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ADDITIONAL SUBSURFACE INVESTIGATION REPORT

APN 8005-015-051
Santa Fe Springs, California 90670

Report Date
September 24, 2024

Partner Project No.
22-392110.9

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1.0 INTRODUCTION

1.1 Purpose

The purpose of the investigation was to further evaluate the petroleum hydrocarbon, arsenic, methane, and volatile organic compound (VOC) impacts to soil and/or soil gas. Elkins Kalt Weintraub Reuben Gartside LLP provided project authorization of Partner Proposal Number P22-392110.9.

1.2 Limitations

This report presents a summary of work conducted by Partner. The work includes observations of site conditions encountered and the analytical results provided by an independent third-party laboratory of samples collected during the course of the project. The number and location of samples were selected to provide the required information. It cannot be assumed that the limited available data are representative of subsurface conditions in areas not sampled.

Conclusions and/or recommendations are based on the observations, laboratory analyses, and the governing regulations. Conclusions and/or recommendations beyond those stated and reported herein should not be inferred from this document.

Partner warrants that the environmental consulting services contained herein were accomplished in accordance with generally accepted practices in the environmental engineering, geology, and hydrogeology fields that existed at the time and location of work. No other warranties are implied or expressed.

1.3 User Reliance

Partner was engaged by Elkins Kalt Weintraub Reuben Gartside LLP (the Addressee), or their authorized representative, to perform this investigation. The engagement agreement specifically states the scope and purpose of the investigation, as well as the contractual obligations and limitations of both parties. This report and the information therein, are for the exclusive use of the Addressee. This report has no other purpose and may not be relied upon, or used, by any other person or entity without the written consent of Partner. Third parties that obtain this report, or the information therein, shall have no rights of recourse or recovery against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, the Addressee and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such use. Unauthorized use of this report shall constitute acceptance of, and commitment to, these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted Partner's standard Terms and Conditions, a copy of which can be found at http://www.partneresi.com/terms-and-conditions.php.

2.0 SITE BACKGROUND

2.1 Site Description

The subject property consists of one parcel of land comprising 26.77 acres located to the north of Telegraph Road and to the west of Santa Fe Springs Road within an industrial area of Santa Fe Springs, Los Angeles County, California. The subject property consists of one, single-story office building on the western edge of the subject property and a canopy structure to the northeast of the building used to cover construction equipment; the remainder of the subject property parcel consists of vacant land utilized for oil production. There are over 100 active, plugged, idle, and/or cancelled oil wells on the subject property. The office building is reportedly utilized by a construction company.

The subject property is bound by industrial properties to the north, vacant lots to the east, a vacant lot and industrial property to the south, and industrial properties to the west. Refer to **Figures 1A and 1B** for a site vicinity map showing site features and surrounding properties.

2.2 Site History

Partner completed a draft *Phase I Environmental Site Assessment Report* (Phase I) for the subject property, dated December 12, 2022, on behalf of Elkins Kalt Weintraub Reuben Gartside LLP. According to historical sources, the subject property was previously undeveloped as early as 1896 and has existed as vacant land utilized for oil production since approximately 1923, with the small office structure present by 1988.

The following recognized environmental condition (REC) were identified in the Phase I:

- According to the California Geologic Energy Management Division (CalGEM), the subject property is located within the Santa Fe Springs Oil Field. Over 100 oil wells were reported to be present on the subject property, consisting of active, idle, plugged, and canceled wells. The wells are currently operated by Bridgeland Resources, LLC, since October 2022. Violations for failure to conduct real-time testing of the monitoring system on injection wells, a notice of reduced injection gradient, and overdue semi-annual testing for idle and active wells were reported. The wells are productive at approximately 4,500 feet below ground surface (bgs). At the time of Partner's site reconnaissance, the oil wells appeared to be properly managed, with good housekeeping observed.

  According to the review of historical sources and regulatory agency records, the subject property has been an active oil field since the 1920s. Oil wells have the potential to pose environmental concerns due to the potential impacts of petroleum hydrocarbons and VOCs to the deep groundwater aquifers, soil, and soil vapor. During oil well drilling of this type, it was common practice to deposit the drilling cuttings in a large excavation near the location of the well. The drilling cuttings could potentially contain elevated levels of crude oil, petroleum hydrocarbons, VOCs, metals, and undisclosed proprietary chemicals.

  Furthermore, the subject property is located in an area of significant oil production, as evidenced by the numerous oil wells located on-site and on the adjoining and surrounding properties. An additional issue of concern with oil wells is the potential emission of methane and hydrogen sulfide gasses. These gasses can migrate through geologic materials and/or pathways such as old oil wells,

fissures, and fractures in underlying geologic formations. The emitted gasses have the potential to accumulate within building interiors, adversely affecting human health.

Although current operations appear to maintain generally good housekeeping, the long-term presence of oil production wells at the subject property and vicinity represents a REC.

- According to records reviewed via the State Water Resources Control Board (SWRCB) GeoTracker online database, there are two open Cleanup Program Sites listed near the subject property. The addresses for these release cases are not provided; however, the names listed could potentially be associated with the subject property. The first case, identified as CITY OF SANTA FE SPRINGS- MOBIL OIL FIELD RECLAMATION PROJECT (Case #SL0603706372), is currently inactive as of January 29, 2015. The second listing identified as, CITY OF SANTA FE SPRINGS- GOLDEN SPRINGS REDEVELOPMENT (Case #SL0603774383), is currently inactive as of January 29, 2015. No further pertinent information as available within the listings. A request was sent to the SWRCB; however, Partner had not received a response as of the date of the Phase I. Based on the open nature of these cases, the likelihood that they are associated with the subject property, and the lack of information available for review, the open cases represent a REC.
- The subject property is identified within the boundary of the Omega Chemical Corporation Superfund/National Priorities List (NPL) site. According to the 'First Five-Year Review Report for Omega Chemical Corporation Superfund Site', prepared by the United States Environmental Protection Agency (EPA) and dated September 15, 2022, the Superfund site originated from the former Omega Chemical Corporation facility that operated as a refrigerant and solvent recycling and treatment facility between approximately 1976 and 1991. The site was placed on the NPL in January 1999. The site is divided into three areas for investigation and cleanup: the Source Area (OU-1), the Downgradient Groundwater Area (OU-2), and Indoor Air Area in buildings within or near the Source Area (OU-3). The subject property is located within OU-2. There are groundwater impacts beneath the source area that extend approximately 4.5 miles down-gradient of the facility. The main contaminants of concern consist of tetrachloroethylene (PCE), trichloroethylene (TCE), 1,1-dichloroethylene (DCE), Freons, and other VOCs. Remedy has been selected and implemented for OU-1; however, remedy has not yet been implemented for OU-2 and has not been selected for OU-3.

  The selected remedy for OU-2 consists of 'a groundwater pump and treat system with extraction wells at three locations along the down-gradient plume, and treatment of the contaminated groundwater for drinking water use or reinjection into the aquifer if agreements with water purveyors cannot be reached in a timely manner.' The current remedy that has been implemented for OU-1 is treating the groundwater system at the source and containing it to prevent it from migrating.

  Based on the lack of any on-site drinking water wells at the subject property, the ongoing remediation efforts for the NPL site, the industrial use of the subject property, and the regulatory oversight, this listing represents a REC; however, it appears that no further action is required on behalf of the subject property related to the NPL.

In 2024, Partner also reviewed a *Phase I Environmental Site Assessment Report* prepared by Waterstone Environmental, Inc. (Waterstone) for the adjacent property, located at 10025 Santa Fe Springs Road, Santa

Fe Springs, California 90670, dated October 4, 2017. The Waterstone Phase I described the following regional conditions and attached several historical assessment reports and agency correspondences which Partner summarizes below (Waterstone, 2017):

- From 1994 through 1998, a regional soil and groundwater study of oil fields in Santa Fe Springs, including the subject property, was performed by the Oil Field Reclamation Project (OFRP). The OFRP was an organization made up of the Community Development Commission (CDC) of the City of Santa Fe Springs and the oil production companies in the area. The purpose of the OFRP was to perform environmental studies that would support redevelopment of the oilfields financed by permit fees collected by the City of Santa Fe Springs. The OFRP existed until approximately 2004.

  The OFRP performed an extensive soil and groundwater study across an over 600 acre area of oilfield properties that included the Subject Property. The results of this study indicated that groundwater beneath the oilfield was not impacted by chemical compounds associated with oilfield operations. This sampling did identify impacts from other industrial sources in the area. The results of this study were summarized in *Results of Groundwater Characterization of the Oil Field Reclamation Project* report (Regional Groundwater Study) dated July 31, 1996 (OFRP, 1996).

  Based on the Regional Groundwater Study for the oilfield provided to the RWQCB, the RWQCB issued a letter dated December 6, 1996 which is referenced as the "1996 Exoneration Letter." The 1996 Exoneration Letter states that groundwater within the regional area of the OFRP has been investigated to the RWQCB's satisfaction and that oilfield uses of OFRP properties have not contributed to groundwater impact in the OFRP area. Known or potential sources of groundwater impact located within the boundaries of the OFRP were excluded, including three properties east and south of the Subject Property: 1) the Productol Refinery located at 10051 Romandel Avenue, 2) the Beauman Trust Property (currently part of the Villages at Heritage Springs [VHS] residential development) located at 12525 Park Avenue, and 3) a portion of the "bullet parcel" (location unknown).

  In 2003, a 54-acre portion of the OFRP across Telegraph from the Subject Property (now redeveloped as the residential VHS development on the southwest corner of Bloomfield and Telegraph) was assessed for redevelopment potential. After site investigation activities for the VHS development were completed in 2004, the CUPA determined that a clarification and update from the RWQCB would be useful to support the Subject Property and other future re-development of the oilfield. Therefore, the CUPA met with the RWQCB and requested a review, clarification, and update of the 1996 Exoneration Letter that provided the RWQCB's current opinion regarding groundwater issues. A letter prepared by the RWQCB addressed to the CUPA dated April 19, 2005 (Clarification Letter) was issued addressing the CUPA request.

  The RWQCB Clarification Letter states "…two known sources of groundwater pollution in the OFRP project area are the Beaumon Trust Property and the Former Productol Refinery site." The Beaumon Trust Property was formerly located in the northeastern portion of the VHS development at 12525 Park Ave (this address no longer exists). It was assessed and remediated between 2006 and 2008 and received final closure in 2014 under the State of California Department of Toxic Substances Control ("DTSC") prior to the VHS development.

The former Productol refinery site at 10051 Romandel Avenue is located approximately 0.2 mile east of the Subject Property on the east side of the railroad tracks. According to GeoTracker and EnviroStor, the Productol site was transferred to DTSC oversight on April 27, 2006 and is currently undergoing site assessment and remediation for chemical impact to groundwater. The chemicals in groundwater include phenols and petroleum hydrocarbons such as benzene, toluene, ethylbenzene, xylenes and naphthalene, as well as other SVOCs, and VOCs.

Deep soil sampling in the oilfield portions of the VHS development performed in 2005 and 2009 confirmed that none of the residual soil contamination detected in deeper soil borings was a threat to groundwater. A *Revised Conceptual Site Model Report* for the VHS development, dated March 11, 2009, concluded that there were no further sources of chemical compounds in soil that constituted a threat to groundwater (Waterstone, 2009). The RWQCB issued a letter concurring there was no evidence of a threat to groundwater from the oil field activities dated April 7, 2009. A closure letter for groundwater of the oilfield portions of the VHS development area was issued by the RWQCB on October 29, 2010.

In the closure letter, the RWQCB concluded that the "OFRP site is not considered a source of groundwater contamination for chlorinated solvents. Chlorinated solvents are present in groundwater under the western portion of the OFRP site. This contamination is interpreted as being part of a large plume of chlorinated solvents that were introduced into groundwater at the former Omega Chemical facility at 12504 and 12512 East Whittier Boulevard. The DTSC also acknowledged that the Productol site is a likely source of fuel hydrocarbon contamination beneath the OFRP area.

Therefore, based on the extensive soil and groundwater studies performed for the OFRP and the decisions of the RWQCB, DTSC, and EPA, Waterstone concluded that there are no groundwater issues associated with the adjacent property to the east based on its historical use for oil production (Waterstone, 2017). Consequently, since the Site remains in the same portion of the OFRP area, these conclusions apply to the Site.

Partner conducted a *Phase II Subsurface Investigation Report* (Phase II) at the subject property, dated March 21, 2023, to evaluate the potential impact of petroleum hydrocarbons, VOCs, methane, hydrogen sulfide (H_2S), and/or metals to soil and/or soil gas as a consequence of a release or releases from on-site oil production activities. The scope of the Phase II included a geophysical survey and 28 soil and/or soil gas borings. Twenty-six soil samples were analyzed for carbon chain total petroleum hydrocarbons (TPH), VOCs, and California Administrative Manual (CAM) 17 metals, and 26 soil gas samples (plus two duplicate samples) were analyzed for VOCs. Twenty-five soil gas probes were field screened for methane and H_2S.

The geophysical survey did not identify anomalies consistent with oil production sumps.

None of the analyzed soil samples had concentrations of VOCs that exceeded applicable screening levels.

Total petroleum hydrocarbons as diesel and oil (TPH-d and TPH-o, respectively) were detected in analyzed soil samples B9-15 and B20-10 at concentrations exceeding applicable San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs). Boring B9 is located on the west side of the subject property in the vicinity of a cluster of active oil wells and boring location B20 is located on the east side of the subject property to the north of a cluster of active oil wells

Arsenic was detected in analyzed soil samples B1-20, B2-15, B13-5, B16-5, and B22-5 at concentrations above the applicable screening level and background concentration. The elevated concentrations of arsenic are located in the northwest, northeast, southeast, and south portions of the subject property. The highest concentration of arsenic was located in northeast portion of the subject property

Benzene was detected in eight of the analyzed soil gas samples at concentrations exceeding applicable screening levels. The highest concentration of benzene was detected in boring B18, which also had an elevated concentration of ethylbenzene. None of the remaining VOCs were detected in the analyzed soil gas samples above applicable screening levels.

Borings B17, B18, and B20 had concentrations of methane that exceed the lower explosive limit (LEL). Borings B17, B18, and B20 were located on the east side of the subject property. The highest concentration of methane was located in boring B18.

Based on the analytical data, there are subsurface impacts to soil and soil vapor from the oil well operations at the subject property, with the largest impacts appearing to be on the east side of the property. Partner recommended additional investigation to further evaluate the impacts to soil and soil gas and to evaluate the vapor intrusion concern and methane explosion hazard to potential future development, which Partner understands to be for commercial/industrial uses. Partner also recommended development of a Soil Management Plan to protect site workers during potential redevelopment. Furthermore, as there are still active oil wells on the subject property, Partner recommended that the oil wells be abandoned in accordance with the appropriate requirements.

2.3 Geology and Hydrogeology

Review of the United States Geological Survey (USGS) *Whittier, California* Quadrangle topographic map indicates the subject property is situated approximately 150 feet above mean sea level, and the local topography is sloping gently to the southwest.

According to the California Geological Survey, the subject property is situated in the Peninsular Ranges which are a series of ranges separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault. The trend of topography is similar to the Coast Ranges, but the geology is more like the Sierra Nevada, with granitic rock intruding the older metamorphic rocks. The Peninsular Ranges extend into lower California and are bound on the east by the Colorado Desert. The Los Angeles Basin and the island group (Santa Catalina, Santa Barbara, and the distinctly terraced San Clemente and San Nicolas islands), together with the surrounding continental shelf (cut by deep submarine fault troughs), are included in the province.

