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January 26, 2026

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Subject: Remedial Action Plan for the Excavation of Contaminated Soil
Former Aerex Refinery East Parcel
West Blanco Boulevard and North 5th Street, Bloomfield, New Mexico
Work Order No: EAEN08-ROS-04 Contract # 24-667-2030-27723

Dear Mr. Noger:

EA Engineering, Science, and Technology, Inc., PBC is pleased to submit the Remedial Action Plan (RAP) for the Excavation of Contaminated Soil at the Former Aerex Refinery East Parcel. EA will proceed with publishing the Public Notice on the RAP and will assist GWQB in addressing public comments. Please provide instructions on the content of the Notice.

Please do not hesitate to contact Mike McVey at mmcvey@eaest.com or at (505) 235-9037 or Vener Mustafin at vmustafin@eaest.com or at (505) 296-1070 if you have any questions or comments.

Respectfully,

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Vener Mustafin, P.E.
Senior Engineer/Engineer-of-Record

Enclosure

Cc: Prudence Brady, City of Bloomfield
File



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For the Excavation of Contaminated Soil
Former Aerex Refinery East Parcel
West Blanco Boulevard and North 5th Street
Bloomfield, New Mexico**

**Work Order No: EAEN08-ROS-04
Contract # 24-667-2030-27723**

Prepared for

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January 2026

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1. INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA) has prepared this Remedial Action Plan (RAP) for the excavation and off-site disposal of soil impacted by petroleum hydrocarbons at the Former Aerex Refinery East Parcel (the Site), located at 736 North 5th Street on the southeastern corner of West Blanco Boulevard and North 5th Street in Bloomfield, San Juan County, New Mexico (*Figure 1*). It is 5.65 acres, recorded as Parcel 2063170407483, Account No. R0061021. The RAP was developed, and the work will be performed under the State of New Mexico New Mexico Environment Department (NMED) professional services contract # 24-664-2030-27723.

The removal action (RA) aims to restore soil and groundwater contaminant concentrations in the northern portion of the East Parcel to levels that allow unrestricted recreational use, including bike parking, walking and running trails, splash pads, landscaped areas, and playgrounds, thereby enhancing the area for residents and visitors. The RA will be performed in accordance with New Mexico Administrative Code (NMAC) 20.6.2, Groundwater and Surface Water Protection, NMAC 19.15.29, Oil and Gas Releases, as well as NMAC 19.15.30, Oil and Gas Remediation.

1.1 CLEANUP OVERSIGHT RESPONSIBILITY

The City of Bloomfield (City) owns the Site as of 2021. The NMED Ground Water Quality Bureau (GWQB) is the regulatory body overseeing the cleanup. EA represents NMED GWQB and provides environmental, geological, and engineering services.

1.2 CLEANUP STANDARDS FOR THE CONTAMINANTS OF CONCERN

The NMED Risk Assessment Guidance for Site Investigations and Remediation outlines soil cleanup standards, including Soil Screening Levels (SSLs) for residential, industrial/occupational, and construction worker exposure, as well as soil leaching to groundwater and groundwater pathways. The United States Environmental Protection Agency (EPA) soil Regional Screening Levels (RSL) also apply. The project levels were set to the lowest value of the aforementioned standards.

Groundwater cleanup standards are promulgated in New Mexico Administrative Code 20.6.2.3103, “Standards for Ground Water of 10,000 mg/L TDS or less,” developed by the New Mexico Water Quality Control Commission (NMWQCC) and the EPA’s Maximum Contaminant Levels (MCLs) and Tap Water RSLs.

1.3 LAWS AND REGULATIONS APPLICABLE TO THE CLEANUP

Federal, state, and local laws and regulations apply to this project, including those of the EPA, NMED, the City, and the Occupational Safety and Health Administration (OSHA). Specifically, the Brownfields Revitalization Act and the Federal Davis-Bacon Act apply to this cleanup. In addition, city projects receive federal funding that requires adherence to federal, state, and local laws, procurement of contractors, equal opportunity, and participation by small, women-, and minority-owned businesses.

1.4 FUTURE SITE USE

Future site use will be recreational with unlimited reuse, including subsurface structures such as irrigation systems, restrooms, pavilion utilities, and foundations. The City applied for an EPA Brownfields 104(k) Cleanup Grant.

1.5 BASIS OF DESIGN AND TARGET CONTAMINANTS

The 2025 Additional Phase II Environmental Site Assessment (EA, 2025) served as the basis of the RA. Total Petroleum Hydrocarbons Diesel Range Organics (TPH-DRO) were the most prevalent contaminants of concern (COCs) that exceeded the NMED Residential RSL limit of 250 milligrams per kilogram (mg/kg) in 19 of 36 soil samples. The extent of TPH DRO in soil within the northern portion of the Eastern Parcel encompasses other Volatile Organic Compound (VOC) exceedances in soil and groundwater; therefore, it was used to define the excavation extent for the RA.

Work will be performed in accordance with this RAP and associated plans, specifications, and appendices. Soil boring logs from the 2025 ESA investigation are provided in *Appendix A*, plans are provided in *Appendix B*, specifications are provided in *Appendix C*, seed mix is provided in *Appendix D*, calculations are provided in *Appendix E*, Health and Safety Plan is provided in *Appendix F*, field forms are provided in *Appendix G*, excavation contingency measures are provided in *Appendix H*, and City of Bloomfield's authorization to act as a Generator's agent is provided in *Appendix I*.

2. SITE BACKGROUND

2.1 SETTING

The East Parcel is located at 736 North 5th Street on the southeastern corner of West Blanco Boulevard and North 5th Street in Bloomfield, San Juan County, New Mexico (*Figure 1*). It is 5.65 acres, recorded as Parcel 2063170407483, Account No. R0061021. The City of Bloomfield owns the property. The Site was historically part of the Former Aerex Refinery, which operated from approximately 1932 to the late 1960s and was dismantled in the late 1980s. Crude oil was refined from wells located in the Bloomfield area using fractional distillation to produce gasoline, kerosene, and other petroleum products.

The Site is currently vacant and has no structures. Three existing monitoring wells (MW-1, MW-2, and MW-3KR) are located on the property. Residential neighborhoods and green space to the north, southwest, and northeast surround the site, and the San Juan River is approximately 1.3 miles south. The site is located on the U.S. Geological Survey's Bloomfield and Horn Canyon 7.5-minute topographic quadrangles, at a general elevation of 5,500 feet above mean sea level (AMSL).

2.2 HYDROGEOLOGY

The site's stratified sequence consists of continental deposits dating back to the Cenozoic era, specifically the Tertiary period and the Paleocene epoch. Within the excavation area, silty and clayey sands, clay, and sand comprise the soil in the vadose and impacted saturated zones to a depth of 20 feet below ground surface (bgs) (*Figure 2*).

The water in the excavation area is located at approximately 11-12 feet below ground surface (bgs). The water level has fluctuated by up to 2 feet since the release. During the 2025 ESA investigation, the groundwater flow direction was to the southwest.

3. PREVIOUS INVESTIGATIONS

3.1 2006 PHASE I SUBSURFACE ASSESSMENT – EAST PARCEL

In 2006, Kleinfelder performed a Phase I Subsurface Assessment, which included a file review, soil and groundwater collection and analysis, installation of groundwater monitoring wells, and completion of a Conceptual Remedial Plan, as detailed below.

NMED Superfund Bureau investigated this Site in 1989 and 1990 and installed three wells, MW-1, MW-2, and MW-3, between 12 and 25 feet below the ground surface (bgs).

- Hydrocarbon-stained soil was observed in well MW-2, and heavy crude oil-stained soil, a hydrocarbon sheen, and hydrocarbon odors were noted in the boring for well MW-3. Benzene (0.185 mg/kg), toluene (0.345 mg/kg), ethylbenzene (0.650 mg/kg), and total xylenes (0.685 mg/kg) were detected in soil collected from the boring converted to well MW-3 at a depth of 13-15 feet bgs; these were the only hydrocarbon detections noted for soil.

Groundwater collected from well MW-3 contained benzene (15.3 micrograms per liter [µg/L]) and total naphthalenes (25 µg/L).

- Light non-aqueous phase liquid (LNAPL) was not observed, although a light LNAPL sheen was found in well MW-1.
- The groundwater level around 1990 was approximately 6 feet bgs.
- Soil and groundwater sample results indicated no Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) eligible wastes, and no further action was planned through CERCLA. An estimated 70,000 cubic feet or 2,590 cubic yards (CY) of potentially contaminated soil was identified, and the site was referred to the State of New Mexico, which placed it under the regulatory authority of the New Mexico Oil Conservation Division (Kleinfelder, 2006).
- Depth to water was approximately 9 to 11 feet bgs in the newly installed well (MW-3K, installed to replace well MW-3), and the groundwater flow direction was to the south-southwest at a gradient of 0.0136.
- LNAPL was observed during the development of well MW-3K, but was not observed in the other two wells. The total naphthalene concentration in well MW-3K was 180 µg/L, exceeding the NMWQCC standard of 30 µg/L. Contaminant concentrations in other wells were below the NMWQCC standards.
- Approximately 70 soil borings were installed in a grid pattern across the site, with depths ranging from 0 to 2 feet bgs to 18 to 20 feet bgs. The estimated volume of actionable soil with TPH concentrations above 100 mg/kg or a heated headspace above 100 parts per million by volume (ppmv) was 7,600 CY, located in four separate areas extending up to 7.5 feet into the saturated zone.

- Based on the results of the Phase I Subsurface Assessment, Kleinfelder recommended a geophysical survey to identify historical, refinery-related piping, soil excavation, removal, in-situ chemical reagent application to “remediate residual amounts of remaining impact in the soil and groundwater,” and “injection of a chemical reagent into the subsurface in areas of impact significantly below the water table” (*Kleinfelder 2006*). Historical information indicates that soil excavation or in-situ chemical reagent application was not performed (*Richards 2021*).

3.2 2019 PHASE I ESA – EAST PARCEL

Weston performed a Phase I Environmental Site Assessment (ESA) in 2019 (*Weston 2019b*). The Phase I indicated that from 1932 to 1960, Aerex Refinery was located on the East Parcel; soil and groundwater were impacted by petroleum products, referencing the 2006 Phase I Subsurface Assessment conducted by Kleinfelder; the subsurface features associated with the refinery were unknown; no evidence of remediation was found; and petroleum products impacted soil and groundwater.

3.3 2021 PHASE I ESA

EA performed a second Phase I ESA in October 2021. Site reconnaissance and review of historical reports and standard state and federal environmental databases indicated that a recognized environmental condition (REC) exists at the site due to petroleum products in groundwater exceeding applicable state regulatory standards and “actionable” soil contamination in the East Parcel (*EA, 2021a*). No other RECs were identified during the site reconnaissance, interviews, local government inquiries, review of prior environmental reports, and review of federal and state environmental databases provided by Environmental Data Resources, Inc.

3.4 2021 PHASE II ESA

In 2021, EA performed a Phase II ESA (*EA, 2021b*) that included the following scope:

- Collected 24 soil samples (including quality assurance/quality control [QA/QC] samples) from existing soil stockpiles in the East and West Parcels.
- Conducted a ground-penetrating radar (GPR) survey on the West Parcel.
- Conducted a passive soil gas (PSG) survey on the West Parcel, including the deployment and retrieval of 59 PSG samplers.
- Advanced 19 soil borings (9 in the East Parcel and 10 in the West Parcel) and collected a total of 41 soil samples (including QA/QC samples).
- Collected grab groundwater samples from each of the 9 soil borings advanced in the East Parcel, and a groundwater sample from the existing East Parcel monitoring well MW-1.
- Collected grab groundwater samples from 8 of the 10 soil borings advanced in the West Parcel, and groundwater samples from existing West Parcel monitoring wells MW-5, MW-6, and MW-7.

- Collected a total of 7 active soil gas (ASG) samples (3 from the East Parcel and 3 from the West Parcel, plus one QA/QC sample).
- Collected an investigation-derived waste (IDW) sample from the soil cuttings generated during the installation of the soil borings on the East and West Parcels.
- Provided assistance for the City of Bloomfield's excavation of sub-surface anomalies identified during the GPR survey.

3.4.1 Results of Soil Sampling in the East and West Parcels

The 2021 ESA soil analytical results are presented below. The exceedances are summarized in *Table 1*.

- Concentrations of contaminants in the stockpile soil samples collected from the East and West Parcels were below the NMED SSLs.
- The GPR survey detected metal parts that were later uncovered in trenches and potholes excavated near the anomalies.
- The PSG survey in the West Parcel detected toluene, ethylbenzene, isopropylbenzene, trimethylbenzenes, xylenes, and total petroleum hydrocarbons (TPH).
- Contaminant concentrations in the ASG samples collected from the East and West Parcels were below the New Mexico vapor intrusion screening levels (VISLs).
- Concentrations of contaminants in soil samples collected from soil borings in the East Parcel were below the NMED SSLs, except for sample ESB01-8.0, which had a TPH-DRO concentration of 11,000 mg/kg and motor oil range organics (MRO) concentration of 6,170 mg/kg. Both concentrations exceeded the Residential and Construction Worker SSLs. In addition, a manganese concentration of 480 mg/kg exceeded the Construction Worker SSL. In this area, the construction worker pathway is complete. Sample ESB01-8.0 exceeded the Soil Leaching Soil Screening Level with a dilution attenuation factor of 20 (SL-SSL DAF 20) for benzene and total naphthalene.
- Concentrations of iron and cobalt in several soil samples exceeded the SL-SSL DAF 20; however, dissolved cobalt was not detected in the groundwater. Although dissolved iron was detected in the groundwater, it is typical of the reducing conditions that exist at sites with petroleum hydrocarbon contamination.
- Concentrations of contaminants in soil samples collected from borings installed in the West Parcel were below the NMED SSLs. Concentrations of several VOC compounds in soil samples WSB05-24.0 (24-foot interval) and WSB09-26.0 (26-foot interval) exceeded the SL-SSL DAF 20; however, these compounds were not detected in any groundwater samples collected in the West Parcel. Concentrations of cobalt and iron in several soil samples collected in the West Parcel exceeded the SL-SSL DAF 20; however, dissolved cobalt was not detected above the NMWQCC standards in the groundwater, and although dissolved iron was detected in the groundwater, it is typical of the reducing conditions that

exist at sites with petroleum hydrocarbon contamination and appears to have migrated onto the West Parcel from the Former Bloomfield Crude Station site.

3.4.2 Groundwater Sampling Results in the East Parcel

The 2021 ESA groundwater analytical results are discussed below. The exceedances are summarized in *Table 2*.

- VOC and Polycyclic aromatic hydrocarbon (PAH) concentrations in groundwater samples collected from East Parcel monitoring wells and soil borings installed in the East Parcel were below the NMWQCC standards, except for a benzene concentration of 12 µg/L and a total naphthalene concentration of 162 µg/L in the groundwater sample collected from boring ESB01.
- Aluminum, arsenic, beryllium, chromium, iron, and manganese exceeded the project screening levels in the monitoring wells and soil borings.

3.4.3 Groundwater Sampling Results in the West Parcel

- VOC concentrations in the groundwater samples collected from the West Parcel monitoring wells and soil borings installed in the West Parcel were below the NMWQCC standards.
- PAH concentrations in the groundwater samples collected from the West Parcel monitoring wells and soil borings installed in the West Parcel were below the NMWQCC standards.
- Dissolved manganese concentrations ranging from 3,600 mg/L in sample MW-7 to 14,000 mg/L in sample MW-6 exceeded the NMWQCC standard in the three wells in the West Parcel.
- A dissolved arsenic concentration of 38 mg/L exceeded the NMWQCC standard in sample MW-6.
- Dissolved iron concentrations of 8,300 mg/L in sample MW-6 and 1,100 mg/L in sample MW-7 exceeded the NMWQCC standard.

3.4.4 Summary of Findings

- The East Parcel residential, industrial/occupational, and construction worker pathways are complete. The release of petroleum hydrocarbons has impacted the groundwater, necessitating an evaluation of cleanup alternatives for the East Parcel.
- The West Parcel's residential, industrial/occupational, and construction worker pathways are incomplete. The soil leaching to the groundwater pathway is potentially complete for Target Analyte List (TAL) metals. The VOC compounds in soil samples exceeded the SL-SSL DAF 20; however, VOCs were absent in the groundwater samples. Since any release(s) are considered old, soil leaching to the groundwater pathway is incomplete, as observed directly. Groundwater contamination at the Bloomfield Crude Station site is the

result of a release and is considered trespasser contamination. Further assessment or cleanup of the West Parcel is not required.

3.5 2024 ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

The 2021 Phase II ESA determined that the West Parcel did not require cleanup.

For the East Parcel, three alternatives to address soil and groundwater contamination were evaluated in the 2024 Analysis of Brownfields Cleanup Alternatives (ABCA):

- Alternative #1: No Action
- Alternative #2: Excavate Vadose Zone Impacted Soil, Long-Term Groundwater Monitoring, and Institutional Controls
- Alternative #3: Excavate Vadose Zone and Saturated Impacted Soil, Long-Term Groundwater Monitoring, and Institutional Controls

It was determined that Alternative #1 would not reduce the affected media's risk, toxicity, mobility, or volume; Alternative #2 would eliminate shallow soil pathways but did not mitigate contamination in the groundwater, and Alternative #3 would eliminate shallow soil pathways and provide source removal in and above the aquifer to facilitate aquifer restoration. Based on the analysis, Alternative #3 was recommended in the ABCA. This alternative would allow the property to be used for recreation with unlimited use, including subsurface structures such as irrigation systems, restrooms, pavilion utilities, and foundations.

3.6 2025 ADDITIONAL PHASE II ESA

In February 2025, EA performed an additional Phase II ESA (EA, 2025) in the East Parcel that included the following scope:

- Advanced 18 soil borings in the northern portion of the East Parcel using Direct Push (DP) drilling technology. Field screening was performed at approximately one-foot intervals with a photoionization detector (PID) during drilling. The soil boring logs are provided in *Appendix A*.
- Collected 36 soil samples from 16 of the 18 borings for laboratory analysis. The samples were analyzed for the full range of TPHs using EPA Method 8015D and PAHs by EPA Method 8270C SIM.
- Installed 16 temporary wells in the open soil borings, collected 36 groundwater grab samples from the 16 temporary wells, and analyzed them for VOCs by EPA Method 8260B and for iron and manganese by EPA Method 6010B. Eighteen (18) of the samples were filtered in the field, and 18 of the samples were unfiltered.
- Collected groundwater samples from three temporary wells and analyzed them for QuantArray-Petro® microbial analysis.

- Collected two groundwater samples (unfiltered and filtered) from existing well MW-3KR and analyzed them for VOCs by EPA Method 8260B and for iron and manganese by EPA Method 6010B.
- Plugged the soil borings installed during the investigation.
- Collected a composite waste characterization sample from the IDW soil cuttings generated during installation of the soil borings. The sample was analyzed for VOCs using EPA Method 8260B, for TPH (full range) using EPA Method 8015D, and for total lead using EPA Method 6010C.

3.6.1 TPH and PAH Soil Analytical Results

The 2025 ESA soil analytical results are discussed below. The exceedances are summarized in *Table 3*.

- TPH-Gasoline Range Organics (GRO) was detected in 21 of 36 samples, including QA/QC samples, ranging from 5.7 mg/kg to 260 mg/kg. Only two of the samples exceeded the TPH-GRO NMED Residential SSL of 100 mg/kg.
- TPH-DRO was detected in 29 of 36 samples, including QA/QC samples, ranging from 14 mg/kg to 16,000 mg/kg. Eighteen (18) of the 36 samples exceeded the NMED Residential Soil SSL of 1,000 mg/kg, and 19 of the 36 samples exceeded the EPA Residential SSL of 250 mg/kg. The results are shown in *Figure 3*.
- TPH-MRO was detected in 22 of 36 samples, including QA/QC samples, ranging from 62 mg/kg to 7,100 mg/kg. Three (3) of the 36 samples exceeded the NMED Residential Soil SSL of 3,000 mg/kg.
- Concentrations of PAHs in soil samples collected from the borings were below the screening levels, except potentially for dibenz(a,h)anthracene. The dibenz(a,h)anthracene laboratory reporting limits (RLs) for 22 of the 36 soil samples exceeded the NMED Residential SSL of 0.153 mg/kg; however, this does not indicate that dibenz(a,h)anthracene concentrations exceeded the SSL.

3.6.2 Groundwater Analytical Results

The 2025 ESA groundwater analytical results are discussed below. The exceedances are summarized in *Table 4*.

- Unfiltered 1,2,4-trimethylbenzene concentrations ranging between 60 µg/L and 120 µg/L in four samples collected from the temporary wells exceeded the EPA Tap Water RSL of 56 µg/L. 1,2,4-trimethylbenzene does not have a New Mexico regulatory standard.
- The unfiltered total naphthalene concentrations ranged from 42 µg/L to 321 µg/L in seven samples collected from the temporary wells and exceeded the NMWQCC standard of 30 µg/L. The results are shown in *Figure 4*.

