Interim Remedial Measures Work Plan

Hertel and Foundry Site
BCP Site No. C915359
Buffalo, New York

May 2022 0508-019-001

Prepared For: Kam Cleanup LLC

Prepared By:

TurnKey Environmental Restoration, LLC

In Association With:

Benchmark

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Prepared for:

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Certification

I, Thomas H. Forbes, certify that I am currently a NYS registered professional engineer and that this May 2022 Interim Remedial Measures Work Plan (IRMWP) for the Hertel and Foundry Site (C915359) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

SEAL

May 6, 2022

Date

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Hertel and Foundry Site
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APPENDICES

1.0 INTRODUCTION

Benchmark Civil/Environmental Engineering & Geology, PLLC (Benchmark), in association with TurnKey Environmental Restoration, LLC (TurnKey), referred to herein as Benchmark-TurnKey, has prepared this Interim Remedial Measures Work Plan (IRMWP) on behalf of Kam Cleanup LLC to present the proposed scope of work and implementation procedures for completion of remedial activities at the Hertel and Foundry Site (Site), Brownfield Cleanup Program (BCP) Site No. C915359, located at 356 Hertel Avenue and 42 Foundry Street in the City of Buffalo, Erie County, New York.

The IRM activities will be completed by Kam Cleanup LLC and their designated remedial contractors and subcontractors, with oversight provided by Benchmark-TurnKey. The work will be completed in accordance with 6NYCRR Part 375 and New York State Department of Environmental Conservation (NYSDEC) DER-10 guidelines.

As further detailed in Section 1.2, Benchmark-TurnKey completed and submitted to the NYSDEC a Remedial Investigation Alternatives Analysis (RI/AA) Report, dated February 2022, on behalf of Kam Cleanup LLC. The document was subject to public comment through April, 22, 2022; no public comments were provided. The Decision Document is expected to be published by the Department in June 2022. As discussed with NYSDEC, this IRM work plan is being submitted in lieu of a Remedial Action Work Plan (RAWP) to expedite the cleanup schedule. The IRM involves site-wide excavation and off-site disposal of contaminated soil to meet Track 1 Unrestricted Soil Cleanup Objectives (USCOs) and is intended to constitute the final site remedy.

1.1 Background and History

The ±2.99-acre Site consists of two contiguous tax parcels as follows:

- 356 Hertel Avenue: SBL No. 77.74-4-22, 1.94 acres
- 42 Foundry Street: SBL No. 77.74-4-21, 1.05 acres

The Site is located at the northwest corner of Hertel Avenue and Foundry Street in a highly developed residential, commercial, and industrial area in the City of Buffalo, Erie County, New York (see Figures 1 and 2). The Site is bordered by vacant industrial property to the north, Hertel Avenue, railroad tracks, and a vacant industrial property to the south, railroad tracks (Niagara Subdivision) to the west, and Foundry Street and residential, commercial, and vacant industrial properties to the east.

The Site is currently developed with an approximate 115,000 square foot structure that is mostly vacant except for a small portion that includes an office and a warehouse used for storage of boats and antiques. Undeveloped portions of the Site are covered by asphalt, gravel, or vegetation.

The Site was used industrially from at least 1916 through at least 1950. Specifically, John Kam Malting Company, a malting operation with a malt house, a kiln house, water tempering, grain elevators/tanks, and a warehouse occupied the Site from 1901 until 1916. In 1916, John Kam Malting Company changed operations to animal feed production under the name Black Rock Milling Corporation/Park & Pollard Company. Animal feed production continued until at least 1950. An additional historic occupant was identified as Buffalo Insulation Distributers/Multi-glass Products, apparently an insulation contractor, from at least 1965 through at least 1986. The Site included railroad tracks throughout the western portion of the Site from at least 1916 to at least 1961. Additional tracks were present on the eastern portion of the Site during this time as well. The Site has a history of underground storage tanks (USTs); one 1,000-gallon gasoline UST was installed in 1962 and replaced by a 4,000-gallon gasoline UST in 1969. The 4,000-gallon tank was slushed in place in 1986 and removed in 2002.

1.2 Summary of Environmental Conditions

LCS Inc. (LCS) completed a Phase I Environmental Site Assessment (ESA) at the Site and documented their findings in a report dated October 2002. LCS identified that a fill port was observed south of the existing building in the parking lot area, likely due to an abandoned-in-in place UST. In November 2002, LCS completed a subsequent Limited and Focused Subsurface Investigation to assess the suspected UST area. The work consisted of seven (7) soil borings in the area of the UST. LCS noted elevated photoionization detector (PID) readings and petroleum odors at two (2) boring locations, BH1 and BH-7. Volatile organic compounds (VOCs) were also detected at concentrations exceeding Commissioner Policy 51 (CP-51) Soil Cleanup Levels (SCLs) at these locations. The NYSDEC was notified, and Spill No. 020804 was assigned to 356 Hertel Avenue.

Nature's Way Environmental Consultants and Contractors, Inc. (Nature's Way) completed UST and soil removal activities on January 10, 2003, as reported in their UST/Petroleum Contaminated Soils Removal Report – Spill No. 0208304. Nature's Way removed one 4,000-gallon UST in December 2002 and excavated approximately 460 tons of

petroleum-impacted soil surrounding the UST. The excavated soil was reportedly disposed at Modern Landfill in Model City, New York.

TurnKey completed a Phase II Environmental Investigation at the Site and documented their findings in a report dated November 2019. The work consisted of ten (10) test pits and the collection of surface and subsurface soil samples. Polycyclic aromatic hydrocarbons (PAHs) and metals including arsenic, cadmium, lead, and mercury were detected at concentrations exceeding their respective 6 NYCRR Part 375 Unrestricted Soil Cleanup Objectives (USCOs), Restricted-Residential SCOs (RRSCOs), Commercial SCOs (CSCOs), and/or Industrial SCOs (ISCOs).

Benchmark-TurnKey completed and submitted to the NYSDEC a Remedial Investigation Alternatives Analysis (RI/AA) Report, dated February 2022, on behalf of Kam Cleanup LLC. The Decision Document is expected to be published by the Department in April 2022. The RI/AA report included a detailed review of previous studies completed by Benchmark-TurnKey and others. The RI was completed in accordance with the approved RI Work Plan dated March 2021.

The purpose of the RI was to define the nature and extent of contamination on the BCP Site, and to collect data of sufficient quantity and quality to perform the remedial alternatives evaluation. The RI was completed across the BCP Site in interior and exterior areas to supplement previous environmental data and to delineate or identify areas requiring remediation. On-site field activities included interior and exterior soil boring advancement, test pit excavations, surface soil/fill sampling, overburden monitoring well installations, groundwater quality sample collection, and a soil vapor intrusion investigation.

Based on the data and analyses obtained during the RI and historic activities (see Table 2), the following environmental conditions exist at the Site:

1.2.1 Geology

The geology at the Site was investigated during the historic investigations and the RI. The overburden geology is generally described as urban fill consisting of black fines mixed with cinders, ash, brick, concrete, metal, coal, wood, railroad ties (TP-13), and some intermingled slag at certain locations (i.e., TP-4, TP-6, TP-7, TP-11, TP-12, TP-14, TP-16, SB-1, SB-2, and SB-13) from the ground surface to depths ranging from 0.30.3 to 10.5 feet below ground surface (fbgs). Native sandy lean clay was observed underlying the fill materials across the Site.

Based on the bedrock geologic map of Erie County, the Site is situated over the Vernon shale member of the Akron Dolostone and Salina Group, which is identified as Upper Silurian red and green shales, gray gypsiferous shales, and thin dolomites. Bedrock was not encountered during the historic investigations or the RI.

1.2.2 Hydrogeology

Based on the findings of the RI, monitoring well water levels ranged from 4.7 to 11.6 fbgs. Groundwater at the Site generally flows in a south/southeast direction.

1.2.3 Contamination

1.2.3.1 Surface Soil/Fill

Surface soil/fill is impacted by PAHs with concentrations exceeding USCOs, which are the applicable SCOs based on planned Site reuse, at seven locations across the Site (S-1, S-2, S-3, S-5, S-6, S-7, S-9, S-10, and S-11). Semi-volatile organic compound (SVOC) tentatively identified compounds (TICs) were observed at concentrations up to 505 mg/kg (S-5).

Arsenic, barium, cadmium, copper, lead, manganese, nickel, zinc, and/or mercury were identified above their USCOs at S-1, S-2, S-3, S-5, S-6, S-8, S-9, and S-10. All other metals were not identified exceeding USCOs.

Total polychlorinated biphenyls (PCBs) were identified above its USCO at S-10.

One pesticide, 4,4'-DDT, was identified above its USCO at S-5 and S-6. All other pesticides were non-detect.

One per- and polyfluoroalkyl substance (PFAS), perfluorooctanesulfonic acid (PFOS) was identified above its USCO at S-5. PFOS and perfluorooctanoic acid (PFOA) were not identified exceeding their respective USCOs at any other location. Herbicides and 1,4-dioxane were not identified at concentrations exceeding USCOs. Results are summarized on Figure 3.

1.2.3.2 Subsurface Soil/Fill

Shallow fill material, including black fines mixed with cinders, ash, brick, concrete, metal, coal, wood, railroad ties, and some intermingled slag was identified at varying depths, 0 to 0.5-10.5 fbgs. No odors or significant PID measurements were observed.

Subsurface soil/fill is impacted by PAHs with concentrations exceeding USCOs at TP-1, TP-4, TP-6, TP-7, TP-8, SB-9, SB-11, SB-15, SB-16, MW-1, MW-2, MW-3, MW-4,

MW-5, MW-6 (0-1 ft), MW-6 (1.5-2 ft), TP-12, TP-13, TP-15, and TP-16. SVOC TICs were observed at concentrations up to 2,021 mg/kg (TP-15).

Arsenic, beryllium, cadmium, chromium, copper, lead, manganese, nickel, selenium, zinc, and/or mercury were identified above their USCOs at TP-1, TP-6, TP-7, SB-4, SB-8, SB-9, SB-11, SB-12, SB-13, SB-15, SB-16, MW-1, MW-2, MW-3, MW-4, MW-5, MW-6 (0-1 ft), MW-6 (1.5-2 ft), TP-11, TP-12, TP-13, TP-14, TP-15, and TP-16. All other metals were not identified exceeding USCOs.

Total PCBs were identified above its CSCO at TP-12. PCBs were not detected at any other sample location.

Pesticides including 4,4'-DDE and/or 4,4'-DDT were identified above their USCOs at SB-10 and TP-12.

One PFAS, PFOS, was identified above its USCO at TP-16. PFOS and PFOA were not identified exceeding their respective USCOs at any other location.

VOCs, herbicides, and 1,4-dioxane were not detected above USCOs. Results are summarized on Figure 3.

1.2.3.3 Groundwater

SVOCs including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, indeno(1,2,3-cd)pyrene, and/or naphthalene were detected slightly above NYSDEC TOGS 1.1.1 Groundwater Quality Standards/Guidance Values (GWQS/GV) at MW-1, MW-2R, and MW-4; all results were qualified as estimated (J) except naphthalene in MW-1.

Total metals detected above GWQSs are naturally occurring minerals with the exception of antimony, arsenic, barium, beryllium, cadmium, chromium, copper, mercury, nickel, selenium, and zinc, which were detected above its GWQS at MW-2R and lead, which was detected above its GWQS at MW-1 and MW-2R. Elevated metals concentrations at MW-2R were likely the result of high turbidity observed during sampling as dissolved metals detected above GWQS are naturally occurring minerals only.

Total PCBs were detected slightly above GWQS at MW-1 and MW-2R.

VOCs, pesticides, herbicides, 1,4-dioxane, and PFAS were not detected above their GWQS or NYSDEC action levels.

1.2.3.4 Soil Vapor Intrusion

Analytical results compared to the New York State Department of Health (NYSDOH) Soil Vapor/Indoor Air Decision Matrices indicated that no further action is required within the building.

1.2.3.5 Contamination Summary

Based on the investigation activities detailed above, areas requiring remediation in order to achieve the planned unrestricted use (Track 1) cleanup, include all exterior areas and select locations within the building (SB-4, SB-8, and SB-10). Additional information relative to planned IRM activities in these areas is provided below in Section 3.

1.3 Standards, Criteria and Guidance

The remedy must conform to promulgated standards, criteria and guidance (SCGs) that are directly applicable or that are relevant and appropriate for the Site.

The soil cleanup objectives relevant to the planned unrestricted use (Track 1) cleanup approach for the Site are the 6NYCRR Part 375 USCOs.

1.4 Remedial Action Objectives

The IRMs for the Hertel and Foundry Site must satisfy Remedial Action Objectives (RAOs). RAOs are site-specific statements that convey the goals for minimizing substantial risks to public health and the environment. For the Hertel and Foundry Site, appropriate RAOs have been defined as:

Soil

RAOs for Public Health Protection

• Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

• Prevent migration of contaminants that would result in groundwater or surface water contamination.

Groundwater

RAOs for Public Health Protection

• Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

RAOs for Environmental Protection

• Restore groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable.

1.5 Project Organization and Responsibilities

The IRMs will be completed by remedial construction specialty contractors under contract to Kam Cleanup LLC and/or Benchmark-TurnKey. Kam Cleanup LLC and Benchmark-TurnKey will monitor the activities, in consultation with the NYSDEC and the NYSDOH), to verify that the work is performed in accordance with the Brownfield Cleanup Agreement (BCA), the approved RAWP, 6NYCRR Part 375, and NYSDEC DER-10 guidance.

2.0 PRE-REMEDIATION TASKS

2.1 Public Information and Outreach

The NYSDEC will prepare a fact sheet containing information about the planned IRM work, which will be made available to the public electronically via the Department's email subscription service. Furthermore, a copy of this RAWP will be made available for public review at the NYSDEC Region 9 office and Buffalo and Erie County Public Library – North Park Branch, which is the designated document repository.

2.2 Primary Constituents of Concern (COCs)

Based on the historic use of the Site as well as results of the Phase II investigation and RI activities, the COCs are presented below:

- *Soil/Fill:* SVOCs, metals, PCBs, and pesticides.

2.3 Utility Clearance

Prior to intrusive activities, Dig Safely New York (Call 811) will be contacted by the site contractor at a minimum of three business days in advance of the work and informed of the intent to perform exaction work at the Site.

2.4 Access Controls

Daily work areas will be identified with construction cones and/or fencing. Work areas will be determined daily based on the planned IRM activities and may change throughout the workday to ensure safe operations. Access control will consider Site worker and public safety.

2.5 Health and Safety Plan

Benchmark-TurnKey's Health and Safety Plan (HASP), included as Appendix A, was prepared and will be enforced in accordance with the requirements of 29CFR 1910.120. Benchmark-TurnKey will be responsible for Site control and the health and safety of its authorized Site workers.

2.6 Dust Monitoring and Controls

A Community Air Monitoring Plan (CAMP), which is included as Appendix B, will be implemented during interior and exterior intrusive activities in accordance with DER-10, Appendix A1 (Generic CAMP). If community air monitoring indicates the need for dust suppression, the contractor will apply a water spray across the excavation and surrounding areas, and on-site haul roads as necessary to mitigate airborne dust formation and migration. Potable water will either be obtained from a public hydrant, provided by an off-site water service or provided via a water truck with water from an off-site source. Other dust suppression techniques that may be used to supplement the water spray include:

- Hauling materials in properly tarped containers or vehicles.
- Restricting vehicle speeds on-Site.
- Hydro-seeding of final grades.

2.7 Erosion and Sediment Control

Provisions will be made for erosion and sedimentation control (silt sock) at the downgradient Site perimeter during remediation and redevelopment activities. The storm water controls will be in place prior to disturbance of soil/fill materials and be maintained throughout excavation activities, at which point the ground elevation will be below that of surrounding soils.

A stabilized construction entrance comprised of run-of-crush stone will be provided at the Site, if needed, in exterior areas not currently covered by asphalt/concrete. The stone will be approved for import per Sections 3.2 and 3.3 and removed with the final excavation work. Provisions will be made to keep surrounding sidewalks and roadways free of soil from construction and trucking activities.

2.8 Waste Characterization

The soil/fill disposal facility has yet to be chosen; however, waste characterization samples will be collected in accordance with the selected landfill analytical disposal requirements. Pre-characterization of the soil/fill will allow for direct loading and off-site transportation at the time of the impacted soil/fill excavation. Based on the results of the waste characterization sampling, impacted soil will be managed according to all federal, state and local waste disposal regulations.

2.9 Partial Building Demolition

Prior to implementation of the RA, the western, one-story portion of the building was demolished to allow for removal of soil/fill impacts beneath that portion of the building identified during the RI.