Based on borings advanced during this investigation, the underlying subsurface consists predominantly of silty clay and clay (CL/CH) from the ground surface to approximately 22 feet bgs. Refer to Appendix A for boring logs from this investigation.

Groundwater was not encountered during this investigation and was not a part of the scope of work. According to the SWRCB Geotracker website, a nearby Leaking Underground Storage Tank (LUST) site, CHEVRON #9-5306 (T0603702757) at 12155 Telegraph Road, Santa Fe Springs, which is approximately 0.4 mile southwest of the subject property with depth to groundwater ranged from 70.30 to 76.89 feet bgs with an inferred direction of flow to the south-southwest in 2003 when the most recent sampling was conducted.

3.0 ADDITIONAL FIELD ACTIVITIES

The Additional Subsurface Investigation scope included the advancement of 36 borings (B29 through B64) to collect representative soil and/or soil gas samples. Refer to **Table 1** for a summary of the borings, sampling schedule, and laboratory analyses for this investigation.

3.1 Preparatory Activities

Prior to the initiation of fieldwork, Partner completed the following activities.

3.1.1 Utility Clearance

Partner delineated the work area with white spray paint and notified Underground Services Alert (USA) 811 to clear public utility lines as required by law at least two business days prior to drilling activities. USA 811 issued ticket number A240301041 for the project.

In addition, Partner subcontracted with SoCal Locators (SoCal) on January 31, 2024 to clear boring locations of utilities. SoCal systematically free-traversed each proposed boring location with a Sensors and Software LMX-100 ground penetrating radar (GPR) unit, and a Radiodetection 8100 utility locator with line-tracing capabilities with line-tracing capabilities and the data was interpreted in real time for evidence of utility lines and/or other subsurface features of potential concern. Based on the findings of the GPR survey, subsurface utilities were identified in the vicinity of borings B39 and B48, and the borings were relocated.

3.1.2 Health and Safety Plan

Partner prepared a site-specific Health and Safety Plan, which was reviewed with on-site personnel involved in the project prior to the commencement of drilling activities.

3.2 Drilling Equipment

On February 6, 12, and 13, 2024, Partner subcontracted with Encon Technologies (Encon) to provide and operate drilling equipment. Encon, under the direction of Partner, advanced borings B29 through B64 with a truck-mounted Geoprobe Model 5410 direct push rig. Sampling equipment was decontaminated between sample intervals and boring locations to prevent cross-contamination.

3.3 Sample Locations

As noted on **Figures 2A and 2B**, the February 2024 soil borings were advanced in areas of previously identified impacts to soil and/or soil vapor as follows:

- Boring B29 was advanced adjacent to previous boring B9.
- Borings B30, B31, and B32 were advanced to the north, west, and southeast of previous boring B9, respectively.
- Boring B33 was advanced adjacent to previous boring B13.
- Borings B34, B35, and B36 were advanced to the north, west, and east of previous boring B13, respectively.
- Boring B37 was advanced adjacent to previous boring B12.
- Borings B38, B39, and B40 were advanced to the northwest, south, and east of previous boring B12, respectively.

- Boring B41 was advanced adjacent to previous boring B22.
- Borings B42, B43, and B44 were advanced to the south, west, and north of previous boring B22, respectively.
- Boring B45 was advanced adjacent to previous boring B20. Borings B46, B47, and B48 were advanced to the southeast, west, and north of previous boring B20.
- Boring B49 was advanced to the west of previous boring B18 (the vicinity of B18 was inaccessible during the timeframe of sampling).
- Boring B50 was advanced to the southwest of previous boring B18 and boring B49. Boring B51 was advanced adjacent to previous boring B17.
- Boring B52 was advanced to the northwest of previous boring B18.
- Boring B54 was advanced adjacent to previous boring B16.
- Borings B53, B55, and B56 were advanced to the southwest, east, and north of previous boring B16, respectively.
- Boring B57 was advanced adjacent to previous boring B1.
- Borings B58, B59, and B60 were advanced to the northeast, southwest, and southeast of previous boring B1, respectively.
- Boring B61 was advanced adjacent to previous boring B2. Borings B62, B63, and B64 were advanced to the north, southwest, and east of previous boring B2, respectively.

Refer to **Figures 2A and 2B** for a map of boring locations.

3.4 Soil Sampling

Borings B29 through B64 were located in unimproved areas. Boring B29 was advanced to drilling refusal at 22 feet bgs. Borings B30 through B32, B34 through B36, B38, B40, B42, B43, B46 through B48, B50, B52, B53, B55, and B56 were advanced to a terminal depth of 10 feet bgs. Borings B33, B37, B39, and B45 were advanced to drilling refusal at 13, 10, 7, and 12 feet bgs, respectively. Borings B41, B51, B59, and B62 were advanced to drilling refusal at 14 feet bgs. Boring B44 was advanced to drilling refusal at 2 feet bgs. Borings B49 and B54 were advanced to a terminal depth of 15 feet bgs. Borings B57 and B60 were advanced to drilling refusal at 18 feet bgs. Borings B58, B61, B63, and B64 were advanced to drilling refusal at 15 feet bgs.

Soil samples were collected using a 2-foot long by 1.5-inch diameter sampler with a 2-foot long acetate liner and sampling point. The sampler was advanced by the direct-push drill rig using 4-foot long for the truck-mounted rig by 1.25-inch diameter hollow rods with the inner rods in place. At approximately 1 foot above the desired sampling depth, an inner rod was removed and the sampler was advanced to the desired sampling depth to allow undisturbed soil to enter the sampling liner. The sampler was retrieved from the subsurface and the soil-filled liner was removed.

Each acetate liner was cut using a hacksaw or pipe-cutter. Samples were collected from the lower half of the liner using a disposable plastic syringe and retained in two sodium bisulfate-preserved and one methanol-preserved volatile organics analysis (VOA) vials in accordance with United States Environmental Protection Agency (EPA) Method 5035 sampling protocol. The remainder of the lower half of the liner was capped on either end with Teflon tape and plastic caps. The capped liners and VOA vials were labeled for identification and stored in an iced cooler. The soil in the upper half of the liner was visually inspected for discoloration, monitored for odors, classified in accordance with the Unified Soil Classification System,

placed in a sealable plastic bag, and field-screened with a photoionization detector (PID). None of the samples exhibited discoloration or an odor and none of the PID readings suggested the presence of elevated volatile organics concentrations.

Soil samples were collected from boring B29 at 5, 10, 15, 20, and 22 feet bgs. Soil samples were collected from borings B30 through B32, B34 through B36, B42, B43, B46 through B48, B53, B55, and B56 at 5 and 10 feet bgs. Soil samples were collected from boring B33 at 5, 10, and 13 feet bgs. Soil samples were collected from borings B41, B59, and B62 at 5, 10, and 14 feet bgs. Soil samples were collected from boring B45 at 5, 10, and 12 feet bgs. Soil samples were collected from borings B54, B58, B61, B63, and B64 at 5, 10, and 15 feet bgs. Soil samples were collected from borings B57 and B60 at 5, 10, 15, and 18 feet bgs. No soil samples were collected from borings B37 through B40, B44, and B49 through B52.

3.5 Soil Gas Sampling

Soil Gas Probe Construction

Soil gas probes were constructed within the boreholes after soil sampling and/or drilling to the terminal depth. Boreholes were backfilled with dry, granular bentonite to approximately 6 inches below the desired sampling depth, as needed. A new section of ¼-inch diameter Nylaflow tubing with a new ¼-inch diameter polypropylene filter at the terminal end was inserted into the borehole to the desired sampling depth. One-inch diameter polyvinyl chloride (PVC) casing was used as a guide for the tubing such that the desired sampling depth was achieved. Sand was poured into the boring annulus to form an approximately 1-foot long sand pack around the polypropylene filter, at which time the PVC piping was withdrawn. Approximately 1 foot of dry, granular bentonite was placed atop the sand pack and the remainder of the borehole was backfilled with hydrated bentonite to the next desired sampling depth where a soil gas probe was similarly constructed. Upon installation of the shallowest probe, the remainder of the borehole was backfilled with hydrated bentonite to the ground surface to form a seal. The sampling end of the tubing was fitted with a valve and the probe was labeled for identification.

Soil Gas Sampling Methodology

Soil gas samples were collected in general accordance with the July 2015 Department of Toxic Substances Control (DTSC) and LARWQCB "Advisory – Active Soil Gas Investigations."

A&R Laboratories (A&R) [California Department of Public Health (CDPH) Environmental Laboratory Accreditation Program (ELAP) certificate numbers 2122, 2789, and 2790], was calibrated at the beginning of each day prior to the first analysis. Each probe was allowed to equilibrate for at least two hours after installation prior to sampling with vapor-tight glass syringes. Three probe volumes were purged from each location prior to sampling. A Material Blank and Equipment Blank were analyzed and no contaminants were detected, indicating that the soil gas probe materials and laboratory equipment were free from contaminants. One sample was also collected in duplicate per day to assess the accuracy of the laboratory analysis. The replicate samples were within an acceptable margin of error.

A tracer gas (isopropanol) was placed around each probe at the ground surface while sampling to detect ambient air intrusion. The tracer gas was not detected in the samples, indicating that the integrity of the bentonite seal and vapor sampling train was maintained. In addition, recovery of surrogate compounds

included with each analysis was within acceptable limits, indicating that the sampling containers and analysis equipment did not leak.

Subsurface methane concentrations were field-screened directly at the soil gas sampling point at borings B45 through B52. Measurements were recorded using an RKI Eagle 2 by connecting the soil gas probe to the sampling port of the portable gas monitor.

Soil gas samples were collected from borings B37, B38, B40, B46 through B48, B50, B52, B53, B55, and B56 at 5 and 10 feet bgs. Soil gas samples were collected from boring B39 at 5 and 7 feet bgs; from boring B45 at 5, 10, and 12 feet bgs; from boring B49 at 5, 10, and15 feet bgs; from boring B51 at 5, 10, and 14 feet bgs; and from boring B54 at 5, 10, and 15 feet bgs.

3.6 Post-Sampling Activities

Probes were removed from the subsurface and the boreholes were backfilled with hydrated bentonite chips following sampling activities.

No significant amounts of investigation derived wastes were generated during this work.

4.0 DATA ANALYSIS

4.1 Laboratory Analysis

Partner collected 71 soil samples on February 6, 12, and 13, 2024, which were transported in an iced cooler under chain-of-custody protocol to Jones Environmental, Inc. (Jones) a state-certified laboratory (CDPH ELAP certificate number 2882) in Santa Fe Springs, California, for analysis. Based on field-screening results, visual observations, and/or olfactory observations, two soil samples per boring from borings B29 through B32 and B45 through B48 (16 soil samples total) were analyzed for carbon chain total petroleum hydrocarbons (TPH) [collectively TPH-d and TPH-o via EPA Method 8015 and total petroleum hydrocarbons as gasoline (TPH-g) via EPA Method 8260]. Two soil samples per boring from borings B33 through B36, B41 through B44, and B53 through B64 (40 soil samples total) were analyzed for arsenic via EPA Method 6010. Based on the initial results, one additional soil sample from boring B58 was analyzed for arsenic via EPA Method 6010. The remaining soil samples were placed on hold at the laboratory.

A&R, the mobile lab that was present on site on February 22 and 23, 2024, collected 36 soil gas samples and two duplicate samples which were immediately loaded into the gas chromatograph/mass spectrometer (GC/MS) for analysis. Each soil gas sample (38 soil gas samples total) was analyzed for VOCs via EPA Method 8260B.

On February 22, 2024, methane was field screened at multiple depths from borings B45 through B52 (19 soil gas probes total) using an RKI Eagle 2 methane meter.

Laboratory analytical results are included in Appendix B and discussed below.

4.2 Regulatory Agency Comparison Criteria

Environmental Screening Levels

The SFBRWQCB has established ESLs as an initial screening level evaluation. ESLs aid in assessing the potential threats to human health, terrestrial/aquatic habitats, and/or drinking water resources due to contaminants in soil, soil gas, and/or groundwater. Under most circumstances, the presence of contamination below applicable ESLs can be assumed to not pose a significant, chronic (i.e., long-term) adverse risk to the applicable receptor of concern. Conversely, sites that exceed ESLs generally require further evaluation and/or remediation. ESLs were developed using default assumptions (e.g., standard exposure factors) and, consequently, are only meant for screening level assessments. The ESLs should not be considered enforceable regulatory standards. Cleanup levels ultimately dependent on site-specific factors and are established by the regulatory agencies on a case-by-case basis.

Department of Toxic Substances Control Attenuation Factor and Regional Screening Levels

Regional Screening Levels (RSLs) are generic, risk-based chemical concentrations developed by the EPA for use in initial screening-level evaluations. RSLs combine human health toxicity values with standard exposure factors to estimate contaminant concentrations that are considered to be health protective of human exposures over a lifetime through direct-contact exposure pathways (e.g., via inhalation and/or ingestion of and/or dermal contact with impacted soil and/or indoor air). RSLs are not legally enforceable standards, but rather are considered guidelines to evaluate if potential risks associated with encountered chemical impacts may warrant further evaluation.

The DTSC Office of Human and Ecological Risk (HERO) developed California-Modified RSLs based on a review of 1) RSL concentrations, and 2) recent toxicity values.

While detected concentrations of soil vapor are not directly comparable to the indoor air quality screening levels, such as those presented in RSLs or the DTSCs HERO Note 3, the DTSC has issued a series of recommended a default attenuation factors (AFs) that can be used to calculate indoor air concentrations from soil vapor data for preliminary screening purposes. This methodology is presented by DTSC in their *Final Vapor Intrusion Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, 2011). More recently, in February 2023, the DTSC issued the Final Draft *Supplemental Guidance: Screening and Evaluating Vapor Intrusion*.

In their published final guidance document from 2011, the DTSC recommends applying a default AF of 0.001 (for current commercial/industrial buildings) or an AF of 0.0005 (for future commercial/industrial buildings) to maximum detected soil vapor concentrations to calculate representative indoor air concentrations. The DTSC 2023 *Supplemental Guidance* recommends, as a first step, conducting a screening evaluation of soil vapor data using an AF of 0.03 to calculate representative indoor air concentrations. This document specifies that this screening should be followed by more detailed evaluations using multiple lines of evidence to determine a site-specific attenuation factor. These updated recommendations state that multiple lines of evidence and site-specific conditions should guide the selection of an attenuation factor for Site clean-up if necessary.

With the established air RSLs listed in HERO Note 3 and HERO Note 4, Partner calculated soil gas screening levels (SGSLs) using 0.0005, 0.001 and 0.03 as the AFs.

4.3 Soil Sample Data Analysis

While TPH-g, TPH-d and TPH-o were detected in one or more of the analyzed soil samples at concentrations exceeding the laboratory reporting limits (RLs), no samples had TPH-g or TPH-o at concentrations above the screening levels. The detected concentration of TPH-d in sample B45-10 was 3,710 milligrams per kilogram (mg/kg) which exceeds the commercial/industrial ESL of 1,200 mg/kg. None of the remaining detected TPH concentrations in the analyzed soil samples exceeded the commercial/industrial ESL.

Arsenic was detected above the laboratory RL in 35 of the 41 analyzed soil samples. Seven of the analyzed soil samples (B35-5, B41-14, B43-5, B58-5, B58-10, B58-15, and B60-18) exceeded the DTSC background concentration of 12 mg/kg as presented in their March 2008 report *Determination of a Southern California Regional Background Arsenic Concentration in Soil*. The background concentration exceedances of arsenic in soil ranged from 12.4 to 33 mg/kg.