- The filtered total naphthalene concentration of 42 µg/L in B120 and of 45 µg/L of 1-methylnaphthalene in MW-3R exceeded the NMWQCC standard of 30 µg/L.
- Unfiltered total iron and manganese concentrations exceeded the NMWQCC standard of 1.0 mg/L for iron and 0.20 mg/L for manganese. Iron concentrations ranged from 29 to 180 mg/L, and manganese concentrations ranged from 1.7 to 9.4 mg/L.
- Filtered VOC concentrations in monitoring well MW-3K were below the laboratory (RLs. The RLs for 1,1,1,2-tetrachloroethane, 1,2,3-trichloropropane, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, cis-1,3-dichloropropene, hexachloro-1,3-butadiene, and trans-1,3-dichloropropene exceeded the project screening levels.
- The filtered and unfiltered iron and manganese concentrations in monitoring well MW-3K exceeded the project screening levels.
- The aerobic processes were at sustenance levels; anaerobic BTEX activity was at a low level; anaerobic PAH and alkanes were at moderate levels; and sulfate reduction was at high levels. The highest microbial activity was observed in SBE-12, which also had the highest total recoverable petroleum hydrocarbons (TRPH). Hydrocarbon biodegradation was not observed in SBE-06, which is attributable to the absence of hydrocarbons in the soil boring's groundwater. Moderate microbial activity was observed in SBC-08, with moderate TRPH levels.
- The sustenance levels of aerobic BTEX biodegradation were observed in SBC-08 at 45 cells per milliliter (cells/mL) and SBE-12 at 220 cells/mL, which is attributable to oxygen deficiency. Anaerobic BTEX degradation was low due to lower BTEX content in the dominant DRO and MRO. The anaerobic BTEX activity in SBC-08 was very low at 160 cells/mL and low-moderate in SBE-12 at 3,920 cells/mL. The anaerobic PAH and alkane biodegradation in SBC-08 was very low at 264 cells/mL, whereas in SBE-12 it was moderate at 9,283 cells/mL. Sulfate reduction was very high in SBE-12 at 1,000,000 cells/mL, indicative of highly reducing conditions and the presence of sulfate. Sulfate reducers use sulfate as an electron acceptor while degrading and using petroleum hydrocarbons or organic matter as an electron donor. Sulfate reduction was moderate in SBC-08 at 46,000 cells/mL and low in SBE-06 at 16,000 cells/mL.

4. CONTAMINANT EXTENT AND MASS

The results of the 2025 ESA indicate that the TPH-DRO contamination in soil to 250 mg/kg encompasses 7,000 square feet in the northern portion of the East Parcel and extends from approximately 2-7 feet to 17 feet bgs. The in-place impacted soil volume is 4,000 CY based on the 100 ppmv criterion, and the soil mass is 5,400 tons. The average TRPH concentration in the soil samples with TPH-DRO above 250 mg/kg was 6,000 mg/kg. The estimated mass of TRPH is 64,800 pounds, or 32.4 tons (*Calculation 1, Appendix E*).

5. OBJECTIVES AND REMEDIATION GOALS

5.1 OBJECTIVES

The RA objective is to remove vadose and saturated soil contaminated with TPH and VOCs, thereby eliminating human health hazards from exposure to surface soil, subsurface soil, and groundwater, and allowing unrestricted recreational use.

5.2 REMEDIATION GOALS

The remediation goals are based on EPA RSLs and NMED SSLs for soil, EPA MCLs, Tap water RSLs, and NMWQCC Human Health Groundwater Standards for groundwater. The goals for the compounds exceeding the standards at the Site are provided below.

Remediation Goals for Soil

Analyte	EPA Residential RSL	EPA Industrial RSL	NMED Residential SSL (0-10 feet)	NMED Industrial/ Occupational SSL (0-1 foot)	NMED Construction Worker SSL (0-10 feet)	NMED SL-SSL DAF 20
GRO	300	1,700	100	500	500	6,930
DRO	250	1,900	1,000	3,000	3,000	5,720
MRO	No Standard	No Standard	3,000	5,000	5,000	3,460,000
Benzene	1.2	5.1	17.8	87.2	142	0.0418
Naphthalene	2.0	8.6	22.6	108	159	0.0583
1-methyl naphthalene	18	73	172	813	6,030	0.893
2-methyl naphthalene	240	3,000	232	3,370	1,000	2.76
Cobalt	23	350	23.4	388	36.7	5.4
Iron	55,000	820,000	54,800	908,000	248,000	6,960
Manganese	1,800	26,000	10,500	160,000	464	2,630

NOTES:

Concentrations are in milligrams per kilogram.

EPA Regional Screening Levels (RSLs) for residential and industrial use scenarios for hazard index = 1.0 for non-carcinogens and a 10E-6 cancer risk level for carcinogens (November 2024).

Residential land use Soil Screening Levels (SSLs) from the NMED Risk Assessment Guidance for Site Investigations and Remediation, Appendix A, Table A-1, NMED SSLs; and Appendix C, Tables C-1 to C6, Tier 1 TRVs and ESLs and Tier 2 TRVs (November 2022).

DAF = Dilution Attenuation Factor

GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics (C6 to C10)

DRO = Total Petroleum Hydrocarbons - Diesel Range Organics (C10 to C28)

GRO = Total Petroleum Hydrocarbons - Oil Range Organics (C28 to C35)

NMED = New Mexico Environment Department

RSL = Regional Screening Level

SSL = Soil Screening Level

EPA = United States Environmental Protection Agency

Remediation Goals for Groundwater

Analyte	EPA MCL	NMWQCC Standard
Benzene	5	5
Naphthalene	No Standard	30
1-Methylnaphthalene	No Standard	30
2-Methylnaphthalene	No Standard	30
Aluminum	No Standard	5,000
Arsenic	10	10
Beryllium	4	4
Chromium	100	50
Iron	No Standard	1,000
Lead	10	15
Manganese	No Standard	200

NOTES:

Concentrations are in micrograms per liter.

EPA National Primary Drinking Water Regulations, Maximum Contaminant Levels. <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations> (May 2024).

New Mexico Administrative Code Title 20.6.2.3103, Standards for Ground Water of 10,000 mg/L total dissolved solids concentration or less (NMAC 2018). The NMWQCC standard applies to dissolved metals.

The NWQCC standard for total naphthalene, which includes naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene, is 30 µg/L

MCL = Maximum Contaminant Level

NMWQCC = New Mexico Water Quality Control Commission

EPA = United States Environmental Protection Agency

6. DESIGN APPROACH AND TASKS

6.1 APPROACH

The RA targets soil and groundwater impacted by TPH, VOCs, and metals in the northern portion of the Eastern Parcel. The TPH-DRO extent of 250 mg/kg EPA Residential RSL established based on the 2025 ESA was used to define the excavation extent, as it encompassed other TPH and VOC exceedances in soil and groundwater. The contaminated soil will be excavated and disposed of off-site, permanently removing the contamination, and the excavation cavity will be backfilled with clean imported soil and reused overburden. Granular activated carbon (GAC) will be mixed into the clean backfill within the saturated zone to mitigate any potential residual contamination in the groundwater and enhance natural biodegradation. Confirmation soil samples will be collected from the excavation floor and sidewalls to verify the removal and establish the post-removal contaminant concentrations. Monitoring wells will be installed within and around the excavation to verify and monitor groundwater after completion of the RA.

The excavation extent is shown in *Drawings C-1 and C-2, Appendix B*. The resulting excavation volume is 7,000 bank cubic yards (BCY), with an expanded volume of approximately 9,000 CY upon excavation due to bulking. The clean overburden was estimated to extend from the ground surface to between 2 and 7 feet bgs, resulting in approximately 3,000 BCY. The impacted soil extends from 2-7 feet bgs to 17 feet bgs, resulting in approximately 4,000 BCY or excavated 5,200 CY.

The correlation between TPH and PIDs was inconsistent during the 2025 ESA due to various degrees of TPH decomposition, volatilization, concentrations, and proximity to the surface. Therefore, the overburden soil will be stockpiled and screened every 100 CY for TRPH concentrations to verify that the 250 mg/kg TPH-DRO is met before placing the soil back into the excavation during backfilling.

Twenty thousand (20,000) pounds of regenerated GAC will be applied to the backfill within the saturated zone. The application average area is approximately 8,000 square feet, with a thickness of 6 feet, resulting in a backfill soil volume of roughly 1,800 CY or 2,400 tons. The resultant GAC application rate is 2.5 pounds of GAC per square foot of the excavation, 1.4% volume of GAC per volume of backfill soil, and 0.42% mass of GAC per mass of backfill soil (*Calculation 1, Appendix E*).

In addition to addressing TPH and VOCs, the proposed excavation will also mitigate and encompass the following exceedances:

- The 2020 exceedances of cobalt, iron, and manganese in soil samples collected at 8 feet bgs in boring ESB02.
- The 2020 exceedances of cobalt and iron in soil samples collected at 12 feet bgs in boring ESB02.

- The 2020 exceedances of iron and manganese in grab groundwater samples collected from boring ESB01.
- The 2020 exceedances of iron and manganese in grab groundwater samples collected from boring ESB02.

The excavation will not address the following exceedances, as the excavation does not extend into these areas:

- The 2020 exceedances of iron in soil samples collected at 1 foot bgs in boring ESB04, 1 foot bgs in boring ESB05, 12 feet bgs in boring ESB07, 6 feet bgs in boring ESB08, and of iron and cobalt at 12 feet bgs in boring ESB09.
- The 2020 exceedances of iron and manganese in grab groundwater samples collected from borings ESB03, ESB04, ESB05, ESB06, ESB09, and monitoring wells MW-1 and MW-1D. Iron and manganese concentrations in groundwater impacted by petroleum hydrocarbons increase under reducing conditions. Once oxygen demand is reduced and conditions become more oxidizing, iron and manganese in the groundwater precipitate, lowering their concentrations.
- The 2020 exceedances of aluminum in grab groundwater samples from borings ESB03, ESB04, ESB07, ESB08, and monitoring well MW-1.
- The 2020 exceedances of arsenic in grab groundwater samples collected from borings ESB04, ESB07, ESB08, MW-1, and monitoring well MW-1D.
- The 2020 exceedances of chromium in ESB04.

6.2 MAJOR TASKS

The following tasks are anticipated to implement the approach:

- EA will procure Enviroworks LLC as the Remediation Contractor (RC) to perform the removal action; Eurofins to perform laboratory analysis; Geomat, Inc. to perform geotechnical analysis of soil samples; Wayjohn Surveying, Inc. to perform surveying services, and Enviro-Drill, Inc. to install compliance monitoring wells post-RA.
- EA has submitted a request to use the 2021 ESA soil data from the East Parcel and the 31 soil samples collected during the 2025 ESA to establish a waste disposal profile to dispose of the contaminated soil at Envirotech's Land Farm #3, DP-955, located at #43 Road 7175, south of Bloomfield, New Mexico.
- EA obtained authorization from the City of Bloomfield to be designated to arrange, coordinate, manage, handle, profile, sign manifests, transport, and dispose of contaminated soil excavated at the Site during the removal action (*Appendix I*).

- Enviroworks will determine the source of imported clean soil, provide soil property reports, and EA will review and approve the soil.
- EA will notify the Site owner, NMED GWQB, and adjacent businesses.
- Enviroworks will request underground utility clearance.
- Enviroworks will obtain excavation, traffic, and barricading permits.
- EA and Enviroworks will mobilize personnel and equipment to the Site to complete the following:
 - Install construction fencing, barricades, and traffic control measures
 - Mark the excavation extent and grid
 - Photograph and document existing site conditions
 - Temporarily disconnect and re-route existing utilities within the excavation. If underground utilities are encountered within the excavation area, this item will be addressed with contingency funds.
 - Clear, grub, stage, load, transport, and dispose of vegetation and debris
 - Excavate, screen, and stockpile uncontaminated overburden soil
 - Excavate, stockpile, profile, load, transport, and dispose of contaminated soil
 - Collect confirmation soil samples to quantify the contaminant concentrations in the excavation walls and floor
 - Load, transport, stockpile, place, condition, and compact clean backfill
 - Place and compact clean overburden soil
 - Grade, place topsoil, and seed the disturbed areas
- Enviro-Drill will install the post-RA monitoring wells, and EA will sample soil during drilling and groundwater after well installation.
- EA will perform post-RA groundwater monitoring to evaluate the efficacy of the RA and monitor COC concentrations.

7. EXCAVATION PLAN

All activities will be performed under the direct control and supervision of Vener Mustafin, a New Mexico Professional Engineer (PE) who is the Engineer-of-Record (EOR) for this project, and in accordance with this RAP, plans provided in *Appendix B*, Specifications provided in *Appendix C*, and applicable regulations. The EOR will evaluate and approve all technical deviations and coordinate with Mike McVey, EA's Project Manager (PM), to address the administrative and financial implications. The EOR will approve minor technical deviations directly and present and discuss significant technical deviations with the NMED GWQB and City of Bloomfield before implementation. The EOR will prepare the As-Built Report that will reflect the execution and deviations.

7.1 SITE PREPARATION AND PLANNING

This section describes preparatory and planning activities.

7.1.1 Health and Safety Plan

A site-specific health and safety plan (HASP) prepared according to Title 29, Code of Federal Regulations (CFR), Part 1910.120 and 29 CFR Part 1926 Subpart P is provided in *Appendix F*.

7.1.2 Utilities, Access, Traffic Control Plan, and Permits

All RA activities will be performed within the site boundary. Before excavating, an access agreement for the Site will be obtained from the City of Bloomfield. The RC will clear underground public utilities through NM811 and a private utility locating company for the utilities outside the public utility jurisdiction, obtain excavation and barricading permits, and develop and implement a traffic control plan. If required, the RC will obtain permission from the utility owners to temporarily shut down or re-route utilities within the excavation extent and affected area. Funds for re-routing utilities will be accessed under contingency once the extent of the re-routing and the utility details are evaluated.

7.1.3 Kickoff Meeting

EA will conduct a kickoff meeting with NMED GWQB, the City of Bloomfield, and the excavation subcontractor to discuss project execution, schedule, and other RA details. Homeowners in areas immediately adjacent to the excavation area will be notified of project activities, have their questions answered, and have their concerns addressed.

7.1.4 Site Security

Before the RA, the RC will secure the site with a temporary chain-link fence to preclude unauthorized access. Access will be restricted to authorized personnel only, and the gates will be locked when personnel leave the site. The fencing is shown in *Drawing C-1, Appendix B*.

7.1.5 Site Clearing and Debris Removal

Before performing the RA, the RC will clear vegetation and debris, move, stockpile, and break down large concrete, asphalt, and construction debris into smaller pieces suitable for transportation and disposal, and dispose of them in a construction landfill.

7.1.6 Barricading and Traffic Plan

During excavation activities, the RC will implement a traffic control plan (TCP) to accommodate truck traffic and create an exclusion zone. The RC will provide the TCP to EA after procurement.

7.1.7 Excavation Grid

Before excavation, the RC will establish an excavation grid to guide excavation, track progress, and report progress.

7.2 AIR MONITORING AND CONTROL OF EMISSIONS

During excavation, air monitoring will be conducted in the workspace and around the perimeter of the work area using a PID. Air monitoring will be conducted at the start of the day and every hour after the contaminated soil is exposed to air. Air monitoring results will be recorded on the Daily Activity Log (*Appendix G*). Additional air monitoring can be conducted at any time at the discretion of the EOR, RC, Regulatory Representative, health and safety officer, or field personnel as conditions warrant.

Soil vapor emissions will be controlled to the extent practicable by backfilling the excavation shortly after removing contaminated soil and minimizing overnight stockpiling of grossly contaminated soil. Should vapors pose a problem, as determined by air monitoring, stockpiled soil and open excavations left overnight will be covered with 10-mil polyethylene sheeting.

7.3 EXCAVATION OF OVERBURDEN AND CONTAMINATED SOIL

The RC will excavate overburden and contaminated soil in accordance with the RAP's construction drawings and specifications. The RC's competent person will oversee and direct the excavation, sloping, and benching in accordance with CFR 1926 Subpart P, Excavations. The RCs and the EA's competent persons will inspect the stability of the sloping and excavations daily. At the site, the soil above the groundwater is classified as Type B, requiring a 1:1 simple slope, and the saturated soil is classified as Type C, requiring a 1.5:1 slope. The RC will maintain a stockpile of clean fill and overburden to backfill and stabilize the slope during the excavation of saturated soil. Such excavation will be backfilled with clean fill to at least 10 feet bgs immediately after confirming that it has reached the vertical extent based on PID screening.

The RC will perform the RA using a tracked excavator, front-end loader, wheeled or roll compactor, water truck, semi-trailer, and dump trucks, as well as other auxiliary earthmoving equipment suitable for the application.

7.3.1 Excavation of Overburden Soil

The overburden soil not impacted by the former refinery activities is defined as excavated soil with TPH-DRO concentrations below 250 mg/kg. The corresponding PID readings during the 2025 ESA were approximately 100 ppmv. However, some of the PID readings and TPH-DRO concentrations were not consistent; therefore, the excavated overburden with PID readings of less than 100 ppmv will be stockpiled, sampled every 100 CY (*Tables 5 and 6*), and if TPH-DRO concentrations are below the 250 mg/kg criterion used to backfill the excavation. If the TPH-DRO concentrations exceed the 250 mg/kg criterion, the soil will be disposed of off-site as contaminated soil. The overburden stockpiles will also be arranged by general soil type.

The overburden was estimated to extend from the surface to 2-7 feet bgs, resulting in an in-place volume of 3,000 BCY and an excavated volume of 4,000 CY. The extents are shown in *Drawing C-2, Appendix B*. The overburden consists of poorly graded sand (SP), silty sand (SM), and silt (ML), as shown in *Figure 2*, which likely fall under the American Association of State Highway and Transportation Officials (AASHTO) A-3, A-2-4/A-2-5, and A-4 classes, with poor-to-good subgrade ratings. Given the site's planned recreational use, reusing the overburden as backfill for the excavation is suitable.

7.3.2 Excavation of Contaminated Soil

Contaminated soil is defined as soil impacted by VOCs, petroleum hydrocarbons, and metals due to activities at the Former Aerex Refinery that exceed the NMED SSLs or EPA RSLs, and the PID screening criterion of 100 ppmv. TPH-DRO was used as the most abundant surrogate to define the extent of contaminated soil from 2 to 17 feet bgs. The extent of the contaminated soil is shown in *Drawing C-3, Appendix B*. The in-place volume was estimated at 4,000 BCY, and the excavated volume at approximately 5,200 CY. Groundwater is anticipated at approximately 11-12 feet bgs. The contaminated soil consists of SP, SM, clayey sand (SC), and clay (CL). The saturated matrix is comprised of SP, some CL, and SC; therefore, rapid recharge is anticipated. To manage and stabilize the excavation, contaminated soil will be excavated in cells that will be backfilled 1-2 feet above the water level on the same day.

The contaminated soil will be excavated, drained, stockpiled, sampled, profiled, loaded, transported, and disposed of off-site at Envirotech's Landfarm #3, DP-955, located at #43 Road 7175, south of Bloomfield, New Mexico.

7.4 WASTE PROFILING AND MANIFESTS

EA has submitted the 2021 ESA soil sampling results for the East Parcel and the 2025 ESA soil sampling results to Envirotech's Landfill. EA requested that a waste profile be established based on the 2021 and 2025 ESA soil data, with 31 soil samples collected during the ESA, without additional sampling. If additional samples are requested, EA asked for a variance to collect waste characterization samples every 500 CY using ten-point composite soil samples. Samples will be analyzed for TPH-GRO, TPH-DRO, TPH-MRO, VOCs, and TAL Metals. EA will provide an update to the NMED and the City of Bloomfield regarding the submitted request.

If requested by the Envirotech Landfarm, a representative sample of contaminated soil will be analyzed for total lead, Toxic Characteristic Leaching Procedure (TCLP) by Method 1311, VOCs, SVOCs, Resource Conservation and Recovery Act (RCRA) Metals, Ignitability, Corrosivity, and Reactivity (*Tables 5 and 6*).

Loaded contaminated soil will be transported and accompanied by signed manifests. EA has received a letter from the City of Bloomfield authorizing EA, as the City's Agent, to perform sampling, profiling, classification, management, and disposal of the contaminated soil. Waste manifests will classify the contaminated material, specify the quantity, list the destination, and contain the signature of the owner or an authorized representative.

7.5 MATERIAL HANDLING, HAULING, AND DISPOSAL

Excavated overburden, contaminated soil, and imported clean soil will be stockpiled in separate piles in a designated area within the site boundary at least 20 feet from the excavation. Moving and loading will be conducted using a front-end loader or excavator in the designated area. Soil will be pre-screened with a PID before loading, and the results will be recorded and maintained. The overburden soil will also be sampled for TRPH every 100 CY (*Tables 5 and 6*).

The load will be evenly distributed in the truck bed and covered with a tarp. Trucks will be inspected by designated RC or EA personnel and accompanied by a signed waste manifest or bills of lading. During inclement weather, excess debris will be removed from the truck tires and washed or cleaned in a designated wash area over a gravel course. Transportation will be performed using 10- or 20-cubic-yard trucks between 7:00 a.m. and 4:30 p.m., following established approved routes. Trucks will not be allowed to enter the excavation area or approach within 20 feet of the slopes. They will enter and leave the site through designated gates.

7.6 BACKFILLING AND COMPACTING

Upon reaching the target depth when excavating saturated soil and confirming the extent with a PID below 100 ppmv, the excavation will be backfilled to 10 feet bgs, a depth corresponding to 1-2 feet above the static groundwater level. If necessary, side slopes will be stabilized with clean fill. If necessary for slope stabilization, the RC will temporarily backfill the excavation to a shallow depth.

The RC will provide soil geotechnical analysis, including USCS Soil Classification, ASTM D2487, and Standard Proctor, ASTM D698, for each soil type and source. In addition, soil samples will be analyzed for VOCs using EPA Method 8260, TRPH (EPA Method 8015), and TAL Metals. EA will analyze the clean overburden for USCS Soil Classification, ASTM D2487, and the Standard Proctor test, ASTM D698, for general soil types that will be excavated and stockpiled in separate piles (*Tables 5 and 6*).

The excavation will be backfilled with pit run sand and gravel and GAC from the bottom to approximately 11 feet bgs; clean fill from 11 feet bgs to 6.5 feet bgs; clean overburden from 6.5 feet bgs to 4 inches bgs; topsoil within 4 inches bgs; and seeded. The RC will place a 4-inch topsoil course, seed, and water the disturbed areas. The recommended seed mix is provided in *Appendix D*. The backfill section is shown in *Drawing C-4, Appendix B*.

