDIX C



Soil Sampling Report

**Former Flint Oil Property
500 West Simpson Street
Tucson, Arizona**

Presented to:

**City of Tucson
Environmental Services**
100 North Stone Avenue, 2nd Floor
Tucson, AZ 85701
(520) 791-5414

Presented by:

SCS Engineers
2410 West Ruthrauff Road, Suite 110
Tucson, Arizona 85705
(520) 696-1617

January 29, 2009
File No. 10204058.18

Offices Nationwide
www.scsengineers.com



7 CONCLUSIONS

DISTRIBUTION OF SITE CONTAMINATION

The distribution of contamination on the site is described below.

- **Arsenic** – Surface soil samples containing arsenic above the RSRL and NRSRL extend through most of the area containing the former ASTs along the south portion of the site, an area northwest of the shop garage, and an area adjoining the shop garage to the northeast and east. Within the AST area on the south portion of the site were two locations that also exceeded the RSRL and NRSRL in subsurface samples at 0.5 foot bgs, and one of these locations also exceeded the RSRL and NRSRL at 1 foot bgs. An additional location north of the AST containment area exceeded the RSRL and NRSRL at 5 feet bgs. The extent of arsenic contamination is shown on Figures 5 and 6 in Appendix A.

The lateral extent of arsenic contamination is generally defined on the site, except for an area northwest of the shop garage and two locations where contamination may extend off the former Flint Oil property to the driveway to the east and the vacant area to the south.

The vertical extent of arsenic contamination was less than 1 foot bgs at one location, less than 2 feet bgs at one location, and less than 5 feet bgs at three locations. At one location, the surface sample concentration did not exceed SRLs, but contamination was located between 3 and 10 feet bgs. The vertical extent was not defined at seven locations where the surface soil sample concentrations exceeded SRLs and subsurface soil was not sampled; however, the vertical extent at these locations is not expected to extend deeper than 1 to 5 feet bgs.

- **Lead and Cadmium** – Surface soil samples containing lead above the RSRL and NRSRL were located northwest of the shop garage; adjoining the shop garage to the east and northeast; adjoining the storage garage to the north, east, and south; and in the former AST area on the south portion of the site. An area where cadmium exceeded the RSRL in surface soil adjoins the shop garage to the west. Lead and cadmium did not exceed SRLs in subsurface soil samples. The extent of lead and cadmium contamination is shown on Figure 7 in Appendix A.

The lateral extent of lead contamination is generally defined on the site, except for locations northeast and northwest of the shop garage, south and north of the storage garage, and one area north of the AST containment. The lateral extent of cadmium contamination is generally defined.

The vertical extent of lead contamination was less than 0.5 foot bgs at one location, less than 2 feet bgs at one location, and less than 5 feet bgs at five locations. The vertical extent was not defined at six locations where surface soil sample concentrations exceeded SRLs and subsurface soil was not sampled; however, the vertical extent at these locations is not expected to extend deeper than 0.5 to 5 feet

bgs. The vertical extent of cadmium contamination was not determined at the one location where it exceeded the RSRL, but is not expected to extend deeper than 0.5 to 5 feet bgs.

- **PAHs** – Surface soil samples containing PAHs above the 10^{-6} RSRL are located through the north-central portion of the site and in three locations in the south portion of the site. The 10^{-5} RSRL for benzo[a]pyrene was exceeded in two surface samples: one in the central portion of the site and one in the southeast portion of the site. One surface sample exceeded the NRSRL for benzo[a]pyrene in the north-central portion of the site.

Three locations had a subsurface sample that exceeded the 10^{-6} RSRL for PAHs, but the surface sample did not exceed SRLs: one sample in the north portion of the site from 5 feet bgs exceeded the 10^{-6} RSRL for benzo[a]pyrene and two samples in the south portion of the site from 15 feet bgs exceeded the 10^{-6} RSRL for benz[a]anthracene. The extent of PAH contamination is shown on Figures 8 and 9 in Appendix A.

The lateral extent of PAH contamination is defined in some areas on the site, but was not defined in the paved area in the central portion of the site, and in three areas where it may extend off the Flint Oil property to the north, south, and southeast.

The vertical extent of PAH contamination was less than 5 feet bgs at one location and less than 10 feet bgs at one location. The vertical extent was not defined at 11 locations where surface soil sample concentrations exceeded SRLs and subsurface soil was not sampled; however, the vertical extent at these locations is not expected to extend deeper than 5 feet bgs, and is likely shallower.

At a location in the north portion of the site, contamination was identified as occurring at 5 feet bgs, but not at the ground surface or at 15 feet bgs. At a location in the south portion of the site, contamination was identified at 15 feet bgs, but not at the ground surface or 5, 10, or 20 feet bgs. At another location in the south portion of the site, contamination was identified at 15 feet bgs, but not at the ground surface or 10 feet bgs; the vertical extent was not defined at this location, but is expected to be less than 20 feet bgs. At these three areas, the lateral extent of subsurface contamination may not be completely defined.

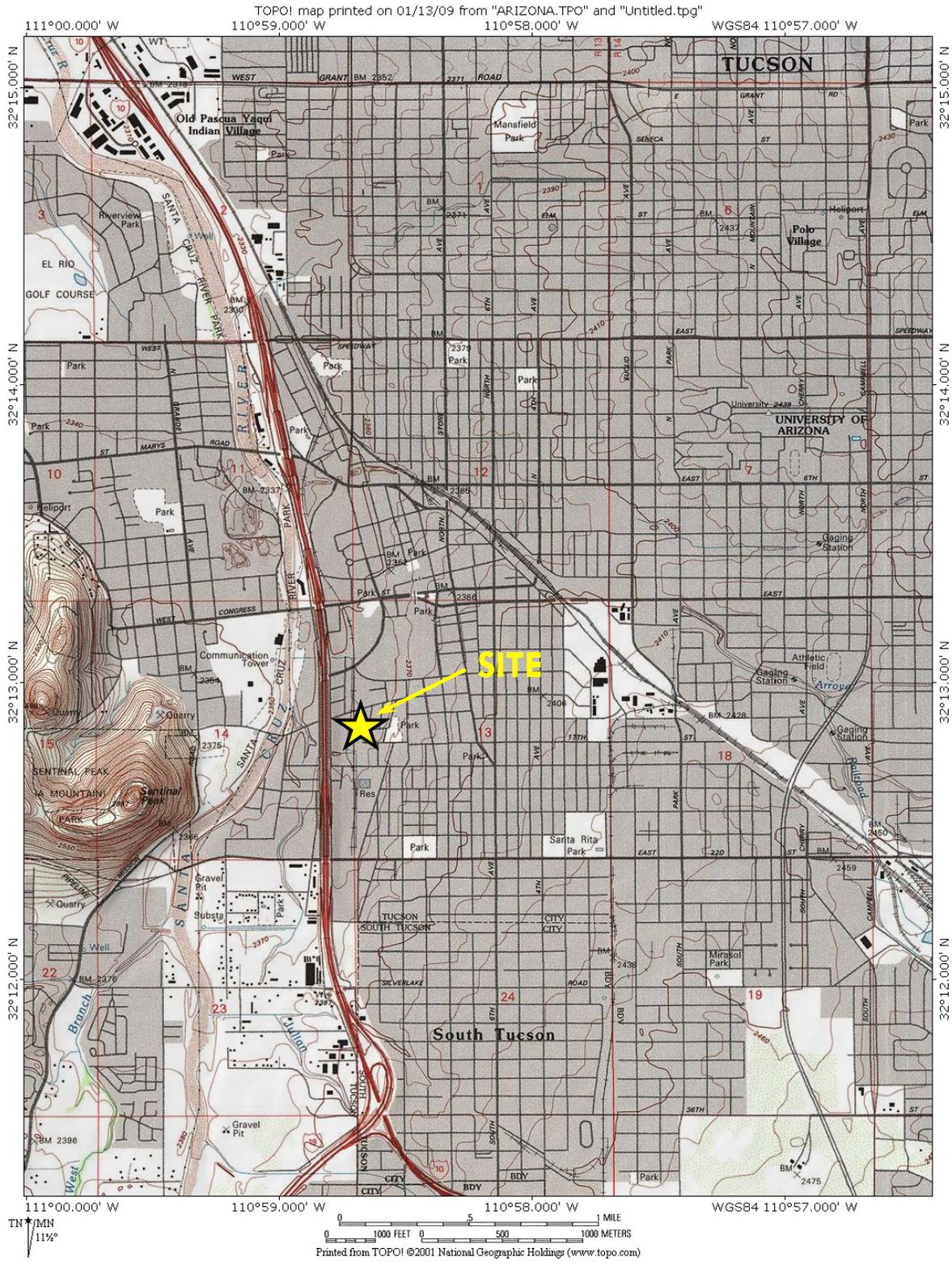
Based on the distribution of soil contamination on the site, contamination for the PAHs versus lead, arsenic, and cadmium generally occur in different portions of the site, with some overlap. The reason for this is likely due to use and storage of different types of materials in different portions of the site. In addition, although there was subsurface contamination by the PAH benz[a]anthracene at 15 feet bgs in two locations, only one surface sample contained this PAH above SRLs; it was not determined whether this location was related to the subsurface contamination.

8 RECOMMENDATIONS

The extent of contamination on the site has been generally defined, although there are areas that could be further refined by additional soil sampling. Some areas where the lateral extent of contamination has not been defined extend outside the former Flint Oil property. If COT requires additional soil sampling to be conducted on adjoining properties, SCS may require assistance obtaining access to these areas.

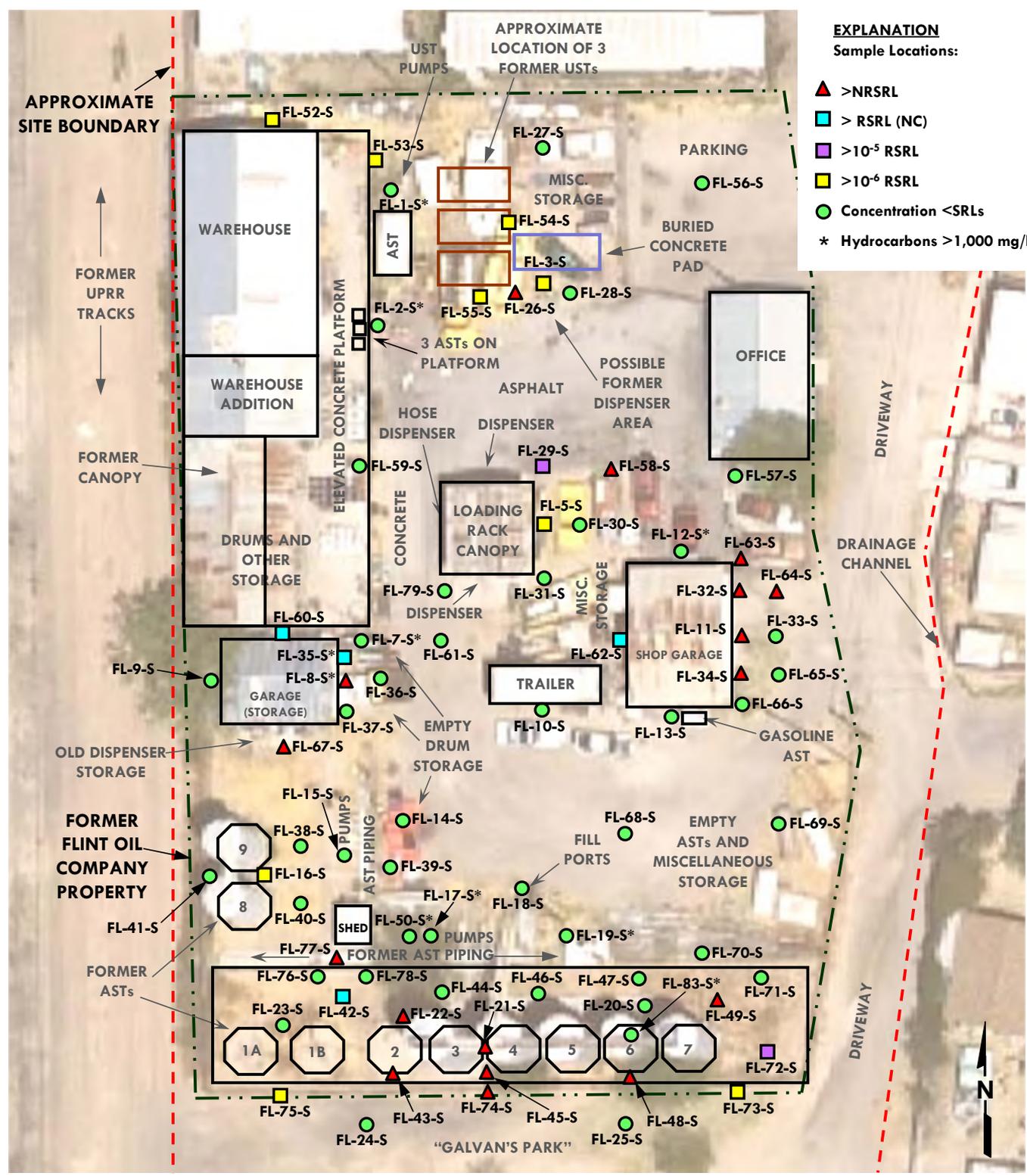
If additional samples are collected, they should be analyzed for PAHs, lead, cadmium, and arsenic.

Prior to any additional sampling or remediation performed on the site, the COT should determine which level of SRLs will be used as the target concentrations for contaminants of concern in order to determine where samples should be collected.



EXPLANATION
Sample Locations:

- ▲ >NRSRL
- > RSRL (NC)
- >10⁻⁵ RSRL
- >10⁻⁶ RSRL
- Concentration <SRLs
- * Hydrocarbons >1,000 mg/kg



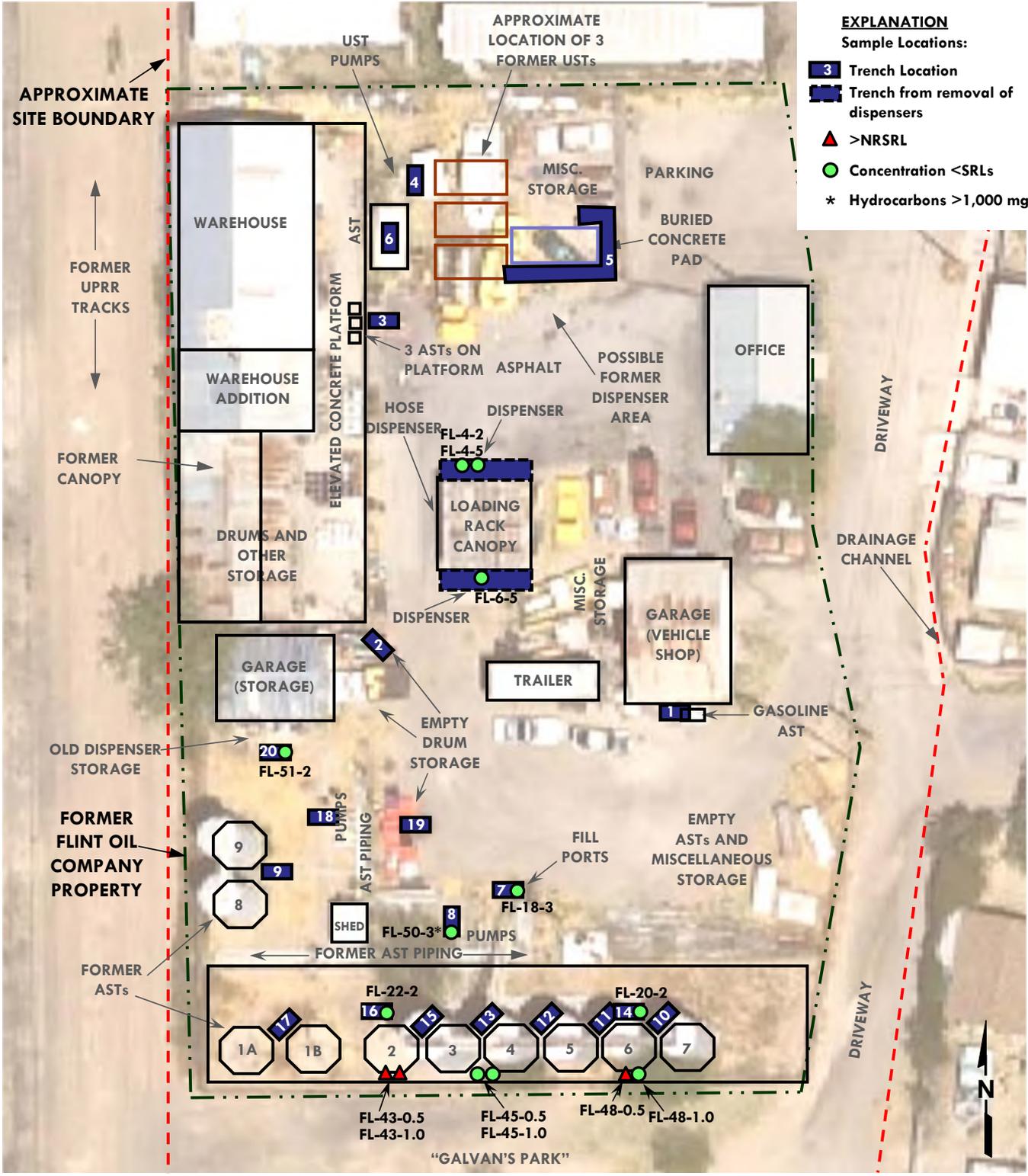
Source: City of Tucson Department of Transportation web site, 2005
 Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.



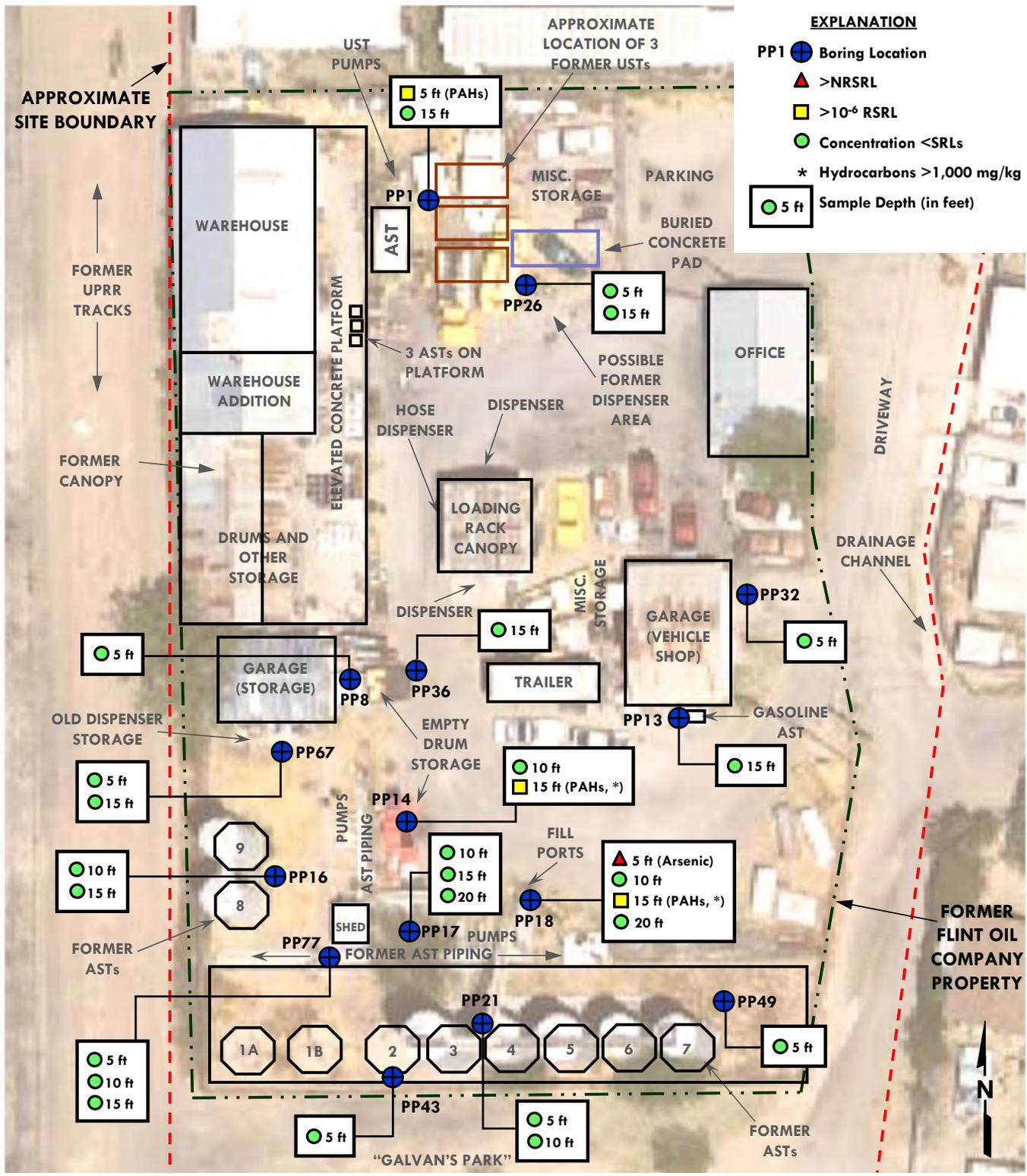
EXPLANATION

Sample Locations:

- 3 Trench Location
- 5 Trench from removal of dispensers
- ▲ >NRSRL
- Concentration <SRLs
- * Hydrocarbons >1,000 mg/kg

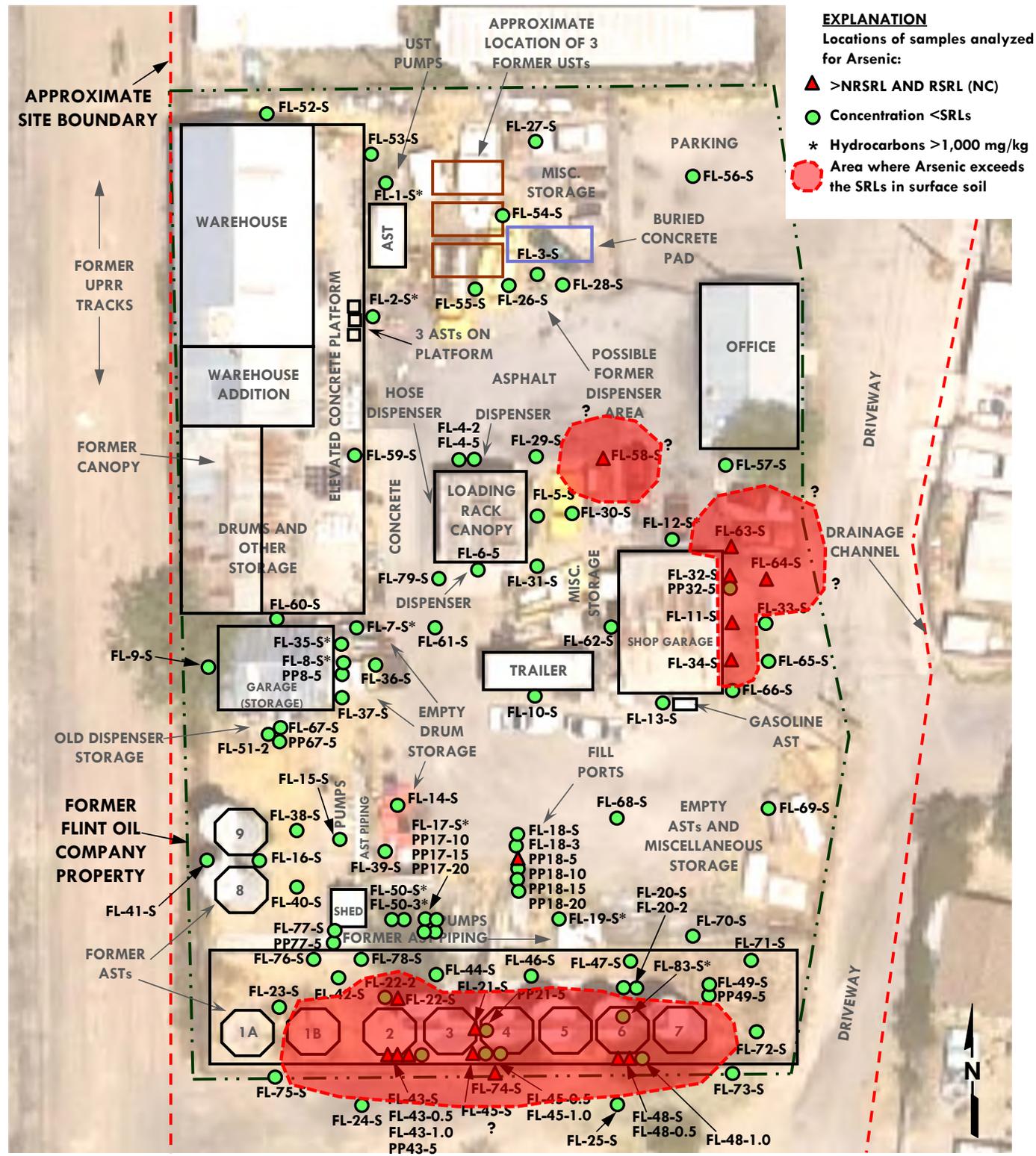


Source: City of Tucson Department of Transportation web site, 2005
 Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.