2.10 Disposal of Interior Building Waste

Oil and liquids stored in various drums and containers inside the building will be characterized and properly disposed. Any contents of unknown drums/containers will also be characterized and properly disposed, and the drums/containers will be cleaned and recycled at a permitted recycling facility. Remaining identified materials will either be properly disposed at a commercial landfill or reused.

3.0 IRM ACTIVITIES

The NYSDEC will be notified at least 5 business days in advance of any planned IRM activities. Waste characterization sampling, excavation, post-excavation confirmatory sampling, and backfilling/site grading activities will be performed in accordance with this work plan.

3.1 IRM Excavation Activities

IRM excavations will be documented by an experienced Benchmark-TurnKey professional, which will involve excavation to the approximate horizontal and vertical limits identified below and as shown on Figures 4 and 5. The impacted soil/fill will be direct-loaded into dump trucks for off-site disposal where conditions allow. However, as there is insufficient access for a dump truck within the building, soil removed from within the building footprint will be transported within the building by skidsteer or tractor bucket and stockpiled on the Site; this stockpiled soil will be loaded into dump trucks. Any soil/fill that is stockpiled on the Site will be placed on and covered with polyethylene sheeting when it is not in the process of being loaded into dump trucks. IRM activities will include the following major elements:

- Excavation and off-site disposal of all on-Site soil/fill which exceed USCOs, as defined by 6 NYCRR Part 375-6.8(a). Due to the ubiquitous nature of the constituents observed in the Site soil/fill and the extent to which they exceed the USCOs, the entire exterior area of the Site and certain areas below the remaining portion of the building will require excavation. The depth of excavation will vary throughout these areas due to the variability of fill depth and SCO exceedances. Benchmark-TurnKey estimates that approximately 23,150 tons of fill material will be removed from the Site. Concrete and/or asphalt removed to access subsurface soils will also be removed from the Site and recycled.
- Collection of post-excavation confirmatory and documentation samples. Given the large area and volume of soil/fill removal, the frequency of post-excavation samples will be slightly reduced from the typical sampling frequency for the exterior excavation. For the exterior area, confirmatory samples will be collected from the native soils at a frequency of one sample from the excavation bottom for every 2,500 square feet of bottom area (estimated 37samples) and from excavation sidewalls at a frequency of one sample for every 60 linear feet of sidewall (estimated 33 samples). For the interior areas, confirmatory samples will be collected from the native soils at a frequency of one sample from the excavation bottom for every 900 square feet of bottom area (estimated at 3 samples) and from excavation sidewall at a frequency of

one sample for every 30 linear feet of sidewall (estimated at 12 samples). Sampling frequency may be further modified if agreed in writing by the Department.

Additional information relative to each respective remedial area and planned post-excavation confirmatory and documentation sampling is provided below:

3.1.1 Exterior Area

- Remedial Contractor will excavate the Exterior Area to a target depth ranging from 1.0 to 10.5 fbgs, estimated at approximately 22,700 tons. Soil/fill will be transported off-site for disposal at a permitted commercial solid waste disposal facility by licensed haulers.
- Post-excavation samples will be collected by the Environmental Scientist or Engineer at a frequency up to one per 2,500 square feet at the bottom of the excavation and up to one per 60-feet along perimeter sidewalls. All post-excavation soil samples will be analyzed for PAHs and Target Analyte List (TAL) metals at all locations, PCBs at the bottom sample proximate to TP-12, and pesticides at the bottom samples proximate to SB-10 and TP-12.
- Following excavation, the Remedial Contractor will backfill the Exterior Area with material meeting the requirements of 6 NYCRR Part 375-6.7(d).

3.1.2 Interior SB-4 Metals Area

- Remedial Contractor will excavate the designated SB-4 Metals Area to a target depth of approximately 3 fbgs or until native material is encountered, estimated at approximately 150 tons. Soil/fill will be transported off-site for disposal at a permitted commercial solid waste disposal facility by licensed haulers.
- Post-excavation samples will be collected by the Scientist or Engineer at a frequency up to one per 900 square feet at the bottom of the excavation and up to one per 30-feet along perimeter sidewalls. All samples will be analyzed for arsenic, copper, lead and zinc, which are the metals that exceeded USCOs.
- Following excavation, the Remedial Contractor will backfill the SB-4 Metals Area with material meeting the requirements of 6 NYCRR Part 375-6.7(d).

3.1.3 Interior SB-8 Metals Area

- Remedial Contractor will excavate the designated SB-8 Metals Area to a target depth of approximately 3 fbgs or until native material is encountered, estimated at approximately 150 tons. Soil/fill will be transported off-site for disposal at a permitted commercial solid waste disposal facility by licensed haulers.
- Post-excavation samples will be collected by the Scientist or Engineer at a frequency up to one per 900 square feet at the bottom of the excavation and up to one per 30-

feet along perimeter sidewalls. All samples will be analyzed for lead and nickel, which are the metals that exceeded USCOs.

- Following excavation, the Remedial Contractor will backfill the SB-8 Metals Area with material meeting the requirements of 6 NYCRR Part 375-6.7(d).

3.1.4 SB-10 Pesticides Area

- Remedial Contractor will excavate the designated SB-10 Pesticides Area to a target depth of approximately 3 fbgs or until native material is encountered, estimated at approximately 150 tons. Soil/fill will be transported off-site for disposal at a permitted commercial solid waste disposal facility by licensed haulers.
- Post-excavation samples will be collected by the Scientist or Engineer at a frequency up to one per 900 square feet at the bottom of the excavation and up to one per 30-feet along perimeter sidewalls. All samples will be analyzed for pesticides, which exceeded SCOs.
- Following excavation, the Remedial Contractor will backfill the SB-10 Pesticides Area with material meeting the requirements of 6 NYCRR Part 375-6.7(d).

As with any remedial excavation, actual site conditions (e.g., visual and/or confirmatory sample analytical results) will dictate final excavation limits. Final excavation limits will be surveyed with a handheld Trimble GeoXH GPS unit and average excavation depths will be manually measured in the field. Horizontal limits and locations of final IRM excavations will be presented on the Site Map in the FER.

Care will be taken to minimize dust formation during excavation and loading and to prevent any dust or mud from being tracked off-Site. The excavation equipment will have sufficient boom length to allow for placement of soil/fill directly into the truck bed if ground surface conditions are conducive to truck traffic (e.g. dry and firm).

Regarding the post excavation soil sampling specified above, an equivalent Category B deliverables package will be furnished with the data to allow data evaluation and preparation of a Data Usability Summary Report (DUSR) by an independent, third-party data validation expert. Expedited turnaround times may be requested for the analytical results to minimize the time that the excavation(s) remains open. Quality Assurance (QA) samples will be collected to support the verification sample data evaluation. The QA samples will include a minimum of one matrix spike, one matrix spike duplicate, and one blind duplicate per 20 verification samples. Dedicated equipment will be used to avoid the need for equipment blanks. Validated analytical data including QA/QC samples will be submitted

and uploaded to the NYSDEC'S EQuIS™ software application for reporting environmental data.

3.2 Placement of Backfill

Following NYSDEC concurrence that the IRM excavation is complete, the excavation will be backfilled with material meeting the requirements of 6 NYCRR Part 375-6.7(d), in accordance with DER-10 requirements. Prior to backfilling, if required based on the backfill material used, an Request to Import/Reuse Fill or Soil form will be submitted to the NYSDEC for approval.

Backfill material may consist of the following materials:

- Gravel, rock, or stone, consisting of virgin material, from a permitted mine or quarry may be imported, without chemical testing, if it contains less than 10% by weight material which would pass through a size 80 sieve and is approved by NYSDEC.
- Imported soil/fill originating from known off-site sources having no evidence of disposal or releases of hazardous substances, hazardous, toxic or radioactive wastes, or petroleum that meets the chemical criteria of Table 1. No off-site materials meeting the definition of a solid waste as defined in 6NYCRR, Part 360-1.2(a) shall be used as backfill.

In the northern exterior portion of the Site, crushed gravel will be used to backfill to the planned final grade. In the remaining exterior areas of the Site, crushed gravel will be placed to approximately minus 1-ft. below planned final grade to allow for installation of concrete, porous pavement, and greenspace. In areas planned for concrete, additional crushed gravel will be placed to approximately minus 4 inches below final planned grade and concrete will be poured to meet final planned grade. In areas planned for porous pavement, washed stone will be placed above the crushed gravel to approximately minus 3 inches below final planned grade and porous pavement will be installed to final planned grade. In areas planned for greenspace, soil and topsoil will be placed above the gravel to final planned grade, hydroseeded, and fertilized. Interior excavations will be filled with crushed gravel and covered with concrete consistent with the thickness of the surrounding concrete foundation.

A historic brick road exists in the southern portion of the Site. This brick road will be deconstructed prior to excavation activities and reconstructed using the same bricks after excavation and backfilling activities. This area will be backfilled as needed such that the reconstructed brick road is at final planned grade.

Imported soil/fill material will be subject to characterization requirements in accordance with DER-10 Table 5.4(e)10, or as otherwise approved by NYSDEC prior to import to the Site. Characterization testing will be performed by an independent, NYSDOH Environmental Laboratory Approval Program (ELAP) approved laboratory. An equivalent Category B deliverables package will be furnished with the data to allow data evaluation and preparation of a Data Usability Summary Report by an independent, third-party data validation expert. QA samples will be collected to support the data evaluation. The QA samples will include a minimum of one matrix spike, one matrix spike duplicate, and one blind duplicate per 20 verification samples. Analytical data including QA/QC samples will be submitted and uploaded to the NYSDEC'S EQuIS™ software application for reporting environmental data.

3.3 Off-Site Source Backfill Characterization Requirements

Backfill being imported to the Site, which is not deemed exempt from chemical testing, will be subject to the characterization requirements in accordance with DER-10 Table 5.4(e)10 included below. Characterization testing will be performed by an independent, NYSDOH ELAP-approved laboratory. An equivalent Category B deliverables package will be furnished with the data to allow data evaluation and preparation of a DUSR by an independent, third-party data validation expert.

<table>
<tr><th colspan="4">Required Minimum Number of Samples for Soil Imported to a Site</th></tr>
<tr><th rowspan="2">Soil Quantity (CY)</th><th>VOCs</th><th colspan="2">SVOCs, Inorganics, PCBs/Pesticides, 1,4-dioxane and PFAS</th></tr>
<tr><th>Discrete Samples</th><th>Composite</th><th>Grab/Composite Samples</th></tr>
<tr><td>0-50</td><td>1</td><td>1</td><td rowspan="8">3-5 grab samples from different locations in the fill being provided will comprise a composite sample for analysis.</td></tr>
<tr><td>50-100</td><td>2</td><td>1</td></tr>
<tr><td>100-200</td><td>3</td><td>1</td></tr>
<tr><td>200-300</td><td>4</td><td>1</td></tr>
<tr><td>300-400</td><td>4</td><td>2</td></tr>
<tr><td>400-500</td><td>5</td><td>2</td></tr>
<tr><td>500-800</td><td>6</td><td>2</td></tr>
<tr><td>800-1,000</td><td>7</td><td>2</td></tr>
<tr><td>>1,000</td><td colspan="3">Add an additional 2 VOC and 1 composite for each additional 1,000 CY or consult with DER</td></tr>
</table>

3.4 Groundwater Management

Based on the depth to water measured during the RI, groundwater will may be encountered during the excavation. Any groundwater or significant surface water run-in encountered during impacted soil/fill removal will be handled on-site prior to discharge to the municipal sewer. In general, a portable water frac (storage) tank will be brought on-site and water removed from excavations will be stored/settled in the tank and, if deemed necessary, pumped through a bag or cartridge filter prior to treatment using granular activated carbon (GAC) to the sanitary sewer under a discharge permit with the City of Buffalo Sewer Authority. Following completion of excavation work, settled solids remaining in the tank and spent filter bags will be disposed off-site.

If the accumulated waters require treatment, the spent GAC will be characterized and regenerated off-site or disposed at a permitted disposal/recycling facility in accordance with applicable federal and state regulations. The storage tank will be decontaminated via pressure washing. Benchmark-TurnKey or the Site owner will coordinate with the City of Buffalo/Buffalo Sewer Authority to obtain any necessary temporary sewer discharge permits.

4.0 IRM ACTIVITIES SUPPORT DOCUMENTS

4.1 Health and Safety Protocols

Benchmark-TurnKey has prepared a HASP for use by our employees in accordance with 40 CFR 300.150 of the NCP and 29 CFR 1910.120. The HASP, provided in Appendix A, includes the following site-specific information:

- A hazard assessment.
- Training requirements.
- Definition of exclusion, contaminant reduction, and other work zones.
- Monitoring procedures for Site operations.
- Safety procedures.
- Personal protective clothing and equipment requirements for various field operations.
- Disposal and decontamination procedures.

The HASP also includes a contingency plan that addresses potential site-specific emergencies, and a Community Air Monitoring Plan as described above.

Health and safety activities will be monitored throughout the IRM field activities. A member of the field team will be designated to serve as the Site Safety and Health Officer (SSHO). The SSHO will report directly to the Project Manager and the Corporate Health and Safety Coordinator. The HASP will be subject to revision as necessary, based on new information that is discovered during the field investigation and/or remedial activities.

4.2 Community Air Monitoring

Real-time community air monitoring will be performed during all exterior and interior intrusive IRM activities at the Site. A Community Air Monitoring Plan is included as Appendix B. Particulate and VOC monitoring will be performed along the downwind perimeter of the work area during subgrade excavation, grading, and soil/fill handling activities in accordance with this plan. The CAMP is consistent with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under DER-10 Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring).

4.3 Citizen Participation Activities and Fact Sheets

NYSDEC will coordinate and lead community relations throughout the course of the project with support from Benchmark-TurnKey as requested. A Citizen Participation (CP) Plan has previously been prepared as a separate document and submitted to the NYSDEC. A copy of the approved CP Plan was placed at the designated document repository.

The NYSDEC, with input from Benchmark-TurnKey and Kam Cleanup LLC, will issue project-related fact sheets to keep the public informed of BCP activities.

5.0 REPORTING AND SCHEDULE

Benchmark-TurnKey environmental professionals will be on-site full-time during all major IRM activities to monitor and document: construction stake-out; record drawings; daily reports of remediation activities; community air monitoring results; post-excavation sampling and analysis; and progress photographs and sketches. Documentation will include, at a minimum, daily reports of IRM activities, community air monitoring results, photographs and sketches. CAMP results will be submitted to the NYSDOH and NYSDEC weekly, and the NYSDEC and NYSDOH will be notified of any exceedances as soon as possible on the same day of the occurrence. Appendix C contains sample project documentation forms.

The completed reports will be available on-site and submitted to the NYSDEC as part of the FER. The NYSDEC will be promptly notified of problems requiring modifications to this Work Plan prior to proceeding or completion of the construction item.

Photo documentation of the IRM activities will be prepared by a field representative throughout the duration of the project as necessary to convey typical work activities, changed conditions, and/or special circumstances. If determined to be necessary, periodic on-site construction progress meetings will be held to which NYSDEC will receive an invitation. Full details of the IRM activities will be included in the FER.

Work will commence upon NYSDEC approval of the work plan, anticipated in May 2022.