In portions of Southern California, background concentrations of arsenic may exceed 12 mg/kg, and a higher clean-up level may be justified based on an evaluation of soil data collected from and near a specific site. In this case, arsenic data contours are shown for 18 mg/kg, which may be representative of natural background concentrations at the Site (see **Figure 4B**)

Refer to **Tables 2 and 3** for a summary of the soil sample TPH and arsenic laboratory analysis results, respectively.

4.4 Soil Gas Sample Data Analysis

Benzene, toluene, ethylbenzene, m,p-xylenes, o-xylene, 1,2,4-trimethylbenzene (TMB), 1,3,5-TMB, 4-isopropyltoluene (IPT), isopropylbenzene (IPB), n-butylbenzene, n-propylbenzene, and sec-butylbenzene were detected in one or more of the analyzed soil gas samples at concentrations above the laboratory RLs. No other VOCs were detected above laboratory RLs.

The detected concentrations of benzene ranged from 10 to 370,000 micrograms per cubic meter (µg/m^3) exceeding the commercial/industrial SGSL calculated using the conservative 0.03 attenuation factor of 14 µg/m^3 in 20 of the analyzed soil gas samples.

Detected concentrations of ethylbenzene ranged from 80 to 2,900 µg/m^3 exceeding the commercial/industrial SGSL calculated using the conservative 0.03 attenuation factor of 163.33 µg/m^3 in 5 of the analyzed soil gas samples.

None of the other detected concentrations of VOCs in soil gas exceeded the most conservative commercial/industrial SGSLs. Several of the RLs exceed the commercial/industrial SGSLs due to dilutions; however, this is not expected to materially affect the results of this investigation.

Refer to **Table 4** for a summary of the soil gas sample VOCs laboratory analysis results.

4.5 Discussion

One sample had a TPH-d concentration above the most conservative industrial use screening level. Arsenic was detected in seven of the analyzed soil samples at concentrations above the DTSC background concentration of 12 mg/kg. None of the analyzed soil samples contained TPH-g or TPH-o above applicable screening levels.

Benzene and ethylbenzene were reported in the analyzed soil gas samples at concentrations above the most conservative screening levels (using the most conservative 0.03 attenuation factor). If these results are compared to screening levels for future industrial buildings (AF=0.0005, DTSC 2011), only eight samples have concentrations of benzene exceeding the screening level of 840 µg/m^3, and no samples have concentrations of ethylbenzene exceeding the screening level of 9,800 µg/m^3.

4.5.1 TPH in Soil

Please see **Figure 3A** for the TPH-d results in soil and **Figure 4A** for TPH-d isoconcentrations in soil.

During the previous investigation TPH-d and/or TPH-o impacts were identified at borings B9 and B20 above Tier 1 ESLs (the most restrictive screening levels). During this investigation, TPH-d and TPH-o were identified above the Tier 1 ESLs in the boring co-located with boring B20 at 10 feet bgs. The TPH-d concentrations in samples B9-15, B20-10, and B45-10 exceed the commercial/industrial ESL. None of the remaining detections of TPH in soil during this investigation and the previous investigation exceeded the commercial/industrial ESLs.

In the boring co-located with previous boring B9 (boring B29) impacts of TPH-d were not identified at 20 and 25 feet bgs and no impacts were identified in the step-out borings (B30 through B32). Based on the lack of impacts in the deeper soil samples from the same location and lack of impacts in the surrounding borings, the TPH-d impacts in the vicinity of previous boring B9 appear to be limited in nature.

In the boring co-located with previous boring B20 (boring B45), an exceedance was identified at 10 feet (the same depth as the previous impacts) and at 12 feet bgs, no impacts were identified. No exceedances were identified in the step-out borings (B46 through B48). Based on the lack of impacts in the deeper soil samples from the same location and lack of impacts in the surrounding borings, the TPH-d impacts in the vicinity of previous boring B20 appear to be limited in nature.

Based on the extensive reporting in the area and LARWQCB "1996 Exoneration Letter" and "2005 Clarification Letter" which apply to the Site, as described in **Section 2.2**, TPH impacts due to on-Site oil production activities do not pose a threat to groundwater. Therefore, Partner does not recommend additional deep investigation of TPH impacts to soil.

4.5.2 Arsenic in Soil

During the previous investigation, arsenic was detected in soil samples at borings B1, B2, B13, B16, and B22 at concentrations above the DTSC background concentration of 12 mg/kg.

In the borings co-located with previous borings B1 and B2 (B57 and B61, respectively), refusal was encountered and deeper samples than 18 and 15 feet could not be collected. The step out borings around B2/B61 (borings B62 through B64) did not contain arsenic above the background concentrations which may indicate that the arsenic impacts in this area are limited in nature. However, the vertical extent could not be determined due to refusal. The step out borings around B1/B57 (borings B58 through B60) appear to indicate a source further to the north (around boring B58). Impacts do not appear to be characterized laterally or vertically to the 12 mg/kg background level in the area of borings B1/B57 and B58 at this time. Refer to **Figure 3B** for a map showing detected concentrations of arsenic in soil in the vicinity of previous borings B1 and B2.

Previous boring B13 was co-located with boring B33. The exceedances at 5 feet bgs in this location appear to decrease to the north at step out boring B34 and decrease to below background concentrations to the east and west (at step out borings B35 and B36). The impacts appear to be limited in nature to the top 5 feet bgs in the area.

Previous boring B16 was co-located with boring B54. The exceedance at 5 feet bgs in this location decrease with depth and distance in all directions to below background concentrations. The impacts appear to be limited to the vicinity of B16 and limited to the top 5 feet bgs in the area.

In the boring co-located with previous boring B22 (B41), refusal was encountered and deeper soil samples than 14 feet could not be collected. The impacts in this area appear to be extent to the west at step out boring B43. No soil samples were recovered from boring B44 to the north and no exceedances were identified in boring B42 to the south.

Based on leachability standards for arsenic and the knowledge that natural background concentration in portions of Southern California may exceed 12 mg/kg, Partner presents a Site-specific screening level for arsenic for soil at depths greater than 10 feet of 18 mg/kg. Arsenic concentrations below 18 mg/kg at depth do not present a risk to on-Site workers or occupants if they remain buried, and do not present a risk to of leaching to groundwater. Four samples (B13-5, B16-5, B58-5, and B25-10) from the combined investigations at the Site exceeded the Site-specific screening level of 18 mg/kg at the Site. Please see **Figure 4B** for isoconcentrations of arsenic in soil showing samples exceeding the Site-specific screening level of 18 mg/kg.

4.5.3 Benzene and Ethylbenzene in Soil Gas

Refer to **Figure 3C** for a map showing the detected concentrations of benzene in soil gas and **Figure 4C** for benzene isoconcentrations at various depths.

During the previous investigation, benzene was detected in eight of the borings at concentrations exceeding most conservative soil vapor screening level calculated using an attenuation factor of 0.03. The highest concentrations were detected in borings B12, B16, B17, B18, and B20. During the previous investigation, ethylbenzene was detected in one of the borings (B18) at a concentration exceeding the conservative screening level.

The highest detected concentration of benzene in this area was 29,000 µg/m^3 (and 2,900 µg/m^3 of ethylbenzene) at B38-5 indicating high vapor concentrations to the north of B12.

Exceedances of benzene in the vicinity of previous boring B16 (co-located with boring B54) appear to be limited laterally and vertically based on the lack of exceedances in samples collected from B54 and in the step out borings BB53, B55, and B56).

Exceedances of benzene in the vicinity of previous boring B17 (co-located with boring B51) appear to increase to the east in the direction of step out boring B52, to the south at step out borings B49 and B50, and to the southeast at previous boring B18. Ethylbenzene impacts appear to be similar to the benzene impacts. Benzene and ethylbenzene impacts in this direction appear to extend off-Site to the east and may even originate from an off-Site source.

Exceedances of benzene at previous boring B12 appear to increase to the north at step out boring B38 and appear to be similar to the east and south in borings B37, B39, and B40.

The vertical and lateral extents of the benzene and ethylbenzene impacts in soil gas are not fully delineated. However, it appears that benzene impacts may originate off-Site to the east. Based on the extensive reporting in the area and LARWQCB letters described in **Section 2.2**, VOC impacts due to on-Site oil production activities do not pose a threat to groundwater. Therefore, Partner does not recommend additional deep investigation of soil gas.

4.5.4 Methane

During the previous investigation borings B17, B18, and B20 had concentrations of methane that exceeded the LEL and will be mitigated in the future building to be constructed on site with a Methane Mitigation System to be designed by a Registered Professional Engineer, approved by the City of Santa Fe Springs and installed with oversight by the design engineer.

5.0 SUMMARY AND CONCLUSIONS

Partner conducted an Additional Subsurface Investigation at the subject property to further evaluate the petroleum hydrocarbon, arsenic, and VOC impacts to soil and/or soil gas. The scope of the Additional Subsurface Investigation included 36 borings. Eighteen soil samples were analyzed for TPH, 41 soil samples were analyzed for arsenic, 38 soil gas samples (including two duplicate samples) were analyzed for VOCs.

Subsurface lithology encountered in the upper 22 feet bgs consisted predominantly of silty clay and clay (CL/CH). Groundwater was not encountered and was not a part of the scope of the investigation.

None of the analyzed soil samples reported TPH-g or TPH-o above applicable screening levels. One soil sample had TPH-d and seven soil samples had arsenic detected at concentrations above the applicable screening level or site specific background concentrations.

Benzene and ethylbenzene were identified in the analyzed soil gas samples above the most conservative soil vapor screening levels (utilizing the conservative attenuation factor of 0.03). No other VOCs reported in soil gas exceeded the applicable screening levels.

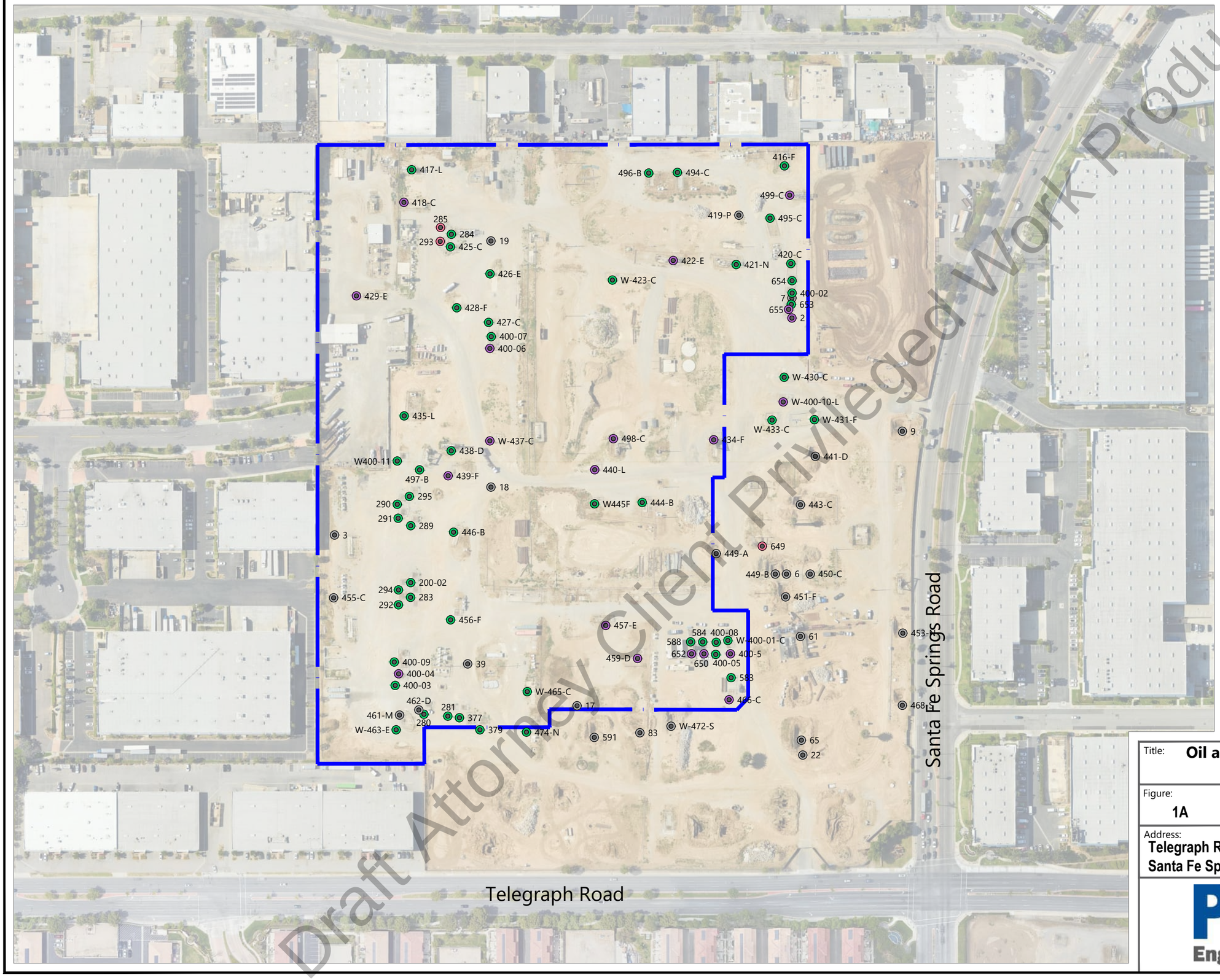
Based on the results of the current investigation, limited impacts of TPH-d and arsenic were identified within the soil which may represent a concern to human health during redevelopment. Exceedances of benzene, and ethylbenzene were identified within the soil gas at the subject property. The lateral extents of VOC impacts to soil gas have been partially delineated and may extend to the east. The vertical extent of impacts remains unconstrained in most cases, however, based on former reporting in the area and LARWQCB decisions, the downward migration of impacts to groundwater is not a recognized concern at the Site,

Based on the results of this investigation, Partner does not recommend further investigation of VOCs and TPH at the Site.

Partner recommends development of a Soil Management Plan (SMP) to protect site workers during future redevelopment. The SMP will provide a guide for the handling, sampling, and disposal of potentially impacted soil encountered during redevelopment. The SMP will specifically describe areas of concern for arsenic and TPH in soil, and VOCs in soil gas and will describe the required air monitoring for SCAQMD Rule 1166 (and potentially Rule 1466) compliance, dust mitigation measures, health and safety monitoring, VOC and methane monitoring. During soil removal and grading activities associated with Site redevelopment work, Partner recommends the active implementation of the SMP. During soil removal and grading activities associated with Site redevelopment work, Partner recommends the active implementation of a Soils Management Plan, and air monitoring for compliance with SCAQMD Rule 1166 and Rule 1466, if required. Further, a robust Health and Safety Plan will be implemented including monitoring of VOCs and methane in worker breathing zones in areas of previously identified soil vapor impacts.

Furthermore, as there are still active oil wells on the subject property, Partner recommends that the oil wells be abandoned in accordance with the appropriate requirements.