Source: City of Tucson Department of Transportation web site, 2005
 Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

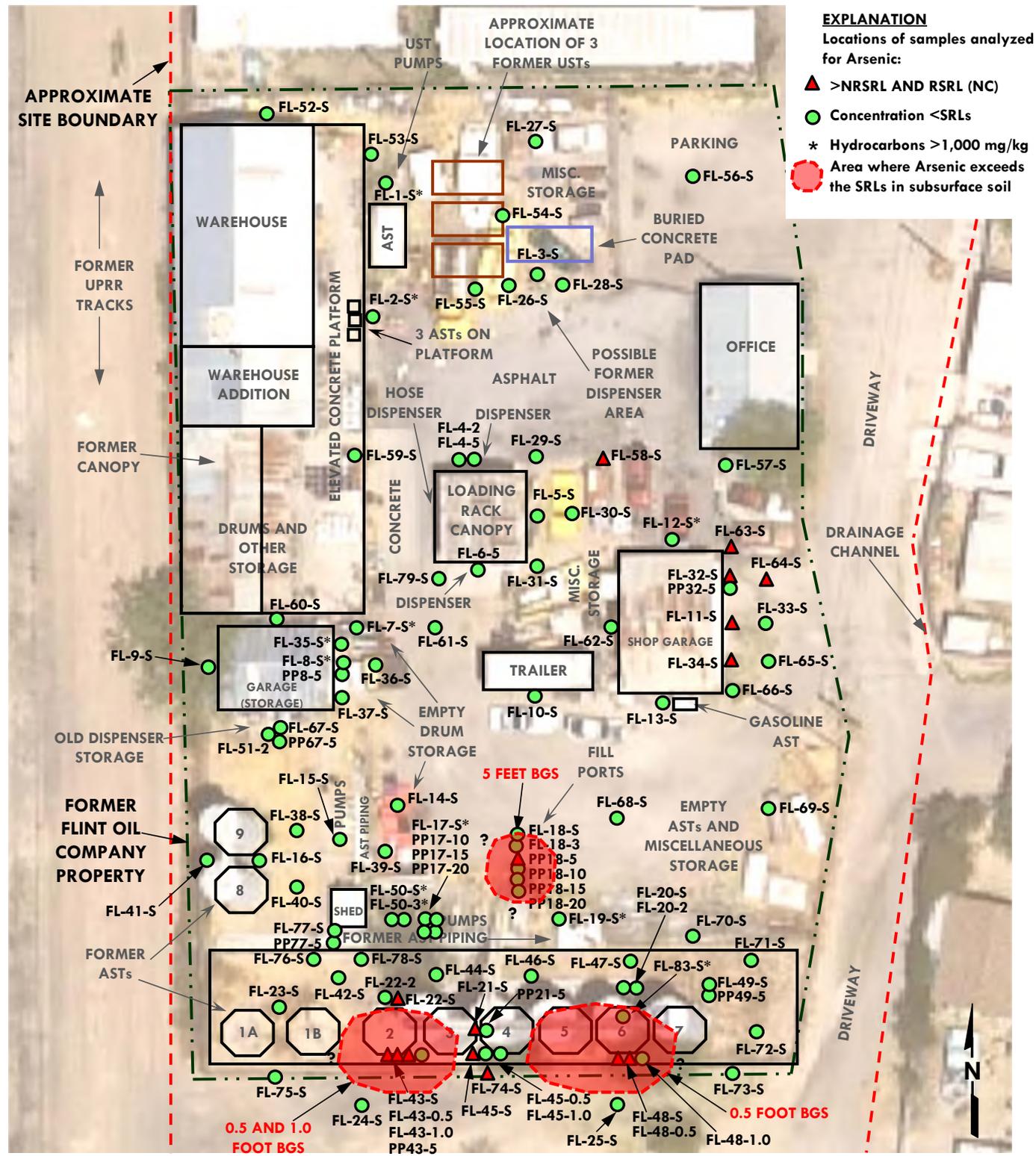




Source: City of Tucson Department of Transportation web site, 2005

Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

0 50
 APPROXIMATE SCALE IN FEET



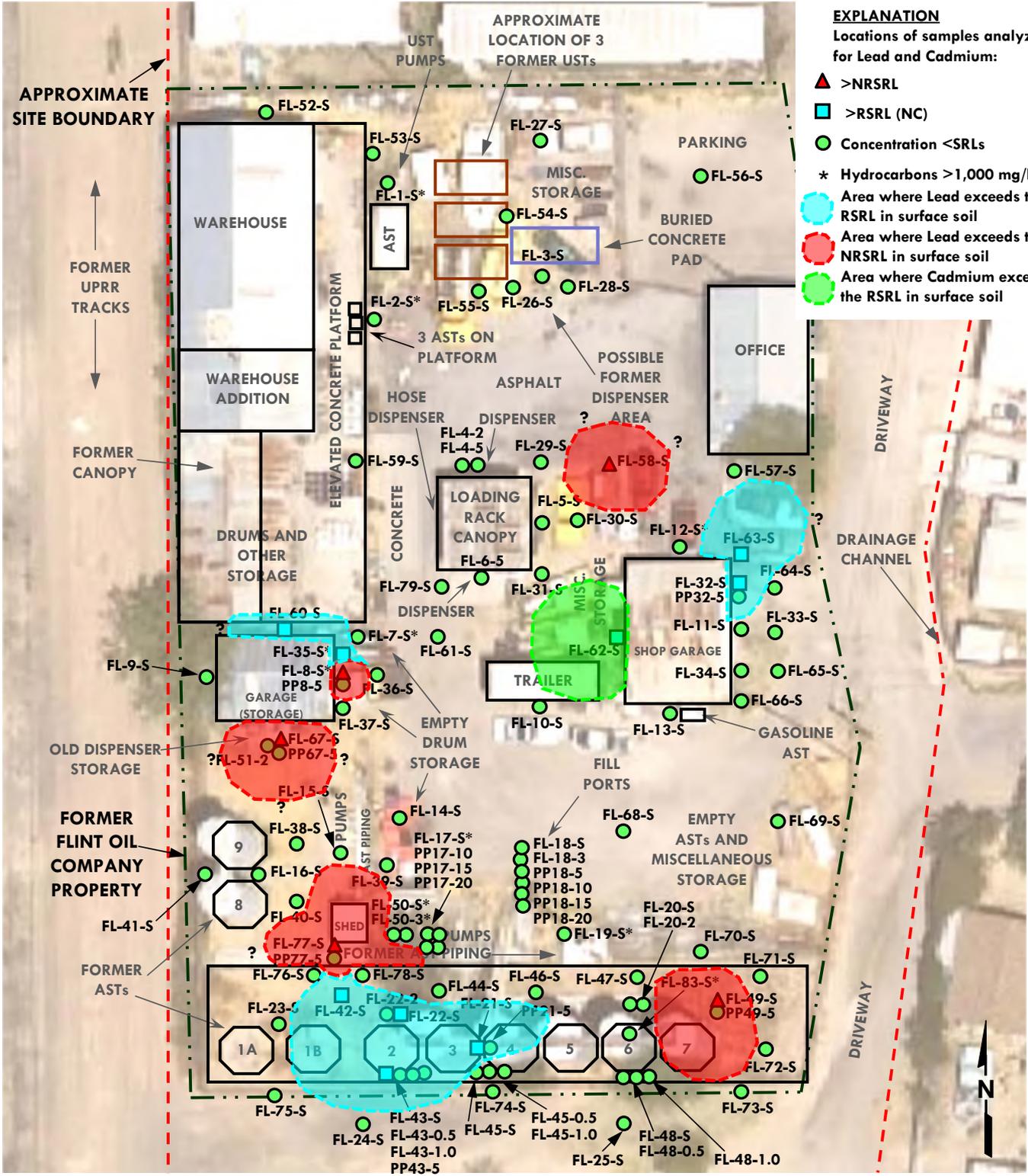
Source: City of Tucson Department of Transportation web site, 2005

Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

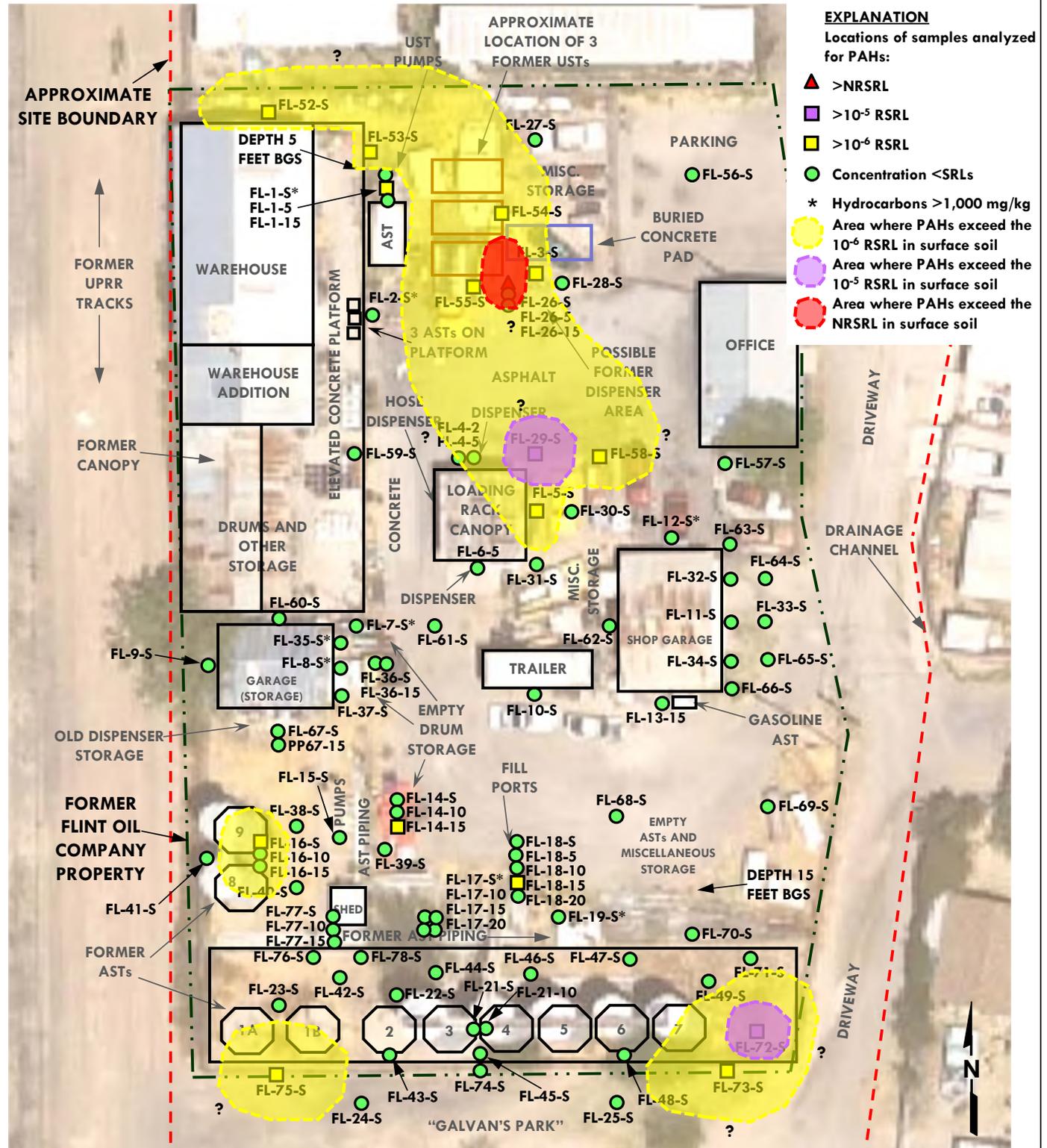
0 50
 APPROXIMATE SCALE IN FEET

EXPLANATION
Locations of samples analyzed for Lead and Cadmium:

- ▲ >NRSRL
- >RSRL (NC)
- Concentration <SRLs
- * Hydrocarbons >1,000 mg/kg
- Area where Lead exceeds the RSRL in surface soil
- Area where Lead exceeds the NRSRL in surface soil
- Area where Cadmium exceeds the RSRL in surface soil

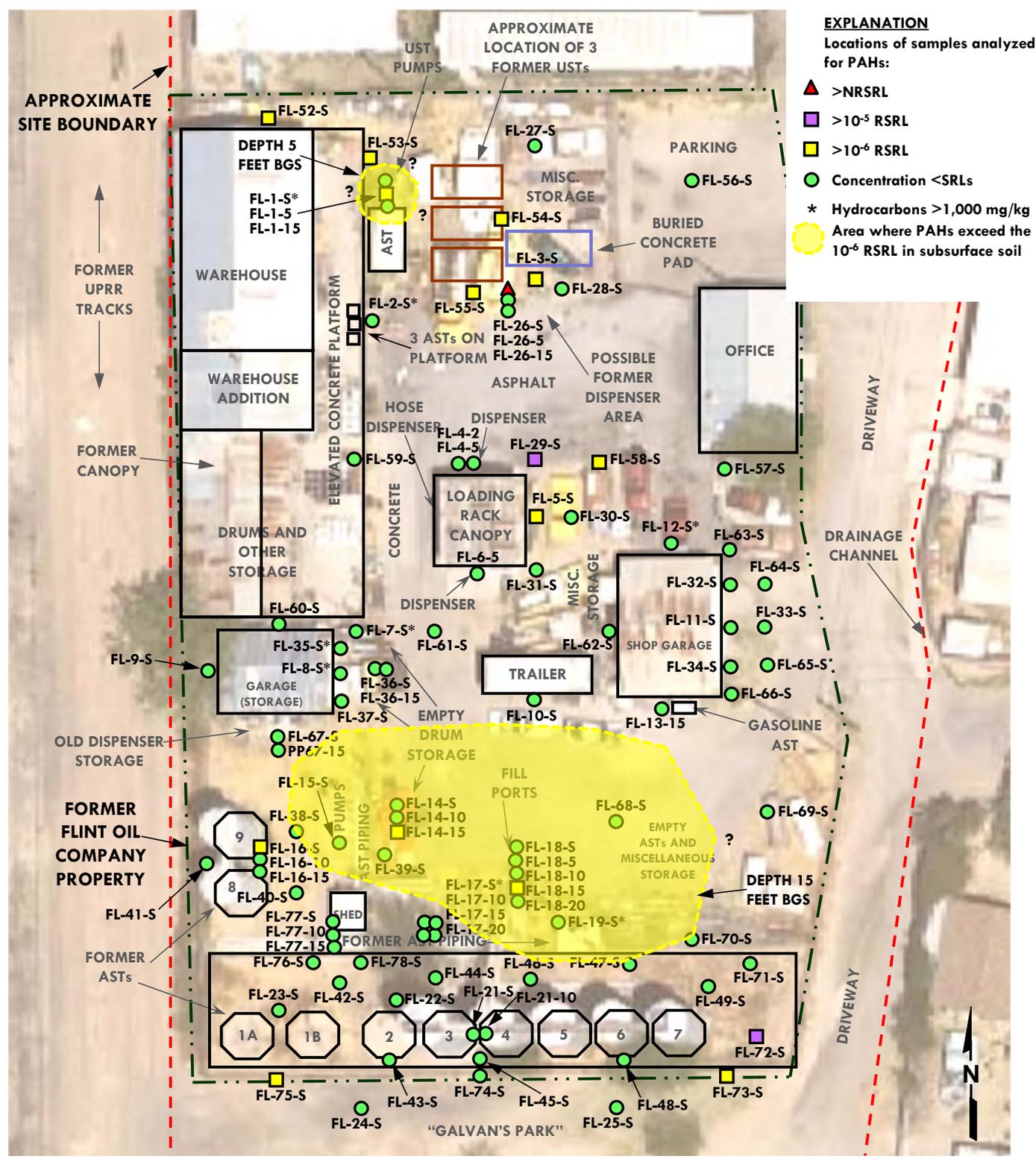


Source: City of Tucson Department of Transportation web site, 2005
Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.



Source: City of Tucson Department of Transportation web site, 2005
Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.

0 50
APPROXIMATE SCALE IN FEET



Source: City of Tucson Department of Transportation web site, 2005
 Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.



APPENDIX B
PHOTOGRAPHS



North portion of the site; the former warehouse is to the rear. View to the west.



Central portion of the site showing the former office, former shop garage, and former location of the loading rack canopy (from left to right). View to the south.



Former AST location (foreground) and former UST pumps concrete pad (rear). View to the north.



Former location of USTs in the north-central portion of the site. View to the north.



Former location of loading rack canopy; adjoining excavations to north and south were former dispenser locations. View to the southwest.



Former drum storage locations on and adjacent to the warehouse platform. View to the northwest.



Former storage garage south of the warehouse platform. View to the northwest.



Interior of the former shop garage. View to the south.



Former AST containment area on the south portion of the site. View to the west.



Area on the south portion of the site north of the AST containment area. View to the west.



Former location of ASTs in the southwest portion of the site. View to the west.



Area of site south of the AST containment area. View to the east.



Excavation at former AST location south of the shop garage (FL-13). View to the west.



Excavation at former drum storage area southeast of the warehouse platform (FL-51). View to the southwest



Excavation within the AST containment area. (trench #13). View to the northwest.



Excavation at a former leaking AST pump location north of the containment area (FL-50). View to the west.



Buried concrete pad found in the north portion of the site. View to the northwest.



Hand auger sample location at FL-43 in the south portion of the AST containment area.



Soil boring location PP77 north of the AST containment area. View to the southwest.



Soil boring location PP67 south of the storage garage. View to the northwest.