Clean imported fill meeting AASHTO soil classification A-1-a, A-1-b, A-3, A-2-4, or A-2-5 with a good to excellent subgrade rating will be placed from 11 feet bgs to 4 inches bgs in one-foot lifts. The soil in each lift will be conditioned by adding moisture or scarifying to allow for the evaporation of excessive moisture before placing and compacting each lift. The excavation will be graded to match the existing grade and drainage patterns. A New Mexico Registered Professional Land Surveyor (NM PLS) will conduct the final site survey. The survey will be included in the As-Built Report (see Section 7.9).

Compaction will be conducted using either a front loader or a vibratory roller. To reduce safety risks associated with personnel entering excavations and considering future recreational site use, each lift below 4 feet bgs will be compacted without testing under the supervision of EA personnel. A minimum of 8 passes back and forth at 3 miles per hour with a 10% overlap will be required to consider compaction satisfactory. The Engineer may modify the number of passes if lighter compaction equipment is used or if a visual inspection indicates unsatisfactory compaction. In-place density testing will be conducted for lifts above 4 feet bgs using the Nuclear Method as specified in ASTM D2922. One in-place density test will be performed for every 1,000 square feet of compaction (*Tables 5 and 6*). In-place density testing will be compared to the laboratory compaction characteristics of clean fill as determined by ASTM D698, Standard Proctor test. The acceptance criterion for compaction will be at 95 percent of the maximum density within 3 percent of the optimal moisture content.

7.7 CONFIRMATION SAMPLING

Confirmation samples will be collected from the side walls and excavation floor to establish residual concentrations upon reaching target vertical and horizontal extents as follows (*Drawing C-5, Appendix B*):

- Nine (9) soil samples will be collected from throughout the excavation floor.
- Sixteen (16) soil samples will be collected from the excavation walls: 8 within the saturated matrix and 8 within the vadose zone.

Each sample will be analyzed for VOCs, including naphthalenes and TPH-GRO, -DRO, and -MRO, using methanol field extraction preparation and TAL metals (*Tables 5 and 6*).

7.8 SITE RESTORATION

Upon completion of all RA activities, the temporary fencing, gates, barricades, signs, equipment, and materials will be removed from the Site. All surfaces impacted by the activities will be restored to their original conditions. NMED GWQB, EA, City of Bloomfield, and RC personnel will perform the final inspection after the Site is restored.

7.9 AS-BUILT REPORT

The EOR overseeing and directing the RA will prepare and submit an As-Built Report, along with the final site survey, to the NMED GWQB. The survey will include the finished grade elevations and site features. The As-Built Report will consist of the following:

- Area/Vicinity map
- Detailed site drawing with:
 - Locations of all underground utilities and other subsurface structures identified during the RA
 - Structures, if any
 - Monitoring wells
 - Extent of overburden and contaminated soil excavation
- Summary of field screening and laboratory results for soils
- Excavation diagram with sampling locations
- Laboratory results with chain-of-custody records and laboratory QA/QC
- The volumes of soil removed and soil disposal manifests
- Description of the lithology of the excavated soil
- Discussion of the data collection methods
- Final site survey
- Bills of lading for clean fill
- Field in-situ density testing results
- Geotechnical results for imported fill
- Quantity reconciliation and material balance
- Deviations
- Photographic documentation
- Signed and stamped by the EOR.

7.10 INSTALLATION OF COMPLIANCE MONITORING WELLS

After completion of the RA, EA will install seven compliance monitoring wells within and around the excavation area to monitor COC concentrations in groundwater and evaluate the effectiveness of the RA. The locations are shown on *Drawing C-6 in Appendix B*.

EA will retain a New Mexico-licensed drilling company to install the wells using the hollow-stem auger method. The 7-inch nominal-diameter borings will be advanced to approximately 22 feet bgs, in which 2-inch-diameter groundwater monitoring wells will be installed, as discussed below. Soil samples will be collected and described using the USCS, and field-screened with a PID. An example boring log is provided in *Appendix G*. Two soil samples will be collected from each boring during drilling and analyzed for VOCs by EPA Method 8260B and for TRPH by EPA Method 8015 (*Tables 5 and 6*). One sample will be within the saturated zone, and another in the vadose zone near the water level.

The wells will be completed with 15 feet of screen, installed 10 feet below and 5 feet above the water table, to allow for the observation of light non-aqueous phase liquids (LNAPL) and water level fluctuations over time. The wells will be constructed of Schedule 40 (SCH 40), flush-thread jointed, 2-inch-diameter polyvinyl chloride (PVC) casing with machine-slotted 0.010-inch screens. A 10/20 filter pack will be installed from the bottom of the well to approximately one foot above the top of the screen, followed by a 2-foot-thick hydrated bentonite plug, and cement-bentonite grout or bentonite seal to one foot below grade. The surface completions will consist of an 8-inch vault set in 2-foot by 2-foot by 4-inch-thick reinforced concrete well pads. Well and vault construction details are shown on *Drawings C-7 and C-8 in Appendix B*. Drilling, soil screening, and well construction details will be recorded in the boring logs.

Upon completing the wells and allowing the well seal to cure for at least 12 hours, the wells will be developed by pumping or bailing until the water clears and field parameters (pH, specific conductance [SpC], and temperature) stabilize to the extent practicable, with a maximum development time of one hour. An example monitoring well sampling field form is provided in *Appendix G*.

After well development, groundwater samples from the wells will be collected and analyzed for VOCs using EPA Method 8260B, TRPH using EPA Method 8015, EDB using EPA Method 8011, SVOCs using Method 8270 SIM, and TAL Metals that include aluminum, arsenic, chromium, iron, and manganese using EPA Methods 6010/6020 (*Tables 5 and 6*).

After the well installation is completed, the newly installed monitoring wells will be surveyed by an NM PLS. The survey will be conducted using New Mexico State Plane Coordinates and the North American Datum of 1983 (NAD 83). Wells will be surveyed to within 0.1 feet horizontally and 0.01 feet vertically.

7.11 CONTINGENCY

A contingency covers unforeseen circumstances encountered during implementation, variations between actual and estimated quantities, or changes to the scope, execution, or schedule that affect costs. Unforeseen circumstances may include, but are not limited to, changes in field conditions,

finding of underground utilities, pipelines, tanks, buried structures, objects, foundations, rocks, or drums with hazardous or other content, substantial changes in groundwater levels or flooding, archaeological or cultural resources, regulatory, administrative or other stoppage or delays, changes in the sources or disposal facilities, road closures, inclement weather, economic policies and drastic changes, or other conditions outside of EA or RC's control. Changes in the scope may include adjustments to dimensions, quantities, equipment, methodology, schedule, and the need to dewater, treat, and dispose of the water, as well as additional work and other modifications.

If material conditions change or the scope of work is changed or expanded, EA will work with the NMED GWQB project manager (PM) to identify cost-effective alternatives for utilizing the contingency funds. The contingency will be accessed only with prior written approval of the NMED GWQB project manager.

The potential contingency measures are provided in *Appendix H*.

7.12 SCHEDULE AND PAYMENT

The execution of the work is estimated to take 60 days and is anticipated to take place in the spring. Once the RAP is submitted, EA will proceed with publishing the Public Notice and assist with addressing the public comments, if any. All work will be completed by June 30, 2026, the period of performance specified in the contract. Payments will be in accordance with the schedule and unit rates in the work plan.

8. REFERENCES

- EA. 2021a. *Phase I Environmental Site Assessment, Former Aerex Refinery, Bloomfield, New Mexico. October.*
- EA. 2021b. *Phase II Environmental Site Assessment, Former Aerex Refinery, Bloomfield, New Mexico. October 15.*
- EA. 2025. *Additional Phase II Environmental Site Assessment, Former Aerex Refinery, Bloomfield, New Mexico. June 25.*
- Kleinfelder. 2006. *Phase I Subsurface Assessment, Former Aerex Refinery, Bloomfield, New Mexico. April 6.*
- Richards, S. 2021. Personal communication between Ms. Savannah Richards of the New Mexico Environment Department and Mr. David Werth of EA, October 6.
- Weston Solutions, Inc. 2019b. *Phase I Environmental Site Assessment Report for Bloomfield Property East, Parcel #R0061021 (Blanco and 5th Street), Bloomfield, San Juan County, New Mexico 87413. November.*

Figures

	MONITORING WELL		APPROXIMATE PARCEL BOUNDARY
	2006 ESA SOIL BORING		CROSS-SECTION LOCATION LINE
	2021 ESA SOIL BORING	ESA = ENVIRONMENTAL SITE ASSESSMENT	

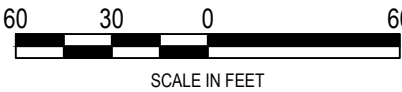


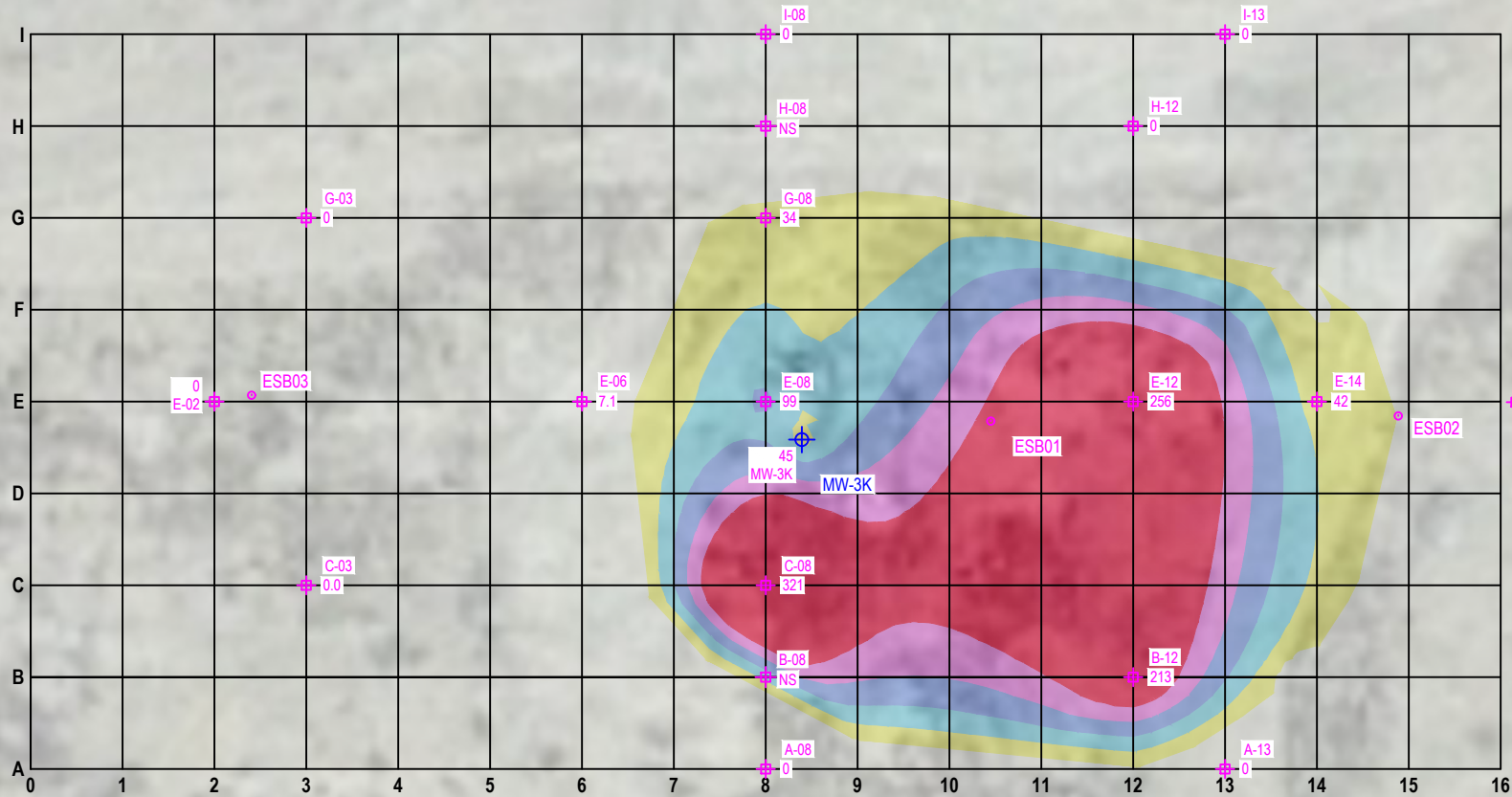
FIGURE NO: 1	PROJECT NUMBER: 16496-04-00_RAP		Former Aerex Refinery, East Parcel West Blanco Boulevard and North 5th Street, Bloomfield, NM	 EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.	320 Gold Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9013	0	01/24/26	01/24/26	MM	REMEDIAL ACTION PLAN
					REV.	DATE	DRAWN	REVIEW	REMARKS	
REVISIONS										

FORMER AEREX REFINERY, EAST PARCEL West Blanco Boulevard and North 5th Street, Bloomfield, NM		 FOR INFORMATION, SEE E&A TECHNOLOGY, INC.		320 Gadi Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9013		0	01/24/26	01/24/26	MM	REMEDIAL ACTION PLAN
		Cross-Section A-A', PID Screening Results, and Excavation Profile		REV.	DATE	DRAWN	REVIEW	REMARKS		
				REVISIONS						

PROJECT NUMBER:	16496-04-00_RAP
FIGURE NO:	2

January 24, 2026 --- C:\Users\mustafin\OneDrive - EA Engineering, Science, and Technology, Inc. \PBC\Documents\Work\Aerex Brownfield\2025 RAP\App B - Plans\Aerex - RAP 2026 - C Drawings.dwg

Total Naphthalene, µg/L			
Range	From	To	Color
1	30	60	Yellow
2	60	90	Light Blue
3	90	120	Blue
4	120	150	Pink
5	150	500	Red

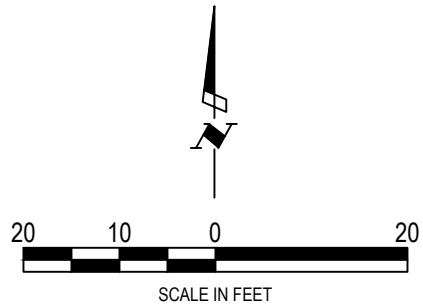


LEGEND

- Monitoring Well
- 2006 ESA Soil Boring
- 2021 ESA Soil Boring
- 2025 Phase II ESA Soil Sample Location and Total Naphthalene in Unfiltered Samples

NOTES:

- Shown concentrations are in micrograms per liter (µg/L).
- Unfiltered groundwater samples were collected from temporary wells, except MW-3K.
- The maximum concentration in each borehole was used.
- For concentrations below the practical quantitation limit, zero is shown.
- The total naphthalene concentrations includes naphthalene, 1-methyl naphthalene, and 2-methyl naphthalene.
- Detected results were summed to calculate the total naphthalene concentrations.
- NS = Not Sampled



EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.	320 Gold Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9013				
Former Aerex Refinery, East Parcel West Blanco Boulevard and North 5th Street, Bloomfield, NM		February 2025 Unfiltered Total Naphthalene Groundwater Concentrations			
PROJECT NUMBER: 16496-04-00_RAP		FIGURE NO: 4		REV. DATE DRAWN CHECKED REMARKS	
				REVISIONS	

Tables

Table 2. East Parcel Groundwater Analytical Results Above the Standards

Analyte	Units	ESB01 07/13/2021	ESB02 07/13/2021	ESB03 07/13/2021	ESB04 07/13/2021	ESB05 07/13/2021	ESB06 07/13/2021	ESB07 07/13/2021	ESB08 07/13/2021	ESB09 07/13/2021	MW-1 07/14/2021	MW-1-D 07/14/2021	MW-3K 10/11/21	EPA MCL ¹	NMWQCC Standard ²	EPA Tapwater RSL ¹
Benzene	µg/L	12	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		5.0	5.0	0.46
Naphthalene	µg/L	49.3	0.382	2.55	0.149	3.53	0.045 J	0.076 J	0.05 U	0.05 U	0.05 U	0.05 U		NS	30	0.12
1-Methylnaphthalene	µg/L	50.5	0.61	3.73	0.401	6.59	0.079 J	0.147	0.09 U	0.09 U	0.09 U	0.09 U		NS	30	11
2-Methylnaphthalene	µg/L	61.8	0.469	4.77	0.495	5.85	0.067 J	0.114	0.09 U	0.09 U	0.09 U	0.09 U		NS	30	36
Total Naphthalenes	µg/L	162	1.46	11.1	1.05	16.0	0.19	0.337	0.23 U	0.23 U	0.23 U	0.23 U		NS	30	36
Aluminum	µg/L	4,500	3,820	6,000	41,600	1,530	987	13,400	5,310	518	10,200	2,830	20 U	NS	5,000	20,000
Arsenic	µg/L	4.68	1.77	3.33	24.7	1.14	3.43	10.1	18	0.48 J	327	339	1.0 U	10	10	0.052
Beryllium	µg/L	5.0 U	5.0 U	5.0 U	4.59 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	2.0 U	4.0	4.0	25
Chromium	µg/L	7.03	3.31	10.7	56.8	3.72	1.3	24.3	10.5	0.83 J	6.46 J	5.0 U	6.0 U	100	50	NS
Iron	µg/L	12,200	4,830	8,030	58,800	2,240	4,110	22,700	8,560	615	52,700	72,700	2,400	NS	1,000	14,000
Manganese	µg/L	980	1,820	4,960	4,410	910	1,540	1,480	1,660	2,430	22,500	32,000	1,200	NS	200	430

NOTES:

¹ EPA National Primary Drinking Water Regulations, Maximum Contaminant Levels accessed at <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations> (May 2021).

² New Mexico

Bold Red Values = Concentrations exceed NMWQCC or USEPA standards

U = Indicates the compound was analyzed for but not detected

Q = Indicates a non-compliant QC Result (See Q Flag Application Report)

J = Indicates the result is between the MDL and LOQ

µg/L = Micrograms per liter

EPA = US Environmental Protection Agency

MCL = Maximum Contaminant Level

NS = No Standard

NMWQCC = New Mexico Water Quality Control Commission

Regional Screening Level

Table 3. 2025 Phase II ESA Soil Analytical Results above the Standards

Units				mg/kg	mg/kg	mg/kg	mg/kg
EPA Residential Regional Screening Levels ¹				300	250	NS	0.11
EPA Industrial Regional Screening Levels ¹				1,700	1,900	NS	2.1
NMED Residential SSL ²				100	1,000	3,000	0.153
NMED Industrial/Occupational SSL ²				500	3,000	5,000	3.23
NMED SSL for Construction Workers ²				500	3,000	5,000	24
Project Screening Level ³				100	250	3,000	0.153
Location	Sample Name	Sample Date (mm/dd/yr)	Sample Depth (ft bgs)	TPH GRO (C6 to C10)	TPH as DRO (C10 to C28)	TPH as ORO (C25 to C38)	Dibenz(a,h) anthracene
A80	SBA-08-10.5	02/18/25	10.5	62	1,000	390	< 0.40 U
B120	SBB-12-9.5	02/19/25	9.5	28	2,700	800	< 0.39 U
B120	SBB-12-13	02/19/25	13	70	5,300	1,900	< 0.38 U
B80	SBB-08-9.5	02/19/25	9.5	70	1,200	420	< 0.40 U
C80	SBC-08-10	02/18/25	10	110	2,400	1,000	< 0.40 U
C80	SBC-08-12.5	02/18/25	12.5	96	3,600	1,600	< 0.39 U
E120	SBE-12-4.5	02/18/25	4.5	51	4,500	3100	< 0.40 U
E120	SBE-12-14.5	02/18/25	14.5	23	4,300	2,400	< 0.36 U
E140	SBE-14-11	02/19/25	11	5.7	1,200	580	< 0.40 U
E140	SBE-14-14	02/19/25	14	12	3,600	1,200	< 0.38 U
E80	SBE-08-9	02/18/25	9	260	8,200	3,300	< 0.39 U
H120	SBH-12-8.5	02/19/25	8.5	95	16,000	7,100	< 2.0 U
H120	SBH-12-13	02/19/25	13	47	5,400	2,900	< 0.38 U
H80	SBH-08-9.5	02/19/25	9.5	18	3,700	1,700	< 0.39 U
H80	SBH-08-9.5-D	02/19/25	9.5	36	3,000	1,300	< 0.37 U
H80	SBH-08-12	02/19/25	12	34	3,500	1,900	< 0.39 U
I130	SBI-13-10.5	02/19/25	10.5	< 5.0 U	1,600	1,000	< 0.38 U
I80	SBI-08-13	02/18/25	13	21	1,600	< 96 U	< 0.019 U

Concentrations are in milligrams per kilogram

Bold red values exceed the Project Screening Level, which is the lowest concentration of EPA RSLs and NMED SSLs.¹ EPA Regional Screening Levels (RSLs) for residential and industrial use scenario for hazard index = 1.0 for non-carcinogens and a 10⁻⁶ cancer risk level for carcinogens (November 2024).² Residential land use Soil Screening Levels (SSLs) from the NMED Risk Assessment Guidance for Site Investigations and Remediation, Appendix A, Table A-1, NMED SSLs; and Appendix C, Tables C-1 to C6, Tier 1 TRVs and ESLs and Tier 2 TRVs (November 2022).³ The project screening level was selected to satisfy the 1) residential NMED SSL if specified, and (2) the residential EPA RSL if no NMED SSL exists. For analytes with no SSL or RSL, the project screening level will be NS. Project screening levels that are not achievable by the laboratory reporting limits are shaded < = Less than the reporting limit

ft bgs = Feet below grade surface

mg/kg = Milligrams per kilogram

mm/dd/yr = month/day/year

U = Indicates the compound was analyzed for but was not detected above the reporting limit.