FIGURES



Legend and Notes:

- Site Boundary
- Oil and Gas Well - Active
- Oil and Gas Well - Canceled
- Oil and Gas Well - Idle
- Oil and Gas Well - Plugged

N

100' 0' 100' 200'

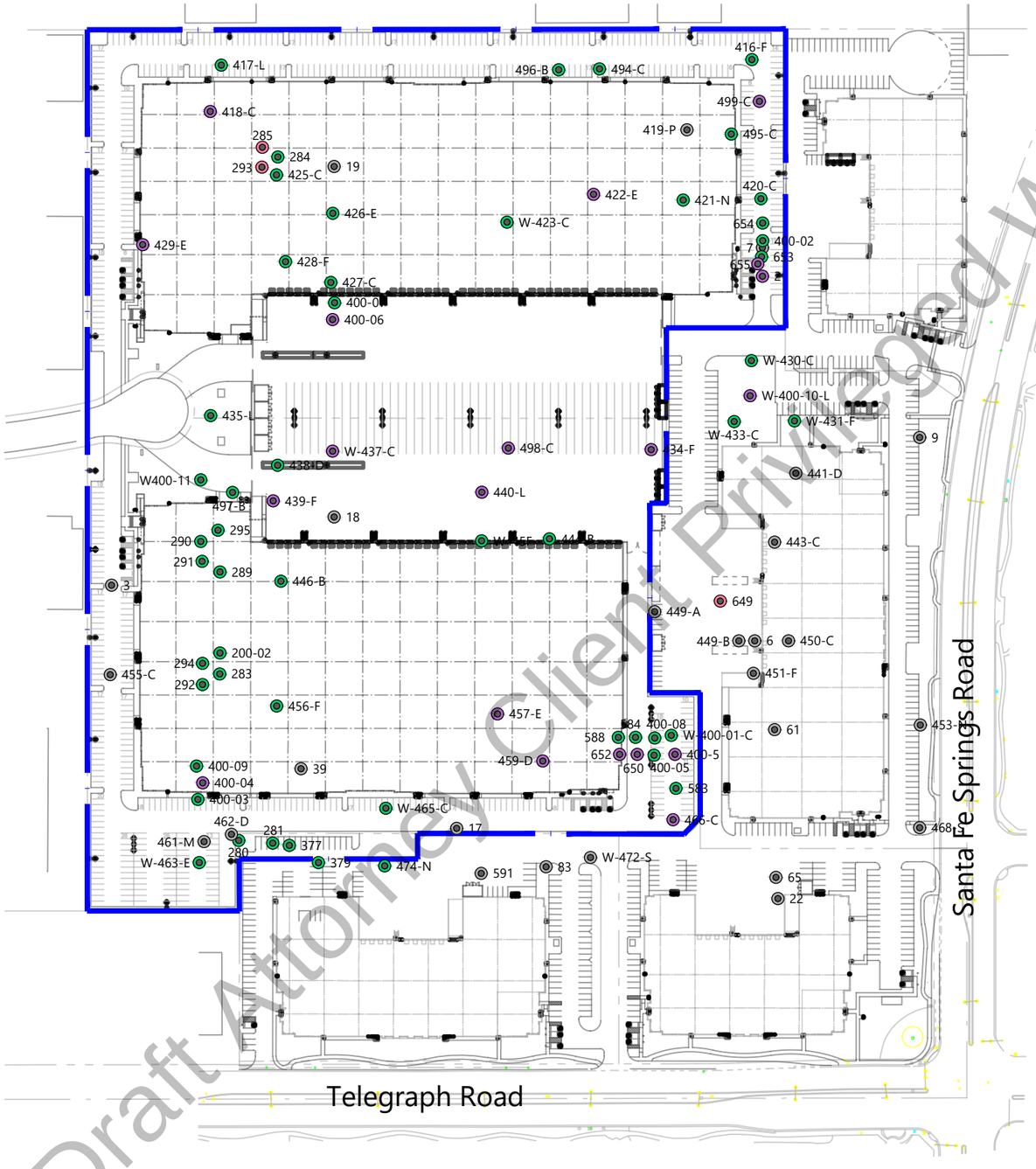
Approximate Scale

Title: **Oil and Gas Wells - Current Development (WellSTAR Database)**

Figure:	Prepared By:	Date:	Project Number:
1A	AS	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

PARTNER Engineering and Science, Inc.



Legend and Notes:

- Site Boundary
- Oil and Gas Well - Active
- Oil and Gas Well - Canceled
- Oil and Gas Well - Idle
- Oil and Gas Well - Plugged

- This map was reproduced by Partner Engineering and Science, Inc. using figures prepared by RGA - Office of Architectural Design, and dated April 19, 2024

N

100' 0' 100' 200'

Approximate Scale

Title: **Oil and Gas Wells - Proposed Development (WellSTAR Database)**

Figure:	Prepared By:	Date:	Project Number:
1B	AS	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

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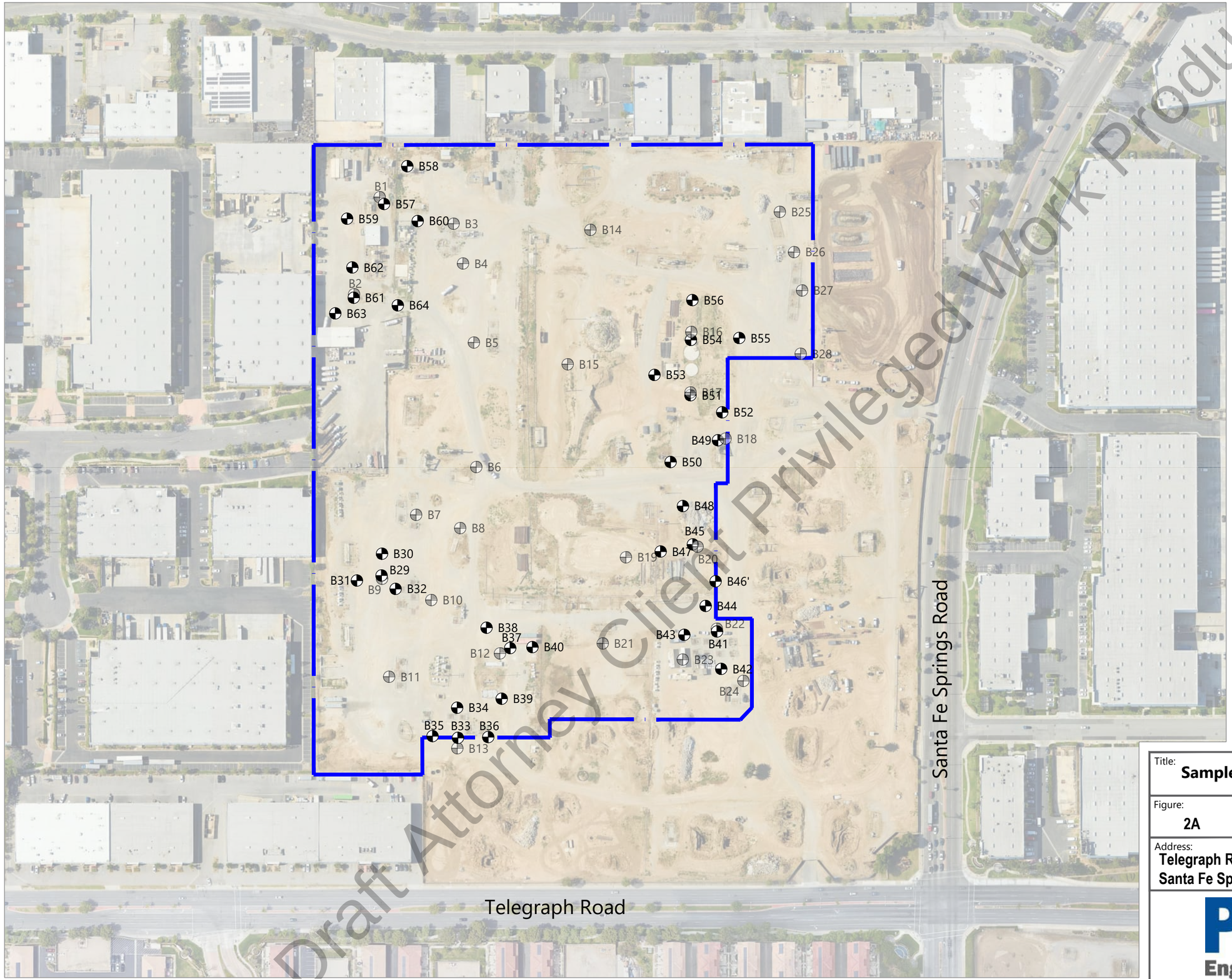

Legend and Notes:

- Site Boundary
- Previous Boring Location
- Boring Location

N

100' 0' 100' 200'

Approximate Scale

Title: **Sample Location Map - Current Development**

Figure:	Prepared By:	Date:	Project Number:
2A	AS	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

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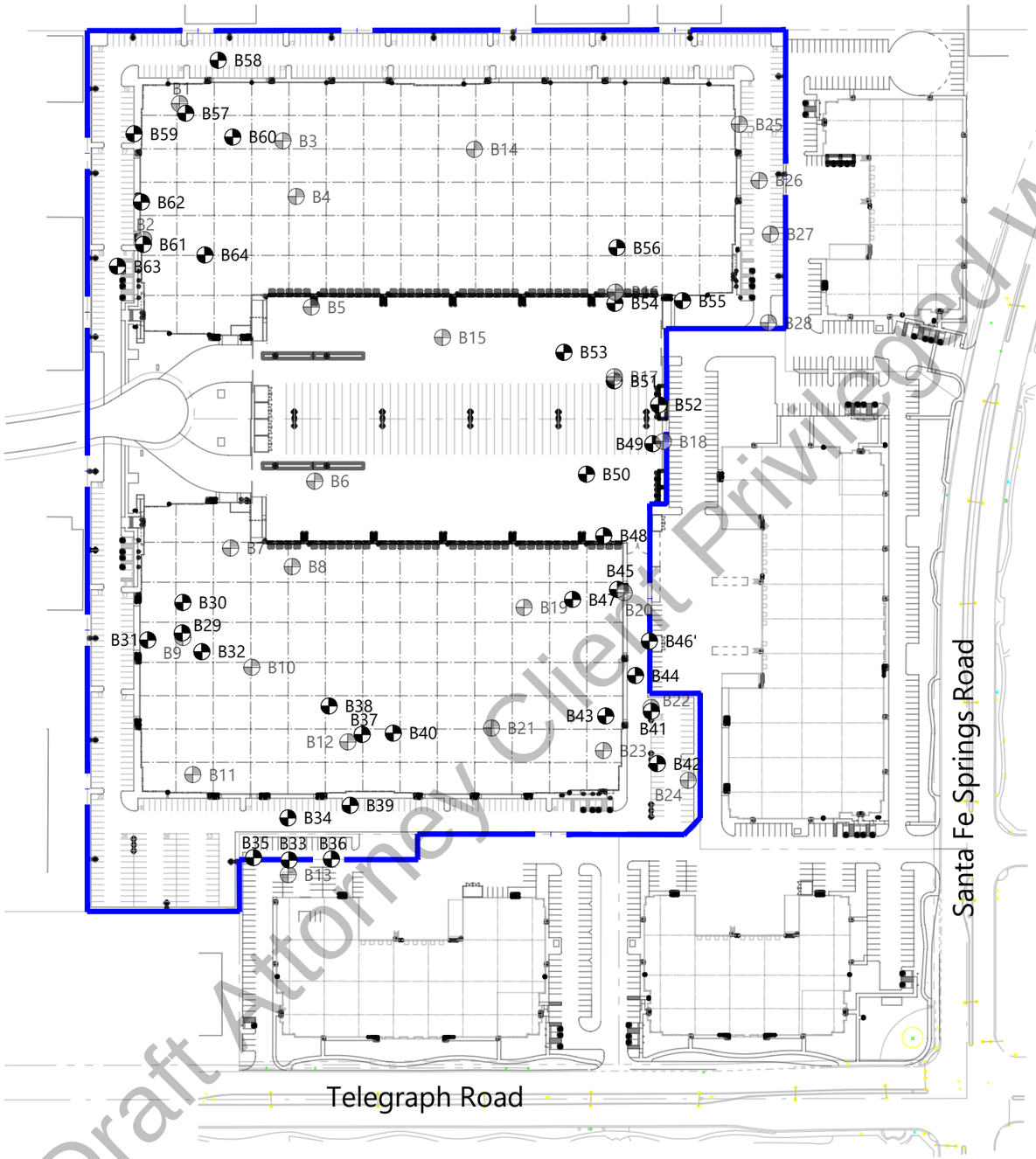

Legend and Notes:

Site Boundary

Previous Boring Location

Boring Location

- This map was reproduced by Partner Engineering and Science, Inc. using figures prepared by RGA - Office of Architectural Design, and dated April 19, 2024

N

100' 0' 100' 200'

Approximate Scale

Title: **Sample Location Map - Proposed Development**

Figure:	Prepared By:	Date:	Project Number:
2B	AS	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

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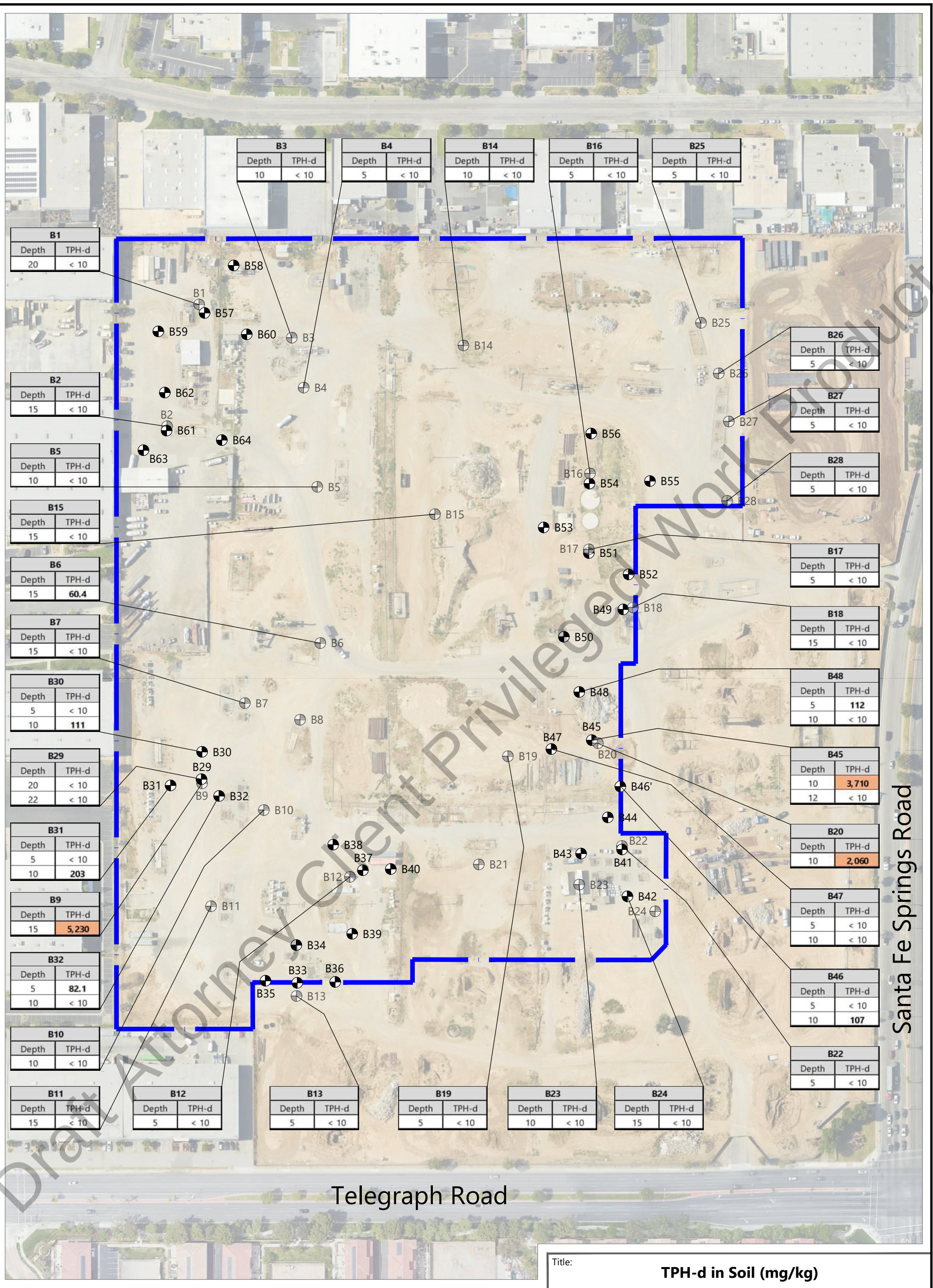