APPENDIX D

TABLES

TABLE 1. SUMMARY OF SURFACE SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)	
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flrnth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}	Pb			Hg
FL-1-S	2/5/08	surface	24	220	1,400	1,620	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	7.0	91	1.7	7.5	na	27	<0.083	ND	ND
FL-2-S	2/5/08	surface	<200	1,100	9,900	11,000	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	<5.0	110	2.2	11	na	61	<0.083	ND	ND
FL-3-S	2/5/08	surface	<20	80	180	260	<0.40	0.11	<0.40	<0.40	<0.40	<0.40	0.50	<0.40	<5.0	49	<1.0	<5.0	na	32	<0.083	ND	ND
FL-5-S	2/5/08	surface	<20	41	160	201	<0.20	0.20	0.22	0.20	<0.20	0.32	0.29	0.39	5.3	97	<1.0	7.0	na	53	<0.083	ND	ND
FL-7-S	2/5/08	surface	<200	1,100	9,000	10,100	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.9	100	1.3	14	na	200	<0.083	ND	ND
FL-8-S	2/5/08	surface	<100	530	4,600	5,130	<0.080	0.056	<0.080	0.12	<0.080	<0.080	0.11	<0.080	5.8	190	2.5	15	na	2,000	<0.083	ND	ND
FL-9-S	2/5/08	surface	<100	<150	<500	<650	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	6.5	130	1.5	11	na	70	<0.083	ND	ND
FL-10-S	2/5/08	surface	<100	<150	<500	<650	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.3	120	<1.0	13	na	110	0.16	ND	ND
FL-11-S	2/5/08	surface	<100	<150	<500	<650	<0.20	<0.050	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	22	98	<1.0	34	<0.50	180	0.41	ND	ND
FL-12-S	2/5/08	surface	<200	<300	1,400	1,400	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.9	92	1.6	8.5	na	210	9.9	ND	ND
FL-13-S	8/12/08	surface	<20	<30	110	<130	na	na	na	na	na	na	na	na	8.8	160	<1.0	13	na	77	0.22	ND	ND
FL-14-S	2/5/08	surface	<200	<300	<1000	<1300	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	<5.0	78	<1.0	5.7	na	100	<0.083	ND	ND
FL-15-S	2/5/08	surface	<20	250	<100	250	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	7.8	130	2.7	25	na	300	<0.083	ND	ND
FL-16-S	2/5/08	surface	<20	<30	<100	<130	<0.40	0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	6.7	130	1.5	11	na	230	0.11	ND	ND
FL-17-S	2/5/08	surface	<20	460	780	1,240	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	5.4	130	1.5	8.8	na	210	<0.083	ND	ND
FL-18-S	2/5/08	surface	<20	300	350	650	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	<5.0	84	<1.0	5.2	na	91	<0.083	ND	ND
FL-19-S	2/5/08	surface	<20	3,300	1,800	5,100	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.6	89	<1.0	5.5	na	55	<0.083	ND	ND
FL-20-S	2/5/08	surface	<20	46	140	186	na	na	na	na	na	na	na	na	8.7	180	1.6	14	na	330	0.15	ND	ND
FL-21-S	2/5/08	surface	<20	64	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	22	130	1.2	12	na	550	<0.083	ND	ND
FL-22-S	2/5/08	surface	<20	50	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	11	190	1.2	22	na	740	<0.083	ND	ND
FL-23-S	2/5/08	surface	<20	<30	<100	<130	<0.040	0.010	<0.040	<0.040	<0.040	<0.040	0.029	<0.040	8.2	170	<1.0	11	na	120	0.10	ND	ND
FL-24-S	2/5/08	surface	<20	61	<100	<130	<0.040	0.027	0.040	<0.040	<0.040	<0.040	0.043	0.066	6.2	85	<1.0	8.5	na	130	<0.083	ND	ND
FL-25-S	2/5/08	surface	<100	<150	<500	<650	<0.040	0.060	0.079	0.077	0.056	0.061	0.10	0.050	6.7	170	1.0	11	na	74	<0.083	ND	ND
FL-26-S	7/29/08	surface	<20	<30	140	140	<4.0	2.2	<4.0	<4.0	<6.0	<4.0	3.1	<10	<5.0	83	<1.0	6.9	na	43	<0.083	na	na
FL-27-S	7/29/08	surface	<20	46	750	796	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	120	<1.0	6.1	na	93	<0.083	na	na
FL-28-S	7/29/08	surface	<20	<30	110	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	49	<1.0	7.5	na	11	<0.083	na	na
FL-29-S	7/29/08	surface	<20	32	190	222	<1.6	1.6	<1.6	<1.6	<2.4	2.4	2.1	<4.0	5.6	140	1.6	12	na	110	<0.083	na	na
FL-30-S	7/29/08	surface	<20	<30	120	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	5.6	120	<1.0	10	na	120	<0.083	na	na
FL-31-S	7/29/08	surface	<20	220	520	740	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<10	6.4	150	2.0	21	na	250	1.7	na	na
FL-32-S	7/29/08	surface	<20	<30	170	170	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<10	380	190	3.6	24	na	400	16	na	na
FL-33-S	7/29/08	surface	<20	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.6	140	<1.0	5.8	na	9.4	<0.083	na	na
FL-34-S	7/29/08	surface	<20	71	670	741	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<10	14	150	<1.0	14	na	130	0.60	na	na
FL-35-S	7/29/08	surface	30	640	6,200	6,800	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	110	1.3	9.6	na	530	<0.083	na	na
FL-36-S	7/29/08	surface	<20	130	500	630	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	150	<1.0	10	na	170	<0.083	na	na
FL-37-S	7/29/08	surface	<20	<30	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	73	<1.0	7.0	na	72	<0.083	na	na
FL-38-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.1	160	<1.0	14	na	360	<0.083	na	na
FL-39-S	7/29/08	surface	<20	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	<5.0	76	<1.0	24	na	190	<0.083	na	na
FL-40-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.5	140	<1.0	14	na	170	<0.083	na	na
FL-41-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.2	120	<1.0	11	na	140	<0.083	na	na
FL-42-S	7/29/08	surface	<20	<30	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.3	110	<1.0	12	na	440	0.13	na	na
FL-43-S	7/29/08	surface	<20	39	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	34	180	<1.0	20	na	460	0.16	na	na
FL-44-S	7/29/08	surface	<20	<30	<100	<130	<0.20	<0.050	<0.20	<0.20	<0.30	<0.20	<0.10	<0.50	8.7	140	<1.0	20	na	200	0.090	na	na
FL-45-S	7/29/08	surface	<20	81	<100	<130	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<10	28	320	<1.0	62	<0.50	370	0.098	na	na
FL-46-S	7/29/08	surface	<20	<30	<100	<130	<0.040	0.017	<0.040	<0.040	<0.060	<0.040	0.024	<0.10	<5.0	98	<1.0	5.1	na	45	<0.083	na	na
FL-47-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	9.4	110	<1.0	11	na	340	<0.083	na	na
FL-48-S	7/29/08	surface	<20	66	<100	<130	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<10	12	150	<1.0	14	na	290	<0.083	na	na
FL-49-S	7/29/08	surface	<20	<30	250	250	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.5	120	1.3	11	na	1,300	<0.083	na	na
FL-50-S	8/12/08	surface	<20	2,400	1,200	3,600	na	na	na	na	na	na	na	na	<5.0	120	<1.0	9.9	na	41	<0.083	ND	ND
FL-52-S	9/18/08	surface	na	na	na	na	<0.40	0.11	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.7	170	1.8	13	na	340	<0.083	ND	ND
FL-53-S	9/18/08	surface	na	na	na	na	<0.80	0.30	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	5.4	140	5.2	15	na	310	<0.083	ND	ND
FL-54-S	9/18/08	surface	na	na	na	na	<0.40	0.16	<0.40	<0.40	<0.60	<0.40	0.38	<1.0	<5.0	120	2.0	13	na	81	<0.083	na	na
FL-55-S	9/18/08	surface	na	na	na	na	<0.40	0.22	<0.40	0.41	<0.60	<0.40	0.52	<1.0	<5.0	na	na	na	na	110	na	na	na
FL-56-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	5.9	110	<1.0	7.9	na	35	<0.083	ND	ND
FL-57-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	7.3	93	<1.0	9.2	na	54	0.34	ND	ND
FL-58-S	9/18/08	surface																					

TABLE 1. SUMMARY OF SURFACE SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)	
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flrnth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}	Pb			Hg
FL-59-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	96	<1.0	7.8	na	74	<0.083	na	na
FL-60-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	8.5	720	3.8	23	na	470	0.13	ND	ND
FL-61-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	81	<1.0	7.3	na	65	<0.083	ND	ND
FL-62-S ²	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	130	72	6.1	na	41	<0.083	ND	ND
FL-63-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	15	180	<1.0	13	na	710	0.30	na	na
FL-64-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	17	110	<1.0	6.1	na	19	<0.083	na	na
FL-65-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	160	<1.0	5.3	na	6.2	<0.083	na	na
FL-66-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	5.1	120	<1.0	<5.0	na	38	<0.083	na	na
FL-67-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.1	230	2.9	21	na	2,400	<0.083	ND	ND
FL-68-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.6	150	<1.0	5.4	na	21	<0.083	ND	ND
FL-69-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	130	<1.0	5.5	na	12	<0.083	ND	ND
FL-70-S	9/18/08	surface	na	na	na	na	<0.040	0.021	<0.040	<0.040	<0.060	<0.040	0.031	<0.10	<5.0	84	<1.0	6.5	na	93	<0.083	ND	ND
FL-71-S	9/18/08	surface	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	<5.0	50	<1.0	<5.0	na	80	<0.083	na	na
FL-72-S ²	9/18/08	surface	na	na	na	na	2.3	1.9	1.4	0.74	1.8	2.4	1.3	3.8	7.3	120	<1.0	8.6	na	130	<0.083	na	na
FL-73-S	9/19/08	surface	na	na	na	na	<0.40	0.15	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	7.5	180	2.0	13	na	130	0.15	na	na
FL-74-S	9/19/08	surface	na	na	na	na	<0.20	<0.050	<0.20	<0.20	<0.30	<0.20	<0.10	<0.50	31	160	9.6	12	na	220	0.15	na	na
FL-75-S	9/19/08	surface	na	na	na	na	<0.40	0.21	<0.40	<0.40	<0.60	<0.40	0.26	<1.0	6.5	140	1.8	11	na	110	<0.083	na	na
FL-76-S	9/19/08	surface	na	na	na	na	<0.040	0.020	<0.040	<0.040	<0.060	<0.040	0.047	<0.10	9.2	180	<1.0	13	na	150	0.087	na	na
FL-77-S	9/19/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.8	160	<1.0	18	na	2,100	0.10	na	na
FL-78-S	9/19/08	surface	na	na	na	na	<0.040	0.029	<0.040	<0.040	<0.060	<0.040	0.039	<0.10	9.7	150	<1.0	20	na	320	0.085	na	na
FL-79-S	9/24/08	surface	<20	64	<100	<130	na	na	na	na	na	na	na	na	6.9	160	1.1	51	na	270	0.086	ND	ND
FL-83-S ¹	9/24/08	surface	<100	1,000	13,000	14,000	na	na	na	na	na	na	na	na	<5.0	15	<1.0	<5.0	na	85	<0.083	ND	ND
RSRL (10 ⁻⁶ Risk)			none	none	none	none	0.69	0.69	0.69	none	68	none	0.69	none	10	none	none	none	30	none	none		
RSRL (10 ⁻⁵ Risk)			none	none	none	none	6.9	6.9	6.9	none	680	none	6.9	none	10	none	none	none	none	none	none		
RSRL (Non-carcinogen)			none	none	none	none	none	none	none	none	none	2,300	none	2,300	10	15,000	39	none	none	400	23		
NRSRL			none	none	none	none	21	2.1	21	none	2,000	22,000	21	29,000	10	170,000	510	none	65	800	310		

Notes: Only compounds with detected concentrations are shown
 All sample results are in milligrams per kilogram (mg/kg)
 C10-C22 DRO = Carbon range of diesel fuel petroleum hydrocarbons
 C22-C32 DRO = Carbon range of oil petroleum hydrocarbons
 C10-C32 SRL = Carbon range of former Arizona Soil Remediation Level for petroleum hydrocarbons
 VOCs = Volatile organic compounds (8260)
 SVOCs = Semi-volatile organic compounds (8270)
 na = Not analyzed
 ND = Not Detected
 RSRL = Arizona Residential Soil Remediation Level
 NRSRL = Arizona Non-Residential Soil Remediation Level
 none = There is no Arizona SRL for this compound
 Highlighted sample results exceed the RSRL or NRSRL

PAH = Polynuclear Aromatic Hydrocarbons
 B[a]a = Benz[a]anthracene
 B[a]p = Benzo[a]pyrene
 B[b]f = Benzo[b]fluoranthene
 B[g,h,i]p = Benzo[g,h,i]perylene
 Chry = Chrysene
 Flrnth = Fluoranthene
 I[1,2,3-cd]p = Indeno[1,2,3-cd]pyrene
 Py = Pyrene

As = Arsenic
 Ba = Barium
 Cd = Cadmium
 Cr^T = Total Chromium
 Cr^{VI} = Chromium VI
 Pb = Lead
 Hg = Mercury

¹ Sample collected from saturated sand on top of AST concrete pad

² **Other chemicals detected in these samples:**
FL-62-S: Metals: Selenium = 5.2 (less than RSRL of 390 mg/kg)
FL-72-S: PAHs: Anthracene = 0.51 (less than RSRL of 22,000 mg/kg)
 Benzo[k]fluoranthene = 0.94 (less than 10⁻⁶ Risk RSRL of 6.9 mg/kg)

TABLE 2. SUMMARY OF SHALLOW SUBSURFACE SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)		
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flrnth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}	Pb			Hg	
FL-4-2.0	9/18/08	2	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.0	140	<1.0	13	na	43	0.19	na	na	
FL-4-5	2/5/08	5	<20	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.040	<0.040	<0.020	<0.040	5.7	110	<1.0	9.1	na	38	<0.083	ND	ND	
FL-6-5	2/5/08	5	<20	140	<100	140	<0.040	<0.010	<0.040	<0.040	<0.040	<0.040	<0.020	<0.040	7.1	130	<1.0	7.4	na	12	<0.083	ND	ND	
FL-18-3	8/12/08	3	<20	120	130	250	na	na	na	na	na	na	na	na	7.4	170	<1.0	12	na	44	0.25	ND	ND	
FL-20-2	8/12/08	2	<20	<30	<100	<130	na	na	na	na	na	na	na	na	6.1	130	<1.0	12	na	13	<0.083	ND	ND	
FL-22-2	8/12/08	2	<20	<30	<100	<130	na	na	na	na	na	na	na	na	7.9	150	<1.0	12	na	14	<0.083	ND	ND	
FL-43-0.5	9/18/08	0.5	na	na	na	na	na	na	na	na	na	na	na	na	13	na	na	na	na	97	na	na	na	
FL-43-1.0	9/18/08	1	na	na	na	na	na	na	na	na	na	na	na	na	11	na	na	na	na	60	na	na	na	
FL-45-0.5	9/18/08	0.5	na	na	na	na	na	na	na	na	na	na	na	na	7.8	na	na	na	na	na	16	na	na	na
FL-45-1.0	9/18/08	1	na	na	na	na	na	na	na	na	na	na	na	na	7.4	na	na	na	na	na	18	na	na	na
FL-48-0.5	9/18/08	0.5	na	na	na	na	na	na	na	na	na	na	na	na	13	na	na	na	na	na	57	na	na	na
FL-48-1.0	9/18/08	1	na	na	na	na	na	na	na	na	na	na	na	na	8.1	na	na	na	na	na	32	na	na	na
FL-50-3	8/12/08	3	<100	14,000	2,800	16,800	na	na	na	na	na	na	na	na	6.5	140	<1.0	10	na	12	<0.083	ND	ND	
FL-51-2	8/12/08	2	<20	<30	270	270	na	na	na	na	na	na	na	na	9.7	190	<1.0	11	na	38	0.29	ND	ND	
RSRL (10 ⁻⁶ Risk)			none	none	none	none	0.69	0.069	0.69	none	68	none	0.69	none	10	none	none	none	30	none	none			
RSRL (10 ⁻⁵ Risk)			none	none	none	none	6.9	0.69	6.9	none	680	none	6.9	none	10	none	none	none	none	none	none			
RSRL (Non-carcinogen)			none	none	none	none	none	none	none	none	none	2,300	none	2,300	10	15,000	39	none	none	400	23			
NRSRL			none	none	none	none	21	2.1	21	none	2,000	22,000	21	29,000	10	170,000	510	none	65	800	310			

Notes: Only compounds with detected concentrations are shown
 All sample results are in milligrams per kilogram (mg/kg)
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 B[a]p = Benzo[a]pyrene
 B[b]f = Benzo[b]fluoranthene
 B[g,h,i]p = Benzo[g,h,i]perylene
 Chry = Chrysene
 Flrnth = Fluoranthene
 I[1,2,3-cd]p = Indeno[1,2,3-cd]pyrene
 Py = Pyrene
 As = Arsenic
 Ba = Barium
 Cd = Cadmium
 Cr^T = Total Chromium
 Cr^{VI} = Chromium VI
 Pb = Lead
 Hg = Mercury

TABLE 3. SUMMARY OF SOIL BORING SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)				
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flrnth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}	Pb			Hg			
PP1-5	11/18/08	5	na	<30	<100	<130	<0.40	0.24	<0.40	<0.40	<0.60	<0.40	0.24	<1.0	na	na	na	na	na	na	na	na	na	na	na	na
PP1-15	11/18/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	na	na	na
PP8-5	11/18/08	5	na	<30	<100	<130	na	na	na	na	na	na	na	7.9	na	na	na	na	na	14	na	na	na	na	na	na
PP13-15	11/18/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP14-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP14-15	11/17/08	15	na	2,900	320	3,220	0.73	<0.020	<0.080	<0.080	<0.12	<0.080	<0.040	0.31	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP16-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP16-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP17-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.4	na	na	na	na	na	16	na	na	ND	ND	ND
PP17-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.2	na	na	na	na	na	8.7	na	na	ND	ND	ND
PP17-20	11/17/08	20	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.3	na	na	na	na	na	8.3	na	na	ND	ND	ND
PP18-5	11/17/08	5	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	12	na	na	na	na	na	17	na	na	ND	ND	ND
PP18-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	8.0	na	na	na	na	na	13	na	na	ND	ND	ND
PP18-15 ¹	11/17/08	15	na	6,200	<1000	6,200	1.4	<0.010	<0.040	<0.040	<0.060	0.50	<0.020	<0.10	<5.0	na	na	na	na	na	6.7	na	Note #1	Note #1	Note #1	Note #1
PP18-20	11/17/08	20	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	<5.0	na	na	na	na	na	<5.0	na	na	ND	ND	ND
PP21-5	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	5.9	na	na	na	na	na	8.1	na	na	na	na	na
PP21-10	11/18/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP26-5	11/17/08	5	na	<30	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	na	na	na	na	na	na	na	na	na	na	na	na
PP26-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	na	na	na
PP32-5	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	5.4	na	na	na	na	na	na	10	na	na	na	na
PP36-15	11/18/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP43-5	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	6.1	na	na	na	na	na	9.1	na	na	na	na	na
PP49-5	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	7.3	na	na	na	na	na	7.7	na	na	na	na	na
PP67-5	11/17/08	5	na	na	na	na	na	na	na	na	na	na	na	na	6.5	na	na	na	na	na	7.4	na	na	na	na	na
PP67-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP77-5	11/17/08	5	na	na	na	na	na	na	na	na	na	na	na	na	7.1	na	na	na	na	na	6.4	na	na	na	na	na
PP77-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
PP77-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	ND	ND	ND
RSRL (10 ⁻⁶ Risk)			none	none	none	none	0.69	0.069	0.69	none	68	none	0.69	none	10	none	none	none	30	none	none					
RSRL (10 ⁻⁵ Risk)			none	none	none	none	6.9	0.69	6.9	none	680	none	6.9	none	10	none	none	none	none	none	none					
RSRL (Non-carcinogen)			none	none	none	none	none	none	none	none	2,300	none	2,300	none	10	15,000	39	none	none	400	23					
NRSRL			none	none	none	none	21	2.1	21	none	2,000	22,000	21	29,000	10	170,000	510	none	65	800	310					

Notes: Only compounds with detected concentrations are shown
 All sample results are in milligrams per kilogram (mg/kg)
 C10-C22 DRO = Carbon range of diesel fuel petroleum hydrocarbons
 C22-C32 DRO = Carbon range of oil petroleum hydrocarbons
 C10-C32 SRL = Carbon range of former Arizona Soil Remediation Level for petroleum hydrocarbons
 VOCs = Volatile organic compounds (8260)
 SVOCs = Semi-volatile organic compounds (8270)
 na = Not analyzed
 ND = Not Detected
 RSRL = Arizona Residential Soil Remediation Level
 NRSRL = Arizona Non-Residential Soil Remediation Level
 none = There is no Arizona SRL for this compound
 Highlighted sample results exceed the RSRL or NRSRL

PAH = Polynuclear Aromatic Hydrocarbons
 B[a]a = Benz[a]anthracene
 B[a]p = Benzo[a]pyrene
 B[b]f = Benzo[b]fluoranthene
 B[g,h,i]p = Benzo[g,h,i]perylene
 Chry = Chrysene
 Flrnth = Fluoranthene
 I[1,2,3-cd]p = Indeno[1,2,3-cd]pyrene
 Py = Pyrene
 As = Arsenic
 Ba = Barium
 Cd = Cadmium
 Cr^T = Total Chromium
 Cr^{VI} = Chromium VI
 Pb = Lead
 Hg = Mercury

² Other chemicals detected in this sample: PP18-15:

PAHs: Fluorene = 2.7 mg/kg (less than RSRL of 2,700 mg/kg)
 Naphthalene = 4.8 mg/kg (less than NSRL of 56 mg/kg)
 Phenanthrene = 9.3 mg/kg (no SRLs)
SVOCs: 2-Methylnaphthalene = 31 mg/kg (no SRLs)
 Naphthalene = 5.9 (less than NSRL of 56 mg/kg)
 Phenanthrene = 7.7 (no SRLs)

VOCs: n-Butylbenzene = 0.97 mg/kg (less than RSRL of 240 mg/kg)
 sec-Butylbenzene = 0.54 mg/kg (less than RSRL of 220 mg/kg)
 Ethylbenzene = 0.29 mg/kg (less than RSRL of 400 mg/kg)
 4-Isopropyltoluene = 0.53 mg/kg (no SRL)
 Naphthalene = 5.0 mg/kg (less than RSRL of 56 mg/kg)
 n-Propylbenzene = 0.45 mg/kg (less than RSRL of 240 mg/kg)
 1,2,4-Trimethylbenzene = 5.5 mg/kg (less than RSRL of 52 mg/kg)
 1,3,5-Trimethylbenzene = 1.9 mg/kg (less than RSRL of 21 mg/kg)
 Xylenes, Total = 2.9 mg/kg (less than RSRL of 270 mg/kg)