Table 4. 2025 ESA East Parcel Groundwater Analytical Results above the Standards

Boring/Well Location:						B120	B120	B120	C80	E120	E140	E80	G80	MW-3KR
Sample Name:						SBB-12	SBB-12-D	SBB-12 Filtered	SBC-08	SBE-12	SBE-14	SBE-08	SBG-08	MW-3R
Sample Date:						02/19/25	02/19/25	02/19/25	02/18/25	02/18/25	02/19/25	02/18/25	02/19/25	02/17/25
Total (filtered) or Dissolved (unfiltered):						Total	Total	Dissolved	Total	Total	Total	Total	Total	Total
Analyte	Unit	EPA MCL ¹	NMWQCC Standard ²	EPA Tapwater ³	Project Screening Level ⁴	Results	Results	Results	Results	Results	Results	Results	Results	Results
Volatile Organic Compounds														
1,1,1,2-Tetrachloroethane	µg/L	NS	NS	0.57	0.57	< 5.0 U	< 5.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 10 U
1,2,3-Trichloropropane	µg/L	NS	NS	0.00075	0.00075	< 10 U	< 10 U	< 2.0 U	< 4.0 U	< 4.0 U	< 2.0 U	< 10 U	< 4.0 U	< 20 U
1,2,4-Trimethylbenzene	µg/L	NS	NS	56	56	62	54	44	< 2.0 U	< 2.0 U	60	120	110	< 10 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	NS	0.00033	0.2	< 10 U	< 10 U	< 2.0 U	< 4.0 U	< 4.0 U	< 2.0 U	< 10 U	< 4.0 U	< 20 U
1,2-Dibromoethane	µg/L	0.05	0.05	0.0075	0.05	< 5.0 U	< 5.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 10 U
1-Methylnaphthalene	µg/L	NS	30	0.0063	30	52	40	11	91	92	15	29	< 40 U	45
2-Methylnaphthalene	µg/L	NS	30	36	30	63	46	< 4.0 U	120	97	13	34	< 40 U	< 40 U
cis-1,3-Dichloropropene	µg/L	NS	NS	0.47	0.47	< 5.0 U	< 5.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 10 U
Hexachloro-1,3-butadiene	µg/L	NS	NS	0.14	0.14	< 5.0 U	< 5.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 10 U
Isopropylbenzene	µg/L	NS	NS	450	450	5.2	< 5.0 U	3.2	17	9.4	10	9.9	6.7	< 10 U
Methyl tert-butyl ether	µg/L	NS	100	14	100	< 5.0 U	< 5.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 10 U
Methylene chloride	µg/L	5	5	11	5	< 13 U	< 13 U	< 2.5 U	< 5.0 U	< 5.0 U	< 2.5 U	< 13 U	< 5.0 U	< 25 U
Naphthalene	µg/L	NS	30	0.12	30	98	75	31	110	67	14	36	34	< 20 U
trans-1,3-Dichloropropene	µg/L	NS	NS	0.47	0.47	< 5.0 U	< 5.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 5.0 U	< 2.0 U	< 10 U
Total naphthalene	µg/L	NS	30	NS	30	213	161	42	321	256	42	99	34	45

Notes:

Bold Red values exceed the Project Screening Levels

Iron and manganese concentrations were above the standards in all groundwater samples and are not shown.

The detection limits for some compounds exceeded the standards; however, this does not necessarily indicate that concentrations exceeded the standards. Nonetheless, the concentrations were shown.

For total naphthalenes, detected results for 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene were summed.

¹ EPA National Primary Drinking Water Regulations, Maximum Contaminant Levels (MCLs) at <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations> (November 2024).

² New Mexico Administrative Code Title 20.6.2.3103, Standards for Ground Water of 10,000 mg/L total dissolved solids concentration or less (NMAC 2018).

³ EPA Regional Screening Levels (RSLs) for Tapwater use scenario for hazard index = 1.0 for non-carcinogens and a 10-6 cancer risk level for carcinogens (November 2024).

⁴ The project screening level (PSL) was selected as the lowest of 1) NMWQCC standard or 2) EPA MCL. If no MCL or NMWQCC standard exists for the analyte, then the project screening level is set at the EPA Tapwater RSL. RSLs that are not achievable by the laboratory reporting limits are shaded on the table.

⁶ The PSL of 30 µg/L is for Total Naphthalene (the sum of 1-Methylnaphthalene + 2-Methylnaphthalene + Naphthalene).

-- = Not analyzed

< = Less than the reporting limit

µg/L = Microgram(s) per liter

EPA = U.S. Environmental Protection Agency

mg/L = Milligram(s) per liter

NMWQCC = New Mexico Water Quality Control Commission

NS = No standard

Table 5. Sampling Program

Purpose	Type	Description	VOCs (8260)	TPH GRO, DRO, MRO (8015)	EDB (8011)	PAHs (8270 SIM)	TAL Metals	Total Lead	USCS Soil Classification ASTM D2487	Standard Proctor ASTM D698	In-Place Density ASTM D2922	SVOCs, RCRA Metals, Ignitability, Corrosivity,	Notes
Removal Action													
Confirmation	Excavation Floor	3 x 3 grid	9	9			9						Excavator Bucket, 5-point Composite
Confirmation	Excavation Walls	Two on each side wall	8	8			8						Excavator Bucket, 5-point Composite
Confirmation	Excavation Walls	Two on each side wall	8	8			8						Excavator Bucket, 5-point Composite
Waste Characterization	Contaminated Soil	Every 500 cubic yards	10	10			10	10					Stockpile, 10-point Composite
Waste Characterization	Contaminated Soil	One Representative Composite Sample										1	Stockpile, 10-point Composite
Backfilling	Clean Fill	One for each soil type and source	5	5			5		5	5			Facility Sampling. One for each source. Additional for each new source.
Characterization	Clean Overburden	Every 100 cubic yards		7									Stockpile, 10-point Composite
Backfilling	Clean Overburden	One for each soil type							4	4			Separate stockpiles by soil type.
Compaction	Clean Overburden	Field Density Testing									40		One test every 1,000 square feet in a 1- foot lift in the top four (4) feet of the
Seven Compliance Wells													
Characterization	Soil	Two from each boring	14	14									One in the saturated zone, another in the unsaturated zone near the water table.
Characterization	Groundwater	One per well	7		7	7	7						After development. Filtered for metals and unfiltered for the rest.
Total			61	61	7	7	47	10	9	9	40	1	

The frequency and suite of contaminated soil sampling may be adjusted if the disposal facility agrees to a lesser frequency and satisfied with the representativeness of the early analyses.

ASTM D2487 includes ASTM D6913/C136, Sieve Analysis/Partial-Size Distribution, and ASTM D4318, Atterberg Limits.

Provide samples for each new source or type of clean fill.

ASTM = American Society for Testing and Materials

DRO = diels range organics

GRO = gasoline range organics

MRO = motor oil range organics

RCRA = Resource Conservation and Recovery Act

SVOC = semi-volatile organic compounds

TAL = target analyte list

TPH = total petroleum hydrocarbons

USCS = unified soil classification system

VOC = volatile organic compounds

Table 6. Analytical Methods, Container, Preservation, Storage, and Holding Times

Medium	Analyses	Method	Container	Preservative	Storage	Holding Time
Soil	VOC	EPA 8260	4 oz glass jar, methanol extraction field kit	None	Place on Ice	14 days
Soil	TPH GRO, DRO, MRO	EPA 8015	4 oz glass jar, methanol extraction field kit	None	Place on Ice	14 days
Soil	TAL Metals	EPA 6010, 6020, 7470	4 oz glass jar	None	Place on Ice	14 days
Soil	Total Lead	EPA 6010, 6020	4 oz glass jar	None	Place on Ice	14 days
Soil	TCLP VOC and SVOC	EPA 1311, 8260, 8270	4 oz glass jar	None	Place on Ice	14 days
Soil	TCLP RCRA Metals	EPA 1311, 6010, 6020, 7470	4 oz glass jar	None	Place on Ice	6 months, 28 days mercury
Soil	Ignitability	EPA 1010	4 oz glass jar	None	Place on Ice	14 days
Soil	Corrosivity	SM 4500	4 oz glass jar	None	Place on Ice	14 days
Soil	Reactivity	SW 846 Sections 7.3.3.2 & 7.3.4.1	4 oz glass jar	None	Place on Ice	14 days

VOC = volatile organic compounds

TPH = total petroleum hydrocarbons

GRO = gasoline range organics

DRO = diesel range organics

MRO = motor oil range organics

EPA = United States Environmental Protection Agency

oz = ounce

TAL = target analyte list

Appendix A

2025 ESA Soil Borings

2025 ESA Photoionization Detector Soil Screening Results, ppmv

Location	A80	A130	B80	B120	C30	E20	E60	E80	E120	E140	E160	G30	G80	H80	H120	I80	I130
Depth	SBA-08	SBA-13	SBB-08	SBB-12	SBC-03	SBE-02	SBE-06	SBE-08	SBE-12	SBE-14	SBE-16	SBG-03	SBG-08	SBH-08	SBH-12	SBI-08	SBI-13
1	2.1	2.6	127	1.6	2.9	5.0	2.0	2.9	38	0.1	1.4	3.3	2.7	14	2.3	0.5	1.2
2	2.6	2.5	37	3.7	2.8	3.6	17	3.1	688	7.0	1.6	3.5	66	58	10	0.4	1.3
3	3.6	2.6	19	3.0	2.7	8.6	249	3.2	5,135	3.1	2.2	2.8		60		0.8	1.3
4	2.5				3.0	2.3			10,000		1.4		91	45	22		1.7
5	2.1		51	3.2	3.0	2.1	77	3.1	10,000	16	1.5	4.6	28	39	47	0.8	3.0
6	2.0	2.9	50	3.1	3.0		90	4.5	10,000	11	3.4	4.8		73	23	0.7	3.1
7	2.1	3.0	55	3.1	2.8	0.8	208	3.5	10,000	17		3.0	87	57	27	0.6	3.1
8	1.8	3.1				0.9	468		10,000			3.0	161	48	67	0.8	3.0
9	26	2.6	655	28	2.9		493	234	3,557	28	3.0	4.1		111	46	1.2	5.8
10		2.5	3,890	1,865	3.0		52	197					78	40	42	2.8	3.1
11	93	2.8	5,087	2,654	3.0	2.1			10,000	36	3.4	4.0	117	44	33	9.6	6.2
12							218	133	10,000	43					40	25	5.4
13	324	2.5	395	3,964	3.0	3.2		30	10,000	54	3.5	3.8	44	28	17		3.5
14	109	2.6	266		3.0		24	13	10,000	29		3.8	14	25			3.5
15		2.8	10,000	648	3.0							3.9	70	16			
16							32						32				

2025 ESA Unified Soil Classification

Location	A80	A130	B80	B120	C30	E20	E60	E80	E120	E140	E160	G30	G80	H80	H120	I80	I130
Depth	SBA-08	SBA-13	SBB-08	SBB-12	SBC-03	SBE-02	SBE-06	SBE-08	SBE-12	SBE-14	SBE-16	SBG-03	SBG-08	SBH-08	SBH-12	SBI-08	SBI-13
1	ML	ML	ML	ML	ML	ML	SP	ML	ML	ML	ML	ML	SP	SM	SM	ML	ML
2	ML	ML	ML	ML	ML	SM	SP	ML	ML	ML	ML	ML	SP	SM	ML	SM	ML
3	SM	ML	ML	SM	SM	SM	SP	ML	ML	ML	ML	ML	SP	SP	ML	SM	SM
4	SM	SP	ML	SM	SM	SM	SP	ML	ML	ML	SP	ML	SP	SP	ML	SM	SM
5	SP	SP	SP	SM	SM	SP	SP	SM	SP	SM	SP	SP	SP	SP	SP	SP	SP
6	SP	SP	SP	SM	SM	SP	SP	SM	SP	SM	SP	SP	SP	SP	SP	SP	SP
7	SP	SP	SP	SM	SM	SP	SP	SM	SP	SM	SP	SP	SP	SP	SP	SP	SP
8	SP	CL	SP	SM	CL	SP	SP	SM	SM	SM	SP	SP	SP	SP	SP	SP	SP
9	CL	CL	CL	CL	CL	CL	CL	SP	SM	SP	SC	CL	SP	SP	CL	SP	SP
10	CL	CL	CL	CL	CL	CL	CL	CL	SM	SP	SC	CL	CL	CL	CL	CL	CL
11	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL
12	CL	CL	SP	SP	SP	CL	SP	CL	SC	CL	CL	CL	CL	CL	CL	CL	SP
13	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP
14	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP
15	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP
16	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP

2025 ESA TRPH Concentrations in Soil, mg/kg

Location	A80	A130	B80	B120	C30	C80	E20	E60	E80	E120	E140	G30	H80	H120	I80	I130
Depth	SBA-08	SBA-13	SBB-08	SBB-12	SBC-03	SBC-08	SBE-02	SBE-06	SBE-08	SBE-12	SBE-14	SBG-03	SBH-08	SBH-12	SBI-08	SBI-13
1																
2																
3																
4																
5							70			7,651						
6					143											
7																
8		240														68
9									11,760					23,195		
10			1,690	3,528		3,510							5,418		1,030	
11	1,452							199			1,786					2,605
12																
13	64			7,270		5,296								8,347	1,717	
14		88									4,812					
15							64			6,723						
16			61		60			105								

CL = clay

mg/kg = milligrams per kilogram

ML = silt

ppmv = parts per million by volume

SC = clayey sand

SM = silty sand

SP = poorly-graded sand

TRPH = total recoverable petroleum hydrocarbons



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/18/2025 @ 1530
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/18/2025 @ 1600
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBA-08	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1150
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1220
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBA-13	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1125
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1150
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBB-08	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1103
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1120
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBB-12	Logged By:	K. Schlea
		Page	1 of 1

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BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1420
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1445
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBC-03	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/18/2025 @ 1530
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/18/2025 @ 1600
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBA-08	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/18/2025 @ 0855
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/18/2025 @ 0925
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBE-02	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/18/2025 @ 1025
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/18/2025 @ 1050
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBE-08	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/18/2025 @ 0800
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/18/2025 @ 0850
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBE-12	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1015
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1030
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBE-14	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/18/2025 @ 0935
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/18/2025 @ 1018
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBE-16	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1345
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1410
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBG-03	Logged By:	K. Schlea Page 1 of 1

[illegible]





BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1300
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1330
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBH-08	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1040
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1100
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBH-12	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/18/2025 @ 1615
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/18/2025 @ 1700
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBI-08	Logged By:	K. Schlea Page 1 of 1

[illegible]



BORING/WELL CONSTRUCTION LOG

Project:	Aerex Refinery Phase II ESA	Project Number:	16493-02-00-TM
Drilling Company:	Atkins Engineering	Start Time/Date:	2/19/2025 @ 1230
Drilling Rig/Bit:	Geoprobe	Completion Time/Date:	2/19/2025 @ 1250
Driller:	Shane Eldridge	Final Depth:	16'
Boring/Well ID:	SBI-13	Logged By:	K. Schlea Page 1 of 1

[illegible]

Appendix B

Plans



LEGEND

-  MONITORING WELL
-  APPROXIMATE PARCEL BOUNDARY
-  CONSTRUCTION FENCE

- NOTES:
1. LOCATE AND MARK THE UNDERGROUND UTILITIES.
 2. OBTAIN EXCAVATION PERMIT.
 3. OBTAIN TRAFFIC PLAN.
 4. SETUP TRAFFIC CONTROLS AND SIGNS.
 5. INSTALL CONSTRUCTION FENCE. FENCE MAY BE EXTENDED TO THE SOUTH IF NEEDED.
 6. CLEAR VEGETATION AND RUBBLE.
 7. ESTABLISH INGRESS AND EGRESS
 8. DESIGNATE AREAS FOR STOCKPILING, EQUIPMENT, AND MATERIALS.
 9. ESTABLISH THE EXCAVATION GRID.

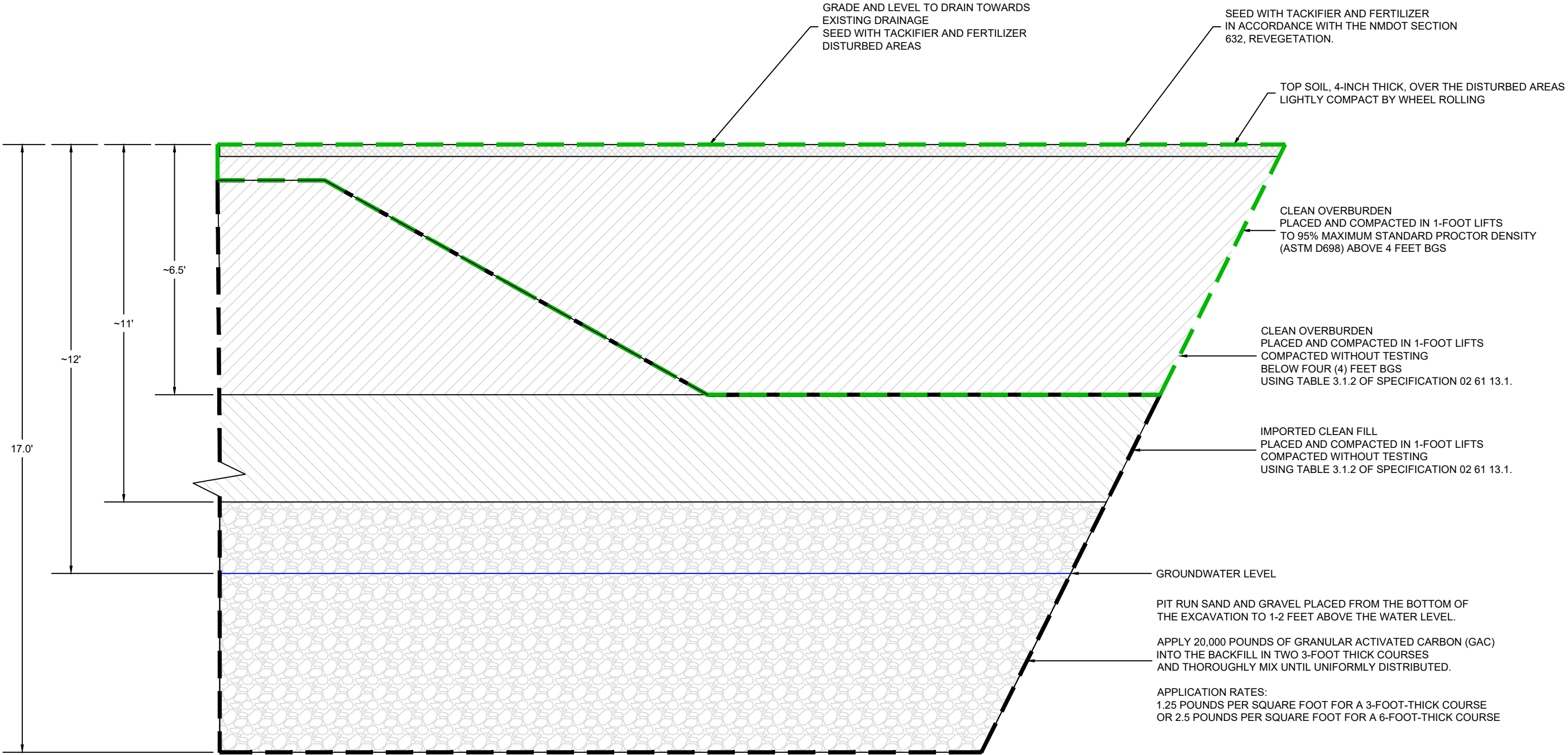


SCALE IN FEET

C-1	DRAWING NO.: 16496-04-00_RAP	PROJECT NUMBER: 16496-04-00_RAP	Former Aerex Refinery East Parcel West Blanco Boulevard and North 5th Street, Bloomfield, NM	 EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.	320 Gold Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9013	0	01/24/26	01/24/26	MM	REMEDIAL ACTION PLAN			
			Existing Conditions and Preparation	DESIGNED BY: <u>VMM</u> DRAWN BY: <u>VMM</u> REVIEWED BY: <u>MM</u>		REV.	DATE	DRAWN	CHECKED	REMARKS			
						REVISIONS							

C-2	DRAWING NO.: 16496-04-00 RAP	PROJECT NUMBER: 16496-04-00 RAP	Former Aerex Refinery, East Parcel West Blanco Boulevard and North 5th Street, Bloomfield, NM	 EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. 320 Gold Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9013	0	01/24/26	01/24/26	MM	REMEDIAL ACTION PLAN
Clean Overburden Soil Excavation Plan	DESIGNED BY: <u> VMM </u>	REV.	DATE	DRAWN	CHECKED	REMARKS			
	DRAWN BY: <u> VMM </u>	REVISIONS							
REVIEWED BY: <u> MM </u>									

January 24, 2026 --- C:\Users\vmustafin\OneDrive - EA Engineering, Science, and Technology, Inc. \PBC\Documents\Work\Aerex Brownfield\2025 RAP\App B - Plans\Aerex - RAP 2026 - C Drawings.dwg



Material	Area, SF	Depth, FT bgs	Thickness, FT	Bank Volume, BCY	Expansion Factor	Loose Volume, CY
Top Soil	30,000	-0.333	1.0	1,111	1.3	1,444
Clean Overburden	14,109	-6.3	6.0	3,118	1.3	4,053
Imported Fill	11,123	-11.0	4.7	1,936	1.3	2,517
Pit Run Sand and Gravel	8,240	-17.0	6.0	1,831	1.3	2,380
Totals	63,471		17.7	7,996		10,395

REMEDIAL ACTION PLAN

JS

01/24/26

01/24/26

0

REVISIONS

CHECKED

DRAWN

DATE

REV.

REMARKS

320 God Avenue, SW Suite 1300
Albuquerque, NM 87102
Phone: (505) 224-9013

EA

ENVIRONMENTAL SCIENCE & TECHNOLOGY, INC.