Legend and Notes:

	Site Boundary
⊕	Previous Boring Location
◓	Boring Location
mg/kg	Milligrams per Kilogram
bgs	Depths presented in feet below ground surface
TPH-d	Total Petroleum Hydrocarbons as Diesel

N

75' 0' 75' 150'

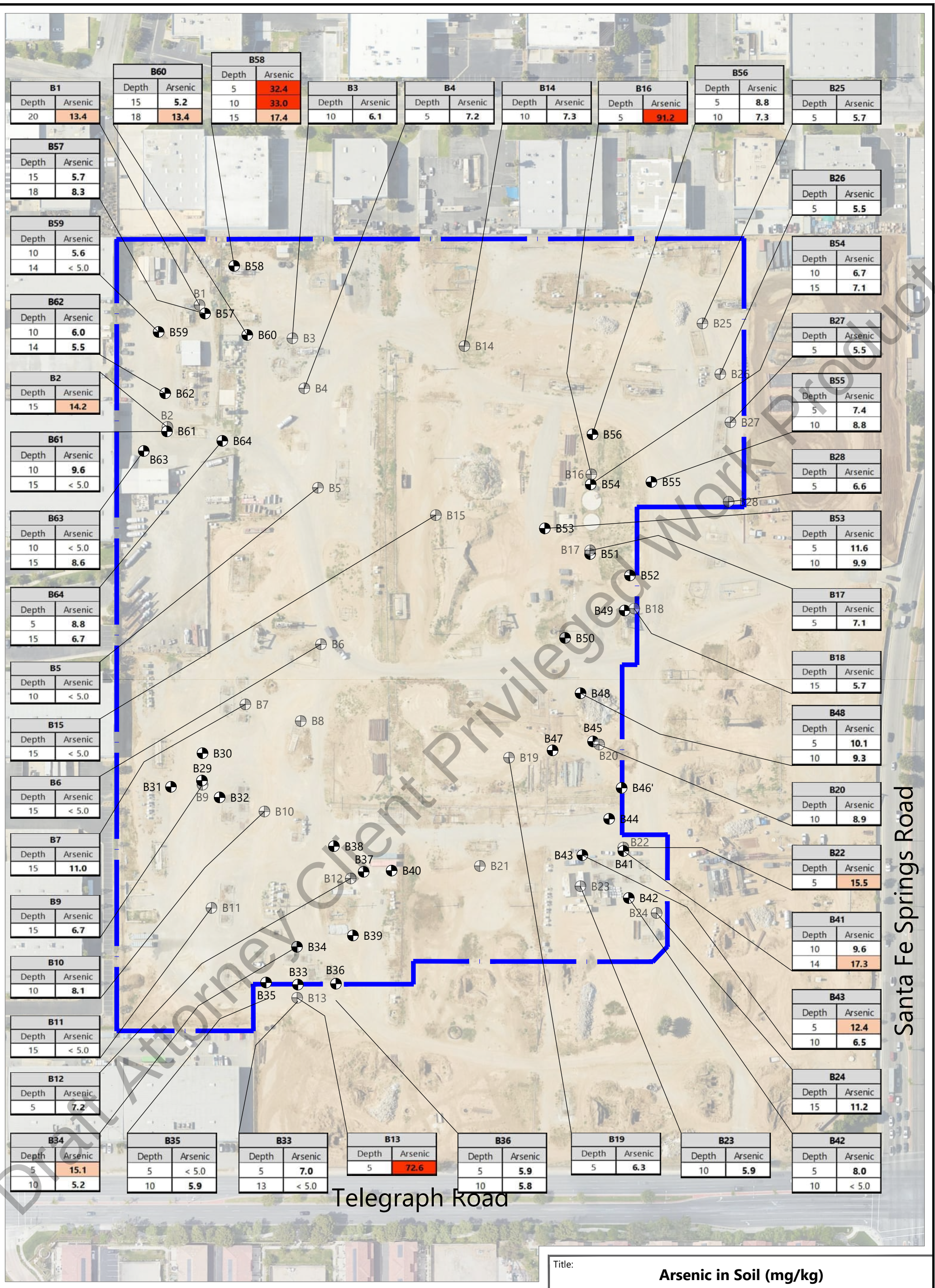
Approximate Scale

Title: **TPH-d in Soil (mg/kg)**

Figure:	Prepared By:	Date:	Project Number:
3A	DH	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

PARTNER Engineering and Science, Inc.



Legend and Notes:

	Site Boundary
	Previous Boring Location
	Boring Location
mg/kg	milligrams per kilogram
bgs	Depths presented in feet below ground surface

N

75' 0' 75' 150'

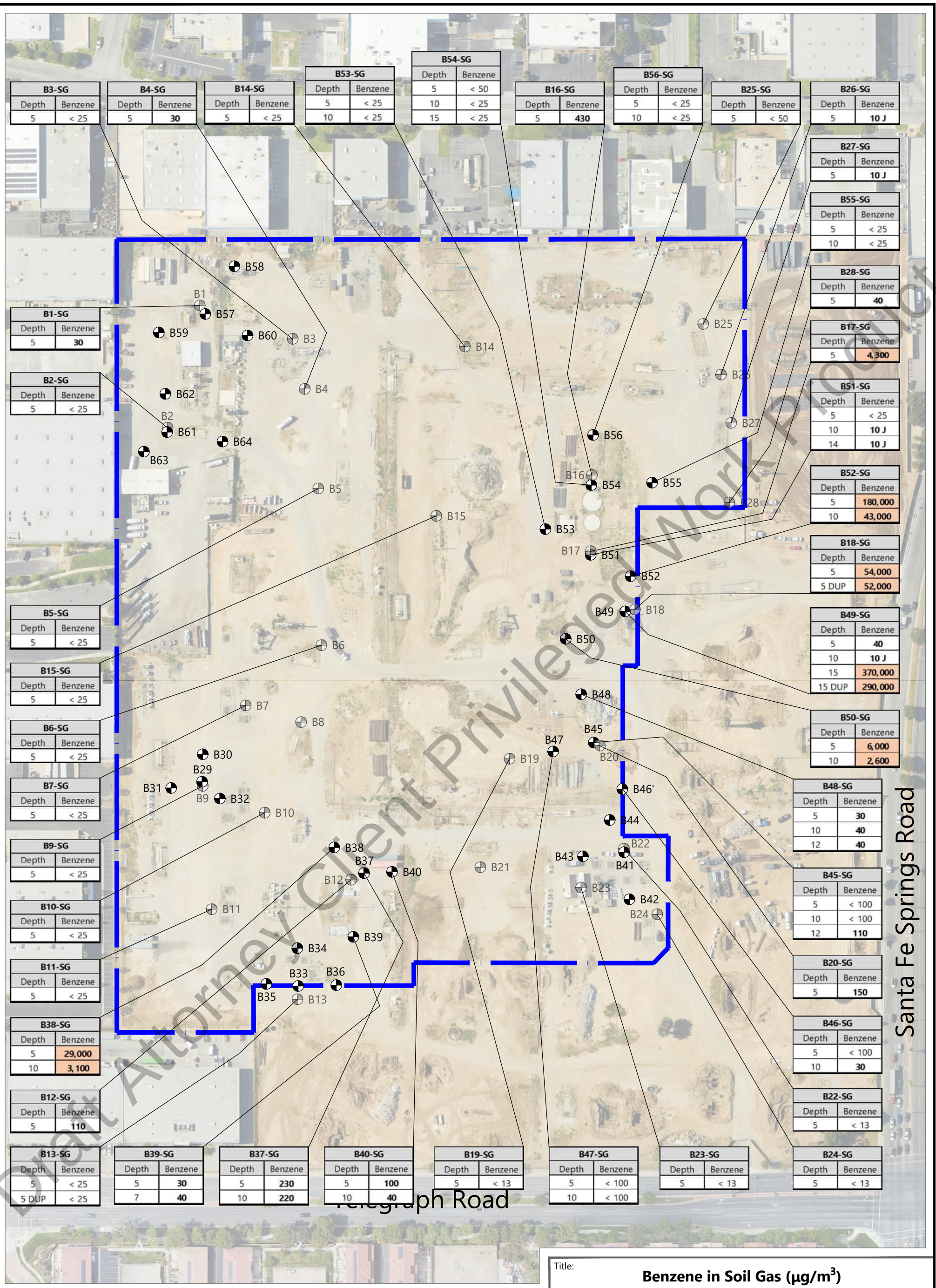
Approximate Scale

Title: **Arsenic in Soil (mg/kg)**

Figure:	Prepared By:	Date:	Project Number:
3B	DH	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

PARTNER
Engineering and Science, Inc.



Legend and Notes:

- Site Boundary
- Previous Boring Location
- Boring Location
- µg/m³ — Micrograms per cubic meter
- bgs — Depths presented in feet below ground surface
- BGS = Below Ground Surface

N

75' 0' 75' 150'

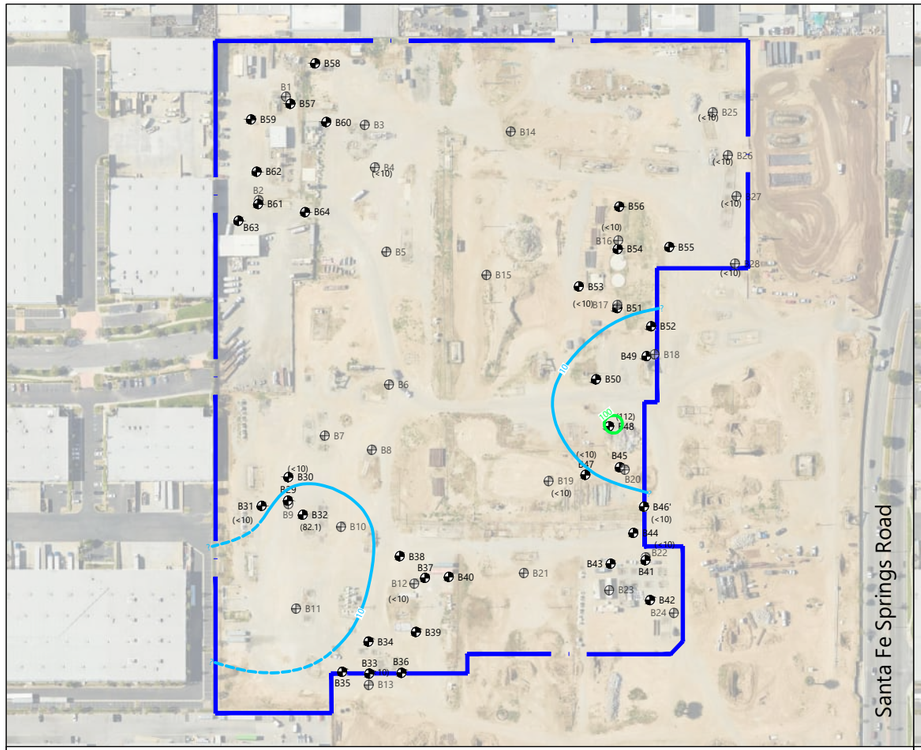
Approximate Scale

Title: **Benzene in Soil Gas (µg/m³)**

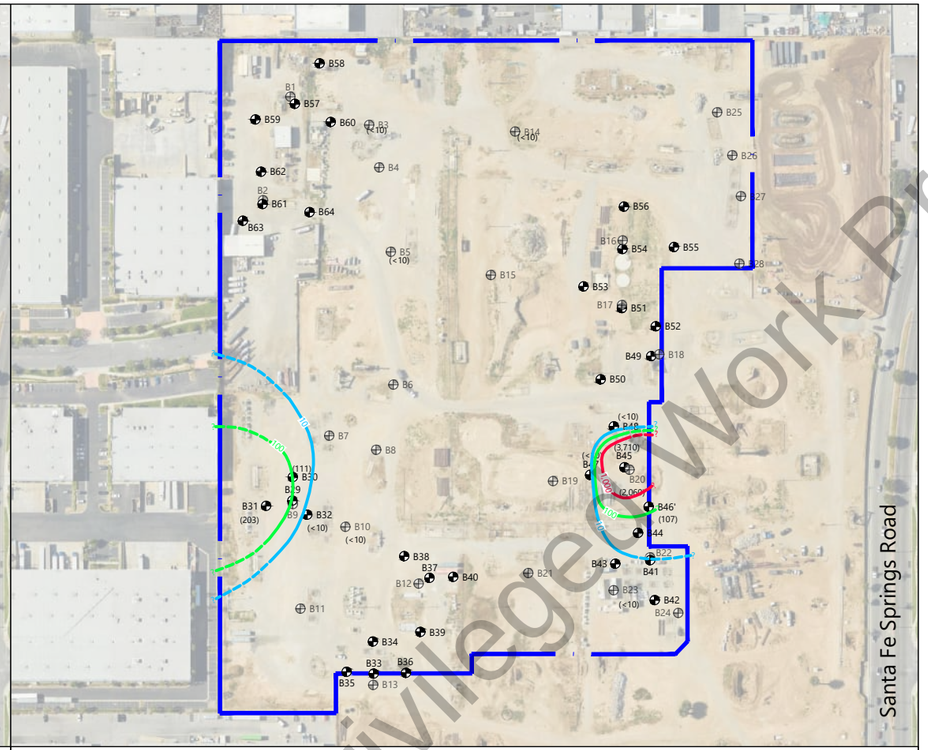
Figure:	Prepared By:	Date:	Project Number:
3C	DH	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

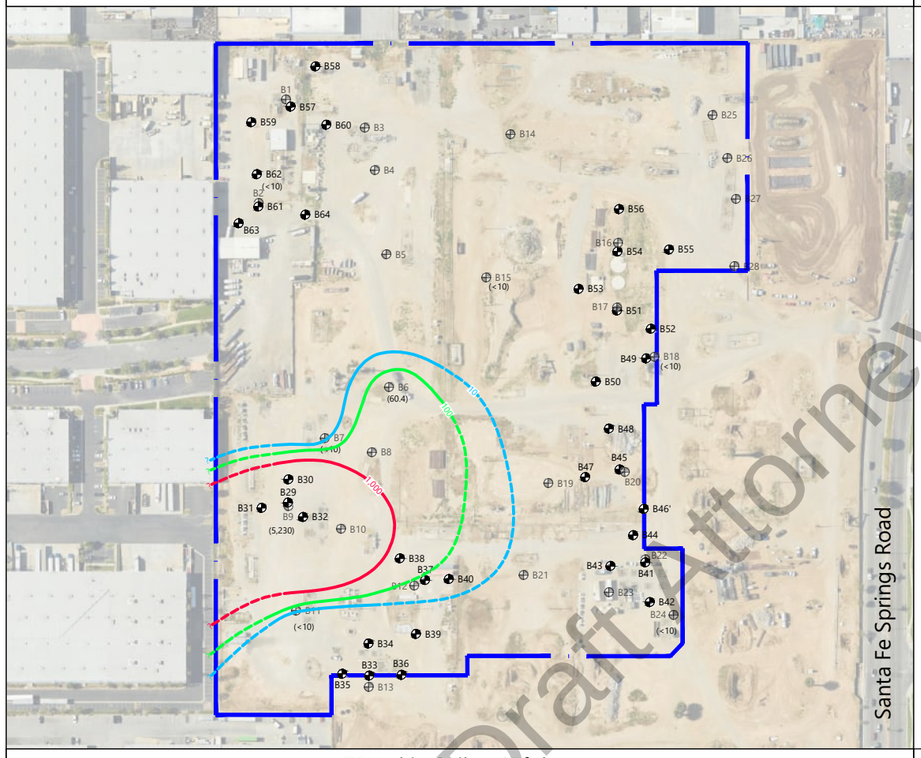
PARTNER
Engineering and Science, Inc.