TABLE 4. SUMMARY OF ALL SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)	
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flrnh	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}	Pb			Hg
FL-1-S	2/5/08	surface	24	220	1,400	1,620	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	7.0	91	1.7	7.5	na	27	<0.083	ND	ND
PP1-5	11/18/08	5	na	<30	<100	<130	<0.40	0.24	<0.40	<0.40	<0.60	<0.40	0.24	<1.0	na	na	na	na	na	na	na	na	na
PP1-15	11/18/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na
FL-2-S	2/5/08	surface	<200	1,100	9,900	11,000	<0.80	<0.20	<0.80	<0.80	<0.80	<0.40	<0.80	<5.0	110	2.2	11	na	61	<0.083	ND	ND	
FL-3-S	2/5/08	surface	<20	80	180	260	<0.40	0.11	<0.40	<0.40	<0.40	<0.40	0.50	<0.40	<5.0	49	<1.0	<5.0	na	32	<0.083	ND	ND
FL-4-2.0	9/18/08	2	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.0	140	<1.0	13	na	43	0.19	na	na
FL-4-S	2/5/08	5	<20	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.040	<0.040	<0.020	<0.040	5.7	110	<1.0	9.1	na	38	<0.083	ND	ND
FL-5-S	2/5/08	surface	<20	41	160	201	<0.20	0.20	0.22	0.20	0.20	0.32	0.29	0.39	5.3	97	<1.0	7.0	na	53	<0.083	ND	ND
FL-6-S	2/5/08	5	<20	140	<100	140	<0.040	<0.010	<0.040	<0.040	<0.040	<0.040	<0.020	<0.040	7.1	130	<1.0	7.4	na	12	<0.083	ND	ND
FL-7-S	2/5/08	surface	<200	1,100	9,000	10,100	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.9	100	1.3	14	na	200	<0.083	ND	ND
FL-8-S	2/5/08	surface	<100	530	4,600	5,130	<0.080	0.056	<0.080	0.12	<0.080	<0.080	0.11	<0.080	5.8	190	2.5	15	na	2,000	<0.083	ND	ND
PP8-5	11/18/08	5	na	<30	<100	<130	na	na	na	na	na	na	na	7.9	na	na	na	na	na	14	na	na	na
FL-9-S	2/5/08	surface	<100	<150	<500	<650	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	6.5	130	1.5	11	na	70	<0.083	ND	ND
FL-10-S	2/5/08	surface	<100	<150	<500	<650	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.3	120	<1.0	13	na	110	0.16	ND	ND
FL-11-S	2/5/08	surface	<100	<150	<500	<650	<0.20	<0.050	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	22	98	<1.0	34	<0.50	180	0.41	ND	ND
FL-12-S	2/5/08	surface	<200	<300	1,400	1,400	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.9	92	1.6	8.5	na	210	9.9	9.9	9.9
FL-13-S	8/12/08	surface	<20	<30	110	<130	na	na	na	na	na	na	na	na	8.8	160	<1.0	13	na	77	0.22	ND	ND
PP13-15	11/18/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na
FL-14-S	2/5/08	surface	<200	<300	<1000	<1300	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	<5.0	78	<1.0	5.7	na	100	<0.083	ND	ND
PP14-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na
PP14-15	11/17/08	15	na	2,900	320	3,220	0.73	<0.020	<0.080	<0.080	<0.12	<0.080	<0.040	0.31	na	na	na	na	na	na	na	na	na
FL-15-S	2/5/08	surface	<20	250	<100	250	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	7.8	130	2.7	25	na	300	<0.083	ND	ND
FL-16-S	2/5/08	surface	<20	<30	<100	<130	<0.40	0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	6.7	130	1.5	11	na	230	0.11	ND	ND
PP16-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na
PP16-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na
FL-17-S	2/5/08	surface	<20	460	780	1,240	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	5.4	130	1.5	8.8	na	210	<0.083	ND	ND
PP17-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.4	na	na	na	na	16	na	na	na
PP17-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.2	na	na	na	na	8.7	na	na	na
PP17-20	11/17/08	20	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.3	na	na	na	na	8.3	na	na	na
FL-18-S	2/5/08	surface	<20	300	350	650	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	<5.0	84	<1.0	5.2	na	91	<0.083	ND	ND
FL-18-3	8/12/08	3	<20	120	130	250	na	na	na	na	na	na	na	7.4	170	<1.0	12	na	44	0.25	ND	ND	
PP18-5	11/17/08	5	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	12	na	na	na	na	17	na	na	na
PP18-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	8.0	na	na	na	na	13	na	na	na
PP18-15 ²	11/17/08	15	na	6,200	<1000	6,200	1.4	<0.010	<0.040	<0.040	<0.060	0.50	<0.020	<0.10	<5.0	na	na	na	na	6.7	na	Note #2	Note #2
PP18-20	11/17/08	20	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	<5.0	na	na	na	na	<5.0	na	na	na
FL-19-S	2/5/08	surface	<20	3,300	1,800	5,100	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.6	89	<1.0	5.5	na	55	<0.083	ND	ND
FL-20-S	2/5/08	surface	<20	46	140	186	na	na	na	na	na	na	na	na	8.7	180	1.6	14	na	330	0.15	ND	ND
FL-20-2	8/12/08	2	<20	<30	<100	<130	na	na	na	na	na	na	na	na	6.1	130	<1.0	12	na	13	<0.083	ND	ND
FL-21-S	2/5/08	surface	<20	64	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	22	130	1.2	12	na	550	<0.083	ND	ND
PP21-5	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	5.9	na	na	na	na	8.1	na	na	na
PP21-10	11/18/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na
FL-22-S	2/5/08	surface	<20	50	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	11	190	1.2	22	na	740	<0.083	ND	ND
FL-22-2	8/12/08	2	<20	<30	<100	<130	na	na	na	na	na	na	na	na	7.9	150	<1.0	12	na	14	<0.083	ND	ND
FL-23-S	2/5/08	surface	<20	<30	<100	<130	<0.040	0.010	<0.040	<0.040	<0.040	<0.040	0.029	<0.040	8.2	170	<1.0	11	na	120	0.10	ND	ND
FL-24-S	2/5/08	surface	<20	61	<100	<130	<0.040	0.027	0.040	<0.040	<0.040	<0.040	0.043	0.066	6.2	85	<1.0	8.5	na	130	<0.083	ND	ND
FL-25-S	2/5/08	surface	<100	<150	<500	<650	<0.040	0.060	0.079	0.077	0.056	0.061	0.10	0.050	6.7	150	1.0	11	na	74	<0.083	ND	ND
FL-26-S	7/29/08	surface	<20	<30	140	140	<4.0	2.2	<4.0	<4.0	<6.0	<4.0	3.1	<10	<5.0	83	<1.0	6.9	na	43	<0.083	na	na
PP26-S	11/17/08	5	na	<30	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	na	na	na	na	na	na	na	na	na
PP26-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na
FL-27-S	7/29/08	surface	<20	46	750	79																	

TABLE 4. SUMMARY OF ALL SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)		
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flrnth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}	Pb			Hg	
FL-32-S	7/29/08	surface	<20	<30	170	170	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<1.0	380	190	3.6	24	na	400	16	na	na	
PP32-S	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	5.4	na	na	na	na	10	na	na		
FL-33-S	7/29/08	surface	<20	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.6	140	<1.0	5.8	na	9.4	<0.083	na	na	
FL-34-S	7/29/08	surface	<20	71	670	741	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<1.0	14	150	<1.0	14	na	130	0.60	na	na	
FL-35-S	7/29/08	surface	30	640	6,200	6,800	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	110	1.3	9.6	na	530	<0.083	na	na	
FL-36-S	7/29/08	surface	<20	130	500	630	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	150	<1.0	10	na	170	<0.083	na	na	
PP36-1S	11/18/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	ND	ND
FL-37-S	7/29/08	surface	<20	<30	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	73	<1.0	7.0	na	72	<0.083	na	na	
FL-38-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.1	160	<1.0	14	na	360	<0.083	na	na	
FL-39-S	7/29/08	surface	<20	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	<5.0	76	<1.0	24	na	190	<0.083	na	na	
FL-40-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.5	140	<1.0	14	na	170	<0.083	na	na	
FL-41-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.2	120	<1.0	11	na	140	<0.083	na	na	
FL-42-S	7/29/08	surface	<20	<30	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.3	110	<1.0	12	na	440	0.13	na	na	
FL-43-S	7/29/08	surface	<20	39	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	34	180	<1.0	20	na	460	0.16	na	na	
FL-43-0.5	9/18/08	0.5	na	na	na	na	na	na	na	na	na	na	na	na	13	na	na	na	na	97	na	na	na	
FL-43-1.0	9/18/08	1	na	na	na	na	na	na	na	na	na	na	na	na	11	na	na	na	na	60	na	na	na	
PP43-S	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	6.1	na	na	na	na	9.1	na	na	na	
FL-44-S	7/29/08	surface	<20	<30	<100	<130	<0.20	<0.050	<0.20	<0.20	<0.30	<0.20	<0.10	<0.50	8.7	140	<1.0	20	na	200	0.090	na	na	
FL-45-S	7/29/08	surface	<20	81	<100	<130	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<1.0	28	320	<1.0	62	<0.50	370	0.098	na	na	
FL-45-0.5	9/18/08	0.5	na	na	na	na	na	na	na	na	na	na	na	na	7.8	na	na	na	na	16	na	na	na	
FL-45-1.0	9/18/08	1	na	na	na	na	na	na	na	na	na	na	na	na	7.4	na	na	na	na	18	na	na	na	
FL-46-S	7/29/08	surface	<20	<30	<100	<130	<0.040	0.017	<0.040	<0.040	<0.060	<0.040	0.024	<0.10	<5.0	98	<1.0	5.1	na	45	<0.083	na	na	
FL-47-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	9.4	110	<1.0	11	na	340	<0.083	na	na	
FL-48-S	7/29/08	surface	<20	66	<100	<130	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<1.0	12	150	<1.0	14	na	290	<0.083	na	na	
FL-48-0.5	9/18/08	0.5	na	na	na	na	na	na	na	na	na	na	na	na	13	na	na	na	na	57	na	na	na	
FL-48-1.0	9/18/08	1	na	na	na	na	na	na	na	na	na	na	na	na	8.1	na	na	na	na	32	na	na	na	
FL-49-S	7/29/08	surface	<20	<30	250	250	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.5	120	1.3	11	na	1,300	<0.083	na	na	
PP49-S	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	7.3	na	na	na	na	7.7	na	na	na	
FL-50-S	8/12/08	surface	<20	2,400	1,200	3,600	na	na	na	na	na	na	na	na	<5.0	120	<1.0	9.9	na	41	<0.083	ND	ND	
FL-50-3	8/12/08	3	<100	14,000	2,800	16,800	na	na	na	na	na	na	na	na	6.5	140	<1.0	10	na	12	<0.083	ND	ND	
FL-51-2	8/12/08	2	<20	<30	270	270	na	na	na	na	na	na	na	na	9.7	190	<1.0	11	na	38	0.29	ND	ND	
FL-52-S	9/18/08	surface	na	na	na	na	<0.40	0.11	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.7	170	1.8	13	na	340	<0.083	ND	ND	
FL-53-S	9/18/08	surface	na	na	na	na	<0.80	0.30	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	5.4	140	5.2	15	na	310	<0.083	ND	ND	
FL-54-S	9/18/08	surface	na	na	na	na	<0.40	0.16	<0.40	<0.40	<0.60	<0.40	0.38	<1.0	<5.0	120	2.0	13	na	81	<0.083	na	na	
FL-55-S	9/18/08	surface	na	na	na	na	<0.40	0.22	<0.40	0.41	<0.60	<0.40	0.52	<1.0	<5.0	na	na	na	na	110	na	na	na	
FL-56-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	5.9	110	<1.0	7.9	na	35	<0.083	ND	ND	
FL-57-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	7.3	93	<1.0	9.2	na	54	0.34	ND	ND	
FL-58-S	9/18/08	surface	na	na	na	na	<0.80	0.42	<0.80	<0.80	<1.2	<0.80	0.58	<2.0	62	1,100	27	31	na	13,000	0.15	ND	ND	
FL-59-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	96	<1.0	7.8	na	74	<0.083	na	na	
FL-60-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	8.5	720	3.8	23	na	470	0.13	ND	ND	
FL-61-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	81	<1.0	7.3	na	65	<0.083	ND	ND	
FL-62-S ²	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	130	72	6.1	na	41	<0.083	ND	ND	
FL-63-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	15	180	<1.0	13	na	710	0.30	na	na	
FL-64-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	17	110	<1.0	6.1	na	19	<0.083	na	na	
FL-65-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	160	<1.0	5.3	na	62	<0.083	na	na	
FL-66-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	5.1	120	<1.0	<5.0	na	38	<0.083	na	na	
FL-67-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.1	230	2.9	21	na	2,400	<0.083	ND	ND	
PP67-S	11/17/08	5	na	na	na	na	na	na	na	na	na	na	na	na	6.5	na	na	na	na	7.4	na	na	na	
PP67-1S	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	ND	ND
FL-68-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.6	150	<1.0	5.4	na	21	<0.083	ND	ND	
FL-69-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	130	<1.0	5.5	na	12	<0.083	ND	ND	
FL-70-S	9/18/08	surface	na	na	na	na	<0.040</																	

TABLE 4. SUMMARY OF ALL SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)		
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flrnth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}	Pb			Hg	
FL-73-S	9/19/08	surface	na	na	na	na	<0.40	0.15	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	7.5	180	2.0	13	na	130	0.15	na	na	
FL-74-S	9/19/08	surface	na	na	na	na	<0.20	<0.050	<0.20	<0.20	<0.30	<0.20	<0.10	<0.50	31	160	9.6	12	na	220	0.15	na	na	
FL-75-S	9/19/08	surface	na	na	na	na	<0.40	0.21	<0.40	<0.40	<0.60	<0.40	0.26	<1.0	6.5	140	1.8	11	na	110	<0.083	na	na	
FL-76-S	9/19/08	surface	na	na	na	na	<0.040	0.020	<0.040	<0.040	<0.060	<0.040	0.047	<0.10	9.2	180	<1.0	13	na	150	0.087	na	na	
FL-77-S	9/19/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.8	160	<1.0	18	na	2,100	0.10	na	na	
PP77-5	11/17/08	5	na	na	na	na	na	na	na	na	na	na	na	na	7.1	na	na	na	na	na	na	6.4	na	na
PP77-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	ND	ND
PP77-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	ND	ND
FL-78-S	9/19/08	surface	na	na	na	na	<0.040	0.029	<0.040	<0.040	<0.060	<0.040	0.039	<0.10	9.7	150	<1.0	20	na	320	0.085	na	na	
FL-79-S	9/24/08	surface	<20	64	<100	<130	na	na	na	na	na	na	na	na	6.9	160	1.1	51	na	270	0.086	ND	ND	
FL-83-S ¹	9/24/08	surface	<100	1,000	13,000	14,000	na	na	na	na	na	na	na	na	<5.0	15	<1.0	<5.0	na	85	<0.083	ND	ND	
RSRL (10 ⁻⁶ Risk)			none	none	none	none	0.69	0.069	0.69	none	68	none	0.69	none	10	none	none	none	30	none	none			
RSRL (10 ⁻⁵ Risk)			none	none	none	none	6.9	0.69	6.9	none	680	none	6.9	none	10	none	none	none	none	none	none			
RSRL (Non-carcinogen)			none	none	none	none	none	none	none	none	2,300	none	2,300	10	15,000	39	none	none	400	23				
NRSRL			none	none	none	none	21	2.1	21	none	2,000	22,000	21	29,000	10	170,000	510	none	65	800	310			

Notes: Only compounds with detected concentrations are shown
 All sample results are in milligrams per kilogram (mg/kg)
 C10-C22 DRO = Carbon range of diesel fuel petroleum hydrocarbons
 C22-C32 DRO = Carbon range of oil petroleum hydrocarbons
 C10-C32 SRL = Carbon range of former Arizona Soil Remediation Level for petroleum hydrocarbons
 VOCs = Volatile organic compounds (8260)
 SVOCs = Semi-volatile organic compounds (8270)
 na = Not analyzed
 ND = Not Detected
 RSRL = Arizona Residential Soil Remediation Level
 NRSRL = Arizona Non-Residential Soil Remediation Level
 none = There is no Arizona SRL for this compound
 Highlighted sample results exceed the RSRL or NRSRL

PAH = Polynuclear Aromatic Hydrocarbons
 B[a]a = Benz[a]anthracene
 B[a]p = Benzo[a]pyrene
 B[b]f = Benzo[b]fluoranthene
 B[g,h,i]p = Benzo[g,h,i]perylene
 Chry = Chrysene
 Flrnth = Fluoranthene
 I[1,2,3-cd]p = Indeno[1,2,3-cd]pyrene
 Py = Pyrene

As = Arsenic
 Ba = Barium
 Cd = Cadmium
 Cr^T = Total Chromium
 Cr^{VI} = Chromium VI
 Pb = Lead
 Hg = Mercury

¹ Sample collected from saturated sand on top of AST concrete pad

² **Other chemicals detected in these samples:**

PP18-15: PAHs: Fluorene = 2.7 mg/kg (less than RSRL of 2,700 mg/kg)
 Naphthalene = 4.8 mg/kg (less than NSRL of 56 mg/kg)
 Phenanthrene = 9.3 mg/kg (no SRLs)

SVOCs: 2-Methylnaphthalene = 31 mg/kg (no SRLs)
 Naphthalene = 5.9 (less than NSRL of 56 mg/kg)
 Phenanthrene = 7.7 (no SRLs)

VOCs: n-Butylbenzene = 0.97 mg/kg (less than RSRL of 240 mg/kg)
 sec-Butylbenzene = 0.54 mg/kg (less than RSRL of 220 mg/kg)
 Ethylbenzene = 0.29 mg/kg (less than RSRL of 400 mg/kg)
 4-Isopropyltoluene = 0.53 mg/kg (no SRL)
 Naphthalene = 5.0 mg/kg (less than RSRL of 56 mg/kg)
 n-Propylbenzene = 0.45 mg/kg (less than RSRL of 240 mg/kg)
 1,2,4-Trimethylbenzene = 5.5 mg/kg (less than RSRL of 52 mg/kg)
 1,3,5-Trimethylbenzene = 1.9 mg/kg (less than RSRL of 21 mg/kg)
 Xylenes, Total = 2.9 mg/kg (less than RSRL of 270 mg/kg)

FL-62-S: Metals: Selenium = 5.2 (less than RSRL of 390 mg/kg)

FL-72-S: PAHs: Anthracene = 0.51 (less than RSRL of 22,000 mg/kg)
 Benzo[k]fluoranthene = 0.94 (less than 10⁻⁶ Risk RSRL of 6.9 mg/kg)

APPENDIX D



Addendum to Soil Sampling Report

**Demolition Observation, Soil Boring,
and Soil Sampling Activities
Former Flint Oil Property
505 (500, 511, or 527) West Simpson Street
Tucson, Arizona**

Presented to:

**City of Tucson
Environmental Services
100 North Stone Avenue, 2nd Floor
Tucson, AZ 85701
(520) 791-5414**

Presented by:

**SCS Engineers
2410 West Ruthrauff Road, Suite 110
Tucson, Arizona 85705
(520) 696-1617**

September 2, 2009
File No. 10204058.18

**Offices Nationwide
www.scsengineers.com**



4 CONCLUSIONS

The figures and tables from the previous soil sampling report were updated to include the current sample results. Figures 5, 6, and 7 in Appendix A summarize sample locations in surface soil, shallow subsurface soil, and deeper subsurface soil (5 feet bgs and deeper) from all site investigations performed by SCS. Figures 8 through 12 in Appendix A show the estimated areas of the site that contain arsenic, lead, cadmium, and PAHs above SRLs. The distribution of contamination on the site is described below.

- **Arsenic** – The lateral extent of arsenic above the RSRL and NRSRL at the surface is generally defined on the site, except for the area east of the elevated platform. The estimated extent of arsenic contamination is shown on Figures 8 and 9 in Appendix A.

Five locations also exceeded the RSRL and NRSRL in subsurface samples at depths ranging between 0.5 to 5 feet bgs. The lateral extent of contamination at the five subsurface sample locations is partially defined. At one of these locations, the contamination was defined between 3 and 10 feet bgs. At two of these locations, arsenic exceeded the SRL at 5 feet bgs, but there were no samples collected below that depth. Therefore, the vertical extent of contamination was not defined below 5 feet bgs at these two locations.

In addition, the vertical extent was not defined at six locations where the surface soil sample concentrations exceeded SRLs and subsurface soil was not sampled. However, the vertical extent at these locations is not expected to extend deeper than 0.5 to 5 feet bgs.

- **Lead** – The lateral extent of lead exceeding the RSRL and/or NRSRL at the surface is generally defined on the site, except for areas east of the elevated platform, northwest and southwest of the storage garage, and north of the AST containment area. The estimated extent of lead contamination is shown on Figure 10 in Appendix A.

The SRLs were not exceeded in the 69 subsurface soil samples analyzed for lead. The vertical extent of lead contamination was less than 0.5 foot bgs at one location, less than 2 feet bgs at one location, and less than 5 feet bgs at six locations. The vertical extent was not defined at five locations where surface soil sample concentrations exceeded SRLs and subsurface soil was not sampled; however, the vertical extent at these locations is not expected to extend deeper than 0.5 to 5 feet bgs.

- **Cadmium** – The lateral extent of cadmium exceeding the RSRL at the surface is generally defined as shown on Figure 10 in Appendix A. Cadmium was not detected in the subsurface soil samples. The vertical extent of cadmium contamination was not determined at the one location where it exceeded the RSRL at the surface, but is not expected to extend deeper than 2 to 5 feet bgs.
- **PAHs** – Fourteen surface soil samples contained PAHs above the 10^{-6} RSRL, and two surface samples exceeded the 10^{-5} RSRL for benzo[a]pyrene. One surface sample

exceeded the NRSRL for benzo[a]pyrene in the north-central portion of the site. The lateral extent of PAH contamination is defined in most areas on the site, but was not defined in three areas where it may extend off the Flint Oil property to the north, northwest, south, and southeast. The estimated extent of PAH contamination is shown on Figures 11 and 12 in Appendix A.

The vertical extent of PAHs exceeding the SRLs was less than 5 feet bgs at three locations, less than 10 feet bgs at two locations, and less than 15 feet bgs at one location. The vertical extent was not defined at 13 locations where surface soil sample concentrations exceeded SRLs and subsurface soil was not sampled; however, the vertical extent at these locations is not expected to extend deeper than 5 to 15 feet bgs, and is likely shallower.

At three locations, surface sample concentrations did not exceed SRLs, but benzo[a]pyrene and benz[a]anthracene in deeper samples exceeded the 10^{-6} RSRLs. The vertical extent of contamination at these locations was between 0.5 to 10 or 15 feet bgs and between 10 and 20 feet bgs. The vertical extent was not defined at one location, but is expected to be less than 20 feet bgs. At these three areas, the lateral extent of subsurface contamination may not be completely defined.

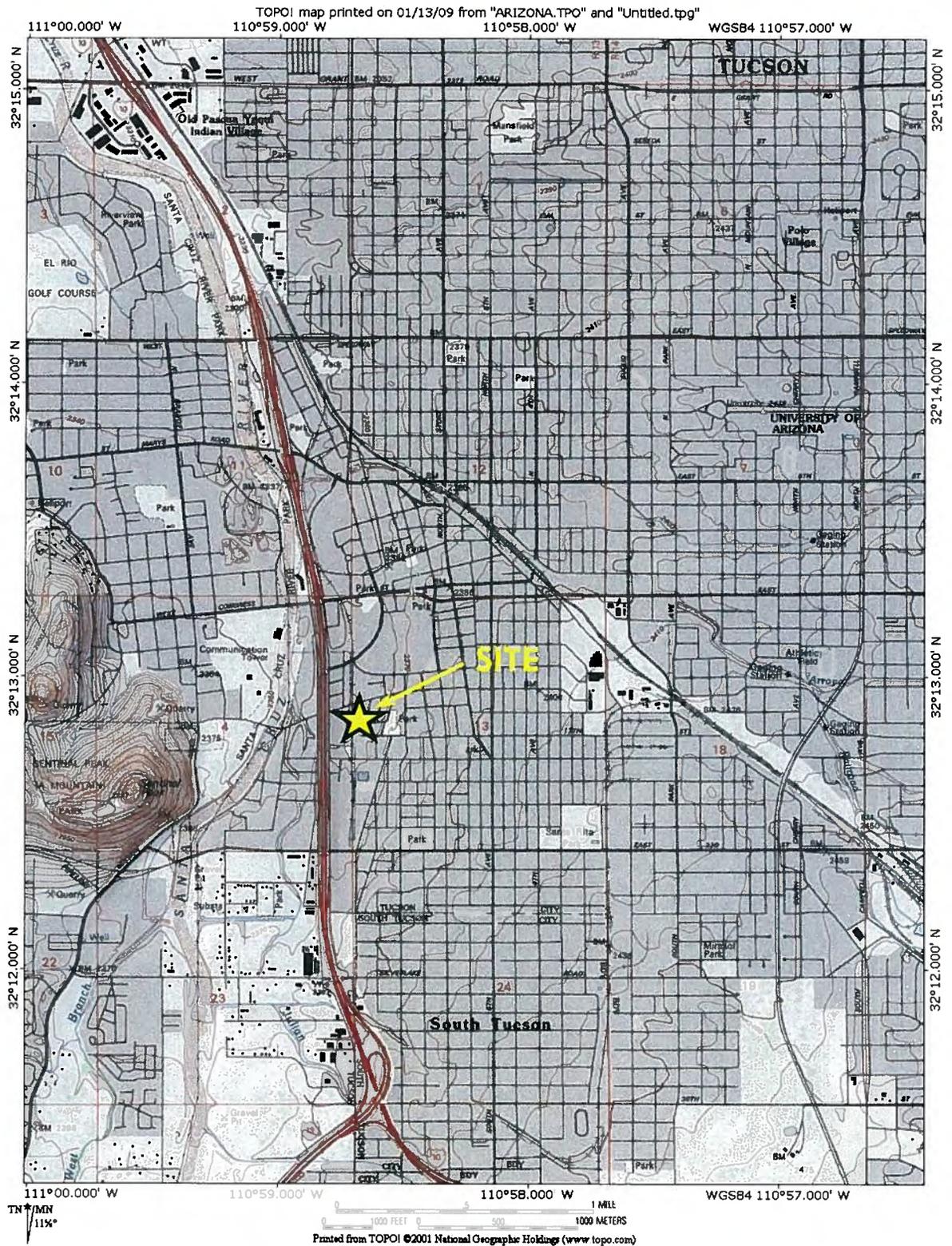
Based on the distribution of soil contamination on the site, contamination for PAHs versus lead, arsenic, and cadmium generally occurs in different portions of the site, with some overlap. The reason for this is likely due to use and storage of different types of materials in different portions of the site, and the fact that arsenic may be due to naturally-occurring background levels in some locations. In addition, although there was subsurface contamination by the PAH benz[a]anthracene at 15 feet bgs in two locations on the south portion of the site, only one surface sample contained this PAH above SRLs; it was not determined whether this location was related to the subsurface contamination.