6.0 IRM ACTIVITIES REPORTING

6.1 Final Engineering Report

A FER will be prepared at the conclusion of IRM activities. The FER will include the following information and documentation, consistent with the NYSDEC's DER-10 Technical Guidance for Site Remediation:

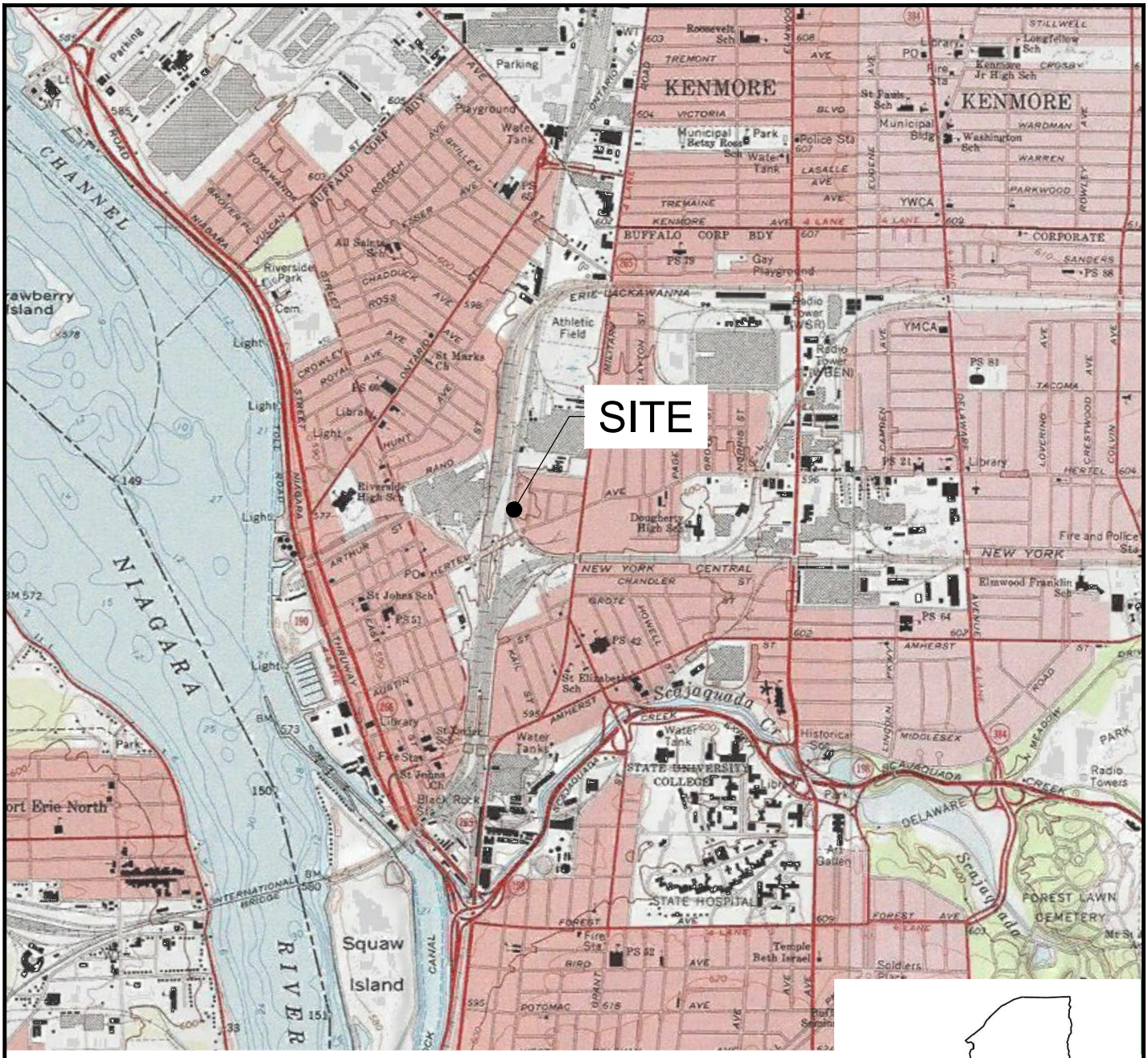
- A certification by a licensed NYS Professional Engineer in accordance with Section 1.5 of DER-10.
- Background and Site description.
- Planimetric map showing the areas remediated, including significant site features.
- Map showing the lateral limits of any excavations.
- Tabular summaries of unit quantities including: volume of soil excavated and disposition of excavated soil; and, origin and volume of imported soil.
- Planimetric map showing location of all verification and other sampling locations with sample identification labels/codes.
- Tabular comparison of verification and other sample analytical results to SCOs. An explanation shall be provided for any results exceeding acceptance criteria.
- Documentation on the disposition of impacted soil removed.
- Copies of daily inspection reports and, if applicable, problem identification and corrective measure reports.
- Photo documentation of IRM activities.
- Text describing the IRM activities performed; a description of any deviations from the Work Plan and associated corrective measures taken; and other pertinent information necessary to document that the Site activities were carried out in accordance with this Work Plan.
- Analytical data packages and DUSR of post-excavation data by a qualified, independent data validation expert.

7.0 REFERENCES

1. New York State Department of Environmental Conservation. *6 NYCRR Part 375 Environmental Remediation Programs Subparts 375-1 to 375-4 and 375-6*. Effective December 14, 2006.
2. New York State Department of Environmental Conservation. *DER-10 Technical Guidance for Site Investigation and Remediation.* May 2010.
3. LCS Inc. *Phase I Environmental Site Assessment Report for the subject property identified as: Commercial Building, 356 Hertel Avenue and 42 Foundry Street, Buffalo, New York.* October 2002.
4. LCS Inc. *Limited and Focused Subsurface Investigation, 356 Hertel Avenue, Buffalo, New York*. November 2002.
5. New York State Department of Environmental Conservation. *CP-51/Soil Cleanup Guidance*. October 2010.
6. Nature's Way Environmental Consultants & Contractors, Inc. *UST/Petroleum Contaminated Soils Removal Report, 356 Hertel Avenue, Buffalo, New York*. January 2003.
7. TurnKey Environmental Restoration, LLC. *Phase II Environmental Investigation, 356 Hertel Avenue and 42 Foundry Street, Buffalo, New York*. November 2019.
8. TurnKey Environmental Restoration, LLC in association with Benchmark Civil/Environmental Engineering & Geology, PLLC. *Remedial Investigation Alternatives Analysis Report, Hertel and Foundry Site, Buffalo, New York, BCP Site No. C915359*. February 2022.
9. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Remedial Investigation Work Plan, Hertel and Foundry Site, Buffalo, New York*. Revised March 2021.
10. New York State Department of Environmental Conservation Division of Water. *Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*. Reissued June 1998.
11. New York State Department of Health Center for Environmental Health Bureau of Environmental Exposure Investigation. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. October 2006.

FIGURES

FIGURE 1



BENCHMARK
IN ASSOCIATION WITH
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0508-019-001

DATE: MARCH 2022

DRAFTED BY: CEH

SITE LOCATION AND VICINITY MAP

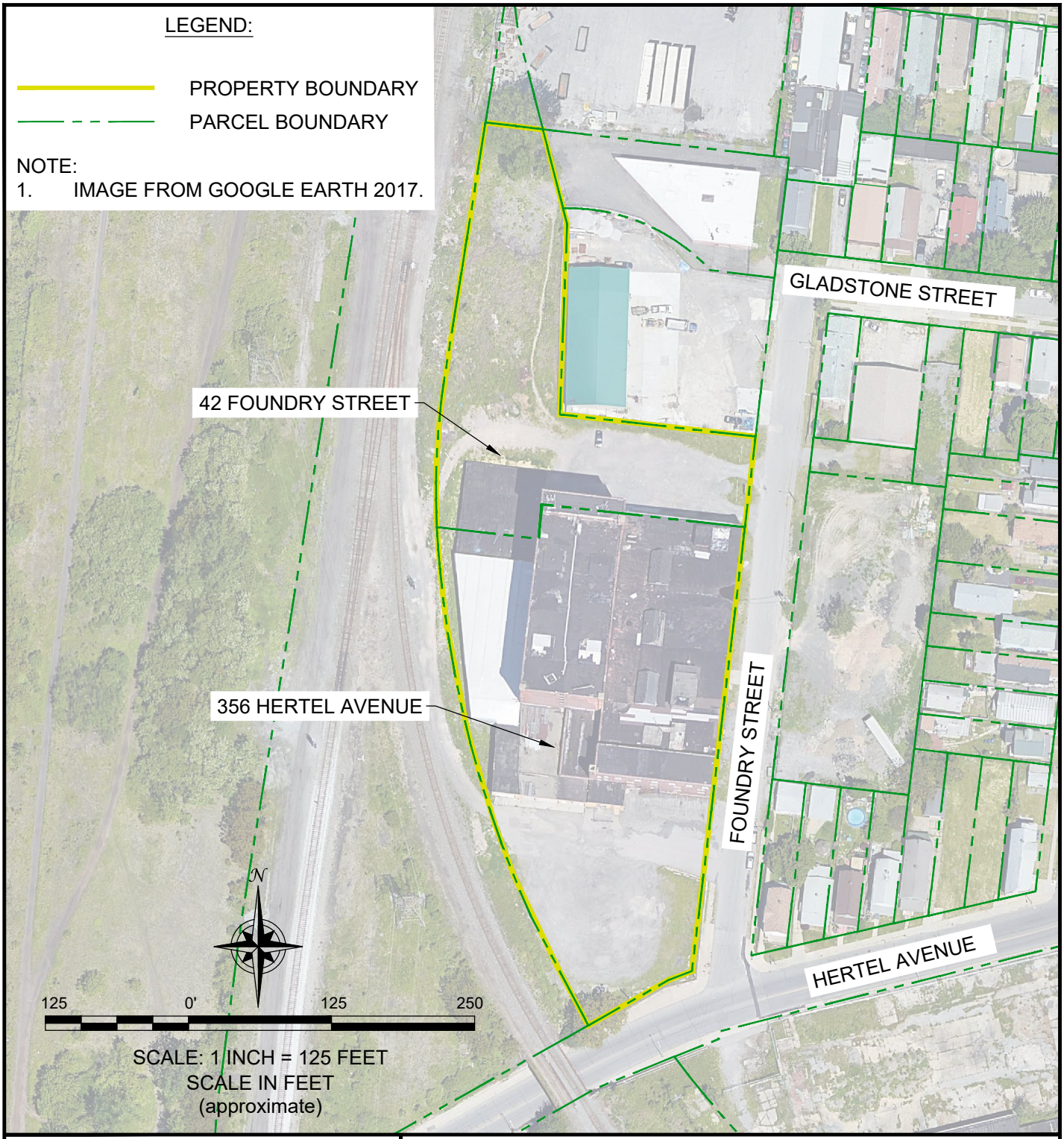
REMEDIAL ACTION WORK PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR

KAM CLEANUP LLC

FIGURE 2



SITE PLAN (AERIAL)

REMEDIAL ACTION WORK PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR

KAM CLEANUP LLC

BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0508-019-001

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DRAFTED BY: CNK

DATE: MARCH 2022
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LEGEND:

- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- DEMOLISHED 2021
- TP-1 — PHASE II TEST PIT LOCATION
- S-1 — PHASE II SURFACE SOIL LOCATION
- TP-11 — RI TEST PIT LOCATION
- S-3 — RI SURFACE SOIL LOCATION
- MW-1 — RI MONITORING WELL LOCATION
- SB-1 — RI SOIL BORING LOCATION
- SSV/IA-1 — RI SUBSLAB SOIL VAPOR/INDOOR AIR LOCATION
- OA-1 — RI OUTDOOR AIR LOCATION (TBD)
- EXCEEDS UNRESTRICTED SCOs
- EXCEEDS RESTRICTED-RESIDENTIAL SCOs

NOTES:
1. IMAGE TAKEN FROM GOOGLE EARTH 2017.
2. RESULTS COMPARED TO 6 NYCRR PART 375 SOIL CLEANUP OBJECTIVES (SCOs).
3. SB-1 COVERTED TO MW-2R DUE TO REFUSAL IN AREA OF MW-2.
4. SB-5 THROUGH SB-8 AND SB-10 COMPLETED WITH A HAND AUGER DUE TO BASEMENT HEIGHT

125' 0' 125' 250'

SCALE: 1 INCH = 125 FEET
SCALE IN FEET
(approximate)

N

TP-11 (4-6 FT)	4/14/2021
PARAMETER	MG/KG
ARSENIC	68.2
COPPER	567
LEAD	577
MERCURY	0.25
NICKEL	30.3
SELENIUM	4.1
ZINC	312

S-3	4/19/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	8.6
BENZO(A)PYRENE	10
BENZO(B)FLUORANTHENE	12
BENZO(K)FLUORANTHENE	6.2
CHRYSENE	9.2
DIBENZO(A,H)ANTHRACENE	1.7
INDENO(1,2,3-CD)PYRENE	6.2
ARSENIC	24
COPPER	153
LEAD	120
NICKEL	40.2
ZINC	401

TP-6 (1-2 FT)	10/30/2019
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	2
BENZO(A)PYRENE	1.7
BENZO(B)FLUORANTHENE	2.8
CHRYSENE	1.8
DIBENZO(A,H)ANTHRACENE	0.36J
INDENO(1,2,3-CD)PYRENE	1.3
ARSENIC	34.1
LEAD	188
MERCURY	0.266

MW-1 (7-8.5 FT)	4/15/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	5.7
BENZO(A)PYRENE	4.6
BENZO(B)FLUORANTHENE	5.2
BENZO(K)FLUORANTHENE	2.5
CHRYSENE	5.2
DIBENZO(A,H)ANTHRACENE	0.8
INDENO(1,2,3-CD)PYRENE	2.5
CADMIUM	3.1
CHROMIUM	30.2
COPPER	60.4
LEAD	194
ZINC	1010

TP-8 (7-8 FT)	10/30/2019
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	1.6
BENZO(A)PYRENE	1.2
BENZO(B)FLUORANTHENE	1.7
CHRYSENE	1.3
INDENO(1,2,3-CD)PYRENE	0.81

MW-3 (1-2 FT)	4/12/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	23
BENZO(A)PYRENE	22
BENZO(B)FLUORANTHENE	23
BENZO(K)FLUORANTHENE	13
CHRYSENE	21
DIBENZO(A,H)ANTHRACENE	4.7
INDENO(1,2,3-CD)PYRENE	13
LEAD	414
ZINC	671

MW-2 (5-6 FT)	4/14/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	8.8
BENZO(A)PYRENE	7.7
BENZO(B)FLUORANTHENE	9
BENZO(K)FLUORANTHENE	4.4
CHRYSENE	8.5
DIBENZO(A,H)ANTHRACENE	1.6
INDENO(1,2,3-CD)PYRENE	4.8
COPPER	52.9
LEAD	231
ZINC	317

TP-12 (3-5 FT)	4/14/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	12
BENZO(A)PYRENE	11
BENZO(B)FLUORANTHENE	14
BENZO(K)FLUORANTHENE	5.9
CHRYSENE	10
DIBENZO(A,H)ANTHRACENE	2.3
INDENO(1,2,3-CD)PYRENE	7.2
ARSENIC	14.5
COPPER	79.4
LEAD	191
MERCURY	0.3
ZINC	242
4,4'-DDE	0.023
TOTAL PCBs	8.3

S-10	4/19/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	2.1
BENZO(A)PYRENE	2.3
BENZO(B)FLUORANTHENE	2.6
BENZO(K)FLUORANTHENE	1
CHRYSENE	2.2
DIBENZO(A,H)ANTHRACENE	0.41
INDENO(1,2,3-CD)PYRENE	1.2
COPPER	75.9
LEAD	111
NICKEL	203
TOTAL PCBs	0.56

SB-11 (4.5-6 FT)	4/15/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	3.8
BENZO(A)PYRENE	3.4
BENZO(B)FLUORANTHENE	4.1
BENZO(K)FLUORANTHENE	1.6
CHRYSENE	3.8
DIBENZO(A,H)ANTHRACENE	0.55
INDENO(1,2,3-CD)PYRENE	2
ARSENIC	39.5
CADMIUM	12
COPPER	164
LEAD	339
MANGANESE	1890
MERCURY	0.69
NICKEL	40.4
ZINC	4930

TP-7 (4-6 FT)	10/30/2019
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	3.4
BENZO(A)PYRENE	2.8
BENZO(B)FLUORANTHENE	4
BENZO(K)FLUORANTHENE	0.98
CHRYSENE	2.8
DIBENZO(A,H)ANTHRACENE	0.56
INDENO(1,2,3-CD)PYRENE	2
ARSENIC	18.2
LEAD	212

SB-15 (0-1 FT)	4/12/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	2.2
BENZO(A)PYRENE	1.9
BENZO(B)FLUORANTHENE	2.2
BENZO(K)FLUORANTHENE	1
CHRYSENE	2
DIBENZO(A,H)ANTHRACENE	0.36
INDENO(1,2,3-CD)PYRENE	1.2
ARSENIC	15.6
COPPER	70.1
LEAD	174
ZINC	224

S-7	4/19/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	3.1
BENZO(A)PYRENE	3.1
BENZO(B)FLUORANTHENE	3.7
BENZO(K)FLUORANTHENE	1.6
CHRYSENE	2.9
DIBENZO(A,H)ANTHRACENE	0.53
INDENO(1,2,3-CD)PYRENE	1.4

SB-12 (3-3.75 FT)	4/15/2021
PARAMETER	MG/KG
ARSENIC	18.3
ZINC	151

TP-13 (2-4 FT)	4/14/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	10
BENZO(A)PYRENE	11
BENZO(B)FLUORANTHENE	12
BENZO(K)FLUORANTHENE	4.3
CHRYSENE	10
DIBENZO(A,H)ANTHRACENE	2.2
INDENO(1,2,3-CD)PYRENE	6.6
COPPER	88.9
LEAD	209
ZINC	376