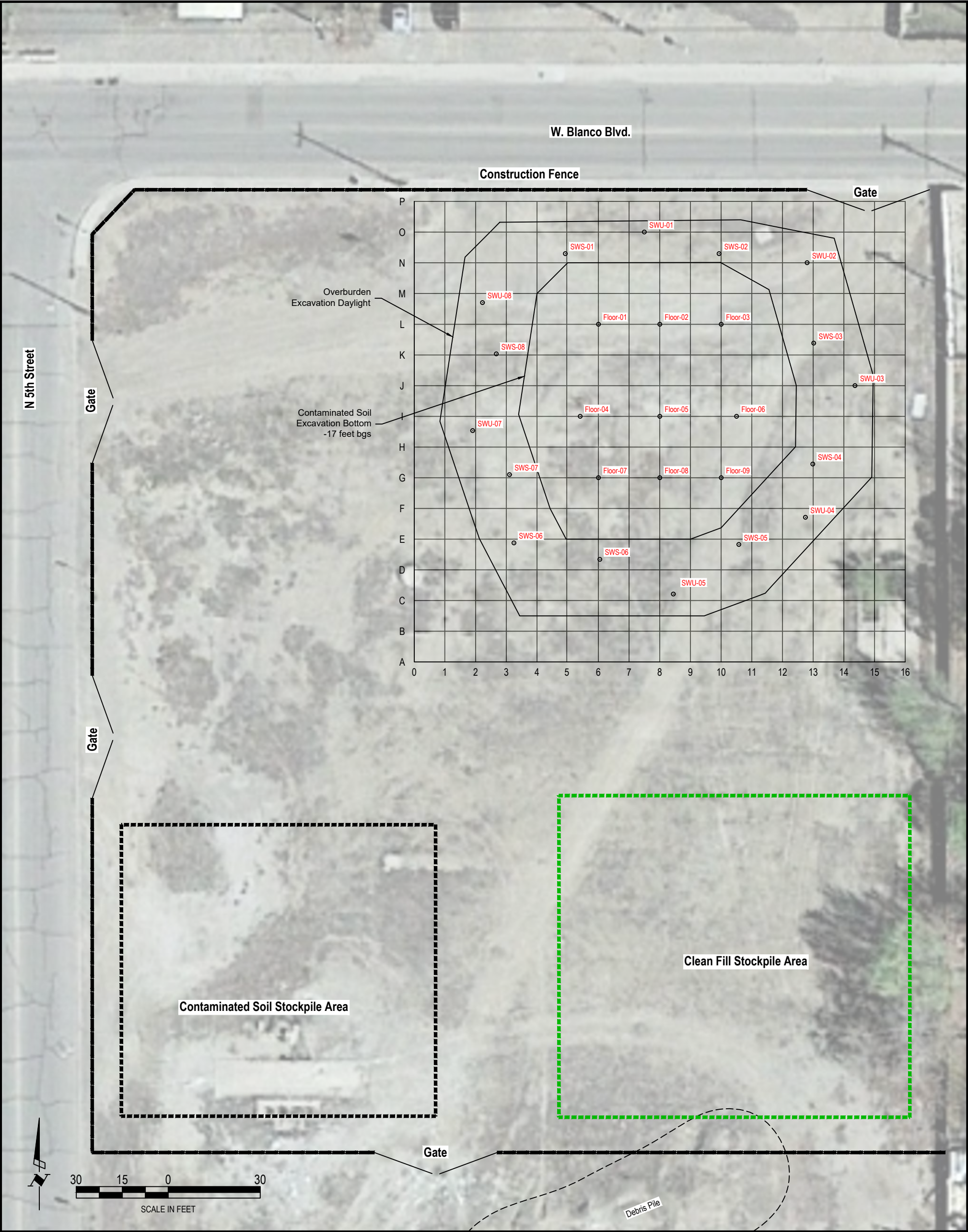
DESIGNED BY: VMM
DRAWN BY: VMM
REVIEWED BY: MM

Former Aerex Refinery, East Parcel
West Blanco Boulevard and North 5th Street, Bloomfield, NM

Excavation Backfill

PROJECT NUMBER:
16496-04-00_RAP

DRAWING NO.:
C-4

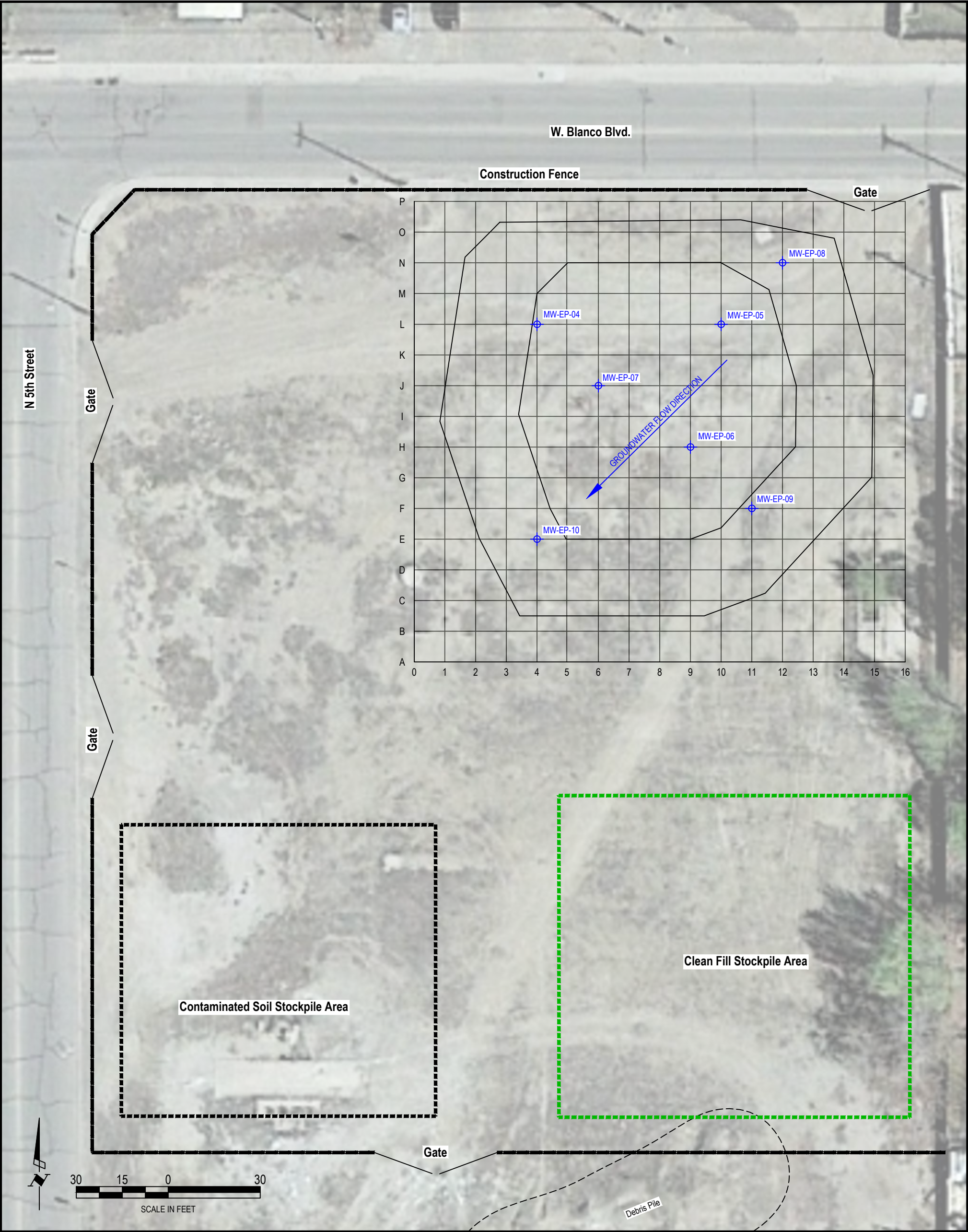


LEGEND

- MONITORING WELL
- CONSTRUCTION FENCE

- NOTES:
- WORK SHALL BE IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.
 - CONFIRMATION SAMPLE LOCATIONS ARE APPROXIMATE AND CAN BE MODIFIED BY THE ENGINEER BASED ON FIELD CONDITIONS.
 - COLLECT CONFIRMATION SAMPLES FROM EXCAVATOR BUCKET; PERSONNEL SHALL NOT ENTER THE EXCAVATION.
 - REMOVE ALL SOIL, EQUIPMENT, MATERIALS, SUPPLIES, FENCE, AND GATES.
 - RESTORE SITE CONDITIONS TO PRE-EXCAVATION.
 - NOTIFY THE ENGINEER ONCE THE SITE IS FULLY RESTORED AND SCHEDULE AND COORDINATE INSPECTION WITH THE ENGINEER, OWNER, AND GWQB .

C-5	DRAWING NO.: PROJECT NUMBER: 16496-04-00_RAP		Former Aerex Refinery, East Parcel West Blanco Boulevard and North 5th Street, Bloomfield, NM	 320 Gold Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9013	0	01/24/26	01/24/26	MM	REMEDIAL ACTION PLAN
Soil Confirmation Sampling and Restoration Plan				DESIGNED BY: <u>VMM</u>					
				DRAWN BY: <u>VMM</u>					
				REVIEWED BY: <u>MM</u>					
				REV.	DATE	DRAWN	CHECKED	REMARKS	
				REVISIONS					



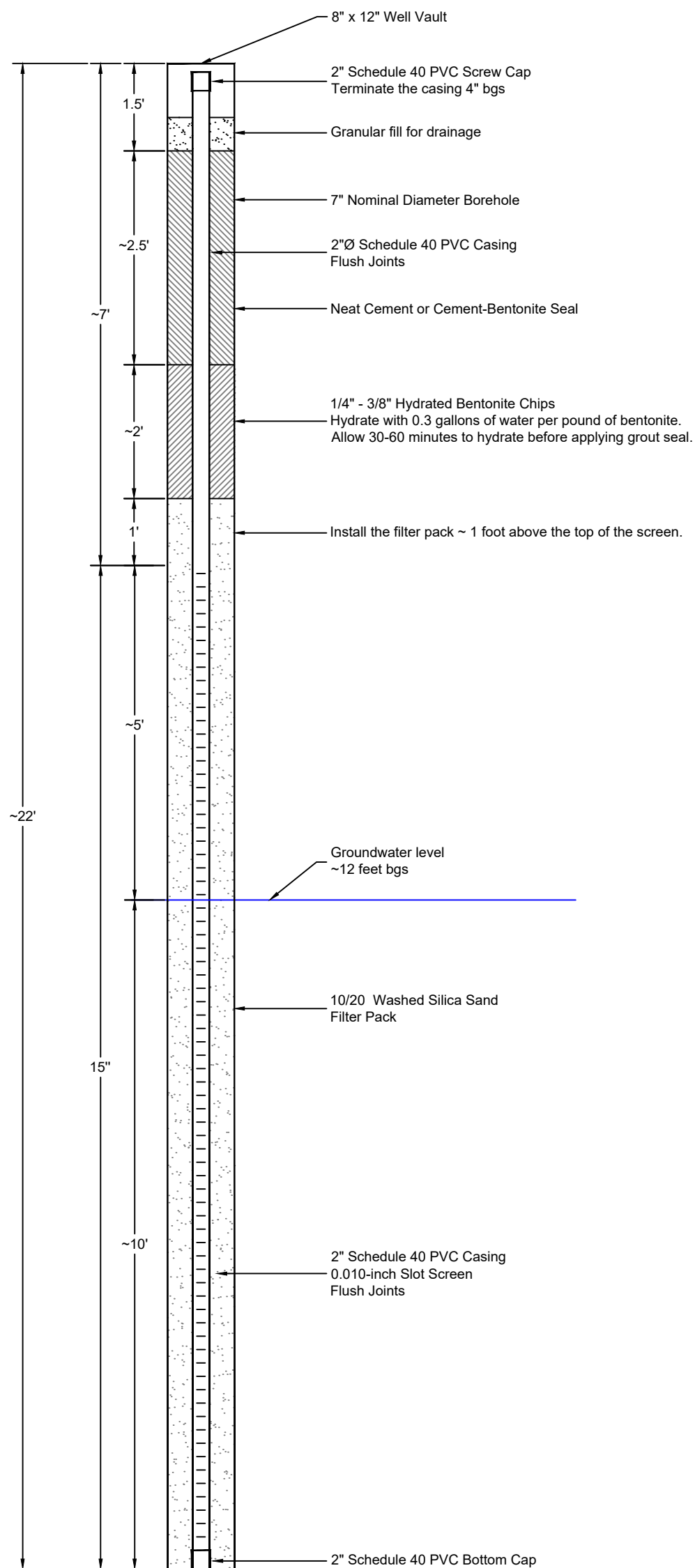
LEGEND

- PROPOSED MONITORING WELL
- CONSTRUCTION FENCE

NOTES:

- WORK SHALL BE IN ACCORDANCE WITH REMEDIAL ACTION PLAN, PLANS, AND SPECIFICATIONS.
- WELL LOCATIONS ARE APPROXIMATE AND CAN BE MODIFIED BY THE ENGINEER BASED ON FIELD CONDITIONS OR OTHER CONSIDERATIONS.
- EA WILL COLLECT SOIL AND GROUNDWATER SAMPLES AS SPECIFIED IN THE REMEDIAL ACTION PLAN.
- EA WILL PERFORM POST-REMOVAL ACTION GROUNDWATER MONITORING AS PER WORK PLAN.

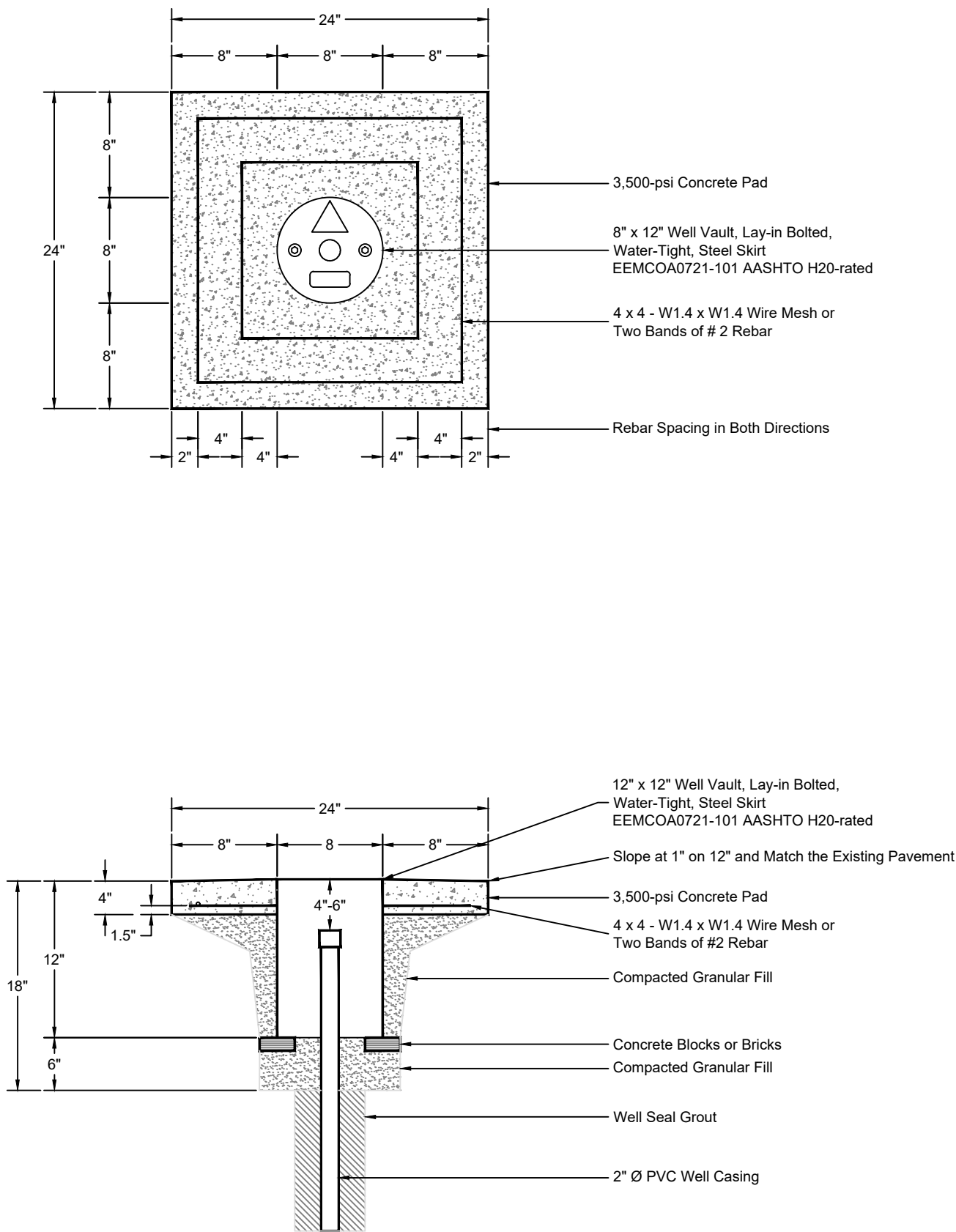
C-6	DRAWING NO.: 16496-04-00_RAP	PROJECT NUMBER: 16496-04-00_RAP	Former Aerex Refinery, East Parcel West Blanco Boulevard and North 5th Street, Bloomfield, NM	 320 Gold Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9013	0	01/24/26	01/24/26	MM	REMEDIAL ACTION PLAN
Monitoring Well Layout				DESIGNED BY: <u>VMM</u>					
				DRAWN BY: <u>VMM</u>					
				REVIEWED BY: <u>MM</u>					
REV:					DATE	DRAWN	CHECKED	REMARKS	
REVISIONS									



NOTES:

1. For well locations, see Drawing C-7.
2. For well vault and pad details, see Drawing C-8.
3. Before drilling, make equipment, tools, materials, and appurtenances available for inspection by the Engineer.
4. Use potable water for drilling, bentonite hydrating, and well installation operations.
5. Delineate and isolate the work area with barriers, caution tape, barricades, signs, and other measures necessary to identify and secure the work perimeter.
6. Provide to the Engineer continuous split-spoon soil samples during drilling.
7. Manage soil cutting and water and provide containers for storage, shipping, and disposal.
8. Sand Pack shall be applied at 2 minutes per 50-lb bag or slower.
9. Bentonite shall be hydrated every 0.5 feet of lift. A minimum of 15 gallons of water shall be applied per one 50-lb bag of bentonite. Upon reaching the target thickness, the bentonite plug shall be allowed to hydrate for a minimum of 30-60 minutes.
10. Place the neat cement or cement-bentonite well seal using a tremie pipe and grout pump. Apply from the bottom up while slowly withdrawing the pipe as the annulus fills. Allow 12-24 hours to cure before development.
11. Develop wells using surge-and-bail and pumping until fines are removed and water clears.

FIGURE NO. 7	PROJECT NUMBER: 1696-0400 RAP	Former Aerex Refinery, East Parcel West Blanco Boulevard and North 5th Street, Bloomfield, NM	 EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. 320 Gold Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9012	0	01/24/26	01/24/26	MM	REMEDIAL ACTION PLAN
				REV.	DATE	DRAWN	REVIEW	REMARKS
REVISIONS								



8	FIGURE NO:	PROJECT NUMBER: 16496-04-00_RAP	Former Aerex Refinery, East Parcel West Blanco Boulevard and North 5th Street, Bloomfield, NM	 320 Gold Avenue, SW Suite 1300 Albuquerque, NM 87102 Phone: (505) 224-9013	0	01/24/26	01/24/26	MM	REMEDIAL ACTION PLAN

Appendix C

Specifications

SPECIFICATION 02 61 13 – REMEDIATION EXCAVATION AND HANDLING

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

- 1.1.1 This section covers the excavation of overburden and contaminated soil.
- 1.1.2 Uncontaminated overburden and contaminated soil shall be excavated to the extent shown on the drawings or revised extents as directed by the ENGINEER. Following the excavation of contaminated soil, confirmation samples shall be collected. Additional excavation, as needed, shall be performed as shown in the Plans and directed by the ENGINEER.
- 1.1.3 Activities described in this specification shall be conducted 30 minutes after sunrise and before sunset each working day unless otherwise approved by the ENGINEER.

1.2 DEFINITIONS

- 1.2.1 CFR – Code of Federal Regulations
- 1.2.2 CONTRACTOR – To be determined
- 1.2.3 ENGINEER – EA Engineering
- 1.2.4 RAP – Remedial Action Plan
- 1.2.5 NMED – New Mexico Environment Department
- 1.2.6 OSHA – Occupational Safety and Health Administration
- 1.2.7 PSTB – Petroleum Storage Tank Bureau

1.3 REFERENCES

- 1.3.1 Regulations
 - 1.3.1.1 29 CFR 1910.120, OSHA Regulations - Hazardous Waste Operations and Emergency Response
 - 1.3.1.2 29 CFR 1926 Subpart P Excavations
- 1.3.2 Guidance
 - 1.3.2.1 NMED USTB Guidelines for Corrective Action, March 13, 2000.

SPECIFICATION 02 61 13 – REMEDIATION EXCAVATION AND HANDLING

1.3.3 Plans

1.3.3.1 Remedial Action Plan

1.3.3.2 Site-Specific Health and Safety Plan

1.4 SUBMITTALS

- 1.4.1 The CONTRACTOR shall prepare and submit an excavation plan for contaminated soil for the ENGINEER's approval. The plan shall include the following items: the sequence of excavation to be followed; the equipment to be used; the proposed excavation schedule; the proposed methods and equipment for backfilling and compaction; a description of how the work area shall be isolated; the proposed methods to control contaminated water if encountered during excavation; the proposed soil stockpile areas; and the proposed sloping and or shoring methods to be used if required. The plan shall be submitted no later than ten (10) days before mobilization. The plan may be modified by the CONTRACTOR, subject to ENGINEER approval.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

- 3.1.1 The CONTRACTOR shall locate, identify, and protect existing and new utilities from damage.
- 3.1.2 The CONTRACTOR shall protect benchmarks, survey control points, curb and gutter, and existing fences from excavating equipment.
- 3.1.3 The CONTRACTOR shall contact New Mexico One-Call at 505-260-1990 at least 48 hours before excavation.
- 3.1.4 The CONTRACTOR shall obtain a Construction Permit from the City of Bloomfield before excavation.
- 3.1.5 The CONTRACTOR shall obtain a traffic plan and permit before excavation.
- 3.1.6 The CONTRACTOR shall implement traffic control measures that include, but are not limited to, traffic signs and traffic or concrete barricades.
- 3.1.7 The CONTRACTOR shall install a temporary 11 AWG wire, 6-foot-tall, 1-inch-diameter post fence along the site's perimeter before excavation.
- 3.1.8 The CONTRACTOR shall clear the site of all surface encumbrances to eliminate employee hazards.
- 3.1.9 The CONTRACTOR shall follow the excavation sequence outlined in the approved excavation plan.