5 RECOMMENDATIONS

Based on the above results, SCS recommends the following:

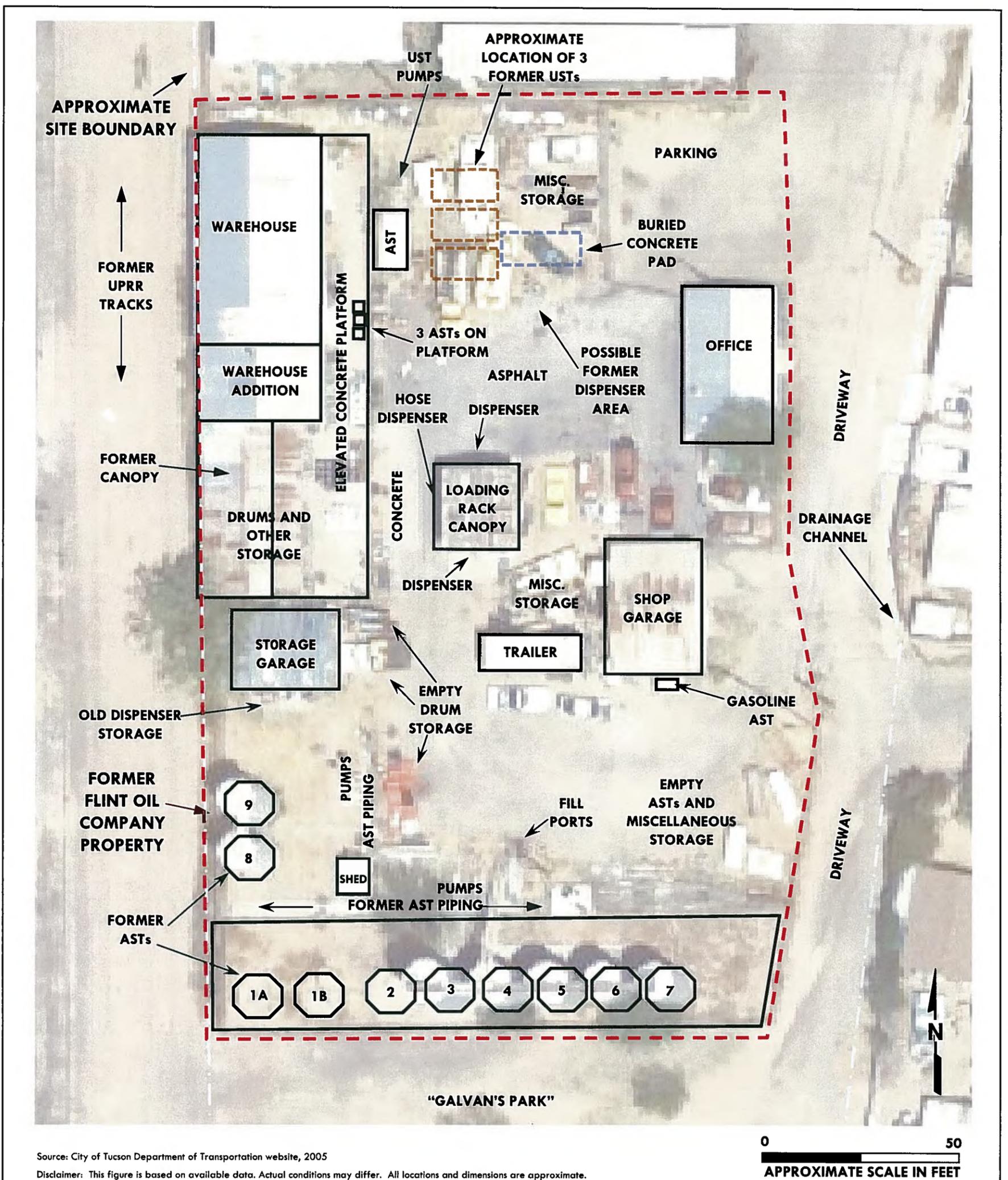
- The City should establish a relevant cleanup level for the site, which will direct additional site characterization and remediation activities. It should be noted that the RSRLs for the 10^{-6} risk level only apply to known human carcinogens (which were not detected above the 10^{-6} RSRL) and to those sites where the current or currently intended use is a school or child care facility.
- The current round of sampling did not define the extent of PAH contamination exceeding the 10^{-6} RSRL beyond the boundary of the former Flint Oil property in two areas in the south and one area in the northwest portions of the site. If this cleanup level is used for the site, additional sampling will be necessary to define the extent of contamination. This sampling could be combined with remediation activities, as discussed below.
- Perform remediation of soil in those areas of the site that exceed SRLs. The cleanup level should be determined by the COT based on the planned future uses of the property. However, if the NRSRLs are selected as the cleanup levels, a Declaration of Environmental Use Restriction (DEUR) would be required for the property and the types of property uses would be restricted. Verification sampling should be used to confirm the boundaries of excavated areas both laterally and vertically.
- Because the demolition activities performed on the site disturbed areas that contained concentrations of contaminants above SRLs, SCS recommends removing the soil in those areas to the depth that they have been disturbed.
- The deeper (15 feet) areas of PAH concentrations that exceed the 10^{-6} RSRLs on the south portion of the site may be unrelated to the surface contamination, and may require additional investigation to determine the extent of contamination if the 10^{-6} risk level is selected as the cleanup level.

APPENDIX A
FIGURES



Source: TOPOI Map printed from "ARIZONA.TPO"

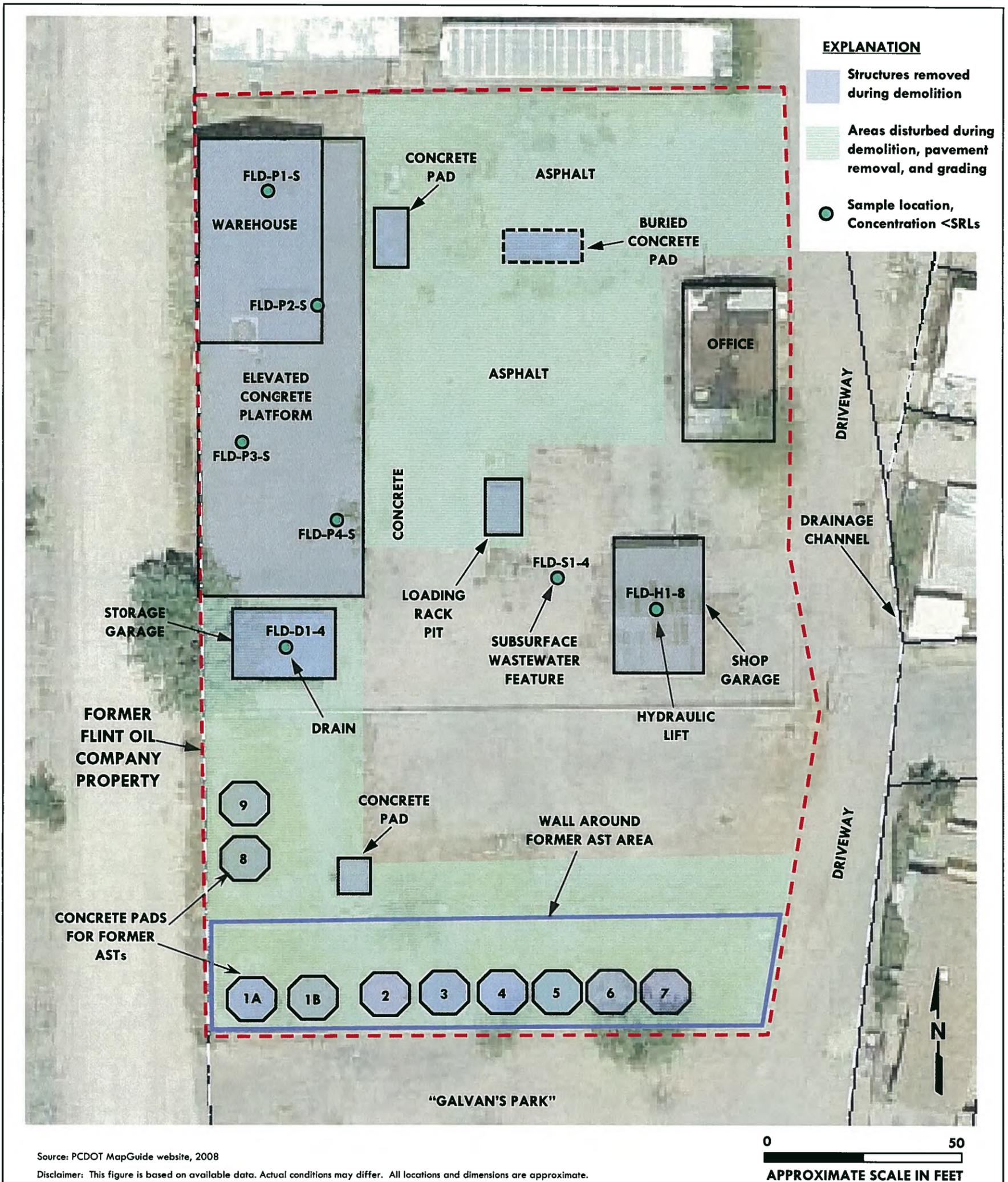
Disclaimer: This figure is based on available data. Actual conditions may differ. All locations and dimensions are approximate.



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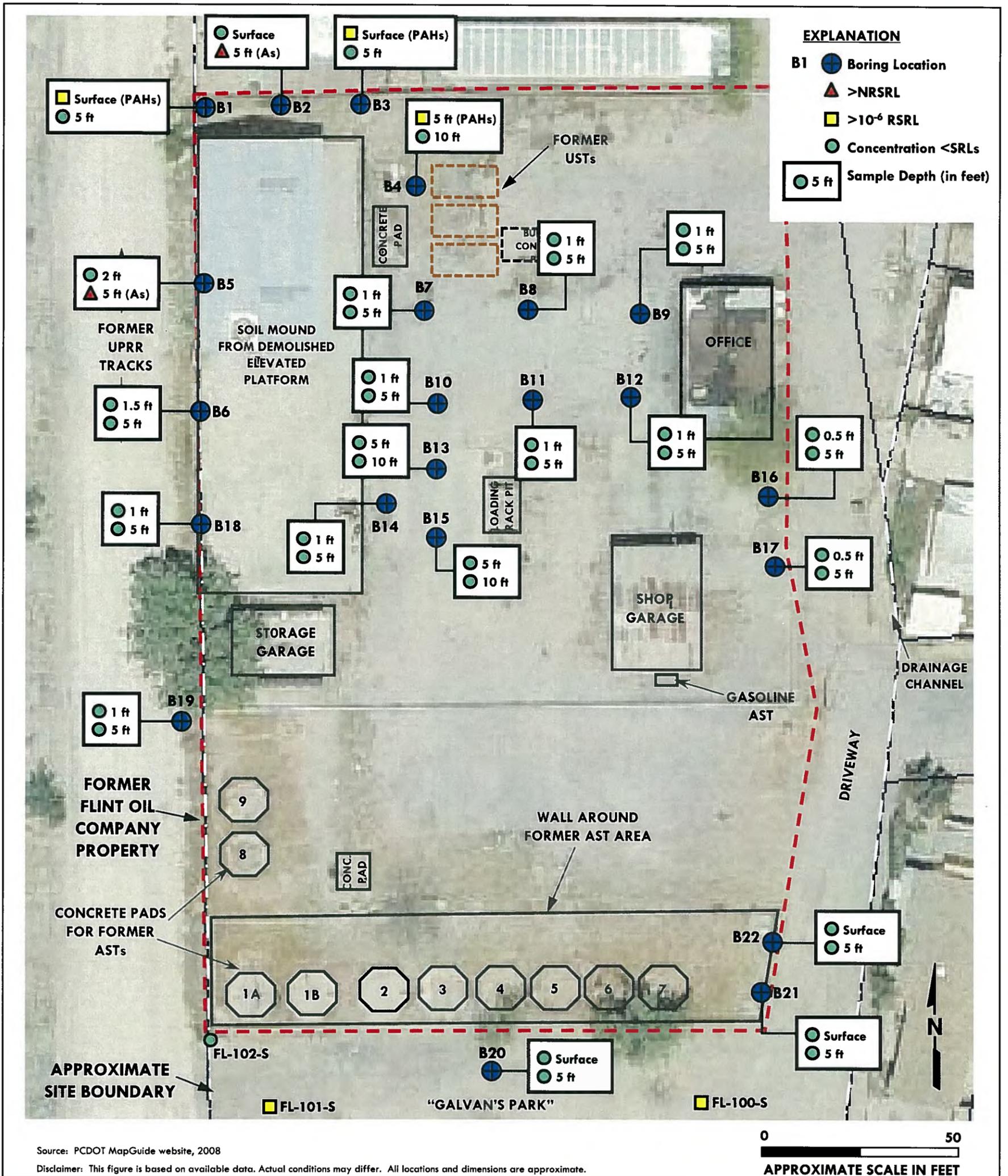
Figure 2
 Site Plan - 2006

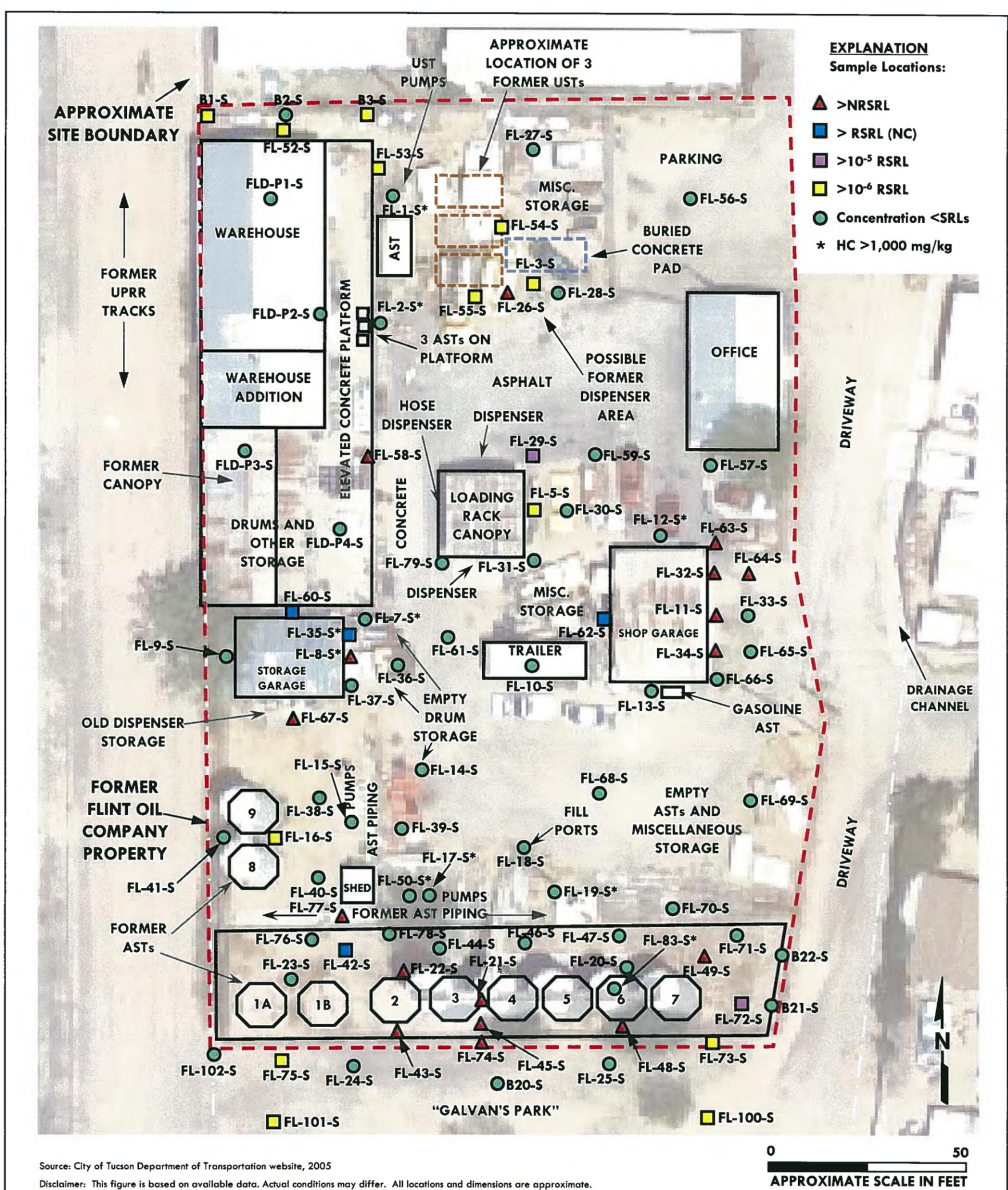


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Figure 3
 Site Demolition - 2009

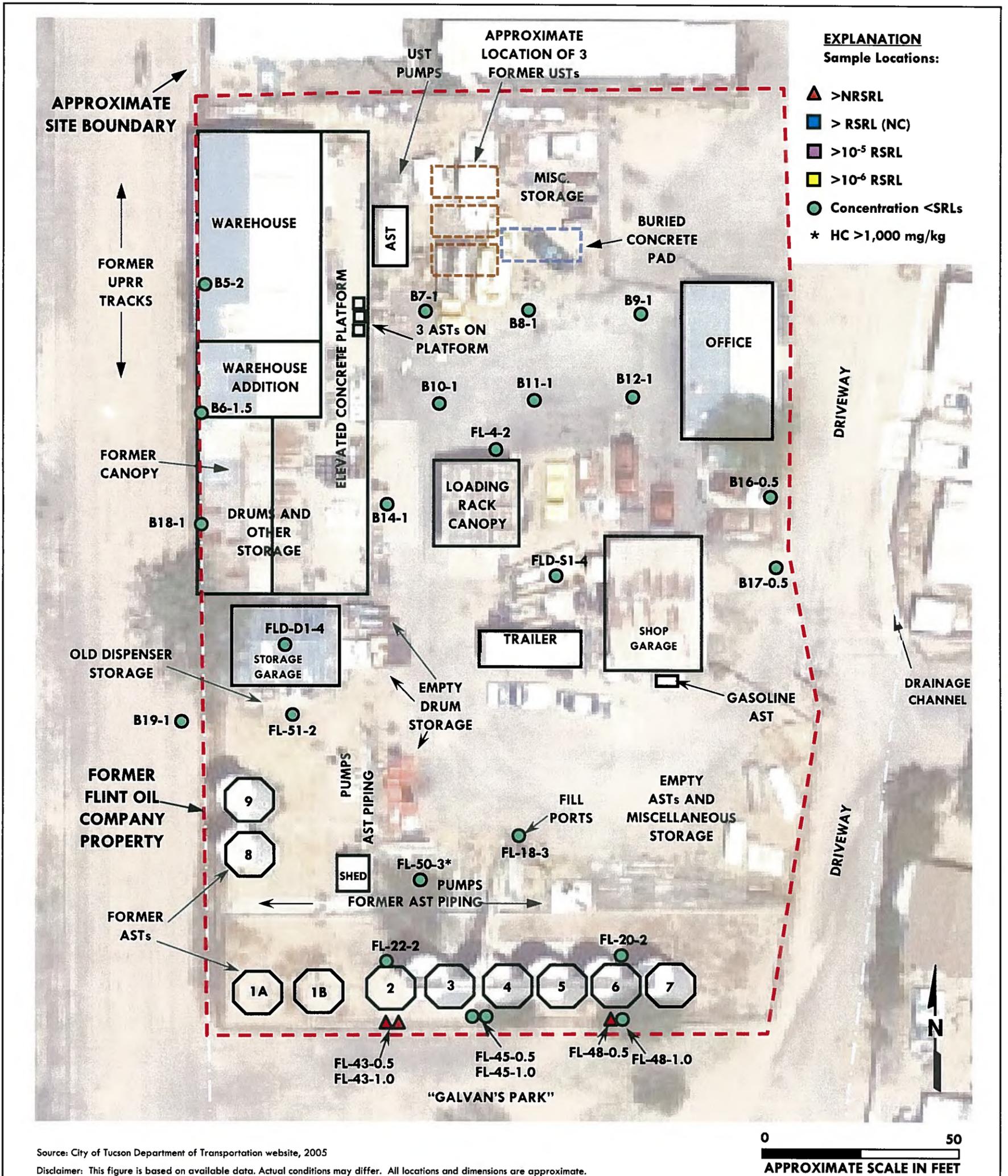


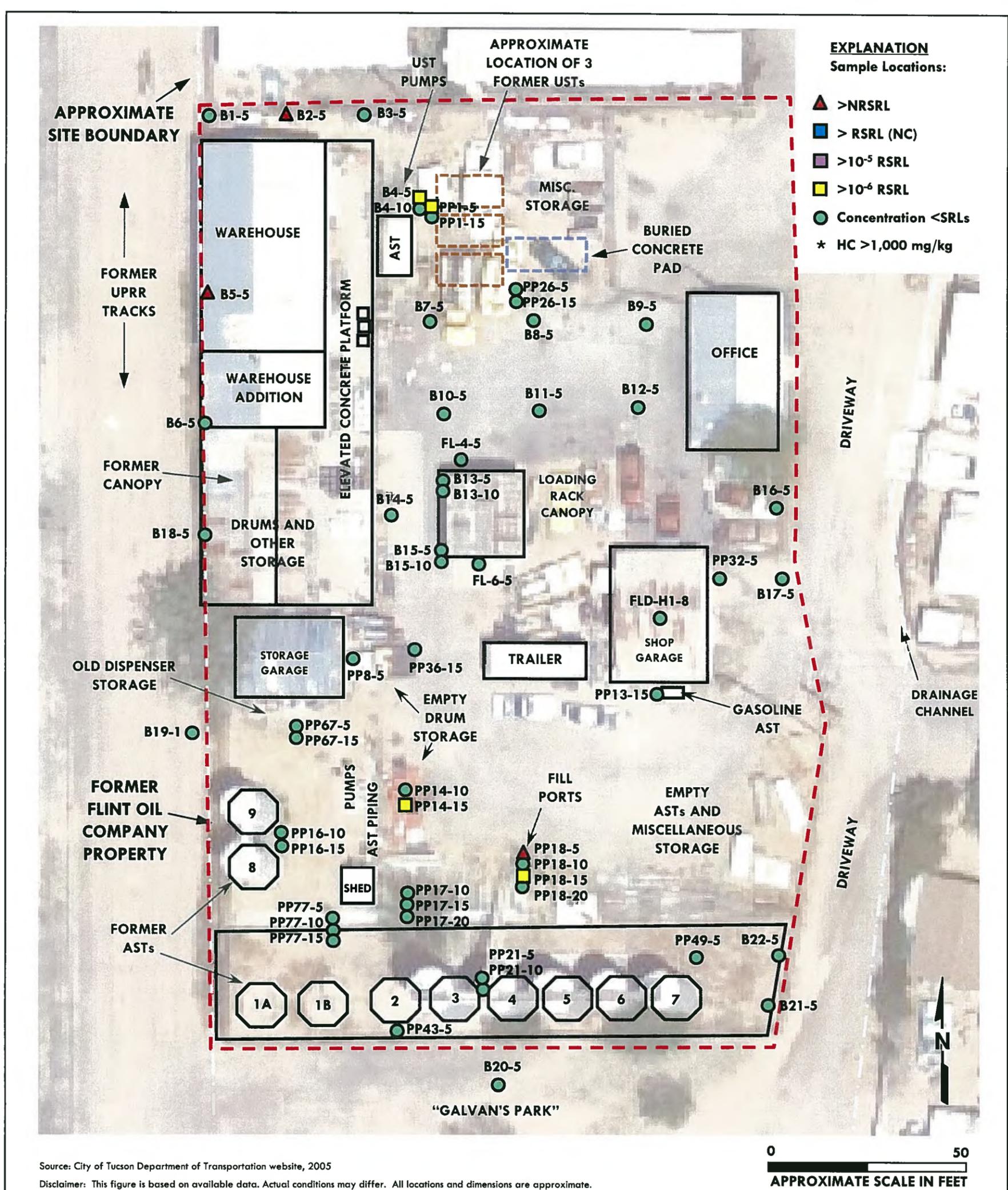


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Figure 5
 Surface Sample
 Locations Map