TPH-d in Soil at 5ft bgs



TPH-d in Soil at 10ft bgs



TPH-d in Soil at 15ft bgs

Legend and Notes:

- Site Boundary
- Previous Boring Location
- Boring Location
- TPH-d Isocontour - 10 mg/kg
- TPH-d Isocontour - 100 mg/kg
- TPH-d Isocontour - 1,000 mg/kg

- Concentrations presented in mg/kg (milligram per kilogram)
- Isocontours dashed where inferred, queried where uncertain
- TPH-d = total petroleum hydrocarbons as diesel (C12-C22)
- bgs = below ground surface
- < = less than indicated laboratory Method Detection Limit (MDL) or Reporting Limit (RL)
- Absence of TPH-d concentration indicates that sample was not collected at that depth

N

150' 0' 150' 300'

Approximate Scale

Title: **TPH-d Isoconcentrations in Soil (mg/kg)**

Figure:	Prepared By:	Date:	Project Number:
4A	AS	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

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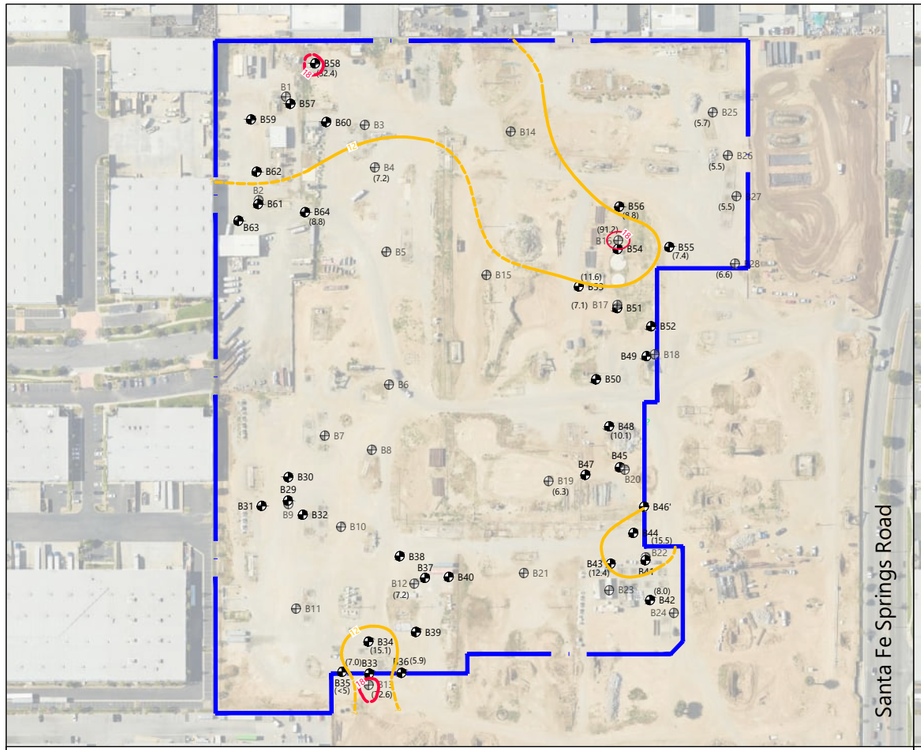
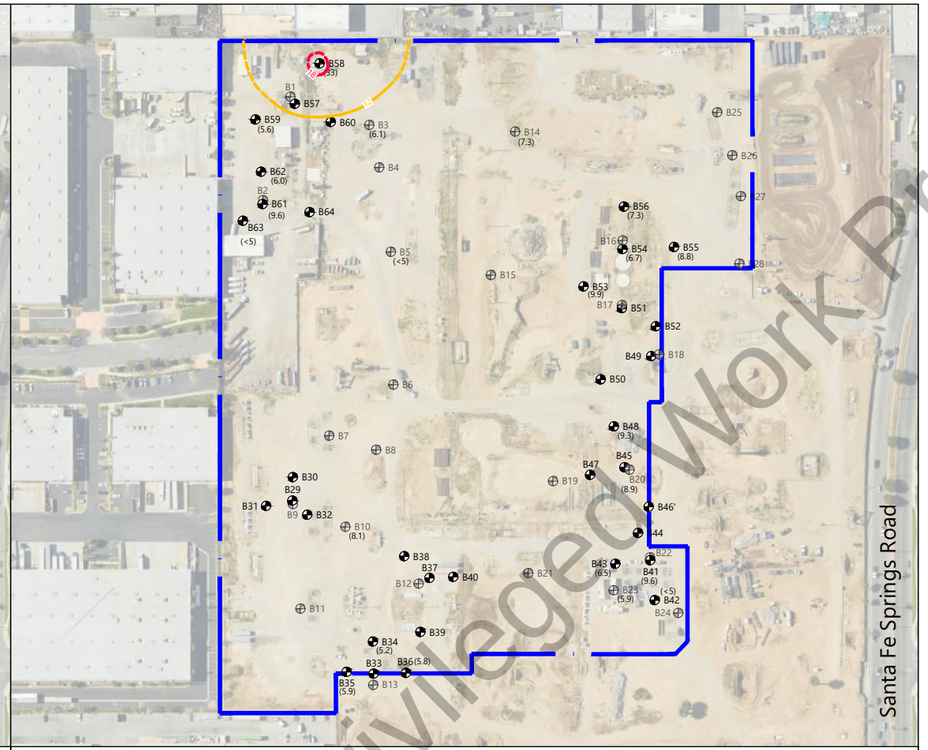
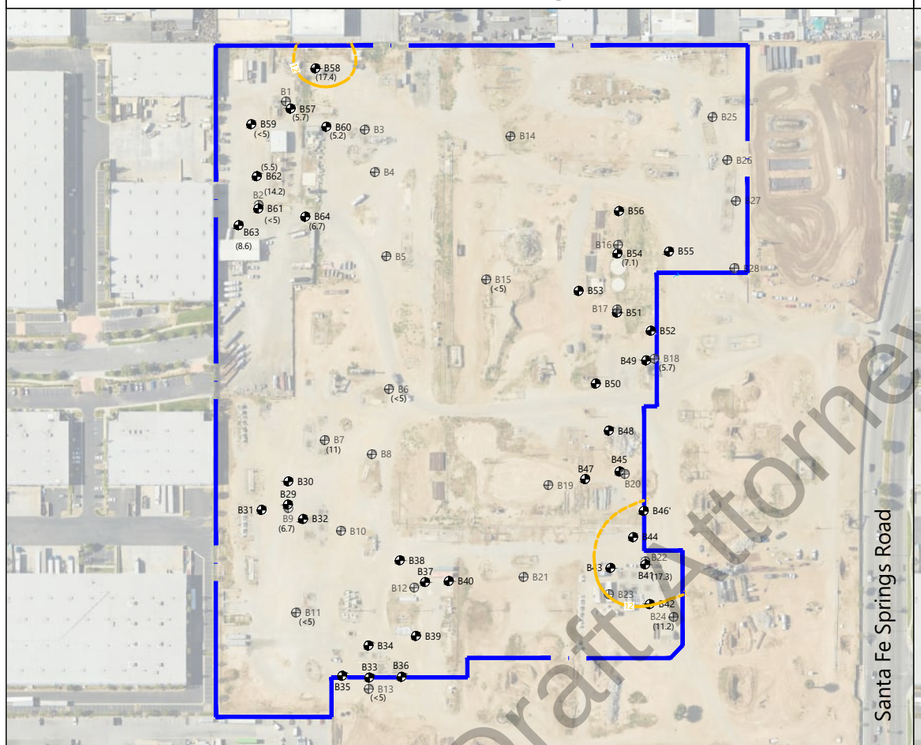


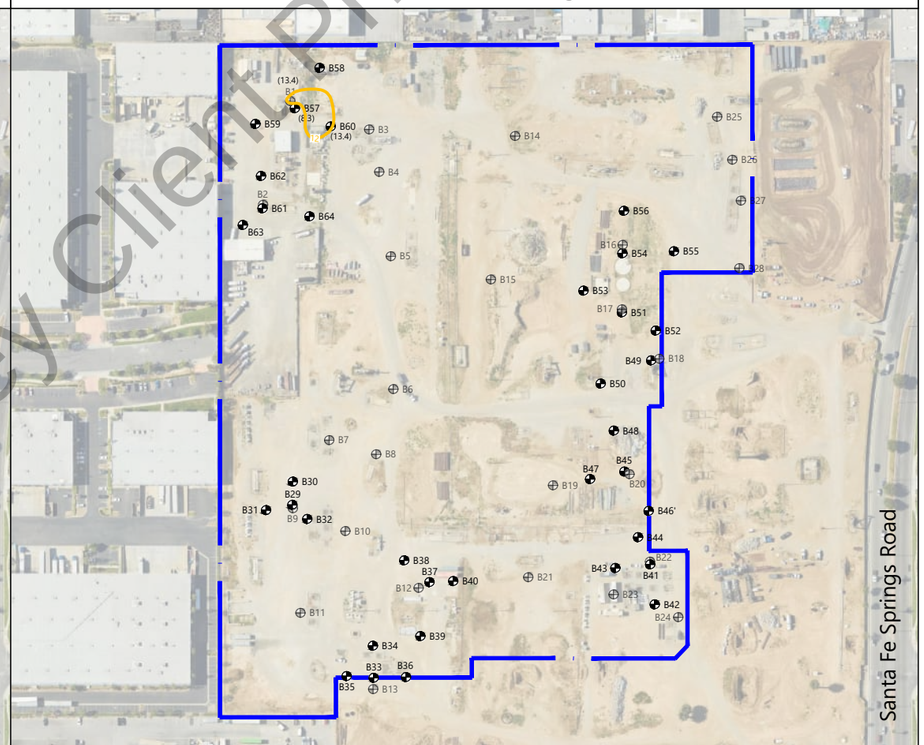
Arsenic in Soil at 5ft bgs



Arsenic in Soil at 10ft bgs



Arsenic in Soil at 15ft bgs



Arsenic in Soil at 20ft bgs

Legend and Notes:

- Site Boundary
- Previous Boring Location
- Boring Location
- Arsenic Isocontour - 12 mg/kg
- Arsenic Isocontour - 18 mg/kg

- Concentrations presented in mg/kg (milligram per kilogram)
- Isocontours dashed where inferred, queried where uncertain
- bgs = below ground surface
- < = less than indicated laboratory Method Detection Limit (MDL) or Reporting Limit (RL)
- Absence of TPH-d concentration indicates that sample was not collected at that depth

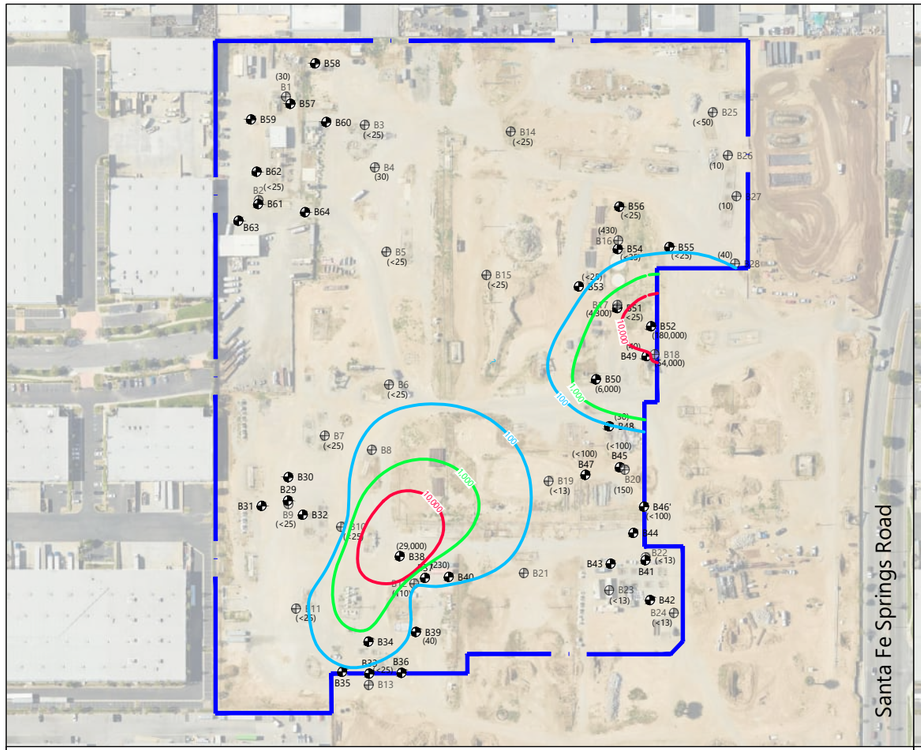
N

150' 0' 150' 300'

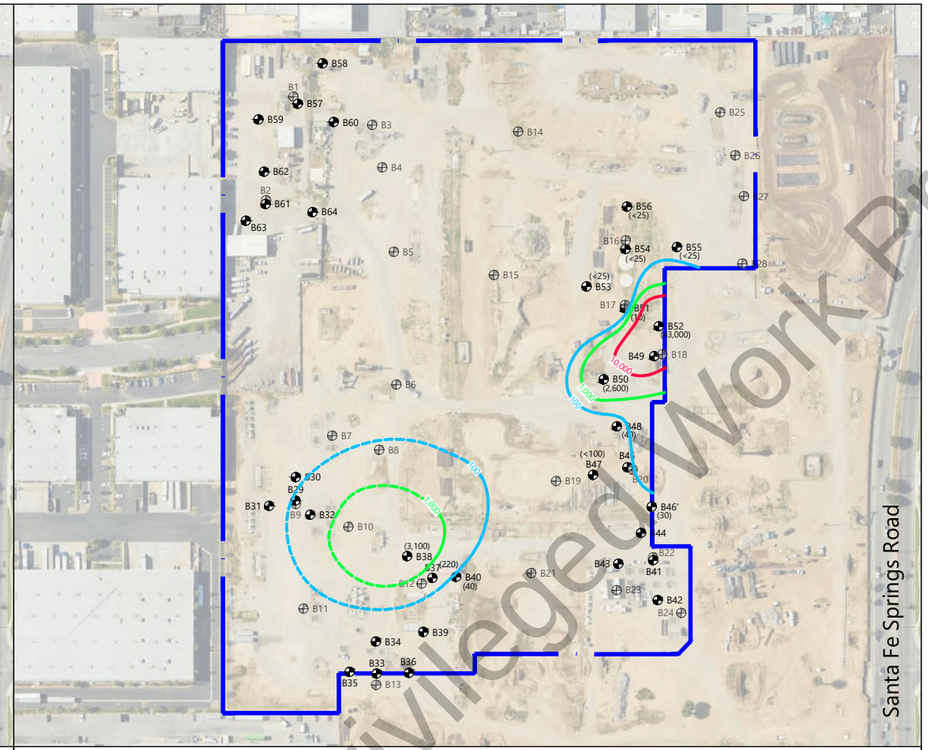
Approximate Scale

Title: **Arsenic Isoconcentrations in Soil (mg/kg)**			
Figure: **4B**	Prepared By: **AS**	Date: **September 2024**	Project Number: **ES22-392110.9**
Address: **Telegraph Road and Sante Fe Springs Road Santa Fe Springs, California 90670**			

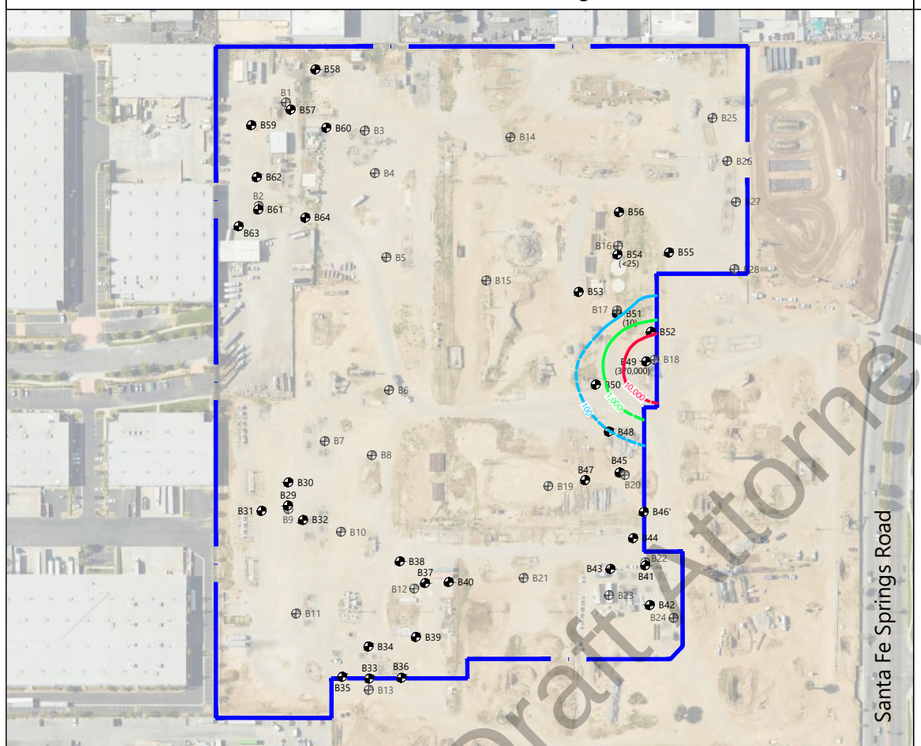
PARTNER Engineering and Science, Inc.