S-2	10/30/2019
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	36
BENZO(A)PYRENE	35
BENZO(B)FLUORANTHENE	49
BENZO(K)FLUORANTHENE	17
CHRYSENE	35
DIBENZO(A,H)ANTHRACENE	5.3
INDENO(1,2,3-CD)PYRENE	23
ARSENIC	23.9
CADMIUM	8.54
LEAD	206
MERCURY	0.195

S-8	4/19/2021
PARAMETER	MG/KG
BARIUM	456
MANGANESE	5030
NICKEL	31.1

SB-4 (0.5-1 FT)	4/16/2021
PARAMETER	MG/KG
ARSENIC	16.8
COPPER	69.6
LEAD	81.2
ZINC	124

SB-8 (0-2 FT)	4/16/2021
PARAMETER	MG/KG
LEAD	134
NICKEL	30.5

SB-10 (0-2 FT)	4/16/2021
PARAMETER	MG/KG
4,4'-DDE	0.0054
4,4'-DDT	0.011

S-11	4/19/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	8.2
BENZO(A)PYRENE	13
BENZO(B)FLUORANTHENE	20
BENZO(K)FLUORANTHENE	7.8
CHRYSENE	12
INDENO(1,2,3-CD)PYRENE	9.1

SB-9 (0-0.5 FT)	4/16/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	25
BENZO(A)PYRENE	24
BENZO(B)FLUORANTHENE	29
BENZO(K)FLUORANTHENE	13
CHRYSENE	24
DIBENZO(A,H)ANTHRACENE	4.7
INDENO(1,2,3-CD)PYRENE	15
LEAD	81.4
ZINC	152

SB-13 (0-2.5 FT)	4/15/2021
PARAMETER	MG/KG
ARSENIC	66.2
COPPER	85.4
LEAD	89.8
ZINC	138

SB-16 (0-0.5 FT)	4/12/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	2.6
BENZO(A)PYRENE	2.9
BENZO(B)FLUORANTHENE	3.7
BENZO(K)FLUORANTHENE	1.5
CHRYSENE	3.3
INDENO(1,2,3-CD)PYRENE	2
COPPER	65.6
LEAD	111
SELENIUM	4.3

TP-4 (0-2 FT)	10/30/2019
PARAMETER	UG/KG
BENZO(A)ANTHRACENE	1.8
BENZO(A)PYRENE	1.4
BENZO(B)FLUORANTHENE	2.9
CHRYSENE	1.8
DIBENZO(A,H)ANTHRACENE	0.49
INDENO(1,2,3-CD)PYRENE	1.4

S-9	4/19/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	6.8
BENZO(A)PYRENE	6.7
BENZO(B)FLUORANTHENE	8.9
BENZO(K)FLUORANTHENE	4.6
CHRYSENE	7.2
DIBENZO(A,H)ANTHRACENE	1.1
INDENO(1,2,3-CD)PYRENE	3.2
ARSENIC	16.6
CADMIUM	4.1
COPPER	85.4
LEAD	288
NICKEL	32
ZINC	852

S-1	10/30/2019
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	3.7
BENZO(A)PYRENE	3.3
BENZO(B)FLUORANTHENE	4.9
BENZO(K)FLUORANTHENE	1.6
CHRYSENE	3.4
DIBENZO(A,H)ANTHRACENE	0.8
INDENO(1,2,3-CD)PYRENE	3.3
LEAD	162

S-5	4/19/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	75
BENZO(A)PYRENE	73
BENZO(B)FLUORANTHENE	88
BENZO(K)FLUORANTHENE	30
CHRYSENE	80
DIBENZO(A,H)ANTHRACENE	15
FLUORANTHENE	170
INDENO(1,2,3-CD)PYRENE	34
PHENANTHRENE	110
PYRENE	130
ARSENIC	31.7
COPPER	102
LEAD	196
MERCURY	0.2
NICKEL	34.4
ZINC	318
4,4'-DDT	0.035
PFOS	2.1

MW-4 (0-1.5 FT)	4/12/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	2.2
BENZO(A)PYRENE	2.6
BENZO(B)FLUORANTHENE	3
BENZO(K)FLUORANTHENE	1.3
CHRYSENE	2.4
DIBENZO(A,H)ANTHRACENE	0.56
INDENO(1,2,3-CD)PYRENE	1.7
ARSENIC	16.2
CHROMIUM	31.9
COPPER	93.2
LEAD	130
SELENIUM	4.5
ZINC	176

TP-15 (0-1.5 FT)	4/14/2021
PARAMETER	MG/KG
ACENAPHTHENE	82
BENZO(A)ANTHRACENE	360
BENZO(A)PYRENE	380
BENZO(B)FLUORANTHENE	510
BENZO(G,H,I)PERYLENE	220
BENZO(K)FLUORANTHENE	150
CHRYSENE	410
DIBENZO(A,H)ANTHRACENE	97
DIBENZOFURAN	24
FLUORANTHENE	800
FLUORENE	43
INDENO(1,2,3-CD)PYRENE	230
NAPHTHALENE	13
PHENANTHRENE	470
PYRENE	650
COPPER	186
LEAD	172
MANGANESE	2200
NICKEL	51.4
ZINC	350

TP-14 (0-2 FT)	4/14/2021
PARAMETER	MG/KG
ARSENIC	16
COPPER	161
ZINC	161

MW-6 (0-1 FT)	4/12/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	7.8
BENZO(A)PYRENE	8.3
BENZO(B)FLUORANTHENE	9.5
BENZO(K)FLUORANTHENE	5.7
CHRYSENE	9.3
DIBENZO(A,H)ANTHRACENE	1.9
INDENO(1,2,3-CD)PYRENE	5.5
ARSENIC	17.8
COPPER	82.7
LEAD	146
ZINC	130

MW-6 (1.5-2 FT)	4/12/2021
PARAMETER	MG/KG
BENZO(A)PYRENE	1.2
BENZO(B)FLUORANTHENE	1.4
INDENO(1,2,3-CD)PYRENE	0.79
BERYLLIUM	51
COPPER	50.9

TP-16 (0-2 FT)	4/14/2021
PARAMETER	MG/KG
BENZO(A)PYRENE	1.1
BENZO(B)FLUORANTHENE	1.7
INDENO(1,2,3-CD)PYRENE	1
ARSENIC	15.3
COPPER	58.3

TP-1 (0-1 FT)	10/30/2019
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	3.5
BENZO(A)PYRENE	2.6
BENZO(B)FLUORANTHENE	4.4
BENZO(K)FLUORANTHENE	1.3
CHRYSENE	3.7
DIBENZO(A,H)ANTHRACENE	0.81
INDENO(1,2,3-CD)PYRENE	2.4
ARSENIC	25.8
LEAD	117

MW-5 (0-0.3 FT)	4/12/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	25
BENZO(A)PYRENE	24
BENZO(B)FLUORANTHENE	28
BENZO(K)FLUORANTHENE	15
CHRYSENE	25
DIBENZO(A,H)ANTHRACENE	4.5
INDENO(1,2,3-CD)PYRENE	16
COPPER	64.5
LEAD	90.9
ZINC	167

S-6	4/19/2021
PARAMETER	MG/KG
BENZO(A)ANTHRACENE	62
BENZO(A)PYRENE	68
BENZO(B)FLUORANTHENE	81
BENZO(K)FLUORANTHENE	41
CHRYSENE	72
DIBENZO(A,H)ANTHRACENE	13
INDENO(1,2,3-CD)PYRENE	36
PYRENE	110
LEAD	102
4,4'-DDT	0.03

TP-1 TP-2 TP-3 TP-4 TP-5 TP-6 TP-7 TP-8 TP-9 TP-10 TP-11 TP-12 TP-13 TP-14 TP-15 TP-16 TP-17
MW-1 MW-2 MW-3 MW-4 MW-5 MW-6
SB-1/MW-2R SB-1 SB-2 SB-3 SB-4 SB-5 SB-6 SB-7 SB-8 SB-10 SB-11 SB-12 SB-13 SB-14 SB-15 SB-16
S-1 S-2 S-3 S-4 S-5 S-6 S-7 S-8 S-9 S-10 S-11
SSV/IA-1 SSV/IA-2 OA-1

FOUNDRY STREET
HERTEL AVENUE
FORMER UST AREA

FIGURE 3

HISTORIC & RI INVESTIGATION LOCATIONS & EXCEEDANCES

REMEDIAL ACTION WORK PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR

KAM CLEANUP LLC

BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC

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JOB NO.: 0508-019-001

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LEGEND:

- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- DEMOLISHED PORTION OF BUILDING
- TP-1 PHASE II TEST PIT LOCATION
- S-1 PHASE II SURFACE SOIL LOCATION
- TP-11 RI TEST PIT LOCATION
- S-3 RI SURFACE SOIL LOCATION
- MW-1 RI MONITORING WELL LOCATION
- SB-1 RI SOIL BORING LOCATION
- EXCEEDS USCOs
- ESTIMATED EXTENT OF EXCAVATION

NOTES:
1. IMAGE TAKEN FROM GOOGLE EARTH 2017.
2. SB-1 CONVERTED TO MW-2R DUE TO REFUSAL IN AREA OF MW-2.

DEFINITIONS:
USCO = 6 NYCRR PART 375 UNRESTRICTED SOIL CLEANUP OBJECTIVES

EXTERIOR EXCAVATION AREA
AREA (SQ. FT): 93,000
APPROX. DEPTH (FT): 0.3-10.5 (VARIES)
VOLUME (TONS): 17,770

SB-4 METALS AREA
AREA (SQ. FT): 900
APPROX. DEPTH (FT): 3
VOLUME (TONS): 160

SB-8 METALS AREA
AREA (SQ. FT): 900
APPROX. DEPTH (FT): 3
VOLUME (TONS): 160

SB-10 PESTICIDES AREA
AREA (SQ. FT): 900
APPROX. DEPTH (FT): 3
VOLUME (TONS): 160

FORMER UST AREA

FOUNDRY STREET

HERTEL AVENUE

N

80' 0' 80' 160'

SCALE: 1 INCH = 80 FEET
SCALE IN FEET
(approximate)

FIGURE 4

PREFERRED REMEDY UNRESTRICTED (TRACK 1) CLEANUP

REMEDIAL ACTION WORK PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR
KAM CLEANUP LLC

BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218,
(716) 856-0599

JOB NO.: 0508-019-001

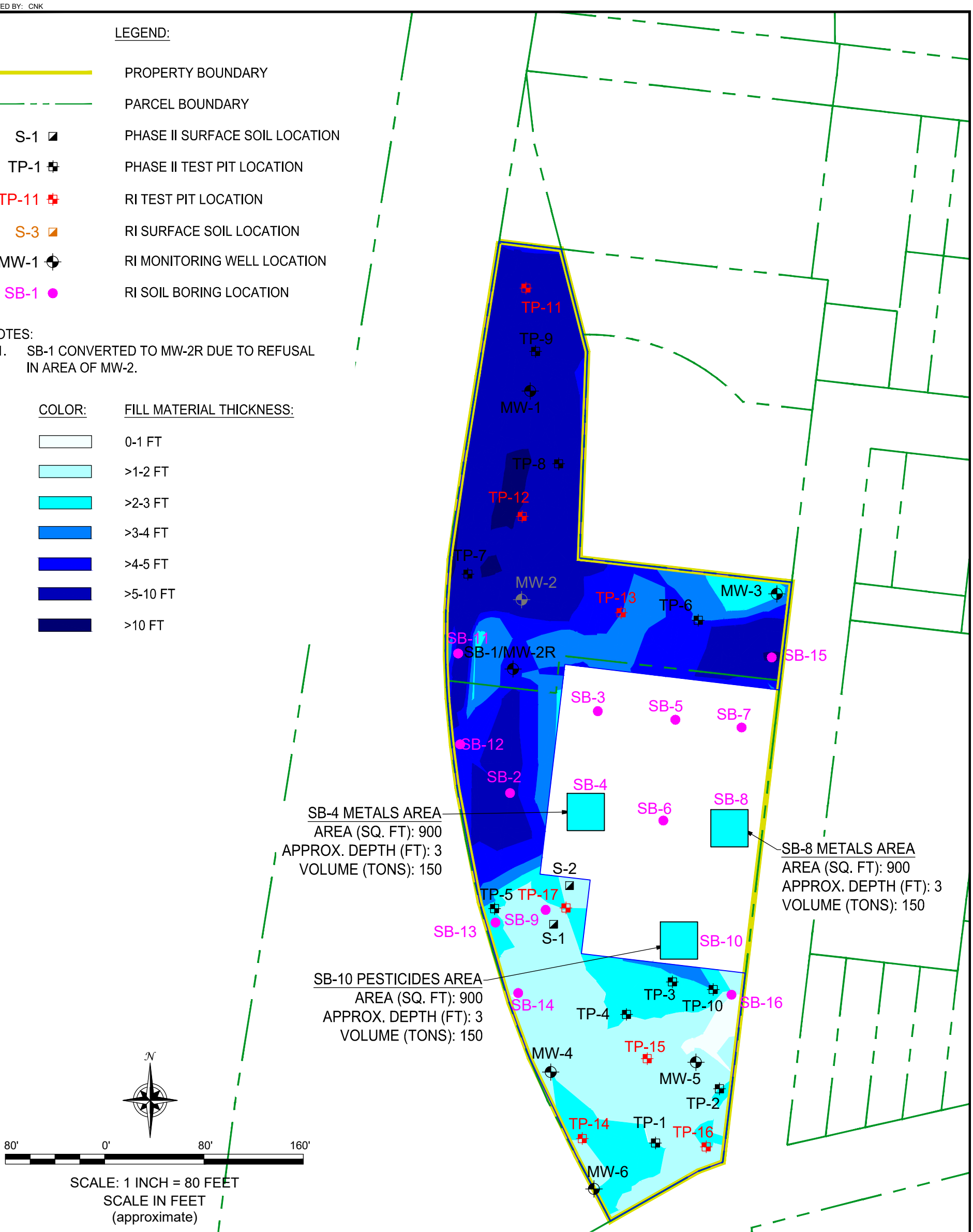
DATE: APRIL 2022
DRAFTED BY: CNK

LEGEND:

- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- S-1 PHASE II SURFACE SOIL LOCATION
- TP-1 PHASE II TEST PIT LOCATION
- TP-11 RI TEST PIT LOCATION
- S-3 RI SURFACE SOIL LOCATION
- MW-1 RI MONITORING WELL LOCATION
- SB-1 RI SOIL BORING LOCATION

NOTES:
1. SB-1 CONVERTED TO MW-2R DUE TO REFUSAL IN AREA OF MW-2.