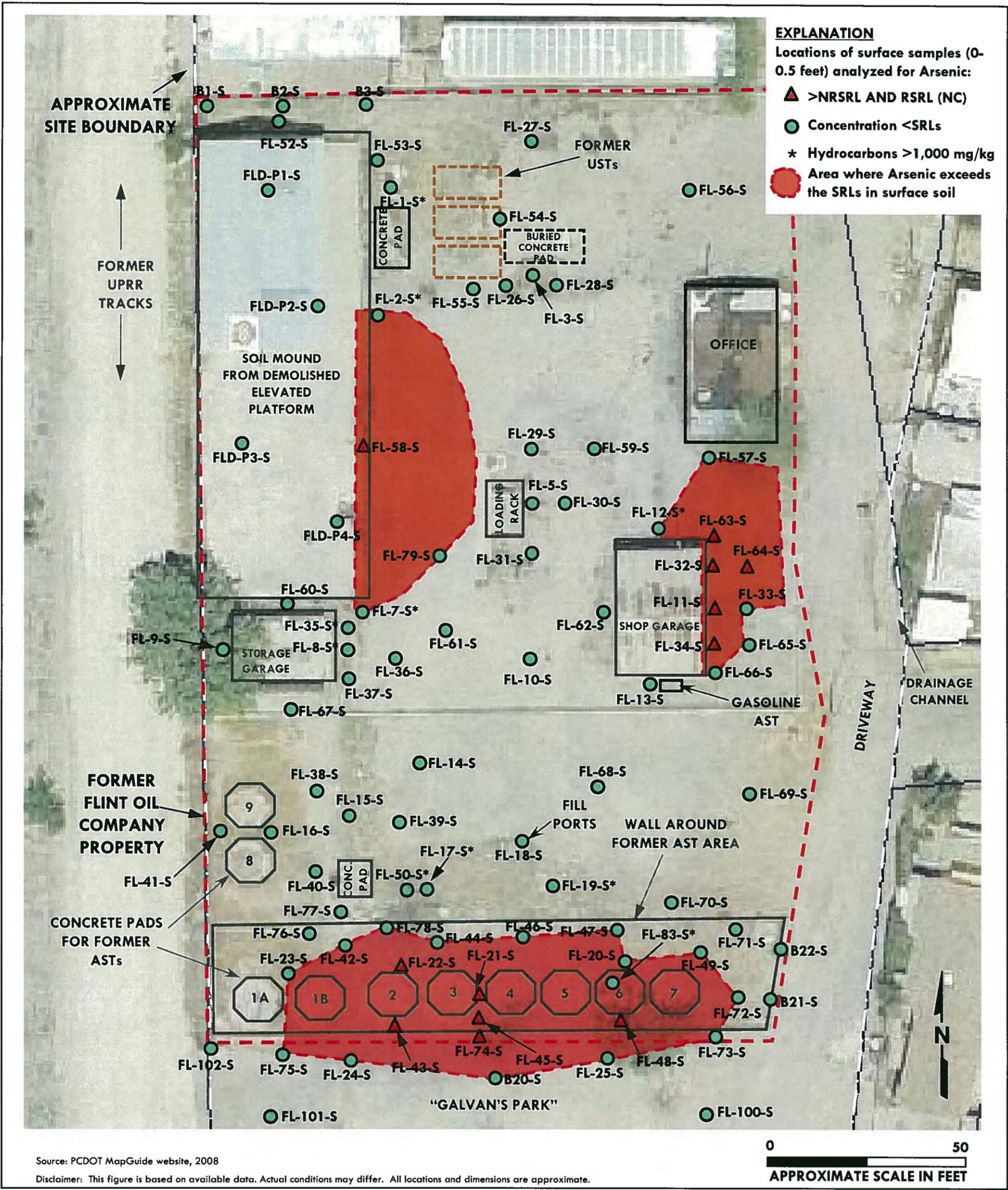




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Tucson, Arizona

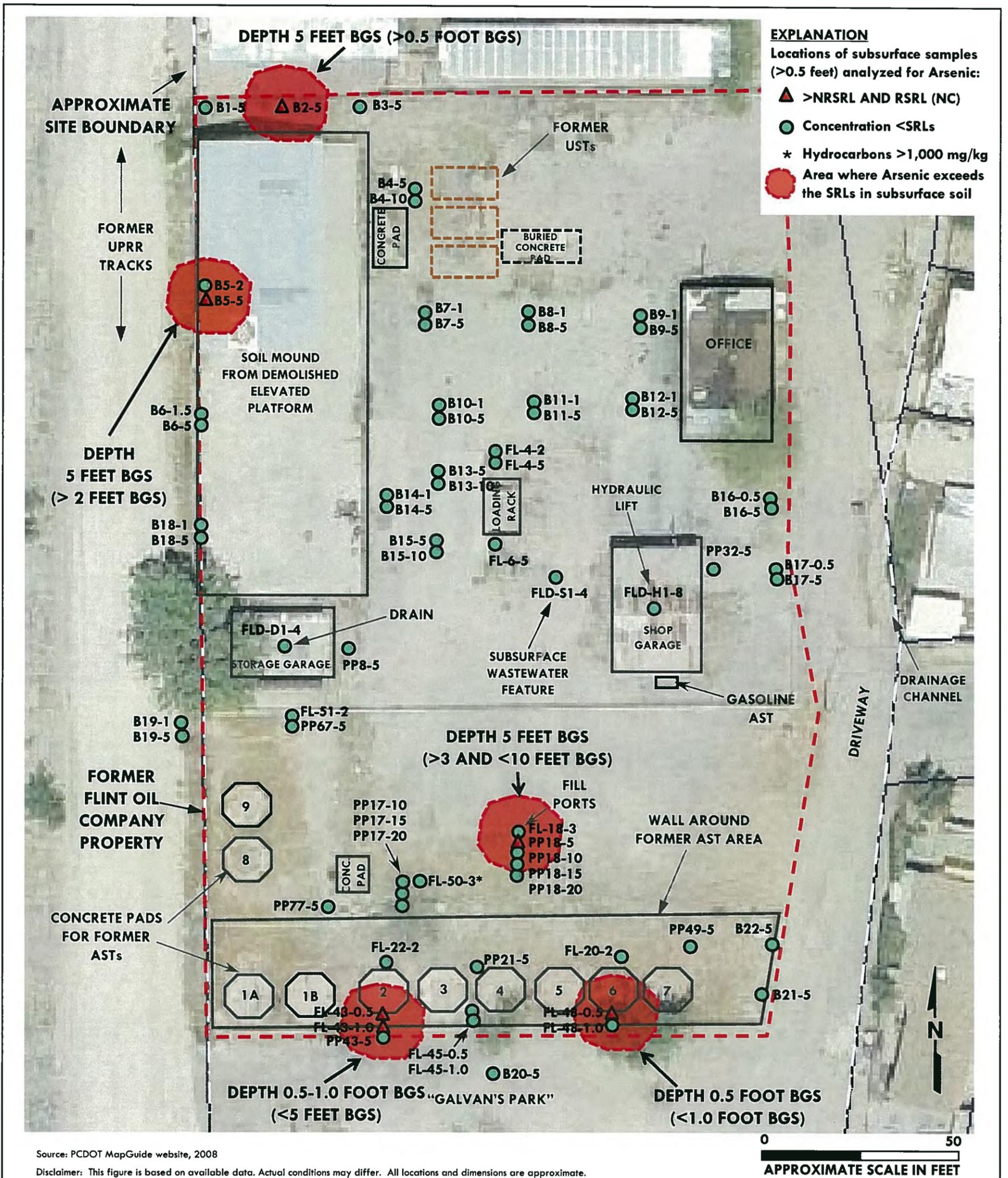
Figure 7
Subsurface (>5 Feet bgs)
Sample Locations Map

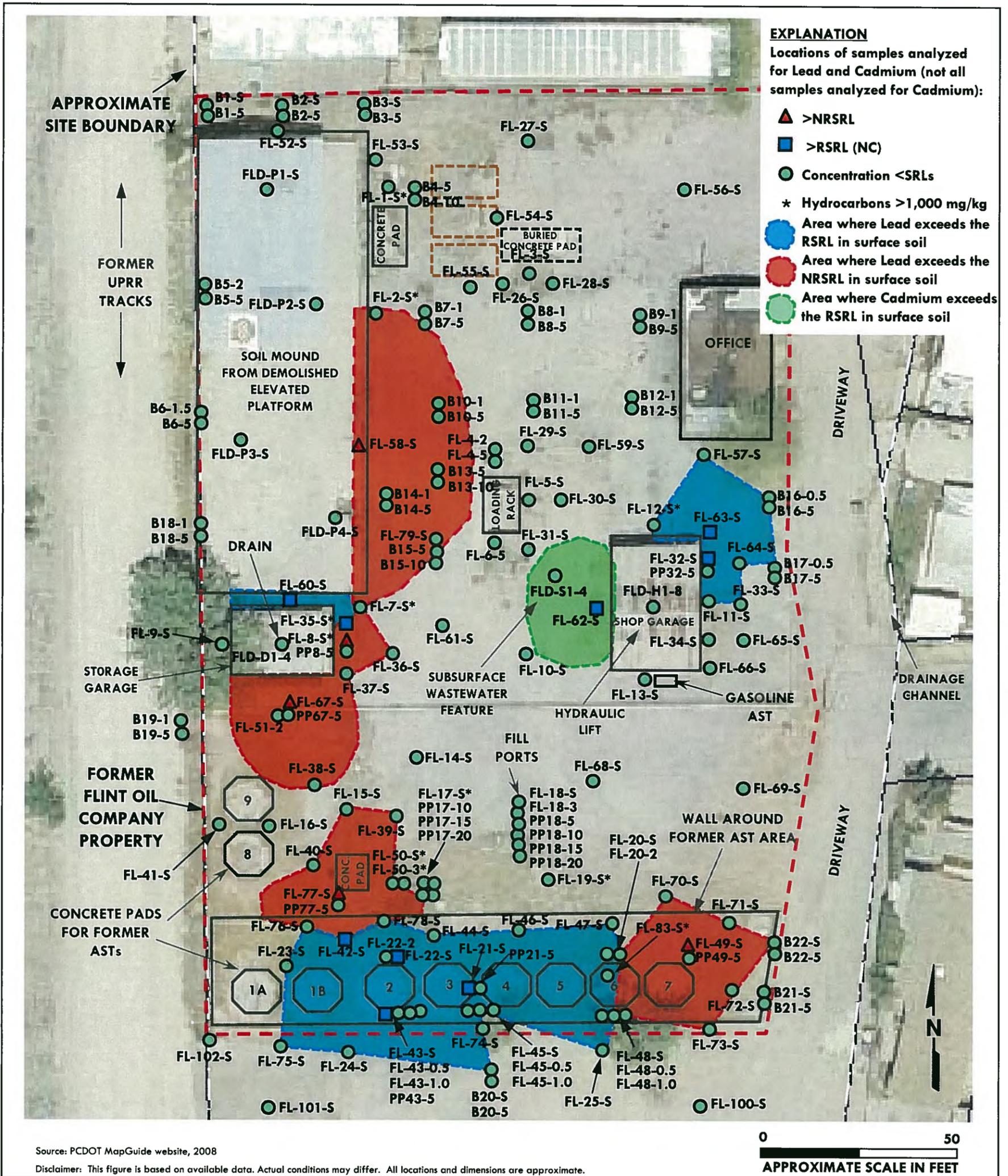


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 Tucson, Arizona

Figure 8
 Arsenic Above SRLs
 in Surface Soil

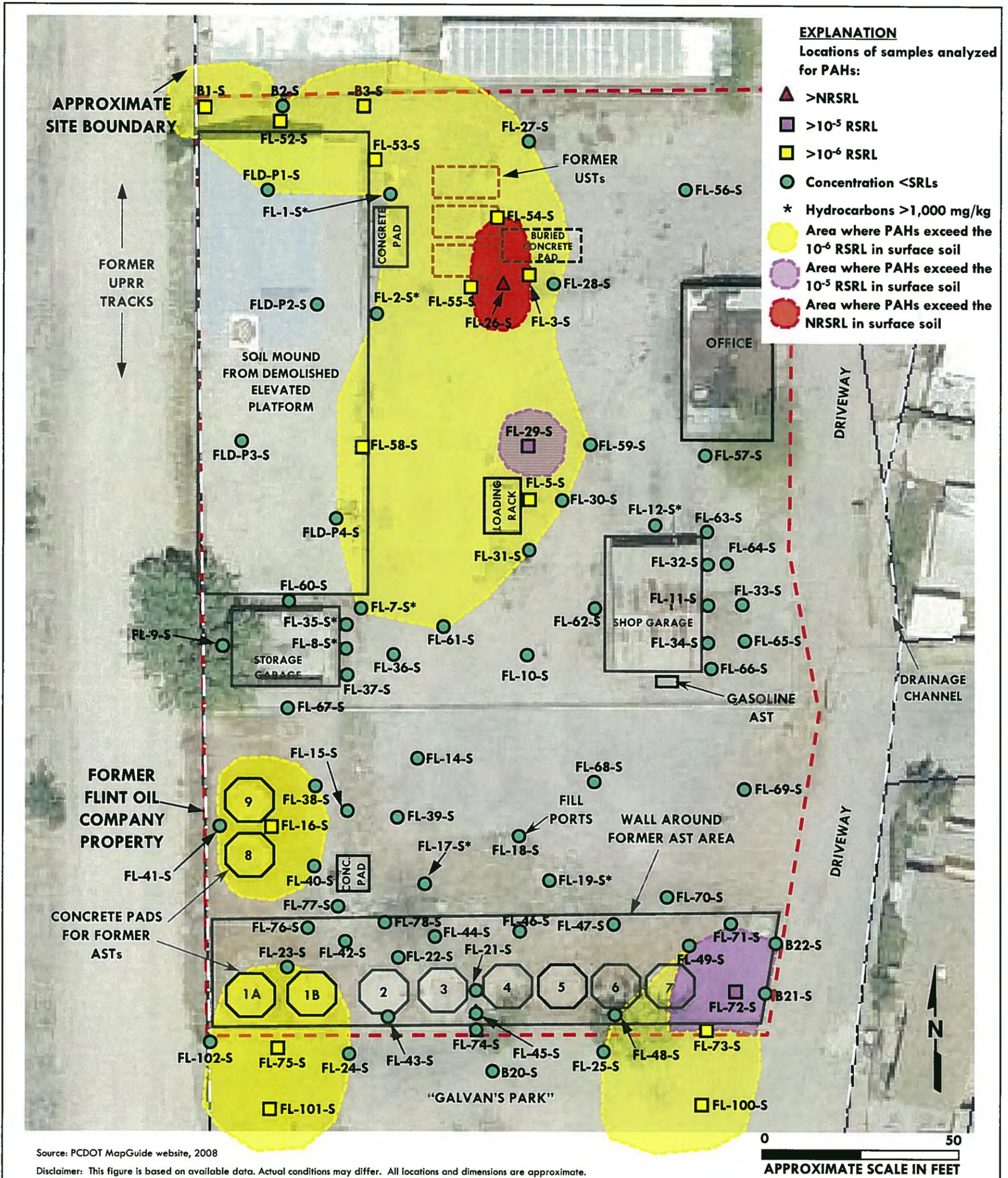




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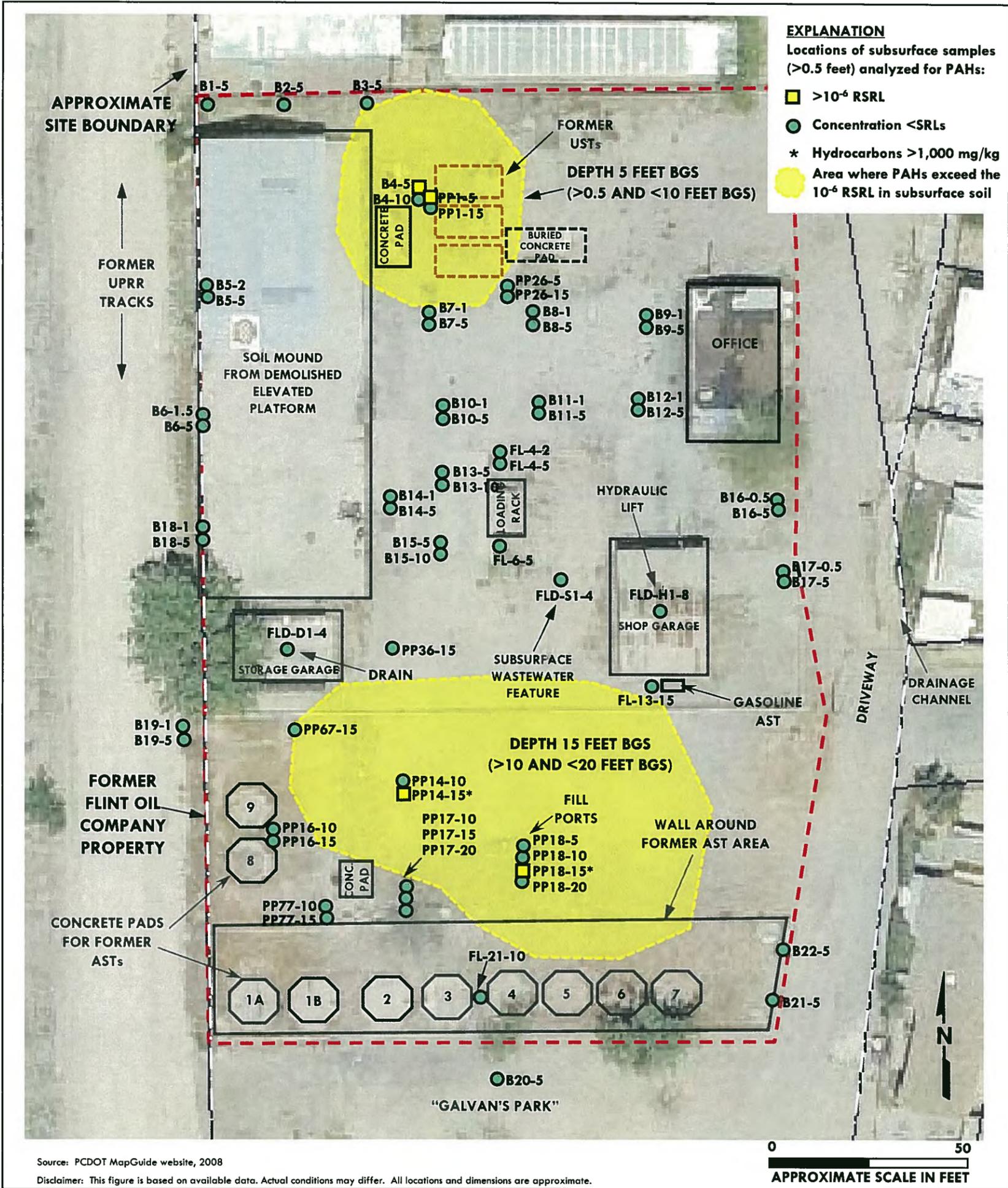
Figure 10
 Lead and Cadmium Above
 SRLs in Surface Soil



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Figure 11
PAHs Above SRLs
In Surface Soil



APPENDIX B
PHOTOGRAPHS

DEMOLITION ACTIVITIES – APRIL 13 – 17, 2009



Photograph 1. Demolition of former aboveground storage tank (AST) pads in the southwest portion of the site; view to the southwest.



Photograph 2. Graded area after removal of concrete AST pads. View to the north.



Photograph 3. Grading north of the AST containment area for weed control. View to the east.



Photograph 4. Demolition of the AST containment wall in the south portion of the site. View to the east.



Photograph 5. Removal of concrete AST pads in the containment area. View to the north.



Photograph 6. Removal of debris from the AST containment area. View to the east.



Photograph 7. Grading and compacting AST containment area after removal of debris. View to the southeast.



Photograph 8. Demolition of the storage garage. View to the north.



Photograph 9. Drain under debris in the center of the storage garage. View to the northeast.



Photograph 10. Excavation for sampling the drain area in the storage garage.



Photograph 11. Fill soil and grading in the storage garage area. View to the northwest.



Photograph 12. Demolition of the warehouse. View to the northeast.



Photograph 13. Soil pile beneath the elevated warehouse pad after demolition of the building and concrete. View to the northwest.



Photograph 14. Demolition of the shop garage. View to the east.



Photograph 15. Demolition of the shop garage concrete pad. View to the southwest.



Photograph 16. Hydraulic lift cylinder in the center of the shop garage.



Photograph 17. Hydraulic lift cylinder after removal.



Photograph 18. Hole found at location of subsurface wastewater feature west of the shop garage. View to the east.



Photograph 19. Excavation at wastewater feature showing gravel fill. View to the northeast.



Photograph 20. Beginning to demolish the former loading rack pit. View to the northwest.



Photograph 21. Removal of concrete from the loading rack pit. View to the northwest.



Photograph 22. Excavation of the buried concrete pad in the north portion of the site. View to the west.



Photograph 23. Removal of piping and posts south of the buried concrete pad. View to the northwest.