Benzene in Soil Gas at 5ft bgs



Benzene in Soil Gas at 10ft bgs



Benzene in Soil Gas at 15ft bgs

Legend and Notes:

- Site Boundary
- Previous Boring Location
- Boring Location
- Benzene Isocontour - 100 µg/m³
- Benzene Isocontour - 1,000 µg/m³
- Benzene Isocontour - 10,000 µg/m³

- Concentrations presented in µg/m³ (microgram per cubic meter)
- Isocontours dashed where inferred, queried where uncertain
- bgs = below ground surface
- < = less than indicated laboratory Method Detection Limit (MDL) or Reporting Limit (RL)
- Absence of TPH-d concentration indicates that sample was not collected at that depth

N

150' 0' 150' 300'

Approximate Scale

Title: **Benzene Isoconcentrations in Soil Gas (µg/m³)**

Figure:	Prepared By:	Date:	Project Number:
4C	AS	September 2024	ES22-392110.9

Address:
Telegraph Road and Sante Fe Springs Road
Santa Fe Springs, California 90670

PARTNER
Engineering and Science, Inc.

TABLES

Table 1: Summary of Investigation Scope
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
B1	Northwest portion of subject property	20	Soil	5, 10, 15, **20**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B2	Northwest portion of subject property	15**	Soil	5, 10, **15**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B3	Northwest portion of subject property	18**	Soil	5, **10**, 15	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B4	Northwest portion of subject property	15**	Soil	**5**, 10, 15	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B5	Northwest portion of subject property	17**	Soil	5, **10**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B6	West portion of subject property	17**	Soil	5, 10, **15**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B7	West portion of subject property	18**	Soil	5, 10, **15**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B8	West portion of subject property	0**	NA	NA	NA
B9	Southwest portion of subject property	17.5**	Soil	5, 10, **15**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B10	Southwest portion of subject property	16**	Soil	5, **10**, 15	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S

Table 1: Summary of Investigation Scope
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
B11	Southwest portion of subject property	15**	Soil	5, 10, **15**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B12	South portion of subject property	17**	Soil	**5**, 10, 15	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B13	Southwest portion of subject property	5**	Soil	**5**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B14	North portion fo subject property	17**	Soil	5, **10**, 15	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B15	North-central portion of subject property	15**	Soil	5, 10, **15**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B16	Northeast portion fo subject property	12**	Soil	**5**, 10	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B17	East portion of subject property	15**	Soil	**5**, 10, 15	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B18	East portion of subject property	17**	Soil	5, 10, **15**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B19	Central portion of subject property	7**	Soil	**5**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B20	Southeast portion of subject property	13**	Soil	5, **10**, 13	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S

Table 1: Summary of Investigation Scope
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
B21	Southeast portion of subject property	2**	Soil	NC	NA
			Soil Gas	NC	NA
B22	Southeast portion of subject property	7**	Soil	**5**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B23	Southeast portion of subject property	10**	Soil	5, **10**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B24	Southeast portion of subject property	15**	Soil	5, 10, **15**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B25	Northeast portion of subject property	7**	Soil	**5**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B26	Northeast portion of subject property	5**	Soil	**5**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B27	Northeast portion of subject property	6.5**	Soil	**5**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B28	Northeast portion of subject property	7**	Soil	**5**	TPH-cc, VOCs, Metals
			Soil Gas	**5**	VOCs, methane, H2S
B29	Adjacent to previous boring B9	22**	Soil	5, 10, 15, **20**, **22**	TPH-cc
B30	North of previous boring B9	10	Soil	**5**, **10**	TPH-cc

Table 1: Summary of Investigation Scope
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
B31	West of previous boring B9	10	Soil	**5**, **10**	TPH-cc
B32	Southeast of previous boring B9	10	Soil	**5**, **10**	TPH-cc
B33	Adjacent to previous boring B13	13**	Soil	**5**, 10, **13**	Arsenic
B34	North of previous boring B13	10	Soil	**5, 10**	Arsenic
B35	West of previous boring B13	10	Soil	**5, 10**	Arsenic
B36	East of previous boring B13	10	Soil	**5, 10**	Arsenic
B37	Adjacent to previous boring B12	10**	Soil Gas	**5, 10**	VOCs
B38	Northwest of previous boring B12	10	Soil Gas	**5, 10**	VOCs
B39	South of previous boring B12	7**	Soil Gas	**5, 7**	VOCs
B40	East of previous boring B12	10	Soil Gas	**5, 10**	VOCs

Table 1: Summary of Investigation Scope
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
B41	Adjacent to previous boring B22	14**	Soil	5, **10, 14**	Arsenic
B42	South of previous boring B22	10	Soil	**5, 10**	Arsenic
B43	West of previous boring B22	10	Soil	**5, 10**	Arsenic
B44	North of previous boring B22	2**	--	--	--
B45	Adjacent to previous boring B20	12**	Soil	5, **10**, **12**	TPH-cc
			Soil Gas	**5, 10, 12**	VOCs, Methane
B46	Southeast of previous boring B20	10	Soil	**5**, **10**	TPH-cc
			Soil Gas	**5, 10**	VOCs, Methane
B47	West of previous boring B20	10	Soil	**5**, **10**	TPH-cc
			Soil Gas	**5, 10**	VOCs, Methane
B48	North of previous boring B20	10	Soil	**5**, **10**	TPH-cc, Arsenic
			Soil Gas	**5, 10**	VOCs, Methane
B49	West of previous boring B18	15	Soil Gas	**5, 10, 15**	VOCs, Methane
B50	Southwest of previous boring B18 and boring B49	10	Soil Gas	**5, 10**	VOCs, Methane

Table 1: Summary of Investigation Scope
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
B51	Adjacent to previous boring B17	14**	Soil Gas	**5, 10, 14**	VOCs, Methane
B52	Northwest of previous boring B18	10	Soil Gas	**5, 10**	VOCs, Methane
B53	Southwest of previous boring B16	10	Soil	**5, 10**	Arsenic
			Soil Gas	**5, 10**	VOCs
B54	Adjacent to previous boring B16	15	Soil	5, **10, 15**	Arsenic
			Soil Gas	**5, 10, 15**	VOCs
B55	East of previous boring B16	10	Soil	**5, 10**	Arsenic
			Soil Gas	**5, 10**	VOCs
B56	North of previous boring B16	10	Soil	**5, 10**	Arsenic
			Soil Gas	**5, 10**	VOCs
B57	Adjacent to previous boring B1	18**	Soil	5, 10, **15, 18**	Arsenic
B58	Northeast of previous boring B1	15**	Soil	**5, 10, 15**	Arsenic
B59	Southwest of previous boring B1	14**	Soil	5, **10, 14**	Arsenic
B60	Southeast of previous boring B1	18**	Soil	5, 10, **15, 18**	Arsenic

Table 1: Summary of Investigation Scope
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
B61	Adjacent to previous boring B2	15**	Soil	5, **10, 15**	Arsenic
B62	North of previous boring B2	14**	Soil	5, **10, 14**	Arsenic
B63	Southwest of previous boring B2	15**	Soil	5, **10, 15**	Arsenic
B64	East of previous boring B2	15**	Soil	5, **10, 15**	Arsenic

Notes:

bgs = below ground surface

*Depths in **bold** analyzed for indicated target contaminants.

TPH-cc = carbon chain total petroleum hydrocarbons [specifically total petroleum hydrocarbons as diesel and oil (TPH-d and TPH-o, respectively, via United States Environmental Protection Agency (EPA) Method 8015 and total petroleum hydrocarbons as gasoline (TPH-g) via EPA Method 8260]

VOCs = volatile organic compounds via EPA Method 8260B

Metals = California Administrative Manual (CAM) 17 Title 22 metals via EPA Method 6010/7471

Arsenic = arsenic via EPA Method 6010

Methane = methane using field instruments (MRU Optima 7 Biogas Analyzer or RKI Eagle 2)

H_2S = Hydrogen Sulfide gas usingfield instruments (MRU Optima 7 Biogas Analyzer)

**Refusal encountered at the terminal depth

NA = not applicable

Table 2: Cumulative Soil Sample TPH Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			TPH via EPA Method 8015 (mg/kg)		
Boring Location	**Sample Depth (feet bgs)**	**Date Sampled**	**TPH-g**	**TPH-d**	**TPH-o**
SFBRWQCB Construction Industrial ESL			**1,000**	**1,100**	**54,000**
B1-20	20	2/20/2023	< 0.2	< 10	< 10
B2-15	15	2/20/2023	< 0.2	< 10	< 10
B3-10	10	2/20/2023	< 0.2	< 10	< 10
B4-5	5	2/20/2023	< 0.2	< 10	< 10
B5-10	10	2/20/2023	< 0.2	< 10	< 10
B6-15	15	2/20/2023	**1.41**	**60.4**	**66.4**
B7-15	15	2/20/2023	< 0.2	< 10	< 10
B9-15	15	2/21/2023	**26.5**	**5,230**	**2,420**
B10-10	10	2/21/2023	< 0.2	< 10	< 10
B11-15	15	2/21/2023	< 0.2	< 10	< 10
B12-5	5	2/20/2023	< 0.2	< 10	< 10
B13-5	5	2/20/2023	< 0.2	< 10	< 10
B14-10	10	2/21/2023	< 0.2	< 10	< 10
B15-15	15	2/21/2023	< 0.2	< 10	< 10
B16-5	5	2/21/2023	< 0.2	< 10	< 10
B17-5	5	2/21/2023	< 0.2	< 10	< 10
B18-15	15	2/21/2023	**0.30**	< 10	< 10
B19-5	5	2/21/2023	< 0.2	< 10	< 10
B20-10	10	2/21/2023	**16.1**	**2,060**	**1,300**
B22-5	5	2/21/2023	< 0.2	< 10	< 10
B23-10	10	2/22/2023	< 0.2	< 10	< 10
B24-15	15	2/22/2023	< 0.2	< 10	< 10
B25-5	5	2/22/2023	< 0.2	< 10	< 10
B26-5	5	2/22/2023	< 0.2	< 10	< 10
B27-5	5	2/22/2023	< 0.2	< 10	< 10
B28-5	5	2/22/2023	< 0.2	< 10	< 10
B29-20	20	2/6/2024	< 0.2	< 10	< 10
B29-22	22	2/6/2024	< 0.2	< 10	< 10
B30-5	5	2/6/2024	< 0.2	< 10	< 10
B30-10	10	2/6/2024	< 0.2	**111**	**170**
B31-5	5	2/6/2024	< 0.2	< 10	< 10
B31-10	10	2/6/2024	< 0.2	**203**	**457**
B32-5	5	2/6/2024	< 0.2	**82.1**	**118**
B32-10	10	2/6/2024	**0.70**	< 10	< 10
B45-10	10	2/12/2024	< 0.2	**3,710**	**2,100**
B45-12	12	2/12/2024	< 0.2	< 10	< 10
B46-5	5	2/12/2024	< 0.2	< 10	< 10
B46-10	10	2/12/2024	< 0.2	**107**	**470**

Table 2: Cumulative Soil Sample TPH Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			TPH via EPA Method 8015 (mg/kg)		
Boring Location	**Sample Depth (feet bgs)**	**Date Sampled**	**TPH-g**	**TPH-d**	**TPH-o**
SFBRWQCB Construction Industrial ESL			**1,000**	**1,100**	**54,000**
B47-5	5	2/12/2024	< 0.2	< 10	< 10
B47-10	10	2/12/2024	< 0.2	< 10	< 10
B48-5	5	2/13/2024	< 0.2	**112**	**314**
B48-10	10	2/13/2024	< 0.20	< 10	< 10

Notes:

EPA = Environmental Protection Agency

TPH = total petroluem hydrocarbons

mg/kg = milligram per kilogram

bgs = below ground surface

TPH-g = total petroleum hydrocarbons as gasoline (C5-C12)

TPH-d = total petroleum hydrocarbons as diesel (C12-C22)

TPH-o = total petroleum hydrocarbons as oil (C22-C40)

LARWQCB SSL = Los Angeles Regional Water Quality Control Board Soil Screening Level

SFBRWQCB ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Level (January, 2019)

< = not detected above indicated laboratory Practical Quantitation Limit (PQL) or Reporting Limit (RL)

Table 3: Cumulative Soil Sample Arsenic Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			Metals via 6010B (mg/kg)
Boring Locations	Sample Depth (feet bgs)	Date Sampled	Arsenic (As)
		DTSC Commercial/Industrial Soil SL	12.0
		Site-Specific Screening Level	18.0
B1-20	20	2/20/2023	13.4
B2-15	15	2/20/2023	14.2
B3-10	10	2/20/2023	6.10
B4-5	5	2/20/2023	7.20
B5-10	10	2/20/2023	< 5.0
B6-15	15	2/20/2023	< 5.0
B7-15	15	2/20/2023	11.0
B9-15	15	2/21/2023	6.70
B10-10	10	2/21/2023	8.10
B11-15	15	2/21/2023	< 5.0
B12-5	5	2/20/2023	7.20
B13-5	5	2/20/2023	72.6
B14-10	10	2/21/2023	7.30
B15-15	15	2/21/2023	< 5.0
B16-5	5	2/21/2023	91.2
B17-5	5	2/21/2023	7.10
B18-15	15	2/21/2023	5.70
B19-5	5	2/21/2023	6.30
B20-10	10	2/21/2023	8.90
B22-5	5	2/21/2023	15.5
B23-10	10	2/22/2023	5.90
B24-15	15	2/22/2023	11.2
B25-5	5	2/22/2023	5.70
B26-5	5	2/22/2023	5.50
B27-5	5	2/22/2023	5.50
B28-5	5	2/22/2023	6.60
B33-5	5	2/13/2024	7.00
B33-13	13	2/13/2024	< 5
B34-5	5	2/13/2024	15.1
B34-10	10	2/13/2024	5.20