COLOR:	FILL MATERIAL THICKNESS:
	0-1 FT
	>1-2 FT
	>2-3 FT
	>3-4 FT
	>4-5 FT
	>5-10 FT
	>10 FT



SCALE: 1 INCH = 80 FEET
SCALE IN FEET
(approximate)

NAME	FILL MATERIAL AREA (SF)	AVERAGE FILL MATERIAL DEPTH (FT)	ESTIMATED FILL MATERIAL VOLUME (CY)	ESTIMATED FILL MATERIAL VOLUME (TONS)
EXTERIOR AREA	92,410	4.4	15,134	22,701
SB-4 METALS AREA	900	3	100	150
SB-8 METALS AREA	900	3	100	150
SB-10 PESTICIDES AREA	900	3	100	150
TOTAL			**15,434**	**23,151**

FIGURE 5

FILL MATERIAL DEPTH CONTOUR MAP/ PLANNED EXCAVATION

REMEDIAL ACTION WORK PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR
KAM CLEANUP LLC

BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0508-019-001

DATE: MARCH 2022
DRAFTED BY: CNK

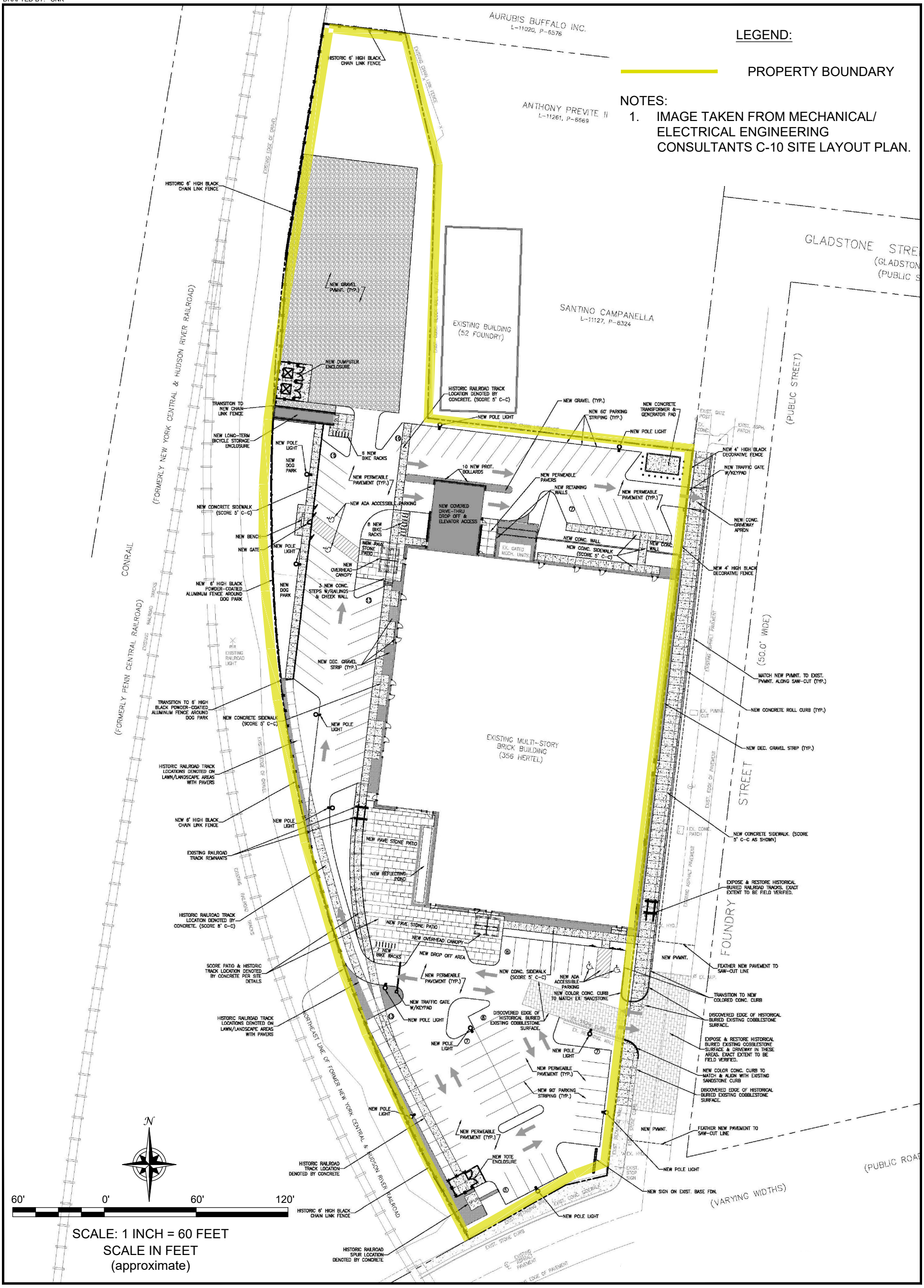


FIGURE 6

SITE REDEVELOPMENT PLAN

REMEDIAL ACTION WORK PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR

KAM CLEANUP LLC

BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218,
(716) 856-0599

JOB NO.: 0508-019-001

APPENDIX A

HEALTH AND SAFETY PLAN (HASP)

SITE HEALTH AND SAFETY PLAN
for
BROWNFIELD CLEANUP PROGRAM
REMEDIAL ACTIVITIES

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

April 2022 0508-019-001

Prepared for:

KAM CLEANUP LLC

HERTEL AND FOUNDRY SITE
HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES

ACKNOWLEDGEMENT

Plan Reviewed by (initial):

Corporate Health and Safety Director: Thomas H. Forbes, P.E.

Project Manager: Michael Lesakowski

Designated Site Safety and Health Officer: Bryan Mayback

Acknowledgement:
I acknowledge that I have reviewed the information contained in this site-specific Health and Safety Plan, and understand the hazards associated with performance of the field activities described herein. I agree to comply with the requirements of this plan.

NAME (PRINT)	SIGNATURE	DATE

HERTEL AND FOUNDRY SITE
HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES

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HERTEL AND FOUNDRY SITE
HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES

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HERTEL AND FOUNDRY SITE
HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES

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1.0 INTRODUCTION

1.1 General

In accordance with OSHA requirements contained in 29 CFR 1910.120, this Health and Safety Plan (HASP) describes the specific health and safety practices and procedures to be employed by Benchmark Civil/Environmental Engineering & Geology, PLLC and TurnKey Environmental Restoration, LLC employees (referred to hereafter as Benchmark-TurnKey) during Remedial Action (RA) activities at the Hertel and Foundry Site (Site) located in the City of Buffalo, Erie County, New York (BCP Site No. C915359). This HASP presents procedures for Benchmark-TurnKey employees who will be involved with RA field activities; it does not cover the activities of other contractors, subcontractors or other individuals on the Site. These firms will be required to develop and enforce their own HASPs as discussed in Section 2.0. Benchmark-TurnKey accepts no responsibility for the health and safety of contractor, subcontractor or other personnel.

This HASP presents information on known Site health and safety hazards using available historical information, and identifies the equipment, materials and procedures that will be used to eliminate or control these hazards. Environmental monitoring will be performed during the course of field activities to provide real-time data for on-going assessment of potential hazards.

1.2 Background

The ±2.99-acre Site consists of two contiguous tax parcels as follows:

- 356 Hertel Avenue: SBL No. 77.74-4-22, 1.94 acres
- 42 Foundry Street: SBL No. 77.74-4-21, 1.05 acres

The Site is currently developed with an approximate 115,000 square foot structure that is mostly vacant except for a small portion that includes an office and warehouse used for storage of boats and antiques. Undeveloped portions of the Site are covered by asphalt, gravel, or vegetation.

The Site was used industrially from at least 1916 through at least 1950. Specifically, John Kam Malting Company, a malting operation with a malt house, a kiln house, water

tempering, grain elevators/tanks, and a warehouse occupied the Site from 1901 until 1916. In 1916, John Kam Malting Company changed operations to animal feed production under the name Black Rock Milling Corporation/Park & Pollard Company. Animal feed production continued until at least 1950. An additional historic occupant was identified as Buffalo Insulation Distributers/Multi-glass Products, apparently an insulation contractor, from at least 1965 through at least 1986. The Site included railroad tracks throughout the western portion of the Site from at least 1916 to at least 1961. Additional tracks were present on the eastern portion of the Site during this time as well. The Site has a history of underground storage tanks (USTs); one 1,000-gallon gasoline UST was installed in 1962 and replaced by a 4,000-gallon gasoline UST in 1969. The 4,000-gallon tank was slushed in place in 1986 and removed in 2002.

1.3 Known and Suspected Environmental Conditions

Previous investigations have shown that former operations and the presence of urban fill have impacted the Site, which will require remediation prior to redevelopment. The findings of the previous investigations are summarized below.

Soil

Based on the historic and remedial investigation (RI) subsurface soil/fill findings, polycyclic aromatic hydrocarbons (PAH), metals, and polychlorinated biphenyls (PCBs) contaminated soil/fill exceeding 6 NYCRR Part 375 Unrestricted Soil Cleanup Objectives (USCOs) was identified across the Site from approximately 0 to between 0.3 ft and 8.5 ft. Elevated PAHs above Restricted-Residential SCOs (RRSCOs) were detected in 9 of 11 surface soil samples and 20 of 35 subsurface soil samples. Elevated metals above RRSCOs were detected in 5 of 9 surface soil samples and 12 of 35 subsurface soil samples. Elevated PCBs above RRSCOs were detected in no surface soil samples and 1 of 35 subsurface soil samples.

Groundwater

Volatile organic compounds (VOCs), pesticides, and herbicides were not detected above their respective NYSDEC TOGS 1.1.1 Groundwater Quality Standards/Guidance Values (GWQS/GV). PAHs were detected above their respective GWQS at MW-1, MW-2R, and MW-4. Several naturally occurring metals (iron, magnesium, manganese, and sodium), were detected across the Site above their respective GWQS. Lead was detected exceeding its GWQS at MW-1 and MW-2R. This elevated lead was likely due to the high turbidity of the collected samples as only naturally occurring metals were

detected above their respective GWQS in samples analyzed for dissolved metals. Total PCBs exceeded GWQS at MW-1.

Soil Vapor
SVI results compared to NYSDOH decision matrices indicated that "No Further Action" is required in the building.

Selected Remedy
The Track 1 USCO remedy is: fully protective of public health and the environment; is advantageous over other remedies when evaluated against the remedy selection criteria; and fully satisfies the remedial action objectives (RAOs) for the Site.

1.4 Parameters of Interest

Based on the previous investigations, constituents of potential concern (COPCs) in soil and, potentially groundwater, at the Site include:

- **Semi-Volatile Organic Compounds (SVOCs) –** SVOCs present at elevated concentrations may include polycyclic aromatic hydrocarbons (PAHs), which are byproducts of incomplete combustion and impurities in petroleum products.
- **Inorganic Compounds –** The inorganic COPCs potentially present at elevated concentrations are arsenic, barium, beryllium, cadmium, chromium, copper, lead, manganese, nickel, selenium, zinc, mercury.
- **Pesticides** – Pesticides potential present at elevated concentrations include 4,4'-DDE and 4,4'-DDT.
- **Polychlorinated Biphenyls** – PCBs present at elevated concentrations include aroclor 1254.

1.5 Overview of Remedial Activities

Benchmark-TurnKey personnel will be on-site to observe and perform remedial activities. The remedial action field activities to be completed are described below.

Remedial Action Activities

1. Excavation of PAHs, metals, PCBs, and pesticides-impacted soil/fill within the Exterior Area followed by off-site disposal at a commercial sanitary landfill.
2. Excavation of metals-impacted soil/fill within the SB-4 Metals Area followed by off-site disposal at a commercial sanitary landfill.

3. Excavation of metals-impacted soil/fill within the SB-8 Metals Area followed by off-site disposal at a commercial sanitary landfill.
4. Excavation of pesticides-impacted soil/fill within the SB-10 Pesticides Area followed by off-site disposal at a commercial sanitary landfill.
5. Waste characterization sampling
6. Post-excavation sampling
7. Backfilling
8. Groundwater Management

2.0 ORGANIZATIONAL STRUCTURE

This section of the HASP describes the lines of authority, responsibility and communication as they pertain to health and safety functions at the Site. The purpose of this chapter is to identify the personnel who impact the development and implementation of the HASP and to describe their roles and responsibilities. This chapter also identifies other contractors and subcontractors involved in work operations and establish the lines of communications among them for health and safety matters. The organizational structure described in this chapter is consistent with the requirements of 29 CFR 1910.120(b)(2). This section will be reviewed by the Project Manager and updated as necessary to reflect the current organizational structure at this Site.

2.1 Roles and Responsibilities

All Benchmark-TurnKey personnel on the Site must comply with the minimum requirements of this HASP. The specific responsibilities and authority of management, safety and health, and other personnel on this Site are detailed in the following paragraphs.

2.1.1 Corporate Health and Safety Director

The Benchmark-TurnKey Corporate Health and Safety Director is ***Mr. Thomas H. Forbes, P.E.*** The Corporate Health and Safety Director responsible for developing and implementing the Health and Safety program and policies for Benchmark-TurnKey Environmental Engineering & Science, PLLC, and consulting with corporate management to ensure adequate resources are available to properly implement these programs and policies. The Corporate Health and Safety Director coordinates Benchmark-TurnKey's Health and Safety training and medical monitoring programs and assists project management and field staff in developing site-specific health and safety plans.

2.1.2 Project Manager

The Project Manager for this Site is ***Mr. Michael Lesakowski.*** The Project Manager has the responsibility and authority to direct all Benchmark-TurnKey work operations at the Site. The Project Manager coordinates safety and health functions with the Site Safety and Health Officer and bears ultimate responsibility for proper implementation of this HASP. He may delegate authority to expedite and facilitate any application of the

program, including modifications to the overall project approach as necessary to circumvent unsafe work conditions. Specific duties of the Project Manager include:

- Preparing and coordinating the Site work plan.
- Providing Benchmark-TurnKey workers with work assignments and overseeing their performance.
- Coordinating health and safety efforts with the Site Safety and Health Officer (SSHO).
- Reviewing the emergency response coordination plan to assure its effectiveness.
- Serving as the primary liaison with Site contractors and the property owner.

2.1.3 Site Safety and Health Officer

The SSHO for this Site is ***Mr. Bryan Mayback***. The qualified alternate SSHO is ***Mr. Christopher Boron.*** The SSHO reports to the Project Manager. The SSHO is on-site or readily accessible to the Site during all work operations and has the authority to halt Site work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

- Managing the safety and health functions for Benchmark-TurnKey personnel on the Site.
- Serving as the point of contact for safety and health matters.
- Ensuring that Benchmark-TurnKey field personnel working on the Site have received proper training (per 29 CFR Part 1910.120(e)), that they have obtained medical clearance to wear respiratory protection (per 29 CFR Part 1910.134), and that they are properly trained in the selection, use and maintenance of personal protective equipment, including qualitative respirator fit testing.
- Performing or overseeing Site monitoring as required by the HASP.
- Assisting in the preparation and review of the HASP.
- Maintaining site-specific safety and health records as described in this HASP.
- Coordinating with the Project Manager, Site Workers, and Contractor's SSHO as necessary for safety and health efforts.

2.1.4 Site Workers

Site workers are responsible for: complying with this HASP or a more stringent HASP, if appropriate (i.e., Contractor and Subcontractor's HASP); using proper PPE;

reporting unsafe acts and conditions to the SSHO; and following the safety and health instructions of the Project Manager and SSHO.

2.1.5 Other Site Personnel

Other Site personnel who will have health and safety responsibilities will include the Drilling Contractor, who will be responsible for developing, implementing and enforcing a Health and Safety Plan equally stringent or more stringent than Benchmark-TurnKey's HASP. Benchmark-TurnKey assumes no responsibility for the health and safety of anyone outside its direct employ. Each Contractor's HASP shall cover all non- Benchmark-TurnKey Site personnel. Each Contractor shall assign a SSHO who will coordinate with Benchmark-TurnKey's SSHO as necessary to ensure effective lines of communication and consistency between contingency plans.

In addition to Benchmark-TurnKey and Contractor personnel, other individuals who may have responsibilities in the work zone include subcontractors and governmental agencies performing Site inspection work (i.e., the New York State Department of Environmental Conservation). The Contractor shall be responsible for ensuring that these individuals have received OSHA-required training (29 CFR 1910.120(e)), including initial, refresher and site-specific training, and shall be responsible for the safety and health of these individuals while they are on-site.

3.0 HAZARD EVALUATION

Due to the presence of certain contaminants at the Site, the possibility exists that workers will be exposed to hazardous substances during field activities. The principal points of exposure would be through direct contact with and incidental ingestion of soil, and through the inhalation of contaminated particles or vapors. Other points of exposure may include direct contact with groundwater. In addition, the use of drilling and/or medium to large-sized construction equipment (e.g., excavator) will also present conditions for potential physical injury to workers. Further, since work will be performed outdoors, the potential exists for heat/cold stress to impact workers, especially those wearing protective equipment and clothing. Adherence to the medical evaluations, worker training relative to chemical hazards, safe work practices, proper personal protection, environmental monitoring, establishment work zones and Site control, appropriate decontamination procedures and contingency planning outlined herein will reduce the potential for chemical exposures and physical injuries.

3.1 Chemical Hazards

As discussed in Section 1.3, SVOC, PCB, pesticide, and inorganic impacts have been identified in the soil/fill material present at the Site. Table 1 lists exposure limits for airborne concentrations of the COPCs identified in Section 1.4 of this HASP. Brief descriptions of the toxicology of the prevalent COPCs and related health and safety guidance and criteria are provided below.

- **Polycyclic Aromatic Hydrocarbons (PAHs)** are formed as a result of the pyrolysis and incomplete combustion of organic matter such as fossil fuel. PAH aerosols formed during the combustion process disperse throughout the atmosphere, resulting in the deposition of PAH condensate in soil, water and on vegetation. In addition, several products formed from petroleum processing operations (e.g., roofing materials and asphalt) also contain elevated levels of PAHs. Hence, these compounds are widely dispersed in the environment. PAHs are characterized by a molecular structure containing three or more fused, unsaturated carbon rings. Seven of the PAHs are classified by USEPA as probable human carcinogens (USEPA Class B2). These are: benzo(a)pyrene; benzo(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene. The primary route of exposure to PAHs is through incidental ingestion and inhalation of contaminated

particulates. PAHs are characterized by an organic odor and exist as oily liquids in pure form. Acute exposure symptoms may include acne-type blemishes in areas of the skin exposed to sunlight.