Photograph 24. Removal of pavement east of the elevated warehouse pad. View to the northeast.

APPENDIX C

TABLES

TABLE 1. SUMMARY OF LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES COLLECTED DURING DEMOLITION ACTIVITIES

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)			PAHs (8310)								RCRA METALS (60108/7471A)						VOCs (8260)	PCBs (8082)
			C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[k]f	Chry	Flnth	Phen	Py	As	Ba	Cd	Cr ^T	Pb	Hg		
FLD-P1-S	4/17/09	surface	<30	<100	<130	<0.010	<0.010	<0.020	<0.010	<0.020	<0.030	<0.030	<0.020	8.6	67	0.56	5.0	10	0.12	ND	na
FLD-P2-S	4/17/09	surface	<30	160	160	0.021	0.026	0.043	0.017	0.056	0.053	0.030	0.089	6.0	57	0.52	5.4	52	0.11	ND	na
FLD-P3-S	4/17/09	surface	120	220	350	<0.010	<0.010	<0.020	<0.010	<0.020	<0.030	<0.030	<0.020	<5.0	67	<0.50	3.8	11	<0.10	ND	na
FLD-P4-S	4/17/09	surface	42	310	350	<0.010	<0.010	<0.020	<0.010	<0.020	<0.030	<0.030	<0.020	<5.0	90	<0.50	6.2	110	<0.10	ND	na
FLD-D1-4	4/17/09	4	<30	<100	<130	<0.010	<0.010	<0.020	<0.010	<0.020	<0.030	<0.030	<0.020	8.8	130	<0.50	7.9	25	<0.10	ND	ND
FLD-H1-8	4/17/09	8	40	270	310	<0.010	<0.010	<0.020	<0.010	<0.020	<0.030	<0.030	<0.020	<5.0	49	<0.50	3.0	8.1	<0.10	ND	ND
FLD-S1-4	4/17/09	4	<30	230	230	<0.010	<0.010	<0.020	<0.010	<0.020	<0.030	<0.030	<0.020	5.0	100	<0.50	6.8	18	<0.10	ND	na
RSRL (10 ⁻⁴ Risk)			none	none	none	0.69	0.069	0.69	6.9	68	none	none	none	10	none	none	none	none	none		
RSRL (10 ⁻³ Risk)			none	none	none	6.9	0.69	6.9	69	680	none	none	none	10	none	none	none	none	none		
RSRL (Non-carcinogen)			none	none	none	none	none	none	none	none	2,300	none	2,300	10	15,000	39	none	400	23		
NRSRL			none	none	none	21	2.1	21	110	2,000	22,000	none	29,000	10	170,000	510	none	800	310		

Notes: Only compounds with detected concentrations are shown
 All sample results are in milligrams per kilogram (mg/kg)
 C10-C22 DRO = Carbon range of diesel fuel petroleum hydrocarbons
 C22-C32 DRO = Carbon range of oil petroleum hydrocarbons
 C10-C32 SRL = Carbon range of former Arizona Soil Remediation Level for petroleum hydrocarbons
 VOCs = Volatile organic compounds
 na = Not analyzed
 ND = Not Detected
 RSRL = Arizona Residential Soil Remediation Level
 NRSRL = Arizona Non-Residential Soil Remediation Level
 none = There is no Arizona SRL for this compound

PAH = Polynuclear Aromatic Hydrocarbons
 B[a]a = Benz[a]anthracene
 B[a]p = Benzo[a]pyrene
 B[b]f = Benzo[b]fluoranthene
 B[k]f = Benzo[k]fluoranthene
 Chry = Chrysene
 Flrnth = Fluoranthene
 I[1,2,3-cd]p = Indeno[1,2,3-cd]pyrene
 Phen = Phenanthrene
 Py = Pyrene
 As = Arsenic
 Ba = Barium
 Cd = Cadmium
 Cr^T = Total Chromium
 Pb = Lead
 Hg = Mercury

TABLE 2. SUMMARY OF LABORATORY ANALYTICAL RESULTS FOR SOIL BORINGS AND SURFACE SAMPLES

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in)	PAHs (8310)	RCRA METALS (6010B)	
			Benzo[a]pyrene	Arsenic	Lead
B1-S	6/17/09	surface	0.22	7.4	98
B1-5	6/17/09	5	<0.010	8.9	22
B2-S	6/17/09	surface	<0.10	6.1	85
B2-5	6/17/09	5	<0.010	16	33
B3-S	6/17/09	surface	0.15	6.8	130
B3-5	6/17/09	5	<0.010	7.4	25
B4-5	6/17/09	5	0.20	<5.0	35
B4-10	6/17/09	10	<0.10	<5.0	20
B5-2	6/17/09	2	<0.010	7.3	34
B5-5	6/17/09	5	<0.010	13	38
B6-1.5	6/17/09	1.5	<0.10	5.9	65
B6-5	6/17/09	5	<0.010	7.2	28
B7-1	6/17/09	1	<0.010	9.5	44
B7-5	6/17/09	5	<0.010	5.2	21
B8-1	6/17/09	1	<0.050	6.6	66
B8-5	6/17/09	10	<0.010	5.8	21
B9-1	6/17/09	1	<0.010	6.2	49
B9-5	6/17/09	5	<0.010	8.2	23
B10-1	6/17/09	1	<0.010	7.9	37
B10-5	6/17/09	5	<0.010	5.6	20
B11-1	6/17/09	1	<0.010	6.6	30
B11-5	6/17/09	5	<0.010	6.3	22
B12-1	6/17/09	1	<0.010	6.0	29
B12-5	6/17/09	5	<0.010	<5.0	19
B13-5	6/17/09	5	<0.010	5.6	19
B13-10	6/17/09	10	<0.010	6.9	25
B14-1	6/17/09	1	<0.010	6.1	23
B14-5	6/17/09	5	<0.010	8.6	20
B15-5	6/17/09	5	<0.010	6.7	20
B15-10	6/17/09	10	<0.010	6.5	28
B16-0.5	6/17/09	0.5	<0.010	6.5	100
B16-5	6/17/09	10	<0.010	5.5	21
B17-0.5	6/17/09	0.5	<0.010	6.4	63
B17-5	6/17/09	5	<0.010	5.8	19
B18-1	6/17/09	1	<0.050	7.9	43
B18-5	6/17/09	5	<0.010	5.3	18
B19-1	6/17/09	1	<0.050	6.9	150
B19-5	6/17/09	5	<0.010	6.7	36
B20-S	6/17/09	surface	<0.010	7.7	66
B20-5	6/17/09	5	<0.050	5.8	30
B21-S	6/17/09	surface	<0.10	9.4	93
B21-5	6/17/09	5	<0.010	6.8	21
B22-S	6/17/09	surface	<0.20	6.2	86
B22-5	6/17/09	5	<0.010	6.0	22
FL-100-S	6/17/09	surface	0.21	5.2	83
FL-101-S	6/17/09	surface	0.11	6.8	97
FL-102-S	6/17/09	surface	<0.10	6.7	240
RSRL (10 ⁻⁴ Risk)			0.069	10	none
RSRL (10 ⁻⁵ Risk)			0.69	10	none
RSRL (Non-carcinogen)			none	10	400
NRSRL			2.1	10	800

Notes: Only compounds with detected concentrations are shown
 All sample results are in milligrams per kilogram (mg/kg)
 PAH = Polynuclear Aromatic Hydrocarbons
 RSRL = Arizona Residential Soil Remediation Level
 NRSRL = Arizona Non-Residential Soil Remediation Level
 none = There is no Arizona SRL for this compound
 Highlighted sample results exceed the RSRL or NRSRL
 Highlighted samples that are non-detect indicate that the laboratory reporting limit exceeded the SRL

TABLE 3. SUMMARY OF ALL SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)		
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flmth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ⁺	Cr ^{VI}	Pb			Hg	
FL-1-5	2/5/08	surface	24	220	1,400	1,620	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	7.0	91	1.7	7.5	na	27	<0.083	ND	ND	
PP1-5	11/18/08	5	na	<30	<100	<130	<0.40	0.24	<0.40	<0.40	<0.60	<0.40	0.24	<1.0	na	na	na	na	na	na	na	na	na	
FL-2-5	2/5/08	surface	<200	1,100	9,900	11,000	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	<5.0	110	2.2	11	na	61	<0.083	ND	ND	
FL-3-5	2/5/08	surface	<20	80	180	260	<0.40	0.11	<0.40	<0.40	<0.40	<0.40	0.50	<0.40	<5.0	49	<1.0	<5.0	na	32	<0.083	ND	ND	
FL-4-2.0	9/18/08	2	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.0	140	<1.0	13	na	43	0.19	na	na	
FL-4-5	2/5/08	5	<20	<30	<100	<130	<0.40	<0.010	<0.40	<0.40	<0.40	<0.40	<0.020	<0.40	5.7	110	<1.0	9.1	na	38	<0.083	ND	ND	
FL-5-5	2/5/08	surface	<20	41	160	201	<0.20	0.20	0.22	0.20	<0.20	0.32	0.29	0.39	5.3	97	<1.0	7.0	na	53	<0.083	ND	ND	
FL-6-5	2/5/08	5	<20	140	<100	140	<0.40	<0.010	<0.40	<0.40	<0.40	<0.40	<0.020	<0.40	7.1	130	<1.0	7.4	na	12	<0.083	ND	ND	
FL-7-5	2/5/08	surface	<200	1,100	9,000	10,100	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.9	100	1.3	14	na	200	<0.083	ND	ND	
FL-8-5	2/5/08	surface	<100	530	4,600	5,130	<0.080	0.056	<0.080	0.12	<0.080	<0.080	0.11	<0.080	5.8	190	2.5	15	na	2,000	<0.083	ND	ND	
PP8-5	11/18/08	5	na	<30	<100	<130	na	na	na	na	na	na	na	na	7.9	na	na	na	na	14	na	na	na	
FL-9-5	2/5/08	surface	<100	<150	<500	<650	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	6.5	130	1.5	11	na	70	<0.083	ND	ND	
FL-10-5	2/5/08	surface	<100	<150	<500	<650	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.3	120	<1.0	13	na	110	0.16	ND	ND	
FL-11-5	2/5/08	surface	<100	<150	<500	<650	<0.20	<0.050	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	22	98	<1.0	34	<0.50	180	0.41	ND	ND	
FL-12-5	2/5/08	surface	<200	<300	1,400	1,400	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.9	92	1.6	8.5	na	210	9.9	ND	ND	
FL-13-5	8/12/08	surface	<20	<30	110	<130	na	na	na	na	na	na	na	na	8.8	160	<1.0	13	na	77	0.22	ND	ND	
PP13-15	11/18/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	
FL-14-5	2/5/08	surface	<200	<300	<1000	<1300	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	<5.0	78	<1.0	5.7	na	100	<0.083	ND	ND	
PP14-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	
PP14-15	11/17/08	15	na	2,900	320	3,220	0.73	<0.020	<0.080	<0.080	<0.12	<0.080	<0.040	0.31	na	na	na	na	na	na	na	na	na	na
FL-15-5	2/5/08	surface	<20	250	<100	250	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	7.8	130	2.7	25	na	300	<0.083	ND	ND	
FL-16-5	2/5/08	surface	<20	<30	<100	<130	<0.40	0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	6.7	130	1.5	11	na	230	0.11	ND	ND	
PP16-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	
PP16-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	
FL-17-5	2/5/08	surface	<20	460	780	1,240	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	5.4	130	1.5	8.8	na	210	<0.083	ND	ND	
PP17-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.4	na	na	na	na	16	na	na	na	
PP17-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.2	na	na	na	na	8.7	na	na	na	
PP17-20	11/17/08	20	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.3	na	na	na	na	8.3	na	na	na	
FL-18-5	2/5/08	surface	<20	300	350	650	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	<5.0	84	<1.0	5.2	na	91	<0.083	ND	ND	
FL-18-3	8/12/08	3	<20	120	130	250	na	na	na	na	na	na	na	na	7.4	170	<1.0	12	na	44	0.25	ND	ND	
PP18-5	11/17/08	5	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	12	na	na	na	na	17	na	na	na	
PP18-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	8.0	na	na	na	na	13	na	na	na	
PP18-15 ²	11/17/08	15	na	6,200	<1000	6,200	1.4	<0.010	<0.040	<0.040	<0.060	0.50	<0.020	<0.10	<5.0	na	na	na	na	6.7	na	Note #2	Note #2	
PP18-20	11/17/08	20	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	<5.0	na	na	na	na	<5.0	na	na	na	
FL-19-5	2/5/08	surface	<20	3,300	1,800	5,100	<0.80	<0.20	<0.80	<0.80	<0.80	<0.80	<0.40	<0.80	5.6	89	<1.0	5.5	na	55	<0.083	ND	ND	
FL-20-5	2/5/08	surface	<20	46	140	186	na	na	na	na	na	na	na	na	8.7	180	1.6	14	na	330	0.15	ND	ND	
FL-20-2	8/12/08	2	<20	<30	<100	<130	na	na	na	na	na	na	na	na	6.1	130	<1.0	12	na	13	<0.083	ND	ND	
FL-21-5	2/5/08	surface	<20	64	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	22	130	1.2	12	na	550	<0.083	ND	ND	
PP21-5	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	na	5.9	na	na	na	na	8.1	na	na	na	
PP21-10	11/18/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	
FL-22-5	2/5/08	surface	<20	50	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.40	<0.40	<0.20	<0.40	11	190	1.2	22	na	740	<0.083	ND	ND	
FL-22-2	8/12/08	2	<20	<30	<100	<130	na	na	na	na	na	na	na	na	7.9	150	<1.0	12	na	14	<0.083	ND	ND	
FL-23-5	2/5/08	surface	<20	<30	<100	<130	<0.040	0.010	<0.040	<0.040	<0.040	<0.040	0.029	<0.040	8.2	170	<1.0	11	na	120	0.10	ND	ND	
FL-24-5	2/5/08	surface	<20	61	<100	<130	<0.040	0.027	0.040	0.040	<0.040	<0.040	0.043	0.066	6.2	85	<1.0	8.5	na	130	<0.083	ND	ND	
FL-25-5	2/5/08	surface	<100	<150	<500	<650	<0.040	0.060	0.079	0.077	0.056	0.061	0.10	0.050	6.7	150	1.0	11	na	74	<0.083	ND	ND	
FL-26-5	7/29/08	surface	<20	<30	140	140	<4.0	2.2	<4.0	<4.0	<6.0	<4.0	3.1	<1.0	<5.0	83	<1.0	6.9	na	43	<0.083	na	na	
PP26-5	11/17/08	5	na	<30	<100	<130	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	na	na	na	na	na	na	na	na	na	
PP26-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	na	na	
FL-27-5	7/29/08	surface	<20	46	750	796	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	120	<1.0	6.1	na	93	<0.083	na	na	
FL-28-5	7/2																							

TABLE 3. SUMMARY OF ALL SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (In feet)	HYDROCARBONS (8015AZ)				PAHs (8310)								RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)	
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flmth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}	Pb			Hg
FL-45-1.0	9/18/08	1	na	na	na	na	na	na	na	na	na	na	na	7.4	na	na	na	na	18	na	na	na	
FL-46-S	7/29/08	surface	<20	<30	<100	<130	<0.040	0.017	<0.040	<0.040	<0.060	<0.040	0.024	<0.10	<5.0	98	<1.0	5.1	na	45	<0.083	na	na
FL-47-S	7/29/08	surface	<20	<30	<100	<130	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	9.4	110	<1.0	11	na	340	<0.083	na	na
FL-48-S	7/29/08	surface	<20	66	<100	<130	<4.0	<1.0	<4.0	<4.0	<6.0	<4.0	<2.0	<1.0	12	110	<1.0	14	na	290	<0.083	na	na
FL-48-0.5	9/18/08	0.5	na	na	na	na	na	na	na	na	na	na	na	13	na	na	na	na	57	na	na	na	na
FL-48-1.0	9/18/08	1	na	na	na	na	na	na	na	na	na	na	na	8.1	na	na	na	na	32	na	na	na	na
FL-49-S	7/29/08	surface	<20	<30	250	250	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.5	120	1.3	11	na	1,300	<0.083	na	na
PP49-S	11/18/08	5	na	na	na	na	na	na	na	na	na	na	na	7.3	na	na	na	na	7.7	na	na	na	na
FL-50-S	8/12/08	surface	<20	2,400	1,200	3,600	na	na	na	na	na	na	na	<5.0	120	<1.0	9.9	na	41	<0.083	ND	ND	
FL-50-3	8/12/08	3	<100	14,000	2,800	16,800	na	na	na	na	na	na	na	6.5	140	<1.0	10	na	12	<0.083	ND	ND	
FL-51-2	8/12/08	2	<20	<30	270	270	na	na	na	na	na	na	na	9.7	190	<1.0	11	na	38	0.29	ND	ND	
FL-52-S	9/18/08	surface	na	na	na	na	<0.40	0.11	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.7	170	1.8	13	na	340	<0.083	ND	ND
FL-53-S	9/18/08	surface	na	na	na	na	<0.80	0.30	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	5.4	140	5.2	15	na	310	<0.083	ND	ND
FL-54-S	9/18/08	surface	na	na	na	na	<0.40	0.16	<0.40	<0.40	<0.60	<0.40	0.38	<1.0	<5.0	120	2.0	13	na	81	<0.083	na	na
FL-55-S	9/18/08	surface	na	na	na	na	<0.40	0.22	<0.40	0.41	<0.60	<0.40	0.52	<1.0	<5.0	na	na	na	na	110	na	na	na
FL-56-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	5.9	110	<1.0	7.9	na	35	<0.083	ND	ND
FL-57-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	7.3	93	<1.0	9.2	na	54	0.34	ND	ND
FL-58-S	9/18/08	surface	na	na	na	na	<0.80	0.42	<0.80	<0.80	<1.2	<0.80	0.58	<2.0	62	1,100	27	31	na	13,000	0.15	ND	ND
FL-59-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	<5.0	96	<1.0	7.8	na	74	<0.083	na	na
FL-60-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	8.5	720	3.8	23	na	470	0.13	ND	ND
FL-61-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	81	<1.0	7.3	na	65	<0.083	ND	ND
FL-62-S ²	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	130	72	6.1	na	41	<0.083	ND	ND
FL-63-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	15	180	<1.0	13	na	710	0.30	na	na
FL-64-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	17	110	<1.0	6.1	na	19	<0.083	na	na
FL-65-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	160	<1.0	5.3	na	6.2	<0.083	na	na
FL-66-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	5.1	120	<1.0	<5.0	na	38	<0.083	na	na
FL-67-S	9/18/08	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.1	230	2.9	21	na	2,400	<0.083	ND	ND
PP67-S	11/17/08	5	na	na	na	na	na	na	na	na	na	na	na	6.5	na	na	na	na	7.4	na	na	na	na
PP67-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	ND	ND
FL-68-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.6	150	<1.0	5.4	na	21	<0.083	ND	ND
FL-69-S	9/18/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	<5.0	130	<1.0	5.5	na	12	<0.083	ND	ND
FL-70-S	9/18/08	surface	na	na	na	na	<0.040	0.021	<0.040	<0.040	<0.060	<0.040	0.031	<0.10	<5.0	84	<1.0	6.5	na	93	<0.083	ND	ND
FL-71-S	9/18/08	surface	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	<5.0	50	<1.0	<5.0	na	80	<0.083	na	na
FL-72-S ²	9/18/08	surface	na	na	na	na	2.3	1.9	1.4	0.74	1.8	2.4	1.3	3.8	7.3	120	<1.0	8.6	na	130	<0.083	na	na
FL-73-S	9/19/08	surface	na	na	na	na	<0.40	0.15	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	7.5	180	2.0	13	na	130	0.15	na	na
FL-74-S	9/19/08	surface	na	na	na	na	<0.20	<0.050	<0.20	<0.20	<0.30	<0.20	<0.10	<0.50	31	160	9.6	12	na	220	0.15	na	na
FL-75-S	9/19/08	surface	na	na	na	na	<0.40	0.21	<0.40	<0.40	<0.60	<0.40	0.26	<1.0	6.5	140	1.8	11	na	110	<0.083	na	na
FL-76-S	9/19/08	surface	na	na	na	na	<0.040	0.020	<0.040	<0.040	<0.060	<0.040	0.047	<0.10	9.2	180	<1.0	13	na	150	0.087	na	na
FL-77-S	9/19/08	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	8.8	160	<1.0	18	na	2,100	0.10	na	na
PP77-S	11/17/08	5	na	na	na	na	na	na	na	na	na	na	na	7.1	na	na	na	na	6.4	na	na	na	na
PP77-10	11/17/08	10	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	ND	ND
PP77-15	11/17/08	15	na	<30	<100	<130	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	na	na	na	na	na	na	na	ND	ND
FL-78-S	9/19/08	surface	na	na	na	na	<0.040	0.029	<0.040	<0.040	<0.060	<0.040	0.039	<0.10	9.7	150	<1.0	20	na	320	0.085	na	na
FL-79-S	9/24/08	surface	<20	64	<100	<130	na	na	na	na	na	na	na	6.9	160	1.1	51	na	270	0.086	ND	ND	
FL-83-S ¹	9/24/08	surface	<100	1,000	13,000	14,000	na	na	na	na	na	na	na	<5.0	15	<1.0	<5.0	na	85	<0.083	ND	ND	
FLD-P1-S	4/17/09	surface	na	<30	<100	<130	<0.010	<0.010	<0.020	<0.030	<0.020	<0.030	<0.010	<0.020	8.6	67	0.56	5.0	na	10	0.12	ND	na
FLD-P2-S ²	4/17/09	surface	na	<30	160	160	0.021	0.026	0.043	<0.030	0.056	0.053	<0.010	0.089	6.0	57	0.52	5.4	na	52	0.11	ND	na
FLD-P3-S	4/17/09	surface	na	120	220	350	<0.010	<0.010	<0.020	<0.030	<0.020	<0.030	<0.010	<0.020	<5.0	67	<0.50	3.8	na	11	<0.10	ND	na
FLD-P4-S	4/17/09	surface	na	42	310	350	<0.010	<0.010	<0.020	<0.030	<0.020	<0.030	<0.010	<0.020	<5.0	90	<0.50	6.2	na	110	<0.10	ND	na
FLD-D1-4 ³	4/17/09	4	na	<30	<100	<130	<0.010	<0.010	<0.020	<0.030	<0.020	<0.030	<0.010	<0.020	8.8	130	<0.50	7.9	na	25	<0.10	ND	na
FLD-H1-8 ³	4/17/09	8	na	40	270	310	<0.010	<0.010	<0.020	<0.030	<0.020	<0.030	<0.010	<0.020	<5.0	49	<0.50	3.0	na	8.1	<0.10	ND	na
FLD-S1-4	4/17/09	4	na	<30	230	230	<0.010	<0.010	<0.020	<0.030	<0.020	<0.030	<0.010	<0.020	5.0	100	<0.50	6.8	na	18	<0.10	ND	na
B1-S	6/17/09	surface	na	na	na	na	<0.40	0.22	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	7.4	na	na	na	na	98	na	na	na
B1-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	8.9	na	na	na	na	22	na	na	na
B2-S	6/17/09	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.1	na	na	na	na	85	na	na	na
B2-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	16	na	na	na	na	33	na	na	na
B3-S	6/17/09	surface	na	na	na	na	<0.40	0.15	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.8	na	na	na	na	130	na	na	na
B3-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0												