SPECIFICATION 02 61 13 – REMEDIATION EXCAVATION AND HANDLING

3.2 EXCAVATION REQUIREMENTS

3.2.1 Access and Egress

- 3.2.1.1 Access to the work area shall be restricted by temporary fencing. Only authorized personnel shall be allowed in the work area. A sign-in log shall be maintained throughout the project.
- 3.2.1.2 Trucks hauling contaminated soil off-site shall be loaded in the soil stockpile area. Trucks shall not be loaded with contaminated soil in the excavation.

3.2.2 Management of Mobile Equipment

- 3.2.2.1 On-site haul trucks and compaction equipment may enter the excavation during backfilling, provided that the requirements of 29 CFR 1926 Subpart P are met.

3.2.3 Hazardous Atmospheres

- 3.2.3.1 The ENGINEER will monitor Hazardous atmospheres per the site Health and Safety Plan. The CONTRACTOR may perform independent monitoring.
- 3.2.3.2 The CONTRACTOR shall provide protective equipment for the CONTRACTOR's personnel per the site Health and Safety Plan.

3.2.4 Excavation Safety

- 3.2.4.1 The CONTRACTOR is responsible for compliance with 29 CFR 1926 Subpart P. The Slope shown on the plans is for guidance only. The CONTRACTOR is responsible for determining if any sloping, shoring, or bracing is required and designing, constructing, and maintaining all sloping, shoring, or bracing.
- 3.2.4.2 Workers shall not enter the excavation unless the excavation complies with the requirements of 29 CFR 1926 Subpart P.
- 3.2.4.3 Workers shall not enter the excavation or loading area while the soil is excavated or loaded. Overhead loads shall not be allowed if workers are in the excavation.
- 3.2.4.4 Soil classification shall be made in accordance with 29 CFR 1926 Subpart P, Appendix A. The CONTRACTOR shall classify soil using a Competent Person, as defined by 29 CFR 1926 Subpart P.
- 3.2.4.5 The CONTRACTOR shall safeguard all open excavations by providing temporary barricades, caution signs, fencing, and other means to prevent accidents to persons and property damage.

SPECIFICATION 02 61 13 – REMEDIATION EXCAVATION AND HANDLING

3.2.5 Excavation

- 3.2.5.1 Excavation equipment shall be operational and properly maintained; the CONTRACTOR shall ensure that equipment is available for continuous operation.
- 3.2.5.2 The equipment shall remain in the work area for the duration of the project and shall be moved only upon mutual agreement between the CONTRACTOR and the ENGINEER.

3.3 DECONTAMINATION

- 3.3.1 All excavation equipment shall be cleaned and decontaminated before leaving the work area. Decontamination fluids and residues shall be disposed of with water from the excavation or excavated soil.

3.4 CONTROL OF WATER AND PHASE-SEPARATED HYDROCARBONS

- 3.4.1 Accumulated water and phase-separated hydrocarbons (PSH) (fluids) in the excavation shall be removed during excavation at the direction of the ENGINEER. PSH, if present, shall be skimmed with booms, fluids shall be containerized, and contaminated water, PSH, and sludge shall be disposed of at a facility permitted to accept these wastes. Only approved volumes of fluid shall be collected and disposed of. Open excavations shall be bermed as needed to prevent runoff.

3.5 STOCKPILING CONTAMINATED SOIL

- 3.5.1 Soil shall be stockpiled within the property boundary before loading and removal. Soil shall be stockpiled no closer to the excavation than a distance equal to the excavation depth. The CONTRACTOR shall cover all exposed areas and contaminated soil stockpiles each evening before leaving the site. Covers will consist of a minimum of 10-mil polyethylene sheeting, anchored with weights to prevent wind damage to the sheeting, soil erosion, or dust.
- 3.5.2 Any drainage from excavated soil shall be contained, collected, disposed of, or allowed to drain back into the excavation.

END OF SPECIFICATION 02 61 13

SPECIFICATION 02 61 13.1 -- BACKFILLING AND COMPACTING

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

- 1.1.1 This specification covers the labor, materials, and equipment necessary for backfilling and compacting the excavated area.
- 1.1.2 Segregated soil with a heated headspace reading of 100 parts per million volume (ppmv) or less, analyzed for TRPH, and having a subgrade rating of excellent to good shall be used as backfill. Soil with a heated headspace reading over 100 ppmv shall be considered contaminated and transported off-site to a permitted disposal facility. The ENGINEER may conduct additional laboratory testing to determine contaminant concentrations and classify soil. The ENGINEER will conduct the headspace analysis on samples collected by the CONTRACTOR under Specification 02 61 13. Imported backfill shall consist of clean fill as specified in the section below.
- 1.1.3 Activities described in this specification shall be conducted 30 minutes after sunrise and before sunset of each working day unless otherwise approved by the ENGINEER.

1.2 DEFINITIONS

- 1.2.1 AASHTO - American Association of State Highway Transportation Officials
- 1.2.2 ANSI - American National Standards Institute
- 1.2.2 ASTM - American Society for Testing and Materials
- 1.2.3 CFR - Code of Federal Regulations
- 1.2.4 CONTRACTOR – To be determined.
- 1.2.5 RAP - Remediation Action Plan
- 1.2.6 ENGINEER – EA Engineering
- 1.2.7 OSHA - Occupational Safety and Health Administration

1.3 REFERENCES

- 1.3.1 Regulations
 - 1.3.1.1 29 CFR 1910.120 - OSHA Regulations, Hazardous Waste Operations and Emergency Response
- 1.3.2 Guidance
 - 1.3.2.1 ASTM D698, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort

SPECIFICATION 02 61 13.1 -- BACKFILLING AND COMPACTING

1.3.2.2 ASTM D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort

1.3.2.3 ASTM D2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

1.3.2.4 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

1.3.2.5 ASTM D6913-04E01 Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

1.3.2.6 AASHTO D3282, Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes

1.3.3 Plans

1.3.3.1 Remedial Action Plan

1.3.3.2 Site-Specific Health and Safety Plan

1.4 SUBMITTALS

The CONTRACTOR shall submit to the geotechnical laboratory a 75-pound representative sample of the following materials: (1) clean overburden and (2) imported engineered backfill. These materials shall be analyzed for the following characteristics: moisture-density relationship by ASTM D698; liquid limit, plastic limit, and plasticity index by ASTM D4318; and soil particle-size distribution by ASTM D6913-04E01. The geotechnical laboratory will be selected and paid for by the CONTRACTOR and approved by the ENGINEER. If testing has already been performed on the soil to be imported, results of the testing shall be provided by the CONTRACTOR to the ENGINEER before material delivery on site. The CONTRACTOR shall verify the source of soil and base course. The ENGINEER shall approve the backfill and base-course materials before use.

PART 2 PRODUCTS

2.1 EXCAVATED SOIL

Clean excavated overburden soil, consisting of sand, silty sand, and clayed sand, with an excellent to good subgrade rating by AASHTO soil classification, shall be used as backfill. The CONTRACTOR shall dispose of the clayey portion of the excavated overburden off-site and provide the ENGINEER with soil disposal records.

Contaminated soil classified as sand, silty and clayed sand, and clay shall be disposed of off-site at the permitted approved facility.

SPECIFICATION 02 61 13.1 -- BACKFILLING AND COMPACTING

2.2 IMPORTED PIT RUN SAND AND GRAVEL BACKFILL

The imported pit run backfill shall be a mix of sand and gravel with little fines.

- Fines: less than 10-15%.
- Gravel: 5-70%, fine-medium, with a coarse gravel fraction of less than ten (10) percent by weight.
- Sand: 30-80%.
- Permeability of $10^{-3} - 10^{-2}$ cm/s.
- Maximum Dry Density 1.85-2.0 g/cm³.
- Optimum Moisture: 8-12%.

2.3 IMPORTED CLEAN BACKFILL

Imported Clean Backfill shall conform to AASHTO classes A-1-a, A-1-b, A-3, A-2-4, and A-2-5 and have a subgrade rating of excellent to good.

	Class A-1-a	Class A-1-b	Class A-3	Class A-2-4	Class A-2-5
Percent Passing:					
Sieve #10	< 50				
Sieve # 40	< 30	< 50	> 51		
Sieve # 200	< 15	< 25	< 10	< 35	< 35
Liquid Limit			NP	< 40	> 4
Plasticity Index	< 6	< 6	NP	< 10	< 10
Usual types of significant Constituents	Stone fragments, gravel, and sand	Fine Sand	Silty or Clayey Gravel and Sand		

2.4 TOPSOIL

Topsoil shall consist of natural, friable, sandy loam or native topsoil excavated at the site. The imported topsoil shall conform to the following characteristics:

Topsoil Gradation

Texture Class, mm	Percent of Total by Weight	Average
Sand (0.05 - 2.0 mm)	25% - 75%	50%
Silt (0.002-0.05)	15% - 40%	28%
Clay (< 0.002)	15% - 30%	23%

SPECIFICATION 02 61 13.1 -- BACKFILLING AND COMPACTING

Geochemical Parameters

Parameter	Range
pH	6.8 - 7.5
Organic Matter	1% - 3%
Salinity	Electrical Conductance less than 2 mhos/cm

Nutrients

Nutrient	Concentration
Nitrogen	5 ppm on an air-dried basis
Phosphorous	5 ppm
Potassium	30 ppm
Iron (Fe)	5 ppm

2.5 SEED, TACKIFIER, FERTILIZER

Seeding shall be performed using Forage First® BLM #4 Mix or Engineer-approved equivalent. The application rate shall be 40 pounds per acre.

Seed	Percent
Endo-Graze XL Perennial Ryegrass	30%
Coldsnap Annual Ryegrass	20%
Stargazer XL Tall Fescue	20%
Balln/Ginger Kentucky Bluegrass	15%
Top Tim XL Timothy	15%

The tackifier shall be organic, plant-derived, and biodegradable. It shall be composed of either guar, psyllium, or starch and contain a blue or green dye that lasts at least 36 hours. The application rate shall be 200 pounds per acre.

The fertilizer shall be organic and slow-release, with a Nitrogen-Phosphorus-Potassium analysis of 3-6-3 or 3-7-2, and shall be blended with endo-mycorrhiza and humates. The application rate shall be 1,000 pounds per acre.

SPECIFICATION 02 61 13.1 -- BACKFILLING AND COMPACTING

2.6 EQUIPMENT

Equipment used to achieve required backfill compaction shall be of the type typically used for engineered soil compaction operations.

PART 3 EXECUTION

3.1 BACKFILLING AND COMPACTION REQUIREMENTS

3.1.1 From the bottom of the excavation to 10 feet below the final grade, the CONTRACTOR shall systematically backfill with imported pit run sand and gravel backfill and compact above the water level by wheel-rolling.

3.1.2 From the top of the pit run to approximately 6-7 feet below the final grade, the CONTRACTOR shall systematically backfill with imported clean fill in one-foot lifts, compacting each lift with heavy compaction equipment. Each pass shall overlap the previous pass by at least 10%. The minimum number of passes is specified below:

Equipment	Maximum Lift Thickness	Number of Passes	Comments
Vibratory Smooth Drum Roller (6 to 10 tons) (5,400 to 9,100 kg)	300 mm (12 in)	≥ 8	A 9100 kg (10 ton) roller may need as few as three (3) passes at a lower lift thickness;
Vibratory Smooth Drum Roller (10 to 20 tons) (9,100 to 18,200 kg)	300 mm (12 in)	4 - 6	
Pneumatic-tired Drum Roller (10 to 12 tons) (9,100 to 11,000 kg)	300 mm (12 in)	≥ 8	Limit tire pressure to 250 kPa (35 psi): provides a good, smooth surface seal

3.1.3 From approximately 6-7 feet bgs to 4 inches below the final grade, the CONTRACTOR shall systematically backfill in one-foot lifts with clean imported engineered backfill and compact using compaction equipment. Each pass shall overlap the previous pass by at least 10%. Each lift of backfill material shall be compacted to 95 % Standard Proctor maximum density, as determined by ASTM D-698.

3.1.4 From 4 inches below the final grade to the final grade, the CONTRACTOR shall backfill with topsoil and lightly compact by wheel-rolling.

3.1.5 The CONTRACTOR shall seed all disturbed areas with a tackifier and fertilizer, in accordance with New Mexico Department of Transportation (NMDOT) Section 632, Revegetation.

SPECIFICATION 02 61 13.1 -- BACKFILLING AND COMPACTING

- 3.1.6 The CONTRACTOR shall employ a placement method that does not disturb or damage other work.
- 3.1.7 The CONTRACTOR shall maintain the moisture content of backfill materials within $\pm 2\%$ of the optimum. If the soil is too dry, it shall be wetted and mixed until within the optimum moisture content range. If the soil is too wet, it shall be scarified, allowed to dry, and recompact.
- 3.1.8 Compaction equipment shall be operated to make at least the number of passes specified in Section 3.1.1 over each lift section. A pass will be considered up-and-back. Each successive pass shall overlap the adjacent pass by not less than 10 percent.
- 3.1.9 The CONTRACTOR shall grade the finished grade to drain away from the excavation without ponding and to match the existing grade at the bounds of the excavation.
- 3.1.10 Field Quality Control
 - 3.1.10.1 The CONTRACTOR will contract a geotechnical company to perform field inspections and testing under the direction of the ENGINEER.
 - 3.1.10.2 Geotechnical personnel will perform compaction testing in accordance with ASTM D2922.
 - 3.1.10.3 If tests indicate that the work does not meet the specified requirements, the CONTRACTOR shall recompact the work and notify the ENGINEER when the recompact soil is ready for retesting.
 - 3.1.10.4 The frequency of tests conducted by the geotechnical personnel will be approximately one compaction test per 1,000 square feet per lift of backfilled area. The CONTRACTOR shall notify the ENGINEER 24 hours prior to a lift being ready for testing. Additional testing may be performed at the discretion of the ENGINEER.

END OF SPECIFICATION 03 61 13.1

**SPECIFICATION 02 81 00 -- OFF-SITE TRANSPORTATION AND
DISPOSAL OF NON-HAZARDOUS WASTE**

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

The CONTRACTOR shall provide the labor, materials, and equipment necessary for the loading, off-site transportation, and disposal of non-hazardous and exempt waste generated at the excavation site per this specification. This specification does not cover hazardous or Toxic Substance Control Act-regulated waste transportation and disposal. Compliance with this section is required for all waste-disposal work, regardless of whether the waste is destined for treatment, storage, disposal, recycling, reclamation, reuse, or salvage.

The ENGINEER established a waste profile and obtained approval to dispose of the petroleum-hydrocarbon-impacted soil at Envirotech Landfarm located at 43 County Rd 7175, Bloomfield, NM 87413. The CONTRACTOR shall comply with the Landfarm requirements and the daily disposal limit of 1,000 cubic yards.

1.2 DEFINITIONS

1.2.1 CFR - Code of Federal Regulations

1.2.2 DOT - U.S. Department of Transportation

1.2.3 EPA - U.S. Environmental Protection Agency

1.2.4 NMED - New Mexico Environment Department

1.2.5 NM DOT - New Mexico Department of Transportation

1.2.6 OSHA - Occupational Safety and Health Administration

1.2.7 CONTRACTOR – Enviroworks LLC

1.2.8 ENGINEER – EA Engineering, Science, and Technology, Inc. PBC

1.3 REFERENCES

1.3.1 Regulations

1.3.1.1 29 CFR 1910 Occupational Safety and Health Standards

1.3.1.2 40 CFR 300.440 Procedures for Planning and Implementing Off-Site Response Actions

1.3.1.3 49 CFR 171 General Information, Regulations, and Definitions

1.3.1.4 49 CFR 177 Carriage by Public Highway

1.3.1.5 NMED, NM DOT, and DOT regulations

**SPECIFICATION 02 81 00 -- OFF-SITE TRANSPORTATION AND
DISPOSAL OF NON-HAZARDOUS WASTE**

1.3.2 Guidance

1.3.2.1 NMED PSTB Guidance for Corrective Action

1.3.3 Plans

1.3.3.1 Final Remediation Plan

1.3.3.2 Site-Specific Health and Safety Plan

1.4 SUBMITTALS

1.4.1 The CONTRACTOR shall submit the following in accordance with the designated schedules:

1.4.1.1 Approvals - The ENGINEER established a waste profile and obtained approval to dispose of the petroleum-hydrocarbon-impacted soil at Envirotech Landfarm located at 43 County Rd 7175, Bloomfield, NM 87413. The CONTRACTOR shall comply with the Landfarm requirements and the daily disposal limit of 1,000 cubic yards. If another facility is used, the CONTRACTOR shall obtain written approval for waste disposal from that facility and submit approvals to the ENGINEER.

1.4.1.2 Handling and Packaging Plan - The CONTRACTOR shall prepare a written plan outlining the procedures and methods for handling and packaging wastes for off-site transportation and disposal. The plan shall include, as applicable, sampling and analysis procedures required for waste acceptance at the disposal facility, sampling frequency, record-keeping requirements, and methods for labeling and segregating wastes. The Handling and Packaging Plan shall be prepared and submitted to the ENGINEER before mobilizing to the site.

1.4.1.3 The CONTRACTOR shall prepare a written description of the proposed haul route to each disposal facility and submit it to the ENGINEER for approval. Any proposed changes in hauling routes shall be submitted in writing to the ENGINEER for approval before the change.

1.4.1.4 The CONTRACTOR shall provide the ENGINEER with copies of waste manifests and weigh tickets.

1.4.1.5 The CONTRACTOR shall provide the ENGINEER with copies of the bills of lading for clean material delivered to the site.

**SPECIFICATION 02 81 00 -- OFF-SITE TRANSPORTATION AND
DISPOSAL OF NON-HAZARDOUS WASTE**

PART 2 PRODUCTS

2.1 TRANSPORTATION, LABOR, EQUIPMENT, AND MATERIALS

2.1.1 The CONTRACTOR shall provide all labor and equipment to load, transport, and dispose of waste material from the excavation site. The CONTRACTOR shall also accomplish the following:

2.1.1.1 Provide vehicles that meet applicable federal, state, and local license and permit requirements for the commercial transportation of waste.

2.1.1.2 Ensure that vehicles transporting waste are labeled with permanent or temporary DOT placards and identification numbers meeting applicable federal, state, and local packaging and labeling requirements.

2.1.1.3 Provide covers for loads on all open-top vehicles.

2.2 LOADING AREA

2.2.1 The CONTRACTOR shall identify the temporary loading areas required to expedite the loading of waste materials into vehicles. The location and design of any facilities shall be determined by the CONTRACTOR and approved by the ENGINEER.

PART 3 EXECUTION

3.1 GENERAL

3.1.1 The CONTRACTOR shall comply fully with all applicable Federal, State, and local regulations regarding the disposal and transportation of waste material being handled.

3.1.2 The CONTRACTOR shall schedule loading and transport within 30 minutes of sunrise and sunset each working day unless otherwise approved by the ENGINEER.

3.1.3 Each loaded and secured vehicle will be inspected and approved by CONTRACTOR before the shipment leaves the site.

3.2 VEHICLE STAGING

3.2.1 The CONTRACTOR shall temporarily stage all vehicles used to transport waste to the off-site disposal facilities in an area of the site designated by the ENGINEER. No vehicles will be allowed to proceed beyond the staging area without the ENGINEER's approval.

3.3 VEHICLE LOADING

3.3.1 Before loading, the CONTRACTOR shall inspect all vehicles for visible evidence of structural damage that may compromise the integrity of the vehicle and may result in a spill or release of the vehicle contents during loading, transport, and unloading.

3.3.2 The CONTRACTOR shall not combine any materials from other projects with materials from the excavation site.

**SPECIFICATION 02 81 00 -- OFF-SITE TRANSPORTATION AND
DISPOSAL OF NON-HAZARDOUS WASTE**

- 3.3.3 The CONTRACTOR shall ensure that the vehicles transporting waste are loaded evenly and properly.
- 3.3.4 The CONTRACTOR shall not overfill the vehicles and shall not cause spills of materials.
- 3.3.5 After loading, the CONTRACTOR shall visually inspect all vehicles to verify that no structural damage occurred during or as a result of loading and that the load is securely contained.
- 3.3.6 The CONTRACTOR shall not load and shall send back for replacement any vehicle determined to be unsuitable for transporting waste from the site.
- 3.4 VEHICLE PLACARDING
 - 3.4.1 The CONTRACTOR shall ensure that all vehicles transporting waste are marked, labeled, and placarded per New Mexico Department of Transportation regulations.
- 3.5 TRANSPORTATION
 - 3.5.1 The CONTRACTOR shall ensure that wastes are shipped to the location designated on the manifest.
 - 3.5.2 Haul Route
 - 3.5.2.1 The CONTRACTOR shall transport all wastes to the approved disposal facilities along the approved haul route. Any deviation from the approved haul route must be approved in advance by the ENGINEER.
 - 3.5.2.2 The CONTRACTOR shall be financially responsible for any damage to the haul route or utilities caused by transportation required under this section.
 - 3.5.2.3 Waste Transportation Haul Routes - The CONTRACTOR shall follow the routes the ENGINEER approves.
 - 3.5.3 Transportation Equipment
 - 3.5.3.1 The CONTRACTOR shall use vehicles in good working condition that contain material without loss due to leaks or disrepair.
 - 3.5.3.2 The CONTRACTOR shall not load vehicles above their rated capacity or regulatory limits, whichever is lower.
 - 3.5.3.3 The CONTRACTOR shall ensure the tractor, trailer, and all tires are mud-free before leaving the site. Loading and staging areas shall be designated to ensure trucks remain clean. No mud shall be trafficked onto the haul route at any time.
 - 3.5.4 Spills or Accidents
 - 3.5.4.1 The CONTRACTOR shall be responsible for providing all labor and materials necessary to remedy situations involving spills or vehicle accidents in transit and shall pay the associated clean-up costs.