- **Polychlorinated Biphenyls (PCBs)** are associated with former substations, rail yards, and hydraulic pump houses on the Site. PCBs can be absorbed into the body by inhalation of its aerosol, through the skin, and by ingestion. Repeated or prolonged contact with skin may cause dermatitis. PCBs may have effects on the liver. Animal tests show that PCBs possibly cause toxic effects in human reproduction. In the food chain, bioaccumulation takes place, specifically in aquatic organisms. A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

- **4,4'-DDE (CAS #72-55-9)** is a white crystalline solid or white powder and is breakdown product of 4,4'-DDT. 4,4'-DDT was commonly used as an insecticide, but now has limited use. 4,4'-DDT is very soluble in organics solvents, fat, and oils, and accumulates quickly in ecosystems. Exposure to 4,4'-DDT is known to impact the nervous system, causing tremors, dizziness, nausea, incoordination, convulsions, and seizures and is likely a carcinogen in humans.

- **4,4'-DDT (CAS #50-29-3)** is a white, odorless, tasteless crystalline hydrocarbon and was commonly used as an insecticide, however its use is now limited. 4,4'-DDT is very soluble in organics solvents, fat, and oils, and accumulates quickly in ecosystems. Exposure to 4,4'-DDT is known to impact the nervous system, causing tremors, dizziness, nausea, incoordination, convulsions, and seizures and is likely a carcinogen in humans.

- **Arsenic (CAS #7440-38-2)** is a naturally occurring element and is usually found combined with one or more elements, such as oxygen or sulfur. Inhalation is a more important exposure route than ingestion. First phase exposure symptoms include nausea, vomiting, diarrhea and pain in the stomach. Prolonged contact is corrosive to the skin and mucus membranes. Arsenic is considered a Group A human carcinogen by the USEPA. Exposure via inhalation is associated with an increased risk of lung cancer. Exposure via the oral route is associated with an increased risk of skin cancer.

- **Barium (CAS # 7440-39-3)** is a silver white metal, produced by the reduction of barium oxide. Local effects and symptoms of exposure to barium compounds, such as the hydroxide or carbonate, may include irritation of the eyes, throat, nose and skin. Systemic effects from ingestion include increased muscle contractility, reduction of heart rate/potential arrest, intestinal peristalsis, and vascular constriction.

- **Beryllium (CAS #7440-41-7)** is a naturally occurring element and can be found in electronic products such as televisions, calculators, and personal computers. Short-term inhalation of high levels of beryllium can cause inflammation of the lungs. Long-term inhalation exposure can cause beryllium disease, in which granulomatous lesions develop in the lung. Beryllium is a suspected human carcinogen.

- **Cadmium (CAS #7440-43-9)** is a naturally occurring element that is generally found combined with elements such as oxygen, chloride, or sulfur. Cadmium is used in products such as batteries, pigments, metal coatings and plastics. Cadmium can cause vomiting and diarrhea when ingested, and cause lung damage when inhaled. Long term effects of cadmium include kidney damage, increased bone fragility, cancer, and death.

- **Chromium (CAS #7440-47-3)** is used in the production of stainless steel, chrome plated metals, and batteries. Two forms of chromium, hexavalent (CR+6) and trivalent (CR+3) are toxic. Hexavalent chromium is an irritant and corrosive to the skin and mucus membranes. Chromium is a potential occupational carcinogen. Acute exposures to dust may cause coughing, wheezing, headaches, and fever.

- **Copper (CAS #7440-50-8)** is a naturally occurring metal in the environment in rocks, soil, water and air. The most common use of copper is to make wire, pipes, and sheet metal. High levels of copper exposure may cause irritation of the nose, mouth, and eyes, vomiting, diarrhea, stomach cramps, and death.

- **Lead (CAS #7439-92-1)** can affect almost every organ and system in our bodies. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect memory. Lead may cause anemia.

- **Manganese (CAS #7439-96-5)** is a naturally occurring element that is commonly used in the production of steel, stainless steel, and cast iron. Exposure may cause insomnia, mental confusion, cough, difficulty breathing, vomiting, weakness, and damage to kidneys and the central nervous system.

- **Mercury (CAS #7439-97-6)** is used in industrial applications for the production of caustic and chlorine, and in electrical control equipment and apparatus. Overexposure to mercury may cause coughing, chest pains, bronchitis, pneumonia, indecision, headaches, fatigue, and salivation. Mercury is a skin and

eye irritant.

- **Nickel (CAS # 7440-02-0)** is a metal, commonly used to make coins, magnets, jewelry, stainless steel, electronics, and components of industrial machines. It is widely used in industry, primarily refining, electroplating, and welding. Nickel is a carcinogenic metal, that with chronic exposure has been connected with increased risk of lung cancer, cardiovascular disease, neurological deficits, developmental deficits in childhood, and high blood pressure.

- **Selenium (CAS #7782-49-2)** is a natural element and is usually combined with one or more elements, such as oxygen and sulfide minerals. Selenium is a common by-product of copper refining. Breathing high levels of selenium may lead to dizziness, fatigue, and bronchitis, direct contact with selenium may cause rashes on the skin, and ingestion of selenium may lead to hair and nail loss and brittleness.

- **Zinc (CAS #7440-66-6)** is a naturally occurring inorganic element and is usually found combined with one or more elements, such as oxygen, chlorine and chrome. Inhalation of zinc compounds such as zinc chloride, zinc chromate or zinc oxide is a more common exposure route than inhalation of pure zinc. The effects of inhalation exposure symptoms for these compounds vary but may include nausea, fatigue and muscle/joint pain. Prolonged contact is corrosive to the skin and mucus membranes and lungs.

With respect to the anticipated remedial activities discussed in Section 1.5, possible routes of exposure to the above-mentioned contaminants are presented in Table 2. The use of proper respiratory equipment, as outlined in Section 7.0 of this HASP, will minimize the potential for exposure to airborne contamination, if deemed necessary. Exposure to contaminants through dermal and other routes will also be minimized through the use of protective clothing (Section 7.0), safe work practices (Section 6.0), and proper decontamination procedures (Section 12.0).

3.2 Physical Hazards

Remedial field activities at the Hertel and Foundry Site may present the following physical hazards:

- The potential for physical injury during heavy construction equipment use, such as backhoes, excavators and drilling equipment.

- The potential for heat/cold stress to employees during the summer/winter months (see Section 10.0).

- The potential for slip and fall injuries due to rough, uneven terrain and/or open excavations.

These hazards represent only some of the possible means of injury that may be present during remedial operations and sampling activities at the Site. Since it is impossible to list all potential sources of injury, it shall be the responsibility of each individual to exercise proper care and caution during all phases of the work.

4.0 TRAINING

4.1 Site Workers

All personnel performing remedial activities at the Site (such as, but not limited to, equipment operators, general laborers, and drillers) and who may be exposed to hazardous substances, health hazards, or safety hazards and their supervisors/managers responsible for the Site shall receive training in accordance with 29 CFR 1910.120(e) before they are permitted to engage in operations in the exclusion zone or contaminant reduction zone. This training includes an initial 40-hour Hazardous Waste Site Worker Protection Course, an 8-hour Annual Refresher Course subsequent to the initial 40-hour training, and 3 days of actual field experience under the direct supervision of a trained, experienced supervisor. Additional site-specific training shall also be provided by the SSHO prior to the start of field activities. A description of topics to be covered by this training is provided below.

4.1.1 Initial and Refresher Training

Initial and refresher training is conducted by a qualified instructor as specified under OSHA 29 CFR 1910.120(e)(5) and is specifically designed to meet the requirements of OSHA 29 CFR 1910.120(e)(3) and 1910.120(e)(8). The training covers, as a minimum, the following topics:

- OSHA HAZWOPER regulations.
- Site safety and hazard recognition, including chemical and physical hazards.
- Medical monitoring requirements.
- Air monitoring, permissible exposure limits, and respiratory protection level classifications.
- Appropriate use of personal protective equipment (PPE), including chemical compatibility and respiratory equipment selection and use.
- Work practices to minimize risk.
- Work zones and Site control.

- Safe use of engineering controls and equipment.
- Decontamination procedures.
- Emergency response and escape.
- Confined space entry procedures.
- Heat and cold stress monitoring.
- Elements of a Health and Safety Plan.
- Spill containment.

Initial training also incorporates workshops for PPE and respiratory equipment use (Levels A, B and C), and respirator fit testing. Records and certification received from the course instructor documenting each employee's successful completion of the training identified above are maintained on file at Benchmark-TurnKey's Buffalo, NY office. Contractors and Subcontractors are required to provide similar documentation of training for all their personnel who will be involved in on-site work activities.

Any employee who has not been certified as having received health and safety training in conformance with 29 CFR 1910.120(e) is prohibited from working in the exclusion and contamination reduction zones, or to engage in any on-site work activities that may involve exposure to hazardous substances or wastes.

4.1.2 Site Training

Site workers are given a copy of the HASP and provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with the HASP and the information and requirements it contains. The Site briefing shall be provided by the SSHO prior to initiating field activities and shall include:

- Names of personnel and alternates responsible for Site safety and health.
- Safety, health and other hazards present on the Site.
- The site lay-out including work zones and places of refuge.

- The emergency communications system and emergency evacuation procedures.
- Use of PPE.
- Work practices by which the employee can minimize risks from hazards.
- Safe use of engineering controls and equipment on the site.
- Medical surveillance, including recognition of symptoms and signs of over-exposure as described in Chapter 5 of this HASP.
- Decontamination procedures as detailed in Chapter 12 of this HASP.
- The emergency response plan as detailed in Chapter 15 of this HASP.
- Confined space entry procedures, if required, as detailed in Chapter 13 of this HASP.
- The spill containment program as detailed in Chapter 9 of this HASP.
- Site control as detailed in Chapter 11 of this HASP.

Supplemental health and safety briefings will also be conducted by the SSHO on an as-needed basis during the course of the work. Supplemental briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing Site characterization and analysis. Conditions for which the SSHO may schedule additional briefings include but are not limited to: a change in Site conditions (e.g., based on monitoring results); changes in the work schedule/plan; newly discovered hazards; and safety incidents occurring during Site work.

4.2 Supervisor Training

On-site safety and health personnel who are directly responsible for or who supervise the safety and health of workers engaged in hazardous waste operations (i.e., SSHO) shall receive, in addition to the appropriate level of worker training described in Section 4.1, above, 8 additional hours of specialized supervisory training, in compliance with 29 CFR 1910.120(e)(4).

4.3 Emergency Response Training

Emergency response training is addressed in Appendix A of this HASP, Emergency Response Plan.

4.4 Site Visitors

Each Contractor's SSHO will provide a site-specific briefing to all Site visitors and other non- Benchmark-TurnKey personnel who enter the Site beyond the Site entry point. The site-specific briefing will provide information about Site hazards, the Site layout including work zones and places of refuge, the emergency communications system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

Site visitors will not be permitted to enter the exclusion zone or contaminant reduction zones unless they have received the level of training required for Site workers as described in Section 4.1.

5.0 MEDICAL MONITORING

Medical monitoring examinations are provided to Benchmark-TurnKey employees as stipulated under 29 CFR Part 1910.120(f). These exams include initial employment, annual and employment termination physicals for all Benchmark-TurnKey employees involved in hazardous waste site field operations. Post-exposure examinations are also provided for employees who may have been injured, received a health impairment, or developed signs or symptoms of over-exposure to hazardous substances or were accidentally exposed to substances at concentrations above the permissible exposure limits without necessary personal protective equipment. Such exams are performed as soon as possible following development of symptoms or the known exposure event.

Medical evaluations are performed by Health Works, an occupational health care provider under contract with Benchmark. Health Works is located in Seneca Square Plaza, 1900 Ridge Road, West Seneca, New York 14224. The facility can be reached at (716) 823-5050 to schedule routine appointments or post-exposure examinations.

Medical evaluations are conducted according to the Benchmark Medical Monitoring Program and include an evaluation of the workers' ability to use respiratory protective equipment. The examinations include:

- Occupational/medical history review.
- Physical exam, including vital sign measurement.
- Spirometry testing.
- Eyesight testing.
- Audio testing (minimum baseline and exit, annual for employees routinely exposed to greater than 85db).
- EKG (for employees >40 yrs age or as medical conditions dictate).
- Chest X-ray (baseline and exit, and every 5 years).
- Blood biochemistry (including blood count, white cell differential count, serum multiplastic screening).
- Medical certification of physical requirements (i.e., sight, musculoskeletal,

cardiovascular) for safe job performance and to wear respiratory protection equipment.

The purpose of the medical evaluation is to determine an employee's fitness for duty on hazardous waste sites; and to establish baseline medical data. In conformance with OSHA regulations, Benchmark-TurnKey will maintain and preserve medical records for a period of 30 years following termination of employment. Employees are provided a copy of the physician's post-exam report and have access to their medical records and analyses.

6.0 SAFE WORK PRACTICES

All Benchmark-TurnKey employees shall conform to the following safe work practices during all on-site work activities conducted within the exclusion and contamination reduction zones:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth contact is strictly prohibited.

- The hands and face must be thoroughly washed upon leaving the work area and prior to engaging in any activity indicated above.

- Respiratory protective equipment and clothing must be worn by all personnel entering the Site as required by the HASP or as modified by the Site safety officer. Excessive facial hair (i.e., beards, long mustaches or sideburns) that interferes with the satisfactory respirator-to-face seal is prohibited.

- Contact with surfaces/materials either suspected or known to be contaminated will be avoided to minimize the potential for transfer to personnel, cross contamination and need for decontamination.

- Medicine and alcohol can synergize the effects of exposure to toxic chemicals. Due to possible contraindications, use of prescribed drugs should be reviewed with the Benchmark-TurnKey occupational physician. Alcoholic beverage and illegal drug intake are strictly forbidden during the workday.

- All personnel shall be familiar with standard operating safety procedures and additional instructions contained in this Health and Safety Plan.

- On-site personnel shall use the "buddy" system. No one may work alone (i.e., out of earshot or visual contact with other workers) in the exclusion zone.

- Personnel and equipment in the contaminated area shall be minimized, consistent with effective Site operations.

- All employees have the obligation to immediately report and if possible, correct unsafe work conditions.

- Use of contact lenses on-site will not be permitted. Spectacle kits for insertion into full-face respirators will be provided for Benchmark-TurnKey employees, as requested and required.

The recommended specific safety practices for working around the contractor's equipment (e.g., backhoes, bulldozers, excavators, drill rigs etc.) are as follows:

- Although the Contractor and subcontractors are responsible for their equipment and safe operation of the Site, Benchmark-TurnKey personnel are also responsible for their own safety.

- Subsurface work will not be initiated without first clearing underground utility services.

- Heavy equipment should not be operated within 20 feet of overhead wires. This distance may be increased if windy conditions are anticipated or if lines carry high voltage. The Site should also be sufficiently clear to ensure the project staff can move around the heavy machinery safely.

- Care should be taken to avoid overhead wires when moving heavy-equipment from location to location.

- Hard hats, safety boots and safety glasses should be worn at all times in the vicinity of heavy equipment. Hearing protection is also recommended.

- The work Site should be kept neat. This will prevent personnel from tripping and will allow for fast emergency exit from the Site.

- Proper lighting must be provided when working at night.

- Construction activities should be discontinued during an electrical storm or severe weather conditions.

- The presence of combustible gases should be checked before igniting any open flame.

- Personnel shall stand upwind of any construction operation when not immediately involved in sampling/logging/observing activities.

- Personnel will not approach the edge of an unsecured trench/excavation closer than 2 feet.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 Equipment Selection

PPE will be donned when work activities may result in exposure to physical or chemical hazards beyond acceptable limits, and when such exposure can be mitigated through appropriate PPE. The selection of PPE will be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the Site, the task-specific conditions and duration, and the hazards and potential hazards identified at the Site.

Equipment designed to protect the body against contact with known or suspect chemical hazards are grouped into four categories according to the degree of protection afforded. These categories designated A through D consistent with United States Environmental Protection Agency (USEPA) Level of Protection designation, are:

- **Level A:** Should be selected when the highest level of respiratory, skin and eye protection is needed.

- **Level B:** Should be selected when the highest level of respiratory protection is needed, but a lesser level of skin protection is required. Level B protection is the minimum level recommended on initial Site entries until the hazards have been further defined by on-site studies. Level B (or Level A) is also necessary for oxygen-deficient atmospheres.

- **Level C:** Should be selected when the types of airborne substances are known, the concentrations have been measured and the criteria for using air-purifying respirators are met. In atmospheres where no airborne contaminants are present, Level C provides dermal protection only.