TABLE 3. SUMMARY OF ALL SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH (in feet)	HYDROCARBONS (801&AZ)				PAHs (8310)							RCRA METALS (6010B/7471A)						VOCs (8260)	SVOCs (8270)		
			C6-C10 GRO	C10-C22 DRO	C22-C32 ORO	C10-C32 SRL	B[a]a	B[a]p	B[b]f	B[g,h,i]p	Chry	Flmth	I[1,2,3-cd]p	Py	As	Ba	Cd	Cr ^T	Cr ^{VI}			Pb	Hg
B11-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.3	na	na	na	na	22	na	na	na
B12-1	6/17/09	1	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.0	na	na	na	na	29	na	na	na
B12-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	<5.0	na	na	na	na	19	na	na	na
B13-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.6	na	na	na	na	19	na	na	na
B13-10	6/17/09	10	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.9	na	na	na	na	25	na	na	na
B14-1	6/17/09	1	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.1	na	na	na	na	23	na	na	na
B14-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	8.6	na	na	na	na	20	na	na	na
B15-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.7	na	na	na	na	20	na	na	na
B15-10	6/17/09	10	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.5	na	na	na	na	28	na	na	na
B16-0.5	6/17/09	0.5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.5	na	na	na	na	100	na	na	na
B16-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.5	na	na	na	na	21	na	na	na
B17-0.5	6/17/09	0.5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.4	na	na	na	na	63	na	na	na
B17-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.8	na	na	na	na	19	na	na	na
B18-1	6/17/09	1	na	na	na	na	<0.20	<0.050	<0.20	<0.20	<0.30	<0.20	<0.10	<0.50	7.9	na	na	na	na	43	na	na	na
B18-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	5.3	na	na	na	na	18	na	na	na
B19-1	6/17/09	1	na	na	na	na	<0.20	<0.050	<0.20	<0.20	<0.30	<0.20	<0.10	<0.50	6.9	na	na	na	na	150	na	na	na
B19-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.7	na	na	na	na	36	na	na	na
B20-S	6/17/09	surface	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	7.7	na	na	na	na	66	na	na	na
B20-5	6/17/09	5	na	na	na	na	<0.20	<0.050	<0.20	<0.20	<0.30	<0.20	<0.10	<0.50	5.8	na	na	na	na	30	na	na	na
B21-S	6/17/09	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	9.4	na	na	na	na	93	na	na	na
B21-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.8	na	na	na	na	21	na	na	na
B22-S	6/17/09	surface	na	na	na	na	<0.80	<0.20	<0.80	<0.80	<1.2	<0.80	<0.40	<2.0	6.2	na	na	na	na	86	na	na	na
B22-5	6/17/09	5	na	na	na	na	<0.040	<0.010	<0.040	<0.040	<0.060	<0.040	<0.020	<0.10	6.0	na	na	na	na	22	na	na	na
FL-100-S	6/17/09	surface	na	na	na	na	<0.40	0.21	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	5.2	na	na	na	na	83	na	na	na
FL-101-S	6/17/09	surface	na	na	na	na	<0.40	0.11	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.8	na	na	na	na	97	na	na	na
FL-102-S	6/17/09	surface	na	na	na	na	<0.40	<0.10	<0.40	<0.40	<0.60	<0.40	<0.20	<1.0	6.7	na	na	na	na	240	na	na	na
RSRL (10 ⁻⁴ Risk)			none	none	none	none	0.69	0.69	0.69	none	68	none	0.69	none	10	none	none	none	30	none	none	none	
RSRL (10 ⁻³ Risk)			none	none	none	none	6.9	6.9	6.9	none	680	none	6.9	none	10	none	none	none	none	none	none	none	
RSRL (Non-carcinogen)			none	none	none	none	none	none	none	none	2,300	none	2,300	10	15,000	39	none	none	400	23	none	none	
NRSRL			none	none	none	none	21	2.1	21	none	2,000	22,000	21	29,000	10	170,000	510	none	65	800	310	none	

Notes: Only compounds with detected concentrations are shown
 All sample results are in milligrams per kilogram (mg/kg)
 C10-C22 DRO = Carbon range of diesel fuel petroleum hydrocarbons
 C22-C32 DRO = Carbon range of oil petroleum hydrocarbons
 C10-C32 SRL = Carbon range of former Arizona Soil Remediation Level for petroleum hydrocarbons
 VOCs = Volatile organic compounds (8260)
 SVOCs = Semi-volatile organic compounds (8270)
 na = Not analyzed
 ND = Not Detected
 RSRL = Arizona Residential Soil Remediation Level
 NRSRL = Arizona Non-Residential Soil Remediation Level
 none = There is no Arizona SRL for this compound
 Highlighted sample results exceed the RSRL or NRSRL
 Highlighted samples that are non-detect indicate that the laboratory reporting limit exceeded the SRL
 Sample collected from saturated sand on top of AST concrete pad

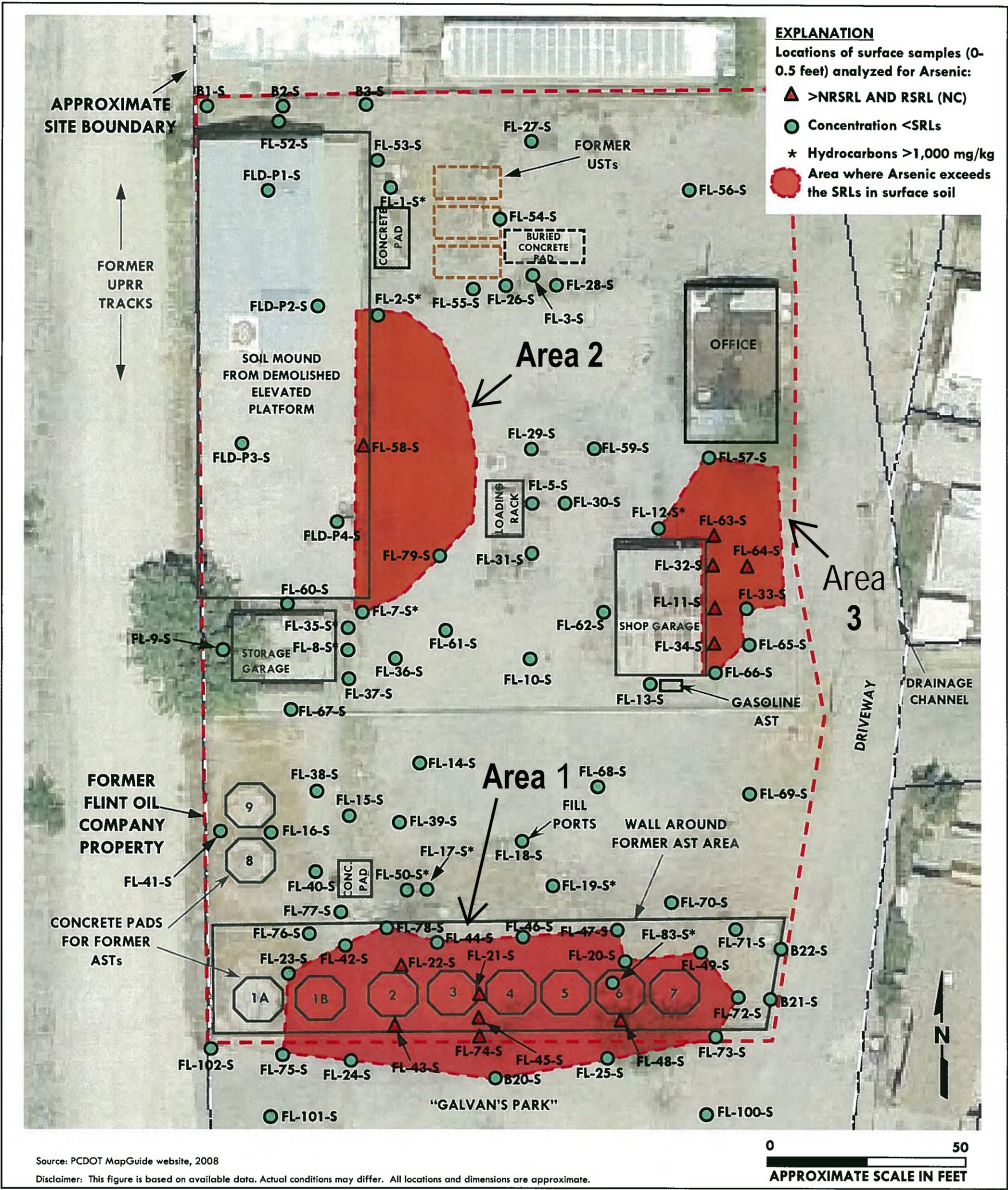
PAH = Polynuclear Aromatic Hydrocarbons
 B[a]a = Benz[a]anthracene
 B[a]p = Benzo[a]pyrene
 B[b]f = Benzo[b]fluoranthene
 B[g,h,i]p = Benzo[g,h,i]perylene
 Chry = Chrysene
 Flmth = Fluoranthene
 I[1,2,3-cd]p = Indeno[1,2,3-cd]pyrene
 Py = Pyrene
 As = Arsenic
 Ba = Barium
 Cd = Cadmium
 Cr^T = Total Chromium
 Cr^{VI} = Chromium VI
 Pb = Lead
 Hg = Mercury

¹ Other chemicals detected in these samples: PP18-15: PAHs: Fluorene = 2.7 mg/kg (<RSRL of 2,700 mg/kg)
 Naphthalene = 4.8 mg/kg (<RSRL of 56 mg/kg)
 Phenanthrene = 9.3 mg/kg (no SRLs)
 SVOCs: 2-Methylnaphthalene = 31 mg/kg (no SRLs)
 Naphthalene = 5.9 (<RSRL of 56 mg/kg)
 Phenanthrene = 7.7 (no SRLs)
 VOCs: n-Butylbenzene = 0.97 mg/kg (<RSRL of 240 mg/kg)
 sec-Butylbenzene = 0.54 mg/kg (<RSRL of 220 mg/kg)
 Ethylbenzene = 0.29 mg/kg (<RSRL of 400 mg/kg)
 4-Isopropyltoluene = 0.53 mg/kg (no SRL)
 Naphthalene = 5.0 mg/kg (<RSRL of 56 mg/kg)
 n-Propylbenzene = 0.45 mg/kg (<RSRL of 240 mg/kg)
 1,2,4-Trimethylbenzene = 5.5 mg/kg (<RSRL of 52 mg/kg)
 1,3,5-Trimethylbenzene = 1.9 mg/kg (<RSRL of 21 mg/kg)
 Xylenes, Total = 2.9 mg/kg (<RSRL of 270 mg/kg)

FL-62-S: Metals: Selenium = 5.2 (<RSRL of 390 mg/kg)
 FL-72-S: PAHs: Anthracene = 0.51 (<RSRL of 22,000 mg/kg)
 Benzo[k]fluoranthene = 0.94 (<10⁻⁶ RSRL of 6.9 mg/kg)
 FLD-P2-S: PAHs: Benzo[k]fluoranthene = 0.017 (<10⁻⁶ RSRL of 6.9 mg/kg)
 Phenanthrene = 0.030 mg/kg (no SRLs)

³ Samples also analyzed for PCBs - none were detected.

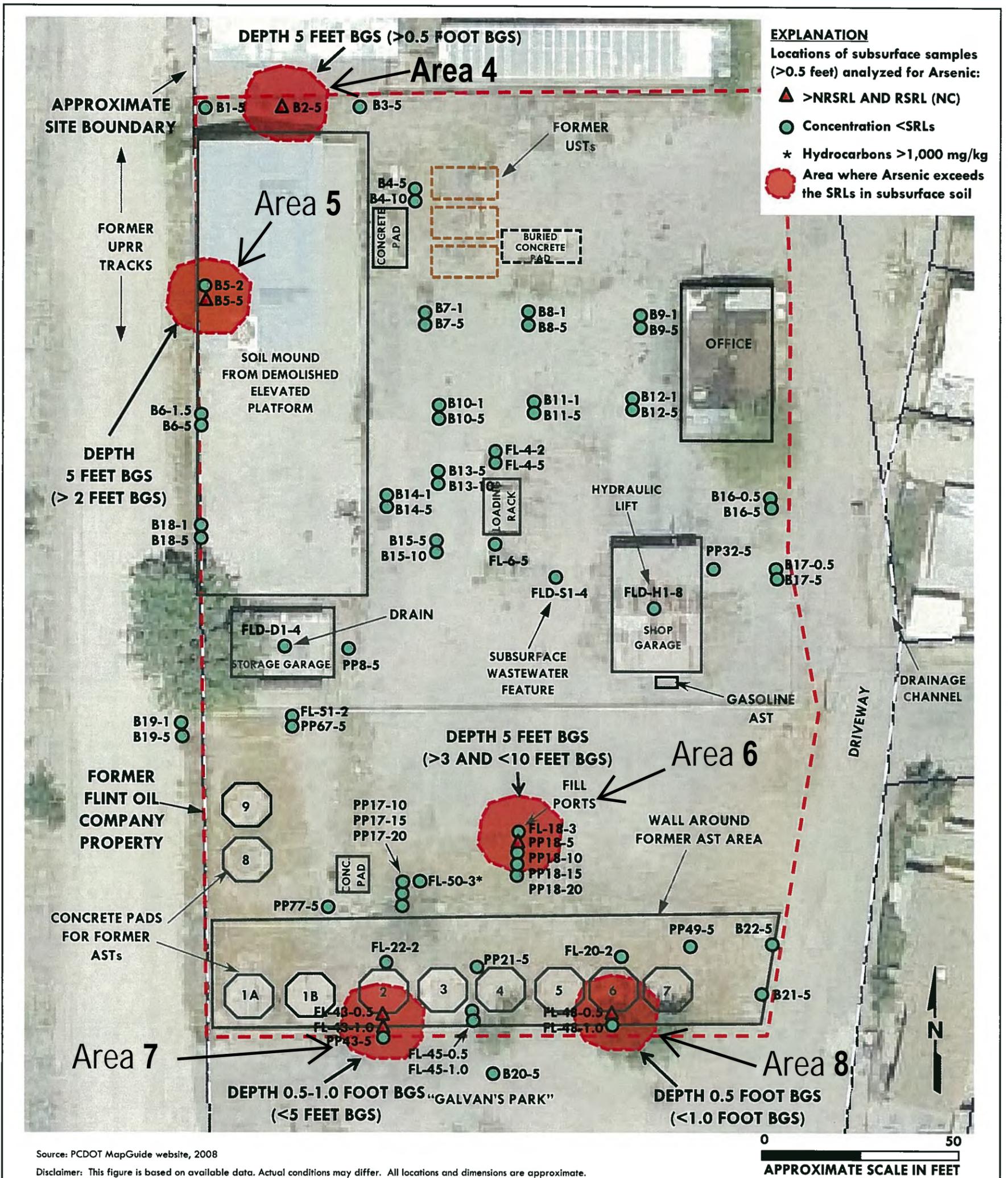
APPENDIX E

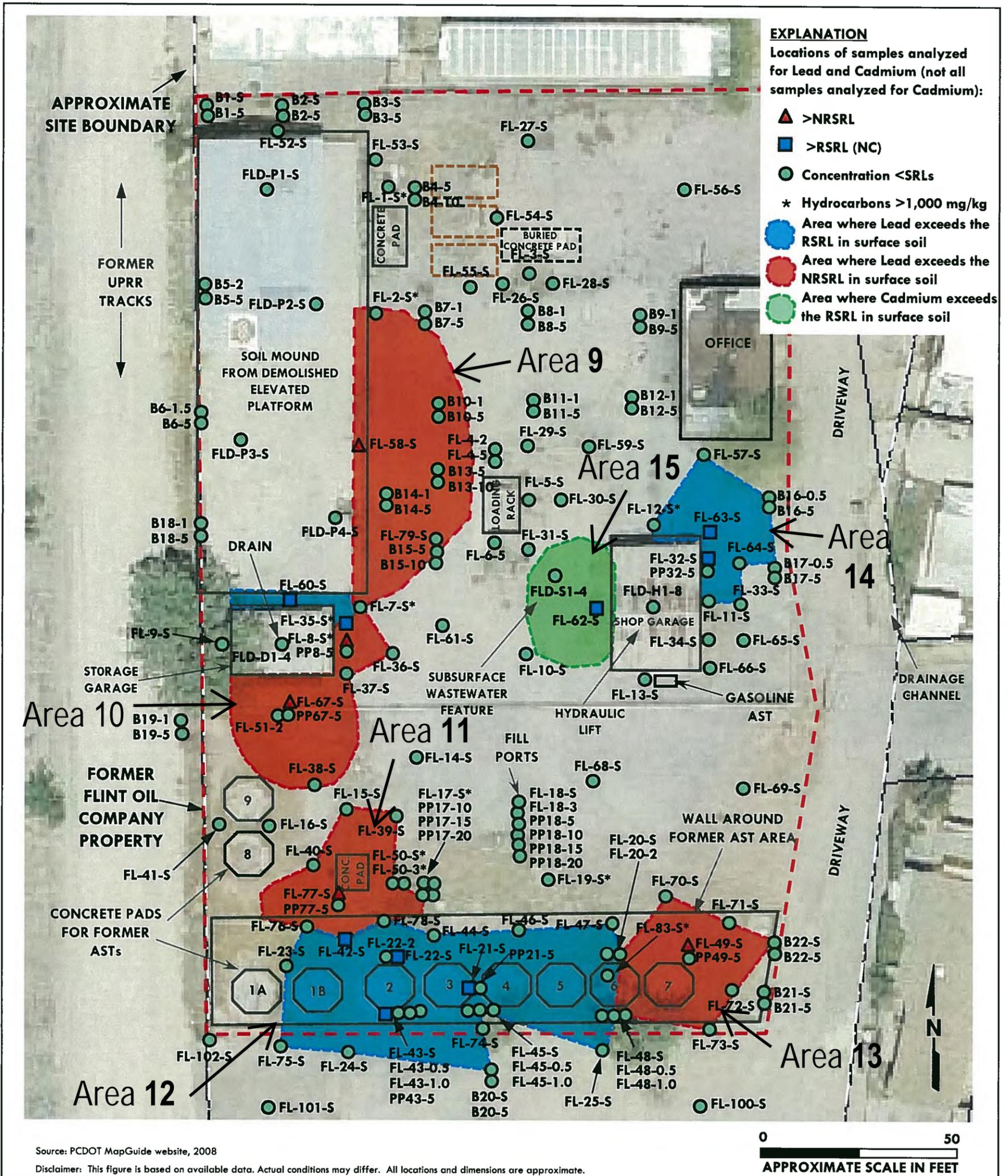


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Addendum to Soil Sampling Report
 Former Flint Oil Property
 505 (500, 511, or 527) West Simpson Street
 Tucson, Arizona

Figure 8
 Arsenic Above SRLs
 in Surface Soil

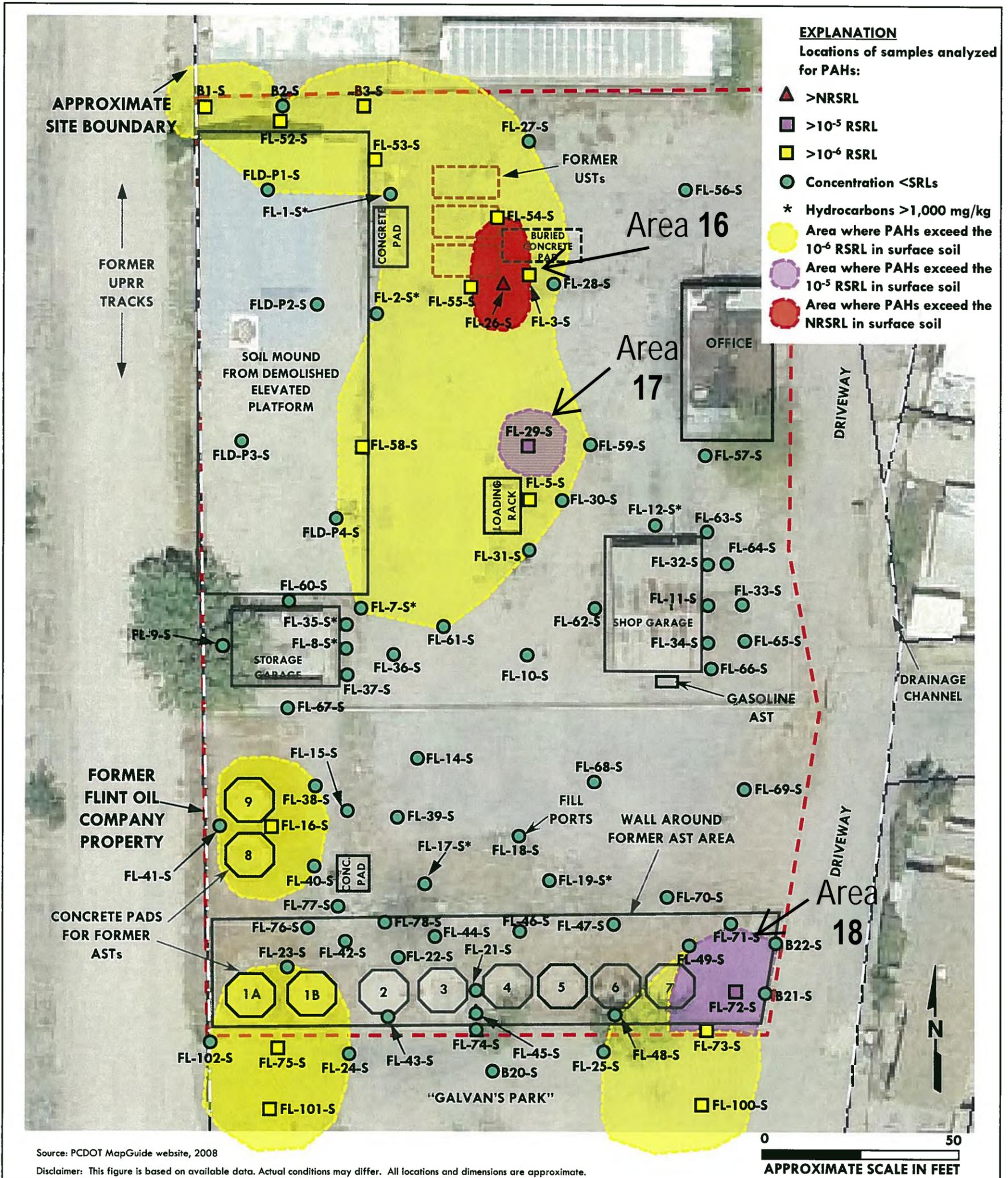




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 505 (500, 511, or 527) West Simpson Street
 Tucson, Arizona

Figure 10
 Lead and Cadmium Above
 SRLs in Surface Soil



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Figure 11
PAHs Above SRLs
In Surface Soil