Table 3: Cumulative Soil Sample Arsenic Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			Metals via 6010B (mg/kg)
Boring Locations	Sample Depth (feet bgs)	Date Sampled	Arsenic (As)
		DTSC Commercial/Industrial Soil SL	12.0
		Site-Specific Screening Level	18.0
B35-5	5	2/13/2024	< 5
B35-10	10	2/13/2024	5.90
B36-5	5	2/13/2024	5.90
B36-10	10	2/13/2024	5.80
B41-10	10	2/13/2024	9.60
B41-14	14	2/13/2024	17.3
B42-5	5	2/13/2024	8.00
B42-10	10	2/13/2024	< 5
B43-5	5	2/13/2024	12.4
B43-10	10	2/13/2024	6.50
B48-5	5	2/13/2024	10.1
B48-10	10	2/13/2024	9.30
B53-5	5	2/12/2024	11.6
B53-10	10	2/12/2024	9.90
B54-10	10	2/12/2024	6.70
B54-15	15	2/12/2024	7.10
B55-5	5	2/12/2024	7.40
B55-10	10	2/12/2024	8.80
B56-5	5	2/12/2024	8.80
B56-10	10	2/12/2024	7.30
B57-15	15	2/6/2024	5.70
B57-18	18	2/6/2024	8.30
B58-5	5	2/13/2024	32.4
B58-10	10	2/13/2024	33.0
B58-15	15	2/13/2024	17.4
B59-10	10	2/6/2024	5.60
B59-14	14	2/6/2024	< 5
B60-15	15	2/13/2024	5.20
B60-18	18	2/13/2024	13.4

Table 3: Cumulative Soil Sample Arsenic Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			Metals via 6010B (mg/kg)
Boring Locations	Sample Depth (feet bgs)	Date Sampled	Arsenic (As)
		DTSC Commercial/Industrial Soil SL	**12.0**
		Site-Specific Screening Level	**18.0**
B61-10	10	2/6/2024	**9.60**
B61-15	15	2/6/2024	< 5
B62-10	10	2/6/2024	**6.00**
B62-14	14	2/6/2024	**5.50**
B63-10	10	2/6/2024	< 5
B63-15	15	2/6/2024	**8.60**
B64-5	5	2/6/2024	**8.80**
B64-15	15	2/6/2024	**6.70**

EPA = Environmental Protection Agency

mg/kg = milligram per kilogram

bgs = below ground surface

DTSC SL= Department of Toxic Substances Control Screening Level (DTSC Human Health Risk Assessment [HHRA] Human and Ecological Risk Office [HERO] Note 3 - June 2020)

< = not detected above indicated laboratory Practical Quantitation Limit (PQL) or Reporting Limit (RL)

Values in **bold** exceed laboratory Reporting Limits (RLs)

Orange highlighted concentrations exceed Commercial/Industrial Soil RSL

Red highlighted concentrations exceed Site-Specific Soil Screening Level

Table 4: Cumulative Soil Gas Sample VOCs Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			VOCs via EPA Method 8260B (µg/m^3)												
Boring Location	Sample Depth (feet bgs)	Date Sampled	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	sec-Butylbenzene	Other VOCs
Commercial/Industrial Indoor Air Screening Level			**0.42**	**1,300**	**4.9**	**440**	**440**	**260**	**260**	**NE**	**1,800**	**880**	**4,400**	**1,800**	**NA**
Future Use Commercial/Industrial SGSL (AF = 0.0005)			**840**	**2,600,000**	**9,800**	**880,000**	**880,000**	**520,000**	**520,000**	**NE**	**3,600,000**	**1,760,000**	**8,800,000**	**3,600,000**	**NA**
Current Use Commercial/Industrial SGSL (AF = 0.001)			**420**	**1,300,000**	**4,900**	**440,000**	**440,000**	**260,000**	**260,000**	**NE**	**1,800,000**	**880,000**	**4,400,000**	**1,800,000**	**NA**
Existing Use Commerical/Industrial Screening SGSL (AF = 0.03)			**14**	**43,333**	**163**	**14,667**	**14,667**	**8,667**	**8,667**	**NE**	**60,000**	**29,333**	**146,667**	**60,000**	**NA**
B1-SG	5	2/23/2023	**30**	**120**	**20 J**	**30 J**	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B2-SG	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B3-SG	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B4-SG	5	2/23/2023	**30**	< 25	**120**	**930**	**90**	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B5-SG	5	2/23/2023	< 25	< 25	**90**	**330**	**40**	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B6-SG	5	2/23/2023	< 25	< 25	< 25	**100**	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B7-SG	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B9-SG	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B10-SG	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B11-SG	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B12-SG	5	2/23/2023	**110**	< 25	**40**	**60**	**30**	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B13-SG	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B13-SG DUP	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B14-SG	5	2/23/2023	< 25	< 25	**20 J**	**60**	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B15-SG	5	2/23/2023	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B16-SG	5	3/1/2023	**430**	**90**	< 50	**90 J**	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	ND
B17-SG	5	3/1/2023	**4,300**	**930**	**70**	**790**	**60**	**70**	**40 J**	< 25	**30 J**	< 25	**40 J**	< 25	ND
B18-SG	5	3/1/2023	**54,000**	**24,000**	**700**	**6,200**	**350**	**510**	**390**	< 6.5	**170**	< 6.5	**150**	**70**	ND
B18-SG DUP	5	3/1/2023	**52,000**	**20,000**	**720**	**8,700**	**640**	**580**	**360**	< 85	**260**	< 85	**300**	**140 J**	ND
B19-SG	5	3/1/2023	< 13	< 13	< 13	< 26	< 13	< 13	< 13	< 13	< 13	< 13	< 13	< 13	ND
B20-SG	5	3/1/2023	**150**	< 13	< 13	< 26	< 13	< 13	< 13	< 13	< 13	< 13	< 13	< 13	ND
B22-SG	5	3/1/2023	< 13	< 13	< 13	< 26	< 13	< 13	< 13	< 13	< 13	< 13	< 13	< 13	ND

Table 4: Cumulative Soil Gas Sample VOCs Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			VOCs via EPA Method 8260B (µg/m^3)												
Boring Location	Sample Depth (feet bgs)	Date Sampled	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	sec-Butylbenzene	Other VOCs
Commercial/Industrial Indoor Air Screening Level			**0.42**	**1,300**	**4.9**	**440**	**440**	**260**	**260**	**NE**	**1,800**	**880**	**4,400**	**1,800**	**NA**
Future Use Commercial/Industrial SGSL (AF = 0.0005)			**840**	**2,600,000**	**9,800**	**880,000**	**880,000**	**520,000**	**520,000**	**NE**	**3,600,000**	**1,760,000**	**8,800,000**	**3,600,000**	**NA**
Current Use Commercial/Industrial SGSL (AF = 0.001)			**420**	**1,300,000**	**4,900**	**440,000**	**440,000**	**260,000**	**260,000**	**NE**	**1,800,000**	**880,000**	**4,400,000**	**1,800,000**	**NA**
Existing Use Commerical/Industrial Screening SGSL (AF = 0.03)			**14**	**43,333**	**163**	**14,667**	**14,667**	**8,667**	**8,667**	**NE**	**60,000**	**29,333**	**146,667**	**60,000**	**NA**
B23-SG	5	3/1/2023	< 13	< 13	< 13	< 26	< 13	< 13	< 13	< 13	< 13	< 13	< 13	< 13	ND
B24-SG	5	3/1/2023	< 13	< 13	< 13	< 26	< 13	< 13	< 13	< 13	< 13	< 13	< 13	< 13	ND
B25-SG	5	3/1/2023	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	ND
B26-SG	5	3/1/2023	**10 J**	**20**	< 13	< 26	< 13	< 13	< 13	< 13	< 13	< 13	< 13	< 13	ND
B27-SG	5	3/1/2023	**10 J**	< 13	< 13	< 26	< 13	< 13	< 13	< 13	< 13	< 13	< 13	< 13	ND
B28-SG	5	3/1/2023	**40**	< 13	< 13	< 26	< 13	< 13	< 13	< 13	< 13	< 13	< 13	< 13	ND
B37-SG5	5	2/22/2024	**230**	< 100	**80**	**150**	< 100	**450**	**140**	**200**	**80**	< 100	**60**	**220**	ND
B37-SG10	10	2/22/2024	**220**	< 100	< 100	< 200	< 100	**190**	**70**	**70**	< 100	< 100	< 100	**80**	ND
B38-SG5	5	2/22/2024	**29,000**	**150**	**2,900**	**4,000**	**160**	**3,000**	**1,200**	**840**	**1,400**	**140**	**920**	**1,000**	ND
B38-SG10	10	2/22/2024	**3,100**	**70**	**590**	**1,300**	**250**	**1,600**	**600**	**540**	**510**	**90**	**290**	**790**	ND
B39-SG5	5	2/22/2024	**30**	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B39-SG7	7	2/22/2024	**40**	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B40-SG5	5	2/22/2024	**100**	< 100	< 100	< 200	< 100	**70**	< 100	< 100	< 100	< 100	< 100	< 100	ND
B40-SG10	10	2/22/2024	**40**	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B45-SG5	5	2/22/2024	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B45-SG10	10	2/22/2024	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B45-SG12	12	2/22/2024	**110**	**50**	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	**70**	ND
B46-SG5	5	2/22/2024	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B46-SG10	10	2/22/2024	**30**	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B47-SG5	5	2/22/2024	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B47-SG10	10	2/22/2024	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND

Table 4: Cumulative Soil Gas Sample VOCs Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			VOCs via EPA Method 8260B (µg/m^3)												
Boring Location	Sample Depth (feet bgs)	Date Sampled	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	sec-Butylbenzene	Other VOCs
Commercial/Industrial Indoor Air Screening Level			**0.42**	**1,300**	**4.9**	**440**	**440**	**260**	**260**	**NE**	**1,800**	**880**	**4,400**	**1,800**	**NA**
Future Use Commercial/Industrial SGSL (AF = 0.0005)			**840**	**2,600,000**	**9,800**	**880,000**	**880,000**	**520,000**	**520,000**	**NE**	**3,600,000**	**1,760,000**	**8,800,000**	**3,600,000**	**NA**
Current Use Commercial/Industrial SGSL (AF = 0.001)			**420**	**1,300,000**	**4,900**	**440,000**	**440,000**	**260,000**	**260,000**	**NE**	**1,800,000**	**880,000**	**4,400,000**	**1,800,000**	**NA**
Existing Use Commerical/Industrial Screening SGSL (AF = 0.03)			**14**	**43,333**	**163**	**14,667**	**14,667**	**8,667**	**8,667**	**NE**	**60,000**	**29,333**	**146,667**	**60,000**	**NA**
B48-SG5	5	2/22/2024	**30**	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B48-SG10	10	2/22/2024	**40**	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	ND
B48-SG10 DUP	10	2/22/2024	**40**	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	ND
B49-SG5	5	2/22/2024	**40**	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B49-SG10	10	2/22/2024	**10 J**	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B49-SG15	15	2/22/2024	**370,000**	**5,500**	**2,800**	**6,600**	**2,100**	< 500	< 500	< 500	**320 J**	< 500	< 500	< 500	ND
B49-SG15 DUP	15	2/22/2024	**290,000**	**3,400**	**2,300**	**7,700**	**2,100**	< 500	< 500	< 500	**360 J**	< 500	< 500	< 500	ND
B50-SG5	5	2/22/2024	**6,000**	**250**	< 250	**360 J**	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	ND
B50-SG10	10	2/22/2024	**2,600**	**210 J**	< 250	**380 J**	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	ND
B51-SG5	5	2/22/2024	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B51-SG10	10	2/22/2024	**10 J**	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B51-SG14	14	2/22/2024	**10 J**	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B52-SG5	5	2/22/2024	**180,000**	**9,600**	**250 J**	**14,000**	**1,600**	< 500	< 500	< 500	< 500	< 500	< 500	< 500	ND
B52-SG10	10	2/22/2024	**43,000**	**1,700**	< 500	**2,000**	**330 J**	< 500	< 500	< 500	< 500	< 500	< 500	< 500	ND
B53-SG5	5	2/22/2024	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B53-SG10	10	2/22/2024	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B54-SG5	5	2/22/2024	< 25	< 25	< 25	< 50	<25	<25	<25	<25	<25	<25	<25	<25	ND
B54-SG10	10	2/22/2024	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B54-SG15	15	2/22/2024	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND

Table 4: Cumulative Soil Gas Sample VOCs Laboratory Results
Telegraph Road and Santa Fe Springs Road
Santa Fe Springs, California 90670
Partner Project Number ES22-392110.9
September 2024

EPA Method			VOCs via EPA Method 8260B (µg/m^3)											
Boring Location	Sample Depth (feet bgs)	Date Sampled	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	sec-Butylbenzene	Other VOCs
Commercial/Industrial Indoor Air Screening Level			**0.42**	**1,300**	**4.9**	**440**	**440**	**260**	**260**	**NE**	**1,800**	**880**	**4,400**	**1,800**	**NA**
Future Use Commercial/Industrial SGSL (AF = 0.0005)			**840**	**2,600,000**	**9,800**	**880,000**	**880,000**	**520,000**	**520,000**	**NE**	**3,600,000**	**1,760,000**	**8,800,000**	**3,600,000**	**NA**
Current Use Commercial/Industrial SGSL (AF = 0.001)			**420**	**1,300,000**	**4,900**	**440,000**	**440,000**	**260,000**	**260,000**	**NE**	**1,800,000**	**880,000**	**4,400,000**	**1,800,000**	**NA**
Existing Use Commerical/Industrial Screening SGSL (AF = 0.03)			**14**	**43,333**	**163**	**14,667**	**14,667**	**8,667**	**8,667**	**NE**	**60,000**	**29,333**	**146,667**	**60,000**	**NA**
B55-SG5	5	2/22/2024	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B55-SG10	10	2/22/2024	< 25	**20 J**	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B56-SG5	5	2/22/2024	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND
B56-SG10	10	2/22/2024	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	ND

Notes:

EPA = Environmental Protection Agency

VOCs = volatile organic compounds

µg/m^3 = micrograms per cubic meter

bgs = below ground surface

SGSL = Soil Gas Screening Level; calculated by dividing the Department of Toxic Substances Control (DTSC) Human Health Risk Assessment (HHRA) Human and Ecological Risk Office (HERO) Note 3 (June 2020, updated May 2022) Regional Screening Level (RSL) for Indoor Air by an attenuation factor (AF). Where DTSC RSLs were not available, EPA RSLs (May 2023) were utilized. An AF of 0.0005 is appropriate for future commercial/industrial Sites, while the existing use commercial/industrial AF is 0.03.

Orange highlighted concentrations exceed future use commercial/industrial soil gas SGSLs (AF = 0.0005)

Values in **bold** exceed laboratory reporting limit (RL)

< = not detected above indicated laboratory Method Detection Limit (MDL) or RL

J = analyte concentration detected between laboratory RL and MDL

B = high analyte response noted in laboratory Initial Calibration Verification (ICV) or Continuing Calibration Verification (CCV) samples

NE = not established

NA = not applicable

ND = not detected above laboratory MDLs or RLs

APPENDIX A: BORING LOGS

APPENDIX B: LABORATORY ANALYTICAL REPORTS