**SPECIFICATION 02 81 00 -- OFF-SITE TRANSPORTATION AND
DISPOSAL OF NON-HAZARDOUS WASTE**

3.5.4.2 The CONTRACTOR shall immediately report any spills or accidents to the appropriate local, state, and federal authorities, followed by notification to the ENGINEER.

3.5.4.3 The CONTRACTOR shall take all necessary actions to mitigate spills and comply with applicable transportation regulations.

3.6 WASTE DISPOSAL

3.6.1 The CONTRACTOR shall ensure that the disposal of wastes occurs only at authorized facilities that are licensed or permitted to accept them.

3.6.2 Demolished asphalt and concrete shall be disposed of at a permitted construction debris landfill.

3.6.3 Manifests

3.6.3.1 The CONTRACTOR shall prepare a manifest for each waste shipment. The ENGINEER or designee will sign all manifests.

3.6.3.2 The CONTRACTOR shall obtain the vehicle driver's signature, collect the generator copy of the manifest, and verify that the manifest accompanies the shipment before releasing the vehicle from the site.

3.6.3.3 The CONTRACTOR shall immediately notify the ENGINEER of any manifest discrepancies noted by the disposal facility.

3.6.3.4 The CONTRACTOR shall provide the ENGINEER with copies of manifests confirming delivery.

3.7 RECORD KEEPING

3.7.1 The CONTRACTOR shall comply with all appropriate federal, state, and local requirements on the transfer, manifesting, and record-keeping of wastes transported for off-site disposal.

END OF SPECIFICATION 02 81 00

SECTION 31 25 43
GRANULAR ACTIVATED CARBON (GAC) PLACEMENT AND MIXING

1. GENERAL

1.1. Summary

- 1.1.1. Work includes receipt, unloading, handling, on-site storage, protection, placement, and mixing of regenerated granular activated carbon (GAC) with clean backfill within excavation limits.
- 1.1.2. GAC shall be uniformly applied to the bottom 5 feet (vertical) of designated excavations at an application rate of 1.5 pounds per square foot (lb/ft²) and mechanically blended to uniformity.
- 1.1.3. Procurement and product selection for GAC shall be under the direction of the Engineer, who will coordinate the delivery schedule.
- 1.1.4. Work will be performed at the Aerex Former Refinery in Bloomfield, New Mexico.

1.2. References

- 1.2.1. ASTM D2866 - Moisture Content of Activated Carbon.
- 1.2.2. ASTM D2867 - Ash in Activated Carbon.
- 1.2.3. ASTM D4607 - Iodine Number of Activated Carbon.
- 1.2.4. ASTM D2487 - Unified Soil Classification System.
- 1.2.5. ASTM D698/D1557 - Laboratory Compaction.
- 1.2.6. ASTM D1556/D6938 - In-Place Density.
- 1.2.7. ITRC (2018) - In Situ Activated Carbon-based Amendments Guidance

1.3. Definitions

- 1.3.1. AASHTO - American Association of State Highway Transportation Officials
- 1.3.2. ASTM - American Society for Testing and Materials
- 1.3.3. CFR - Code of Federal Regulations
- 1.3.4. CONTRACTOR – Enviroworks
- 1.3.5. ENGINEER – EA Engineering
- 1.3.6. NMED GWQB – New Mexico Environment Department Ground Water Quality Bureau
- 1.3.7. RAP - Remediation Action Plan
- 1.3.8. OSHA - Occupational Safety and Health Administration

1.4. Submittals

- 1.4.1. Product data supplied with the transport documentations
- 1.4.2. Delivery tickets with lot/batch number and quantity.

SECTION 31 25 43
GRANULAR ACTIVATED CARBON (GAC) PLACEMENT AND MIXING

1.4.3. Procedures:

1.4.1.1 Storage/handling plan for protection from moisture and sunlight.

1.4.1.2 Placement and mixing procedure, identifying equipment, and sequence.

1.4.2 Quality Control:

1.4.2.1 Visual uniformity verification method.

1.4.2.2 Mass tracking for application rate compliance.

1.5. Quality Assurance

1.5.1. Environmental Handling:

1.5.1.1. Prevent contamination from water, petroleum, trash, or fines.

1.5.1.2. Protect from precipitation and UV exposure.

1.5.1.3. Maintain spill response materials.

1.5.2. Personnel:

1.5.2.1. Enivoworks shall employ personnel experienced in GAC amendments or in mixing sorbent-based remediation.

1.6. Delivery, Storage, and Handling

1.6.1. Receive GAC in sealed super sacks, drums, or bulk containers. Reject damaged packaging.

1.6.2. Store within the designated secure staging area, at least 25 ft from stormwater conveyances.

1.6.3. Elevate GAC containers on pallets or timber cribbing to avoid moisture contact.

1.6.4. Cover entirely with tarps or 6-mil polyethylene sheeting; secure against wind.

1.6.5. Maintain the area free of standing water, petroleum products, or oxidants.

1.7. Regulatory Considerations

1.7.1. Work shall comply with applicable NMED GWQB requirements under a Superfund program and the Contract with the Engineer.

1.7.2. Waste materials generated during handling shall be managed in accordance with 20.6.2 NMAC (Ground and Surface Water Protection) and project-specific environmental requirements.

2. PRODUCTS

2.1. Granular Activated Carbon

1.4.1 Media: Regenerated 8 × 30 GAC.

1.4.2 Source: Ordered and delivered by the Engineer.

2.2. Clean Backfill

SECTION 31 25 43
GRANULAR ACTIVATED CARBON (GAC) PLACEMENT AND MIXING

2.2.1. Clean, non-reactive soil suitable for compaction and mixing, as defined in Specification 02223.

2.2.2. Must meet project environmental screening and chemical criteria.

2.3. Equipment

2.3.1. Excavator with bucket suitable for controlled placement and mechanical mixing.

2.3.2. Additional equipment (loaders, dozers) as needed for lift control and compaction.

3. EXECUTION

3.1. Preparation

3.1.1. Confirm excavation geometry and bottom elevations.

3.1.2. Remove debris, oversized material (>3 in), and standing water.

3.1.3. Verify access for mixing equipment.

3.2. GAC Application and Mixing

3.2.1. Backfill the bottom 3 feet of the excavation from approximately 17 feet bgs to 14 feet bgs with the first course of the pit run sand and gravel.

3.2.2. Apply GAC directly to the top of the first course at a uniform rate of **1.5 lb/ft²**.

3.2.3. Distribute using an excavator bucket or approved broadcast method.

3.2.4. Mechanically mix GAC into the first course of the backfill with the excavator bucket, using the folding or stirring method.

3.2.5. Mix until visually uniform; no visible pockets of unblended GAC or clean soil.

3.2.6. Obtain the Engineer's approval before placing backfill over the mixed course.

3.2.7. Backfill the excavation with the second course from approximately 14 feet bgs to 11 feet bgs with pit-run sand and gravel.

3.2.8. Apply GAC directly to the top of the second course at a uniform rate of **1.5 lb/ft²**.

3.2.9. Distribute using an excavator bucket or approved broadcast method.

3.2.10. Mix until visually uniform; no visible pockets of unblended GAC or clean soil.

3.2.11. Avoid clumping, segregation, or localized over-application.

3.3. Contingency

3.3.1. If the bottom of the excavation quickly fills with groundwater, apply GAC at approximately **3 lb/ft²** in one six-foot-thick course from 17 feet bgs to 11 feet bgs, mixing as specified in Paragraph 3.2.

SECTION 31 25 43
GRANULAR ACTIVATED CARBON (GAC) PLACEMENT AND MIXING

3.4. Compaction

- 3.4.1. Compact blended material using the excavation bucket. The pit run sand and gravel will be placed below the water table, and some groundwater intrusion may occur.
- 3.4.2. Avoid over-compaction that could cause vertical migration or segregation of GAC.

3.5. Field Quality Control

- 3.5.1. Visual inspection for uniform distribution.
- 3.5.2. Mass tracking for compliance with 1.5 lb/ft² target

3.6. Protection

- 3.6.1. Prevent stormwater contact and surface runoff into the excavation during work.
- 3.6.2. Maintain tarped storage until all GAC is used.

3.7. Waste and Housekeeping

- 3.7.1. Collect spilled GAC and packaging for reuse or proper disposal.
- 3.7.2. Prevent release to stormwater structures.

End of Section 31 25 43

Appendix D

Seed Mix



FORAGE FIRST®

BLM #4 Mix

- **Very versatile mix that establishes quickly**
- **Endophyte-free tall fescue extends productivity into the hot, dry summer months**
- **Kentucky bluegrass provides sod-forming capability to help maintain a healthy stand**

BLM #4 Mix is a quick starting mix for use around farm buildings, drylots and pastures. This mix produces quality forage and will hold up well under heavy traffic.



Includes CrosseCoat™ - an elite platform of proven seed coating and treatments to enhance germination, establishment and survival

FORAGE FIRST® FACTOR: We provide a diverse set of mixes to produce high quality forage for your unique operation. Our versatile mix portfolio offers a variety of proven products to fit any need, created with flexibility and ease of management in mind.

All Forage First® mixes contain top performing forage varieties for improved yield, higher nutritional value, increased stand life and grazing tolerance, excellent regrowth and more.



30% Endo-Graze XL Perennial Ryegrass

20% Coldsnap™ Annual Ryegrass

20% Stargrazer XL Tall Fescue

15% Balin/Ginger Kentucky Bluegrass

15% Top Tim XL Timothy

SEEDING RATES (LBS/ACRE)

30 - 40

SEED INFORMATION

DEPTH (IN)

1/4 - 1/2

PLANTING TIMES

Best in early spring or fall when weather is cooler and moisture is reliable.



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Appendix E

Calculations

Calculation 1. Contaminant Extent and Mass and GAC Application

Former Aerex Refinery, Bloomfield, New Mexico

INPUT

Impacted Area	$A := 7000 \text{ ft}^2$	TPH DRO to 250 mg/kg
Volume of Impacted Soil	$V := 4000 \text{ yd}^3$	RAP Civil 3D Volume Take off
Soil Bulk Density	$\rho_s := 100 \frac{\text{lb}}{\text{ft}^3}$	
TRPH Average Concentration	$C_{\text{TRPH}} := 6000 \frac{\text{mg}}{\text{kg}}$	2025 ESA, Exceeding the 250 mg/kg DRO
GAC Mass	$M_{\text{GAC}} := 20000 \text{ lb}$	
GAC Application Average Area	$A_{\text{GAC}} := 8000 \text{ ft}^2$	
GAC Application Thickness	$t_{\text{GAC}} := 6 \text{ ft}$	
GAC Bulk Density	$\rho_g := 30 \frac{\text{lb}}{\text{ft}^3}$	

CALCULATIONS

Mass of Impacted Soil	$M_s := V \cdot \rho_s = 5400 \text{ ton}$	
Mass of TRPH	$M_{\text{TRPH}} := M_s \cdot C_{\text{TRPH}} = 64800 \text{ lb}$	
	$M_{\text{TRPH}} = 32.4 \text{ ton}$	
GAC Volume	$V_{\text{GAC}} := \frac{M_{\text{GAC}}}{\rho_g} = 24.7 \text{ yd}^3$	
Volume of the Backfill Soil Mixed with GAC	$V_{s_{\text{GAC}}} := A_{\text{GAC}} \cdot t_{\text{GAC}} = 1778 \text{ yd}^3$	
Mass of the Backfill Soil Mixed with GAC	$M_{s_{\text{GAC}}} := V_{s_{\text{GAC}}} \cdot \rho_s = 2400 \text{ ton}$	
GAC Application Rate, Surface	$R_{gs} := \frac{M_{\text{GAC}}}{A_{\text{GAC}}} = 2.5 \frac{\text{lb}}{\text{ft}^2}$	mass of GAC per area of backfill
GAC Application Rate, Volume	$R_{gv} := \frac{V_{\text{GAC}}}{V_{s_{\text{GAC}}}} = 1.39 \%$	volume of GAC per volume of soil
GAC Application Rate, Mass	$R_{gm} := \frac{M_{\text{GAC}}}{M_{s_{\text{GAC}}}} = 0.42 \%$	mass of GAC per mass of soil

Appendix F

Health and Safety Plan



Site Name: Former Aerex Refinery	Site Contact: George Duncan	Telephone: 505-320-5441												
Location: N 5th and W Blanco, Bloomfield, NM	Client Contact: Tim Noger	Telephone: 505-629-8604												
EPA I.D. No.: N/A	Prepared By: EA Engineering	Date: January 22, 2026												
Project No. 16071-05-00-TM	Date of Proposed Activities: TBD													
Objectives: <i>All personnel working on this site are trained in accordance with 29 CFR 1910.120 and are currently active in a medical monitoring program to perform work on a hazardous waste site.</i> The objective of this health and safety plan (HSP) is to list the site-specific hazards and the hazard controls to be used to ensure worker safety for the following activities: Excavation of overburden and soil contaminated by petroleum hydrocarbons, backfilling, compaction, sampling of soil, and other tasks associated with the removal action.	Site Type: <i>Check as many as applicable.</i> <table><tr><td>☐ Active</td><td>☐ Industrial Waste</td><td>☐ Wellfield</td></tr><tr><td>☐ Inactive</td><td>☐ Landfill</td><td>☐ Underground storage tank</td></tr><tr><td>☐ Secure</td><td>☐ Confined space (must use long form)</td><td>☐ Unknown (must use long form)</td></tr><tr><td>☒ Unsecured</td><td>☐ Uncontrolled Waste (must use long form)</td><td>☒ Other (Former Refinery)</td></tr></table>		☐ Active	☐ Industrial Waste	☐ Wellfield	☐ Inactive	☐ Landfill	☐ Underground storage tank	☐ Secure	☐ Confined space (must use long form)	☐ Unknown (must use long form)	☒ Unsecured	☐ Uncontrolled Waste (must use long form)	☒ Other (Former Refinery)
☐ Active	☐ Industrial Waste	☐ Wellfield												
☐ Inactive	☐ Landfill	☐ Underground storage tank												
☐ Secure	☐ Confined space (must use long form)	☐ Unknown (must use long form)												
☒ Unsecured	☐ Uncontrolled Waste (must use long form)	☒ Other (Former Refinery)												
Site Description/History and Site Activities: The former Aerex Refinery operated from approximately 1932 to the 1960s and was dismantled in the late 1980s. Crude oil was refined from wells in the Bloomfield area using fractional distillation to produce gasoline, kerosene, and other petroleum products. Soil and groundwater contamination are present. The contaminated soil will be excavated in the Northern Portion of the Eastern Parcel under the Remedial Action Plan (RAP), and the cavity will be backfilled with the clean overburden and imported fill. Special provisions: Occupation Safety and Health Administration (OSHA) 1926 Subpart P, Excavations, provisions apply while excavating, backfilling, and compacting. Personnel shall not enter the excavation. Soil confirmation and characterization samples from the excavation will be collected from the excavator bucket. A subcontractor may adopt and use this HSP after its health and safety officer reviews and accepts it. If adopted, the subcontractor shall update the emergency, field, and health and safety personnel.														

Note: A site map, definitions, and additional information about this form are provided on the last three pages of this form.

**Waste Management Practices:**

The excavated contaminated soil is non-hazardous exempt waste; it will be disposed of at a permitted facility. The contaminated soil will be excavated, stockpiled, profiled, loaded, and transported under manifests to the permitted disposal facility.

If present, non-aqueous phase liquids (NAPL) will be absorbed by sorbent socks that will be shredded and disposed of with the contaminated soil.

Other waste generated during this investigation includes protective gloves, paper towels, and general solid waste. None of this waste will require special handling and will be disposed of in trash bins like any other solid waste.

Waste Types:☐ Liquid☒ Solid☐ Sludge☐ Gas**Waste / Chemical Characteristics:**☐ Corrosive☐ Oxidizer☒ Flammable (*NAPL, if present*)☒ Toxic☐ Explosive☒ Volatile☐ Radioactive☐ Reactive☐ Inert☐ Other (*specify*) _____**Chemical / Health Hazards of Concern:**☒ Explosion or fire hazard – monitor with a combustible gas meter☐ Inorganic chemicals (nitrate and chloride)☐ Oxygen deficiency – monitor with an oxygen meter☐ Organic chemicals (PCP)☐ Landfill gases – monitor with methane and hydrogen sulfide meter☒ Petroleum Hydrocarbons (as TPH DRO)☐ Surface tanks☐ Underground storage tanks☐ Potential inhalation or skin absorption hazard that is immediately dangerous to life and health (IDLH) – **must use long-form**☐ Other (*specify*) _____**Explosion or Fire Potential:**☐ High☐ Medium☒ Low☐ Unknown**Radiological Hazards of Concern:** None



☐ Ionizing radiation (Radioactive materials, X-ray)
(must use long form)

☐ Non-ionizing radiation (ultraviolet, lasers)

Safety Hazards of Concern: (Based on anticipated cleanup operations)

☒ Heavy Equipment

☒ Pinch points

☒ Energized and rotating Equipment (drill rig)

☒ Steam cleaning equipment

☒ Excavations

☒ Welding or torch cutting (Hot work)

☐ Sharp Objects

☒ Hazardous energy sources (electrical, hydraulic)

☒ Vehicle Traffic (use cones or barriers)

☒ Buried utilities

☒ Overhead utilities

☐ Suspended loads

☐ Buried drums

☐ Work over or near water

☐ Work from elevated platforms

☒ Manual Lifting

☒ Other (specify) Traffic

Physical Hazards of Concern:

☒ Heat stress

☐ Cold stress

☒ Slips, trips, falls

☐ Illumination

☒ Vibration

☒ Noise

☒ Solar (sunburn)

☒ Unstable or steep terrain

☐ Other (specify)

Biological Hazards of Concern:

☐ Poisonous plants (poison ivy, poison oak)

☐ Spiders (black widow or brown recluse spiders)

☐ Medical waste

☐ Snakes (rattlesnakes)

☒ Stinging insects (bees, wasps)

☐ Animals (feral dogs, mountain lions, etc.)

☐ Blood or other body fluids

Unexploded Ordnance:

☐ Unexploded Ordnance (UXO) (must use long form)

☐ Chemical Warfare Materials (CWM) (must use long form)

☐ Explosive ordnance waste (OEW) (must use long form)

**Chemical Products EA Engineering Will Use or Store On Site:** (Attach a Material Safety Data Sheet [MSDS] for each item.)☒ Alconox® or Liquinox®☐ Hydrochloric acid (HCl)☐ Nitric Acid (HNO₃)☐ Sodium hydroxide (NaOH)☐ Sulfuric Acid (H₂SO₄)☒ Methanol☐ Other (*specify*) _____☐ Other (*specify*) _____☐ Other (*specify*) _____☐ Other (*specify*) _____☐ Other (*specify*) _____



Chemicals Present at Site	PEL/TLV (specify ppm or mg/m ³)	IDLH Level (specify ppm or mg/m ³)	Route of Exposure and Symptoms	Photoionization Potential (eV)
Naphthalenes	10 ppm (PEL)	250 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage	8.12 eV
Benzene, Toluene, Xylenes	1 ppm (PEL)	3,000 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]	9.24 eV
TPH	NA	NA	NA	NA
Ethylbenzene	100 ppm (PEL – TWA)	800 ppm	Inhalation, ingestion, skin and/or eye contact Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	8.76 eV
Notes: Source: “NIOSH Pocket Guide to Chemical Hazards” (April 2021)				
A = Air CARC = Carcinogenic eV = Electron volt GW = Groundwater IDLH = Immediately dangerous to life or health mg/m ³ = Milligram per cubic meter mg/L = Milligram per liter NA = Not available NE = Not established PEL = Permissible exposure limit ppm = Part per million S = Soil SW = Surface water TLV = Threshold limit value U = Unknown				



Field Activities Covered Under This Plan:					
Task Description	Type	Level of Protection		Date of Activities	
		Primary	Contingency		
1 Excavation, backfill, compaction, site restoration, sampling, and other tasks associated with the removal action.	☒ Intrusive ☐ Nonintrusive	☐ C ☒ D	☐ C ☐ D	TBD	
	☐ Intrusive ☐ Nonintrusive	☐ C ☐ D	☐ C ☐ D	TBD	
Site Personnel and Responsibilities (include subcontractors):					
Employee Name and Office Code	Task	Responsibilities			
To be determined	1,2	Project Manager or Designated Leader: Directs project activities, notifies site safety coordinator (SSC) of pertinent project developments and plans, and maintains communications with clients as necessary.			
To be determined	1,2	Site Safety Coordinator (SSC): Ensures that appropriate personal protective Equipment (PPE) is available, enforces proper utilization of PPE by on-site personnel, suspends investigative work if they believe that site personnel are or may be exposed to an immediate health hazard, implements the health and safety plan, and reports any observed deviations from anticipated conditions described in the health and safety plan to the health and safety representative.			
To be determined	1,2	Field Personnel: Complete tasks as directed by the program manager, field team leader, and SSC and follow all procedures and guidelines established in the EA Engineering Health and Safety Manual.			