- **Level D:** Should not be worn on any Site with elevated respiratory or skin hazards. This is generally a work uniform providing minimal protection.

OSHA requires the use of certain PPE under conditions where an immediate danger to life and health (IDLH) may be present. Specifically, OSHA 29 CFR 1910.120(g)(3)(iii) requires use of a positive pressure self-contained breathing apparatus, or positive pressure air-line respirator equipped with an escape air supply when chemical exposure levels present a substantial possibility of immediate serious injury, illness or death, or impair the ability to

escape. Similarly, OSHA 29 CFR 1910.120(g)(3)(iv) requires donning totally-encapsulating chemical protective suits (with a protection level equivalent to Level A protection) in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate serious illness, injury or death, or impair the ability to escape.

In situations where the types of chemicals, concentrations, and possibilities of contact are unknown, the appropriate level of protection must be selected based on professional experience and judgment until the hazards can be further characterized. The individual components of clothing and equipment must be assembled into a full protective ensemble to protect the worker from site-specific hazards, while at the same time minimizing hazards and drawbacks of the personal protective gear itself. Ensemble components are detailed below for levels A/B, C, and D protection.

7.2 Protection Ensembles

7.2.1 Level A/B Protection Ensemble

Level A/B ensembles include similar respiratory protection, however Level A provides a higher degree of dermal protection than Level B. Use of Level A over Level B is determined by: comparing the concentrations of identified substances in the air with skin toxicity data, and assessing the effect of the substance (by its measured air concentrations or splash potential) on the small area of the head and neck unprotected by Level B clothing.

The recommended PPE for level A/B is:

- Pressure-demand, full-face piece self-contained breathing apparatus (MSHA/-NIOSH approved) or pressure-demand supplied-air respirator with escape self-contained breathing apparatus (SCBA).
- Chemical-resistant clothing. For Level A, clothing consists of totally-encapsulating chemical resistant suit. Level B incorporates hooded one-or two-piece chemical splash suit.
- Inner and outer chemical resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

7.2.2 Level C Protection Ensemble

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing an air-purifying device. The device (when required) must be an air-purifying respirator (MSHA/NIOSH approved) equipped with filter cartridges. Cartridges must be able to remove the substances encountered. Respiratory protection will be used only with proper fitting, training and the approval of a qualified individual. In addition, an air-purifying respirator can be used only if: oxygen content of the atmosphere is at least 19.5% in volume; substances are identified and concentrations measured; substances have adequate warning properties; the individual passes a qualitative fit-test for the mask; and an appropriate cartridge/canister is used, and its service limit concentration is not exceeded.

Recommended PPE for Level C conditions includes:

- Full-face piece, air-purifying respirator equipped with MSHA and NIOSH approved organic vapor/acid gas/dust/mist combination cartridges or as designated by the SSHO.
- Chemical-resistant clothing (hooded, one or two-piece chemical splash suit or disposable chemical-resistant one-piece suit).
- Inner and outer chemical-resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

An air-monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators. Continual surveillance using direct-reading instruments is needed to detect any changes in air quality necessitating a higher level of respiratory protection.

7.2.3 Level D Protection Ensemble

As indicated above, Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, where there are no inhalable toxic substances

and where the atmospheric contains at least 19.5% oxygen.

Recommended PPE for Level D includes:

- Coveralls.
- Safety boots/shoes.
- Safety glasses or chemical splash goggles.
- Hardhat.
- Optional gloves; escape mask; face shield.

7.2.4 Recommended Level of Protection for Site Tasks

Based upon current information regarding both the contaminants suspected to be present at the Site and the various tasks that are included in the remedial activities, the minimum required levels of protection for these tasks shall be as identified in Table 3.

8.0 EXPOSURE MONITORING

8.1 General

Based on the results of historic sample analysis and the nature of the proposed work activities at the Site, the possibility exist that organic vapors and/or particulates may be released to the air during intrusive construction activities. Ambient breathing zone concentrations may at times, exceed the permissible exposure limits (PELs) established by OSHA for the individual compounds (see Table 1), in which case respiratory protection will be required. Respiratory and dermal protection may be modified (upgraded or downgraded) by the SSHO based upon real-time field monitoring data.

8.1.1 On-Site Work Zone Monitoring

Benchmark-TurnKey personnel will conduct routine, real-time air monitoring during all intrusive construction phases such as excavation, backfilling, drilling, etc. The work area will be monitored at regular intervals using a PID, combustible gas meter and a particulate meter. Observed values will be recorded and maintained as part of the permanent field record.

Additional air monitoring measurements may be made by Benchmark-TurnKey personnel to verify field conditions during subcontractor oversight activities. Monitoring instruments will be protected from surface contamination during use. Additional monitoring instruments may be added if the situations or conditions change. Monitoring instruments will be calibrated in accordance with manufacturer's instructions before use.

8.1.2 Off-Site Community Air Monitoring

In addition to on-site monitoring within the work zone(s), monitoring at the down-wind portion of the Site perimeter will be conducted. This will provide a real-time method for determination of vapor and/or particulate releases to the surrounding community as a result of ground intrusive investigation work.

Ground intrusive activities are defined in the Generic Community Air Monitoring Plan and attached as Appendix C. Ground intrusive activities include soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells. Non-intrusive activities include the collection of soil and sediment samples or the

collection of groundwater samples from existing wells. Continuous monitoring is required for ground intrusive activities and periodic monitoring is required for non-intrusive activities. Periodic monitoring consists of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring while bailing a well, and taking a reading prior to leaving a sampling location. This may be upgraded to continuous if the sampling location is in close proximity to individuals not involved in the Site activity (i.e., on a curb of a busy street). The action levels below will be used during periodic monitoring.

8.2 Monitoring Action Levels

8.2.1 On-Site Work Zone Action Levels

The PID, or other appropriate instrument(s), will be used by Benchmark-TurnKey personnel to monitor organic vapor concentrations as specified in this HASP. Combustible gas will be monitored with the "combustible gas" option on the combustible gas meter or other appropriate instrument(s). In addition, fugitive dust/particulate concentrations will be monitored during major soil intrusion (viz., well/boring installation) using a real-time particulate monitor as specified in this plan. In the absence of such monitoring, appropriate respiratory protection for particulates shall be donned. Sustained readings obtained in the breathing zone may be interpreted (with regard to other Site conditions) as follows for Benchmark-TurnKey personnel:

- Total atmospheric concentrations of unidentified vapors or gases ranging from 0 to 1 ppm above background on the PID) - Continue operations under Level D (see Appendix A).

- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings from >1 ppm to 5 ppm above background on the PID (vapors not suspected of containing high levels of chemicals toxic to the skin) - Continue operations under Level C (see Appendix A).

- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings of >5 ppm to 50 ppm above background on the PID - Continue operations under Level B (see Attachment 1), re-evaluate and alter (if possible) construction methods to achieve lower vapor concentrations.

- Total atmospheric concentrations of unidentified vapors or gases above 50 ppm on the PID - Discontinue operations and exit the work zone immediately.

The particulate monitor will be used to monitor respirable dust concentrations during all intrusive activities and during handling of Site soil/fill. Action levels based on the instrument readings shall be as follows:

- Less than 50 mg/m^3 - Continue field operations.
- 50-150 mg/m^3 - Don dust/particulate mask or equivalent
- Greater than 150 mg/m^3 - Don dust/particulate mask or equivalent. Initiate engineering controls to reduce respirable dust concentration (viz., wetting of excavated soils or tools at discretion of Site Health and Safety Officer).

Readings from the field equipment will be recorded and documented on the appropriate Project Field Forms. All instruments will be calibrated before use on a daily basis and the procedure will be documented on the appropriate Project Field Forms.

8.2.2 Community Air Monitoring Action Levels

In addition to the action levels prescribed in Section 8.2.1 for Benchmark-TurnKey personnel on-site, the following criteria shall also be adhered to for the protection of downwind receptors consistent with NYSDOH requirements (Appendix C):

- **ORGANIC VAPOR PERIMETER MONITORING:**
  - If the sustained ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds 5 ppm above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the sustained organic vapor decreases below 5 ppm over background, work activities can resume with continued monitoring.
  - If the sustained ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone are greater than 5 ppm over background but less than 25 ppm for the 15-minute average, activities can resume provided that: the organic vapor level 200 feet downwind of the working site or half the distance to the nearest off-site residential or commercial structure, whichever

is less, but in no case less than 20 feet, is below 5 ppm over background; and more frequent intervals of monitoring, as directed by the Site Health and Safety Officer, are conducted.

- If the sustained organic vapor level is above 25 ppm at the perimeter of the exclusion zone for the 15-minute average, the Site Health and Safety Officer must be notified and work activities shut down. The Site Health and Safety Officer will determine when re-entry of the exclusion zone is possible and will implement downwind air monitoring to ensure vapor emissions do not impact the nearest off-site residential or commercial structure at levels exceeding those specified in the ***Organic Vapor Contingency Monitoring Plan*** below. All readings will be recorded and will be available for New York State Department of Environmental Conservation (DEC) and Department of Health (DOH) personnel to review.

o **ORGANIC VAPOR CONTINGENCY MONITORING PLAN:**

- If the sustained organic vapor level is greater than 5 ppm over background 200 feet downwind from the work area or half the distance to the nearest off-site residential or commercial property, whichever is less, all work activities must be halted.

- If, following the cessation of the work activities or as the result of an emergency, sustained organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest off-site residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest off-site residential or commercial structure (20-foot zone).

- If efforts to abate the emission source are unsuccessful and if sustained organic vapor levels approach or exceed 5 ppm above background within the 20-foot zone for more than 30 minutes, or are sustained at levels greater than 10 ppm above background for longer than one minute, then the ***Major Vapor Emission Response Plan*** (see below) will automatically be placed into effect.

o **MAJOR VAPOR EMISSION RESPONSE PLAN:**

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in this Health and Safety Plan and the Emergency Response Plan (Appendix A) will be advised.

2. The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.

3. Frequent air monitoring will be conducted at 30-minute intervals within the 20-foot zone. If two sustained successive readings below action levels are measured, air monitoring may be halted or modified by the Site Health and Safety Officer.

The following personnel are to be notified in the listed sequence in the event that a Major Vapor Emission Plan is activated:

Responsible Person	Contact	Phone Number
SSHO	Police	911
SSHO	State Emergency Response Hotline	(800) 457-7362

Additional emergency numbers are listed in the Emergency Response Plan included as Appendix A.

- **EXPLOSIVE VAPORS:**
  - Sustained atmospheric concentrations of greater than 10% LEL in the work area - Initiate combustible gas monitoring at the downwind portion of the Site perimeter.
  - Sustained atmospheric concentrations of greater than 10% LEL at the downwind Site perimeter – Halt work and contact local Fire Department.

- **AIRBORNE PARTICULATE COMMUNITY AIR MONITORING**

Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the upwind and downwind perimeter of the exclusion zone. The monitoring will be performed using real-time monitoring equipment capable of measuring PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than the background (upwind perimeter) reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and that visible dust is not migrating from the work area.

- If, after implementation of dust suppression techniques downwind PM-10 levels are greater than 150 ug/m^3 above the upwind level, work activities must be stopped, and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

Pertinent emergency response information including the telephone number of the Fire Department is included in the Emergency Response Plan (Appendix A).

9.0 SPILL RELEASE/RESPONSE

This chapter of the HASP describes the potential for, and procedures related to spills or releases of known or suspected petroleum and/or hazardous substances on the Site. The purpose of this Section of the HASP is to plan appropriate response, control, counter-measures and reporting, consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii). The spill containment program addresses the following elements:

- Potential hazardous material spills and available controls.
- Initial notification and evaluation.
- Spill response.
- Post-spill evaluation.

9.1 Potential Spills and Available Controls

An evaluation was conducted to determine the potential for hazardous material and oil/petroleum spills at this Site. For the purpose of this evaluation, hazardous materials posing a significant spill potential are considered to be:

- CERCLA Hazardous Substances as identified in 40 CFR Part 302, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).

- Extremely Hazardous Substances as identified in 40 CFR Part 355, Appendix A, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).

- Hazardous Chemicals as defined under Section 311(e) of the Emergency Planning and Community Right-To-Know Act of 1986, where such chemicals are present or will be stored in excess of 10,000 lbs.

- Toxic Chemicals as defined in 40 CFR Part 372, where such chemicals are present or will be stored in excess of 10,000 lbs.

- Chemicals regulated under 6NYCRR Part 597, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).

Oil/petroleum products are considered to pose a significant spill potential whenever the following situations occur:

- The potential for a "harmful quantity" of oil (including petroleum and non-petroleum-based fuels and lubricants) to reach navigable waters of the U.S. exists (40 CFR Part 112.4). Harmful quantities are considered by USEPA to be volumes that could form a visible sheen on the water or violate applicable water quality standards.

- The potential for any amount of petroleum to reach any waters of NY State, including groundwater, exists. Petroleum, as defined by NY State in 6NYCRR Part 612, is a petroleum-based heat source, energy source, or engine lubricant/maintenance fluid.

- The potential for any release, to soil or water, of petroleum from a bulk storage facility regulated under 6NYCRR Part 612. A regulated petroleum storage facility is defined by NY State as a site having stationary tank(s) and intra-facility piping, fixtures and related equipment with an aggregate storage volume of 1,100 gallons or greater.

The evaluation indicates that, based on Site history and decommissioning records, a hazardous material spill and/or a petroleum product spill is not likely to occur during RI efforts.

9.2 Initial Spill Notification and Evaluation

Any worker who discovers a hazardous substance or oil/petroleum spill will immediately notify the Project Manager and SSHO. The worker will, to the best of his/her ability, report the material involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, if any, and any associated injuries. The Emergency Response Plan presented in Attachment H2 of this HASP will immediately be implemented if an emergency release has occurred.

Following initial report of a spill, the Project Manager will make an evaluation as to whether the release exceeds RQ levels. If an RQ level is exceeded, the Project Manager will notify the Site owner and NYSDEC at 1-800-457-7362 within 2 hours of spill discovery. The Project Manager will also determine what additional agencies (e.g., USEPA) are to be contacted regarding the release, and will follow-up with written reports as required by the applicable regulations.

9.3 Spill Response

For all spill situations, the following general response guidelines will apply:

- Only those personnel involved in overseeing or performing containment operations will be allowed within the spill area. If necessary, the area will be roped, ribboned, or otherwise blocked off to prevent unauthorized access.
- Appropriate PPE, as specified by the SSHO, will be donned before entering the spill area.
- Ignition points will be extinguished/removed if fire or explosion hazards exist.
- Surrounding reactive materials will be removed.
- Drains or drainage in the spill area will be blocked to prevent inflow of spilled materials or applied materials.

For minor spills, the Contractor will maintain a Spill Control and Containment Kit in the Field Office or other readily accessible storage location. The kit will consist of, at a minimum, a 50 lb. bag of "speedy dry" granular absorbent material, absorbent pads, shovels, empty 5-gallon pails and an empty open-top 55-gallon drum. Spilled materials will be absorbed, and shoveled into a 55-gallon drum for proper disposal (NYSDEC approval will be secured for on-site treatment of the impacted soils/absorbent materials, if applicable). Impacted soils will be hand-excavated to the point that no visible signs of contamination remains, and will be drummed with the absorbent.

In the event of a major release or a release that threatens surface water, a spill response contractor will be called to the Site. The response contractor may use heavy equipment (e.g., excavator, backhoe, etc.) to berm the soils surrounding the spill Site or create diversion trenching to mitigate overland migration or release to navigable waters. Where feasible, pumps will be used to transfer free liquid to storage containers. Spill control/cleanup contractors in the Western New York area that may be contacted for assistance include:

- The Environmental Service Group of NY, Inc.: (716) 695-6720
- Environmental Products and Services, Inc.: (716) 447-4700
- Op-Tech: (716) 873-7680

9.4 Post-Spill Evaluation

If a reportable quantity of hazardous material or oil/petroleum is spilled as determined by the Project Manager, a written report will be prepared as indicated in Section 9.2. The report will identify the root cause of the spill, type and amount of material released, date/time of release, response actions, agencies notified and/or involved in cleanup, and procedures to be implemented to avoid repeat incidents. In addition, all re-useable spill cleanup and containment materials will be decontaminated, and spill kit supplies/disposable items will be replenished.

10.0 HEAT/COLD STRESS MONITORING

Since some of the work activities at the Site will be scheduled for both the summer and winter months, measures will be taken to minimize heat/cold stress to Benchmark-TurnKey employees. The Site Safety and Health Officer and/or his or her designee will be responsible for monitoring Benchmark-TurnKey field personnel for symptoms of heat/cold stress.