Protective Equipment: (Indicate type or material as necessary for each task; attach additional sheets as necessary)			
Task: ☒ 1 ☐ 2		Task: ☒ 1 ☐ 2	
Level: ☐ C ☒ D		Level: ☒ C ☐ D	
☒ Primary ☐ Contingency		☐ Primary ☒ Contingency	
RESPIRATORY		RESPIRATORY	
☒ Not needed		☐ Not needed	
☐ APR: _____		☒ APR: _____	
☐ Cartridge: _____		☒ Cartridge: <u>Organic Vapor/P100</u>	
☐ Escape mask: _____		☐ Escape mask: _____	
☒ Dust Mask: <u>Optional</u>		☐ Other: _____	
PROTECTIVE CLOTHING		PROTECTIVE CLOTHING	
☒ Not needed		☐ Not needed	
☐ Tyvek® coveralls: _____		☐ Tyvek® coveralls: _____	
☐ Saranex® coveralls: _____		☐ Saranex® coveralls: _____	
☐ Coveralls: _____		☐ Coveralls: _____	
☐ Other: _____		☐ Other: _____	
HEAD AND EYE		HEAD AND EYE	
☐ Not needed		☐ Not needed	
☒ Safety glasses: _____		☒ Safety glasses: _____	
☐ Face shield: _____		☐ Face shield: _____	
☐ Goggles: _____		☐ Goggles: _____	
☒ Hard hat: _____		☒ Hard hat: If overhead hazard	
☐ Other: _____		☐ Other: _____	
GLOVES		GLOVES	
☐ Not needed		☐ Not needed	
☐ Under gloves: _____		☐ Under gloves: _____	
☒ Gloves: Nitrile _____		☒ Gloves: Nitrile _____	
☐ Overgloves: _____		☐ Overgloves: _____	
FIRST AID EQUIPMENT		FIRST AID EQUIPMENT	
☐ Not needed		☐ Not needed	
☒ Standard First Aid kit		☒ Standard First Aid kit	
☒ Portable eyewash		☒ Portable eyewash	
BOOTS		BOOTS	
☐ Not needed		☐ Not needed	
☒ Work boots: Steel-toed		☒ Work boots:	
☐ Overboots: _____		☐ Overboots: _____	
OTHER		OTHER	
☐ (specify): _____		☐ (specify): _____	

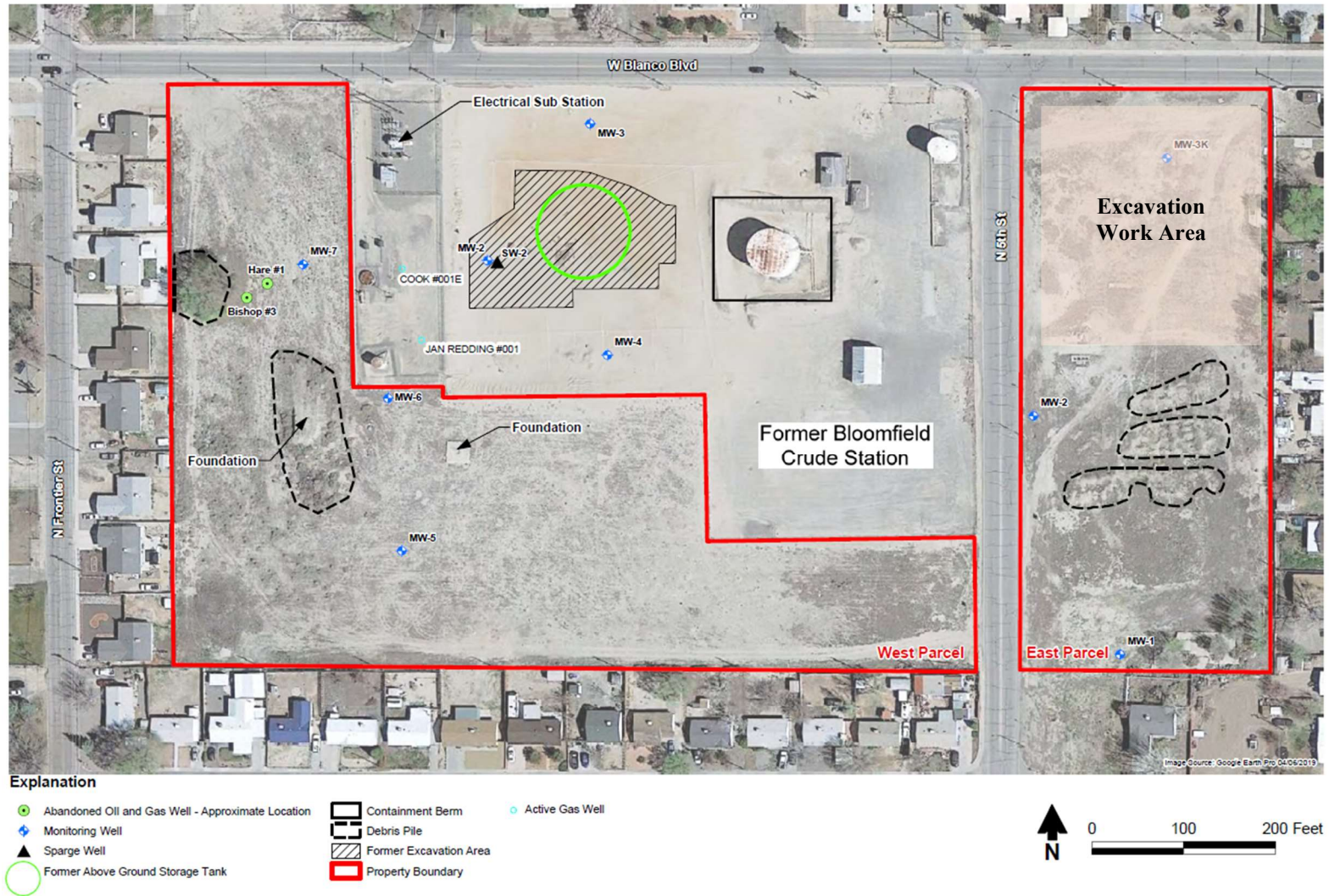
Note: APR = Air purifying respirator



Monitoring Equipment: (Specify instruments needed for each task; attach additional sheets as necessary)				
Instrument	Task	Instrument Reading	Action Guideline	Comments
Combustible gas indicator model:	☒ 1	0 to 10% LEL	No explosion hazard	☐ Not needed
	☐ 2	10 to 25% LEL	Potential explosion hazard; notify SSC	
		> 25% LEL	Explosion hazard; interrupt task; evacuate site, notify SSC	
O2 meter model:	☐ 1	> 23.5% O2	Potential fire hazard; evacuate the site	☒ Not needed
	☐ 2	23.5 to 19.5% O2	Oxygen level normal	
		< 19.5% O2	Oxygen deficiency; interrupt task; evacuate site; notify SSC	
Photoionization detector model: ☐ 11.7 eV ☒ 10.6 eV ☐ 9.8 eV ☐ ____ eV	☒ 1	>0 to 25 ppm above background	Level D	☐ Not needed
	☐ 2	>25 to 50 ppm above background	Stop work, move personnel into an area with PIDs < 5 ppmv, and monitor the air every 10 minutes for one hour. If below the thresholds, restart work in Level D. If within the thresholds after 1 hour, continue work in Level C or stand down.	
		50-100 ppm above background	Evacuate the site and notify SSC.	
Flame ionization detector model:	☐ 1	>0 to 5 ppm above background	Level D	☒ Not needed
	☐ 2	>5 to 50 ppm above background	Level C	
		>50 ppm above background	Evacuate site; notify SSC	
Detector tube models:	☐ 1 ☐ 2	Specify:	Specify:	Note: This action level for upgrading the level of protection is one-half of the contaminant's PEL. If the PEL is reached, evacuate the site and notify the SSC. ☒ Not needed
Respirable dust monitor model:	☐ 1 ☐ 2	Specify:	Specify:	☒ Not needed
Other: (specify):	☐ 1 ☐ 2	Specify:	Specify:	☒ Not needed

Notes: eV = Electron volt PEL = Permissible exposure limit LEL = Lower explosive limit ppm = Part per million O₂ = Oxygen

Site Map (if available):

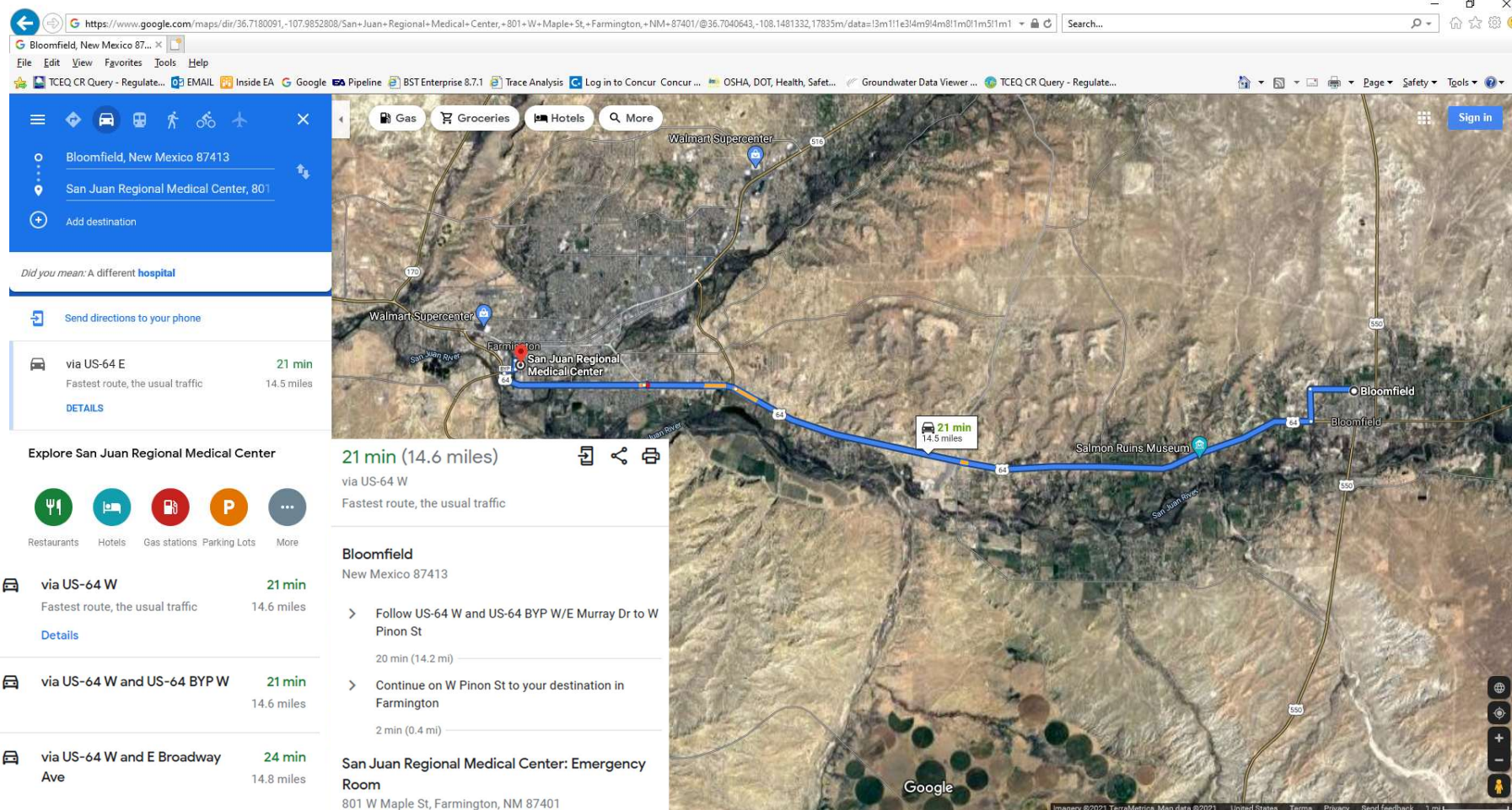




Additional Comments:	Emergency Contacts: Telephone
EA Engineering site workers will contain and absorb any chemicals used or transferred on-site.	U.S. Coast Guard National Response Center 800/424-8802 InfoTrac 800/535-5053 Fire department 911 Police department 911 EA Engineering Personnel: Corporate Human Resource Manager: Michele 410/584-7000 Bailey 410/329-5192 Corporate Health & Safety Manager: Rob Marcase 505/259-6779 Office Health & Safety Coordinator: T. McMillan 505/259-6779 Program Manager: T. McMillan 210/827-1221 Site Safety Coordinator: TBD
Personnel Decontamination and Disposal Method:	Medical Emergency:
Personnel will follow the U.S. Environmental Protection Agency's "Standard Operating Safety Guides" for decontamination procedures for Level D personal protection. The following decontamination stations should be set up in each decontamination zone: All Equipment will be decontaminated in a designated area. All disposable Equipment and gloves will be double-bagged and disposed of in accordance with local regulations.	Hospital Name: San Juan Regional Medical Center Hospital Address: 801 W Maple St, Farmington, NM 87401. Hospital Telephone: Emergency – 911 General – (505) 609-2000 Ambulance Telephone: 911 <u>Route to Hospital:</u> (see next page for route map) See the attached directions on the next page The approximate drive time on this route is 21 minutes.

Note: This page must be posted on-site.

Hospital Route Map (if available):



Note: This page must be posted on-site.



APPROVAL AND SIGN-OFF FORM

Project No. 16071-05-00-TM

I have read, understood, and agree with the information outlined in this Health and Safety Plan and will follow the direction of the Site Safety Coordinator and the procedures and guidelines established in the EA Engineering Health and Safety Manual. I understand the training and medical requirements for conducting fieldwork and have met these requirements.

_____	_____	_____
Name	Signature	Date
_____	_____	_____
Name	Signature	Date
_____	_____	_____
Name	Signature	Date
_____	_____	_____
Name	Signature	Date

APPROVALS: (Two Signatures Required)

_____	_____
Site Safety Coordinator	Date
_____	_____
Health and Safety Coordinator	Date

Intrusive - Work involving excavation to any depth, drilling, opening of monitoring wells, most sampling, and Geoprobe® work

Nonintrusive - Generally refers to site walk-throughs or field reconnaissance.

Levels of Protection

Level D - Hard hats, safety boots, and glasses may include protective clothing such as gloves, boot covers, and Tyvek® or Saranex® coveralls.

Level C - Hard hat, safety boots, glasses, and air purifying respirators with appropriate cartridges, **PLUS** protective clothing such as gloves, boot covers, and Tyvek® or Saranex® coveralls

Emergency Contacts

InfoTrac - For issues related to incidents involving the transportation of hazardous chemicals, this hotline provides accident assistance 24 hours per day, seven days per week

U.S. Coast Guard National Response Center - For issues related to spill containment, cleanup, and damage assessment, this hotline will direct spill information to the appropriate state or region

Health and Safety Plan Short Form

- Used for field projects of limited duration and with relatively limited activities; may be filled in with handwritten text
- Limitations:
 - No Level B or A work
 - A limited number of tasks
 - No confined space entry
 - No unexploded ordnance work or radiation hazard

Appendix G

Field Forms



Project Number: _____
 Start Time/Date: _____
 Completion Time/Date: _____
 Final Depth: _____
 Logged By: _____ Page ____ of ____

Project: _____
 Drilling Company: _____
 Drilling Rig/Bit: _____
 Driller: _____
 Boring/Well ID: _____

Project Number: _____
 Start Time/Date: _____
 Completion Time/Date: _____
 Final Depth: _____
 Logged By: _____ Page ____ of ____

Hard=4, Dense=3, Med. Dense=2, Loose=1
Very Plastic=4, Plastic=3, Slightly Plastic=2, Non-Plastic=1
Coarse=4, Medium=3, Fine=2, Very Fine=1
Very Odorous=4, Odorous=3, Slight Odor=2, No Odor=1

DAILY ACTIVITY LOG

Page 1 of 2

Date:
Contractors on Site:
Time of Tailgate Safety Meeting:
Equipment on Site:
Hauling Contractors:
Work Performed and Hours Worked:
Problems Encountered and Deviations From Remediation Plan
Health and Safety Levels and Activities:
Samples Collected:
Notes:

DAILY ACTIVITY LOG

Page 2 of 2

Date:																	
Loads of Contaminated Soil Hauled Off Site (cubic yards/load):																	
Loads of Pit-Run Sand and Gravel Hauled Onto Site (cubic yards/load):																	
Loads of Clean Fill Hauled Onto Site (cubic yards/load):																	
Volume of Clean Soil Handled On and Off Site (cubic yards):																	

Air Monitoring																				
Station	08:00		09:00		10:00		11:00		12:00		13:00		14:00		15:00		16:00		17:00	
	VOC	Benzene	VOC	Benzene	VOC	Benzene	VOC	Benzene	VOC	Benzene	VOC	Benzene	VOC	Benzene	VOC	Benzene	VOC	Benzene	VOC	Benzene
A																				
B																				
C																				
D																				
E																				
F																				
G																				
Work Space																				
Notes:																				

**MONITOR WELL SAMPLING FIELD FORM****FLUID LEVEL DATA**

Well ID _____ Date gauged _____

Site _____ Time gauged _____

Depth to PSH _____ Feet Well diameter _____ Inches

Depth to water _____ Feet Height of fluid column _____ Feet

Total depth _____ Feet Volume in well _____ Gallons

(3 well volumes = _____ gallons)

GROUNDWATER SAMPLING DATA

Time/date purged _____ Purge Method _____

Time	Purge Volume (gal)	Temp (°C)	SpC (µs/cm)	pH	ORP (mV)	DO (mg/L)

Actual purge volume _____ gal. Field measurements stabilized within ± 10%? _____

Time/date sampled _____ Purged/sampled by _____

Sample method _____

Requested analyses _____

Comments/observations _____

Well Casing Volumes

2" diameter = 0.17 gal/ft 4" diameter = 0.66 gal/ft 6" diameter = 1.50 gal/ft

Appendix H

Excavation Contingency Measures

Excavation Contingency Measures

Deviation From Plan	Evaluation Method	Evaluation Criteria	Contingency Action
Unstable excavation side walls	OSHA competent person or PE inspection and evaluation	Soil classification in accordance with 29 CFR 1926 Subpart P Appendix A and visual observation	Action 1: Prohibit excavation ingress Action 2: Pin or shore sidewalls, as necessary
Sloughing sand at the base of the excavation	OSHA competent person or PE inspection and evaluation	Visual observation by competent person	Action 1: Prohibit excavation ingress Action 1: Immediately place gravel backfill to stabilize Action 2: Decrease excavation depth to above water table with backfill.
Excessive sloughing of soil around utilities	OSHA competent person or PE inspection and evaluation	Visual observation by competent person	Action 1: Shore trench and anchor utilities to secure Action 2: Cease excavation adjacent to utilities
Excessive air emissions	PID and benzene monitor	Less than 1 ppm _v benzene or 50 ppm _v PID thresholds - Action 1 Greater than 5 ppm _v benzene or 100 ppm _v PID - Action 2	Action 1: Upgrade PPE in accordance with site HASP Action 2: Cease excavation activities until concentrations diminish and site is cleared by site health and safety officer
Explosive atmosphere	O ₂ and LEL sensor	10 % LEL exceeded	Action 1: Cease excavation activities and evacuate area until cleared by the site health and safety officer Action 2: Clear pit of NAPL if present
Presence of NAPL	Visual observation or bailer test	Presence of NAPL	Action 1: Utilize absorbent booms, if mass of NAPL is insignificant (sheen conditions) Action 2: Utilize oil-water separator if mass of NAPL is significant and absorbent booms are ineffective Action 3: Dispose of NAPL at facility permitted to handle petroleum hydrocarbon waste or recycle at recycling facility.

Notes:

CFR = Code of Federal Regulations
HASP = Health and safety plan
LEL = Lower explosive limit
NAPL = Non aqueous phase liquid
O₂ = Oxygen gas

OSHA = Occupational Safety and Health Administration
PE = Professional Engineer
ppm_v = Parts per million by volume
PID = Photoionization detector
PPE = Personal protective equipment

Appendix I

City of Bloomfield Authorization for Waste Disposal



City of Bloomfield

Authorization for Waste Disposal

January 22, 2026

City of Bloomfield
915 N. 1st Street
Bloomfield, New Mexico 87413

Re: Authorization of EA Engineering, Science, and Technology, Inc., PBC as Agent for Waste Management Activities

To Whom It May Concern:

The City of Bloomfield ("Generator") hereby authorizes and designates EA Engineering, Science, and Technology, Inc., PBC, 320 Gold Ave. SW, Suite 1300, Albuquerque, NM (Agent) and its employees and authorized subcontractors, to act as Generator's agent solely for the purpose of arranging, coordinating, and managing the handling, profiling, transportation, and disposal of contaminated soil and other wastes generated at the Former Aerex Refinery, SE Corner of West Blanco Blvd. and N. 5th Street, Bloomfield, NM during the excavation activities at that site.

This authorization includes, as applicable:

1. Coordination of sampling, characterization, and waste profiling in accordance with federal, state, and local regulatory requirements.
2. Submittal of required waste profile documentation, manifests, bills of lading, or other waste shipment records to the receiving facilities and regulatory agencies.
3. Completing and signing of waste profiles, manifests, amendments, transport documents, certifications of waste disposal, or other documents.
4. Coordination with transporters, disposal facilities, and City of Bloomfield personnel regarding scheduling, shipment approvals, and related logistics.
5. Execution of non-financial documentation customarily required for waste acceptance (e.g., non-hazardous waste profiles, acceptance forms, manifests) on behalf of the Generator, provided that Generator remains the legal generator of record for such wastes.

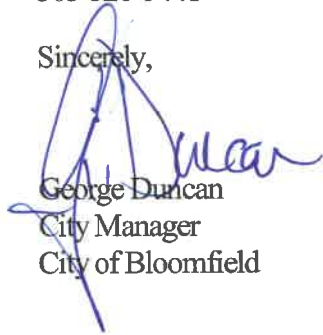
Generator retains legal responsibility as the generator of record under applicable federal, state, and local environmental laws and regulations.

This authorization is effective as of January 22, 2026, and shall remain in effect for a period of three years or until revoked in writing by Generator.

Please direct any questions regarding this authorization to:

George Duncan
City Manager
Email: gduncan@bloomfieldnm.gov
505-320-5441

Sincerely,



George Duncan
City Manager
City of Bloomfield