10.1 Heat Stress Monitoring

Personal protective equipment may place an employee at risk of developing heat stress, a common and potentially serious illnesses often encountered at construction, landfill, waste disposal, industrial or other unsheltered sites. The potential for heat stress is dependent on a number of factors, including environmental conditions, clothing, workload, physical conditioning and age. Personal protective equipment may severely reduce the body's normal ability to maintain temperature equilibrium (via evaporation and convection) and require increased energy expenditure due to its bulk and weight.

Proper training and preventive measures will mitigate the potential for serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illness. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat (i.e., eight fluid ounces must be ingested for approximately every 1 lb of weight lost). The normal thirst

mechanism is not sensitive enough to ensure that enough water will be consumed to replace lost perspiration. When heavy sweating occurs, workers should be encouraged to drink more.

- Train workers to recognize the symptoms of heat related illness.

Heat-Related Illness - Symptoms:

- Heat rash may result from continuous exposure to heat or humid air.

- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include: muscle spasms; pain in the hands, feet and abdomen.

- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include: pale, cool, moist skin; heavy sweating; dizziness; nausea; fainting.

- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are: red, hot, usually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

The monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism.

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 100 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest periods stay the same, If the pulse rate is 100 beats per minute at the beginning of the nest rest period, the following work cycle should be further shortened by 33%.

- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period

should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period remains the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the work cycle may be further shortened by 33%. Oral temperature should be measured at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No Benchmark-TurnKey employee will be permitted to continue wearing semi-permeable or impermeable garments when his/her oral temperature exceeds 100.6 degrees Fahrenheit.

10.2 Cold Stress Monitoring

Exposure to cold conditions may result in frostbite or hypothermia, each of which progresses in stages as shown below.

- **Frostbite** occurs when body tissue (usually on the extremities) begins to freeze. The three states of frostbite are:

  1) **Frost nip** - This is the first stage of the freezing process. It is characterized by a whitened area of skin, along with a slight burning or painful sensation. Treatment consists of removing the victim from the cold conditions, removal of boots and gloves, soaking the injured part in warm water (102 to 108 degrees Fahrenheit) and drinking a warm beverage. Do not rub skin to generate friction/ heat.

  2) **Superficial Frostbite** - This is the second stage of the freezing process. It is characterized by a whitish gray area of tissue, which will be firm to the touch but will yield little pain. The treatment is identical for Frost nip.

  3) **Deep Frostbite** - In this final stage of the freezing process the affected tissue will be cold, numb and hard and will yield little to no pain. Treatment is identical to that for Frost nip.

- **Hypothermia** is a serious cold stress condition occurring when the body loses heat at a rate faster than it is produced. If untreated, hypothermia may be fatal. The stages of hypothermia may not be clearly defined or visible at first, but generally include:

  1) Shivering
  2) Apathy (i.e., a change to an indifferent or uncaring mood)

3) Unconsciousness
4) Bodily freezing

Employees exhibiting signs of hypothermia should be treated by medical professionals. Steps that can be taken while awaiting help include:

1) Remove the victim from the cold environment and remove wet or frozen clothing. (Do this carefully as frostbite may have started.)

2) Perform active re-warming with hot liquids for drinking (Note: do not give the victim any liquid containing alcohol or caffeine) and a warm water bath (102 to 108 degrees Fahrenheit).

3) Perform passive re-warming with a blanket or jacket wrapped around the victim.

In any potential cold stress situation, it is the responsibility of the Site Health and Safety Officer to encourage the following:

- Education of workers to recognize the symptoms of frostbite and hypothermia.
- Workers should dress warmly, with more layers of thin clothing as opposed to one thick layer.
- Personnel should remain active and keep moving.
- Personnel should be allowed to take shelter in a heated area, as necessary.
- Personnel should drink warm liquids (no caffeine or alcohol if hypothermia has set in).
- For monitoring the body's recuperation from excess cold, oral temperature recordings should occur:
  - At the Site Safety Technicians discretion when suspicion is based on changes in a worker's performance or mental status.
  - At a worker's request.
  - As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind chill less than 20 degrees Fahrenheit or wind chill

less than 30 degrees Fahrenheit with precipitation).

- As a screening measure, whenever anyone worker on-site develops hypothermia.

Any person developing moderate hypothermia (a core body temperature of 92 degrees Fahrenheit) will not be allowed to return to work for 48 hours without the recommendation of a qualified medical doctor.

11.0 WORK ZONES AND SITE CONTROL

Work zones around the areas designated for construction activities will be established on a daily basis and communicated to all employees and other Site users by the SSHO. It shall be each Contractor's Site Safety and Health Officer's responsibility to ensure that all Site workers are aware of the work zone boundaries and to enforce proper procedures in each area. The zones will include:

- Exclusion Zone ("Hot Zone") - The area where contaminated materials may be exposed, excavated or handled and all areas where contaminated equipment or personnel may travel. Flagging tape will delineate the zone. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment identified in Section 7.

- Contamination Reduction Zone - The zone where decontamination of personnel and equipment takes place. Any potentially contaminated clothing, equipment and samples must remain in the Contamination Reduction Zone until decontaminated.

- Support Zone - The part of the site that is considered non-contaminated or "clean." Support equipment will be located in this zone, and personnel may wear normal work clothes within this zone.

In the absence of other task-specific work zone boundaries established by the SSHO, the following boundaries will apply to all investigation and construction activities involving disruption or handling of Site soils or groundwater:

- Exclusion Zone: 50-foot radius from the outer limit of the sampling/construction activity.

- Contaminant Reduction Zone: 100-foot radius from the outer limit of the sampling/construction activity.

- Support Zone: Areas outside the Contaminant Reduction Zone.

Access of non-essential personnel to the Exclusion and Contamination Reduction Zones will be strictly controlled by the SSHO. Only personnel who are essential to the

completion of the task will be allowed access to these areas and only if they are wearing the prescribed level of protection. Entrance of all personnel must be approved by the SSHO.

The SSHO will maintain a Health and Safety Logbook containing the names of Benchmark-TurnKey workers and their level of protection. The zone boundaries may be changed by the SSHO as environmental conditions warrant, and to respond to the necessary changes in work locations on-site.

12.0 DECONTAMINATION

12.1 Decontamination for Benchmark-TurnKey Employees

The degree of decontamination required is a function of a particular task and the environment within which it occurs. The following decontamination procedure will remain flexible, thereby allowing the decontamination crew to respond appropriately to the changing environmental conditions that may arise at the Site. All Benchmark-TurnKey personnel on-site shall follow the procedure below, or the Contractor's procedure (if applicable), whichever is more stringent.

Station 1 - Equipment Drop: Deposit visibly contaminated (if any) re-useable equipment used in the contamination reduction and exclusion zones (tools, containers, monitoring instruments, radios, clipboards, etc.) on plastic sheeting.

Station 2 - Boots and Gloves Wash and Rinse: Scrub outer boots and outer gloves. Deposit tape and gloves in waste disposal container.

Station 3 - Tape, Outer Boot and Glove Removal: Remove tape, outer boots and gloves. Deposit tape and gloves in waste disposal container.

Station 4 - Canister or Mask Change: If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot cover donned, and worker returns to duty.

Station 5 - Outer Garment/Face Piece Removal: Protective suit removed and deposited in separate container provided by Contractor. Face piece or goggles are removed if used. Avoid touching face with fingers. Face piece and/or goggles deposited on plastic sheet. Hard hat removed and placed on plastic sheet.

Station 6 - Inner Glove Removal: Inner gloves are the last personal protective equipment to be removed. Avoid touching the outside of the gloves with bare fingers. Dispose of these gloves in waste disposal container.

Following PPE removal, personnel shall wash hands, face and forearms with absorbent wipes. If field activities proceed for duration of 6 consecutive months or longer, shower facilities will be provided for worker use in accordance with OSHA 29 CFR 1910.120(n).

12.2 Decontamination for Medical Emergencies

In the event of a minor, non-life-threatening injury, personnel should follow the decontamination procedures as defined, and then administer first-aid.

In the event of a major injury or other serious medical concern (e.g., heat stroke), immediate first-aid is to be administered and the victim transported to the hospital in lieu of further decontamination efforts unless exposure to a Site contaminant would be considered "Immediately Dangerous to Life or Health."

12.3 Decontamination of Field Equipment

The Contractor in accordance with his approved Health and Safety Plan in the Contamination Reduction Zone will conduct decontamination of heavy equipment. As a minimum, this will include manually removing heavy soil contamination, followed by steam cleaning on an impermeable pad.

Benchmark-TurnKey personnel will conduct decontamination of all tools used for sample collection purposes. It is expected that all tools will be constructed of nonporous, nonabsorbent materials (i.e., metal), which will aid in the decontamination effort. Any tool or part of a tool made of porous, absorbent material (i.e., wood) will be placed into suitable containers and prepared for disposal.

Decontamination of bailers, split-spoons, spatula knives, and other tools used for environmental sampling and examination shall be as follows:

- Disassemble the equipment
- Water wash to remove all visible foreign matter.
- Wash with detergent.
- Rinse all parts with distilled-deionized water.
- Allow to air dry.
- Wrap all parts in aluminum foil or polyethylene.

13.0 CONFINED SPACE ENTRY

OSHA 29 CFR 1910.146 identifies a confined space as a space that is large enough and so configured that an employee can physically enter and do assigned work, has limited or restricted means for entry and exit, and is not intended for continuous employee occupancy. Confined spaces include, but are not limited to, trenches, storage tanks, process vessels, pits, sewers, tunnels, underground utility vaults, pipelines, sumps, wells, and excavations.

Confined space entry by Benchmark-TurnKey employees is not anticipated to be necessary to complete the remedial activities identified in Section 2.0. In the event that the scope of work changes or confined space entry appears necessary, the Project Manager will be consulted to determine if feasible engineering alternatives to confined space entry can be implemented. If confined space entry by Benchmark-TurnKey employees cannot be avoided through reasonable engineering measures, task-specific confined space entry procedures will be developed, and a confined-space entry permit will be issued through Benchmark-TurnKey's corporate Health and Safety Director. Benchmark-TurnKey employees shall not enter a confined space without these procedures and permits in place.

14.0 FIRE PREVENTION AND PROTECTION

14.1 General Approach

Recommended practices and standards of the National Fire Protection Association (NFPA) and other applicable regulations will be followed in the development and application of Project Fire Protection Programs. When required by regulatory authorities, the project management will prepare and submit a Fire Protection Plan for the approval of the contracting officers, authorized representative or other designated official. Essential considerations for the Fire Protection Plan will include:

- Proper Site preparation and safe storage of combustible and flammable materials.
- Availability of coordination with private and public fire authorities.
- Adequate job-site fire protection and inspections for fire prevention.
- Adequate indoctrination and training of employees.

14.2 Equipment and Requirements

Fire extinguishers will be provided by each Contractor and are required on all heavy equipment and in each field trailer. Fire extinguishers will be inspected, serviced, and maintained in accordance with the manufacturer's instructions. As a minimum, all extinguishers shall be checked monthly and weighed semi-annually, and recharged if necessary. Recharge or replacement shall be mandatory immediately after each use.

14.3 Flammable and Combustible Substances

All storage, handling or use of flammable and combustible substances will be under the supervision of qualified persons. All tanks, containers and pumping equipment, whether portable or stationary, used for the storage and handling of flammable and combustible liquids, will meet the recommendations of the National Fire Protection Association.

14.4 Hot Work

If the scope of work necessitates welding or blowtorch operation, the hot work permit presented in Appendix B will be completed by the SSHO and reviewed/issued by the Project Manager.

15.0 EMERGENCY INFORMATION

In accordance with OSHA 29 CFR Part 1910, an Emergency Response Plan is attached to this HASP as Appendix A. The hospital route map is presented within Appendix A as Figure 1.

16.0 REFERENCES

1. New York State Department of Environmental Conservation. *DER-10; Technical Guidance for Site Investigation and Remediation.* May 2010.

TABLES

TABLE 1
TOXICITY DATA FOR CONSTITUENTS OF POTENTIAL CONCERN
HEALTH AND SAFETY PLAN
HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

Parameter	Synonyms	CAS No.	Code	Concentration Limits [1, 2]		
				PEL	TLV	IDLH
Semi-volatile Organic Compounds (SVOCs): ppm						
Acenaphthene	*none*	83-32-9	*none*	--	--	--
Benzo(a)anthracene	*none*	56-55-3	*Ca*	--	--	--
Benzo(a)pyrene	*none*	50-32-8	*Ca*	--	--	--
Benzo(b)fluoranthene	*none*	205-99-2	*Ca*	--	--	--
Benzo(ghi)perylene	*none*	191-24-2	*Ca*	--	--	--
Benzo(k)fluoranthene	*none*	207-08-9	*Ca*	--	--	--
Chrysene	*none*	218 01 9	*Ca*	--	--	--
Dibenzo(a,h)anthracene	*none*	53-70-3	*Ca*	--	--	--
Fluoranthene	*none*	206-44-0	*Ca*	--	--	--
Fluorene	*none*	86-73-7	*Ca*	--	--	--
Indeno(1,2,3-cd)pyrene	*none*	193-39-5	*Ca*	--	--	--
Naphthalene	Naphthalin, Tar camphor, White tar	91-20-3	*none*	10	10	250
Phenanthrene	*none*	85-01-8	*none*	--	--	--
Pyrene	*none*	129-00-0	*none*	--	--	--
Inorganic Compounds: mg/m^3						
Arsenic	*none*	7440-38-2	*Ca*	0.01	0.01	5
Barium	*none*	7440-39-3	*none*	0.5	0.5	50
Beryllium	*none*	7440-41-7	*Ca*	0.002	0.002	4
Cadmium	*none*	7440-43-9	*Ca*	0.005	0.01	9
Chromium	*none*	7440-47-3	*none*	1	0.5	250
Copper	*none*	7440-50-8	*none*	0.1	0.2	200
Lead	*none*	7439-92-1	*none*	0.05	0.15	100
Manganese	*none*	7439-96-5	*none*	5	5	500
Mercury	*none*	7439-97-6	*C-0.1*	0.1	0.05	10
Nickel	*none*	7440-02-0	*Ca*	1	1	10
Selenium	*none*	7782-49-2	*none*	0.2	0.2	1
Zinc	*none*	7440-66-6	*none*	--	--	--
Polychlorinated Biphenyls						
Aroclor 1254	Chlorodiphenyl (54% Cl)	52663-62-4	*Ca*	1	1	5
Pesticides: mg/m^3						
4,4'-DDE	dichlorodiphenyldichloroethylene	72-55-9	*Ca*	--	--	--
4,4'-DDT	Clofenotane, dichlorodiphenyltrichloroethane	50-29-3	*Ca*	1	1	500

Notes:
1. Concentration limits as reported by NIOSH Pocket Guide to Chemical Hazards, February 2004 (NIOSH Publication No. 97-140, fourth printing with chages and updates.
2. " -- " = concentration limit not available; exposure should be minimized to the extent feasible through appropriate engineering controls & PPE.

Explanation:
Ca = NIOSH considers constituent to be a potential occupational carcinogen.
IDLH = Immediately Dangerous to Life or Health.
TLV = Threshold Limit Value, established by American Conference of Industrial Hygienists (ACGIH), equals the maximum exposure concentration allowable for 8 hours/day @ 40 hours
TLVs are the amounts of chemicals in the air that almost all healthy adult workers are predicted to be able to tolerate without adverse effects. There are three types.
TLV-TWA (TLV-Time-Weighted Average) which is averaged over the normal eight-hour day/forty-hour work week. (Most TLVs.)
TLV-C or Ceiling limits are the concentration that should not be exceeded during any part of the working exposure.
Unless the initials "STEL" or "C" appear in the Code column, the TLV value should be considered to be the eight-hour TLV-TWA.
PEL = Permissible Exposure Limit, established by OSHA, equals the maximium exposure conconcentration allowable for 8 hours per day @ 40 hours per week

TABLE 2
POTENTIAL ROUTES OF EXPOSURE TO THE CONSTITUENTS OF POTENTIAL CONCERN
HEALTH AND SAFETY PLAN
HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

Activity [1]	Direct Contact with Soil/Fill	Inhalation of Vapors or Dust	Direct Contact with Groundwater
Remedial Investigation Tasks			
1. Excavation of impacted soil/fill and off-site disposal	x	x	x
2. Waste characterization sampling	x	x	
3. Post-excavation sampling	x	x	
4. Backfilling			
5. Groundwater management	x	x	x

Notes:
1. Activity as described in Section 1.5 of the Health and Safety Plan.

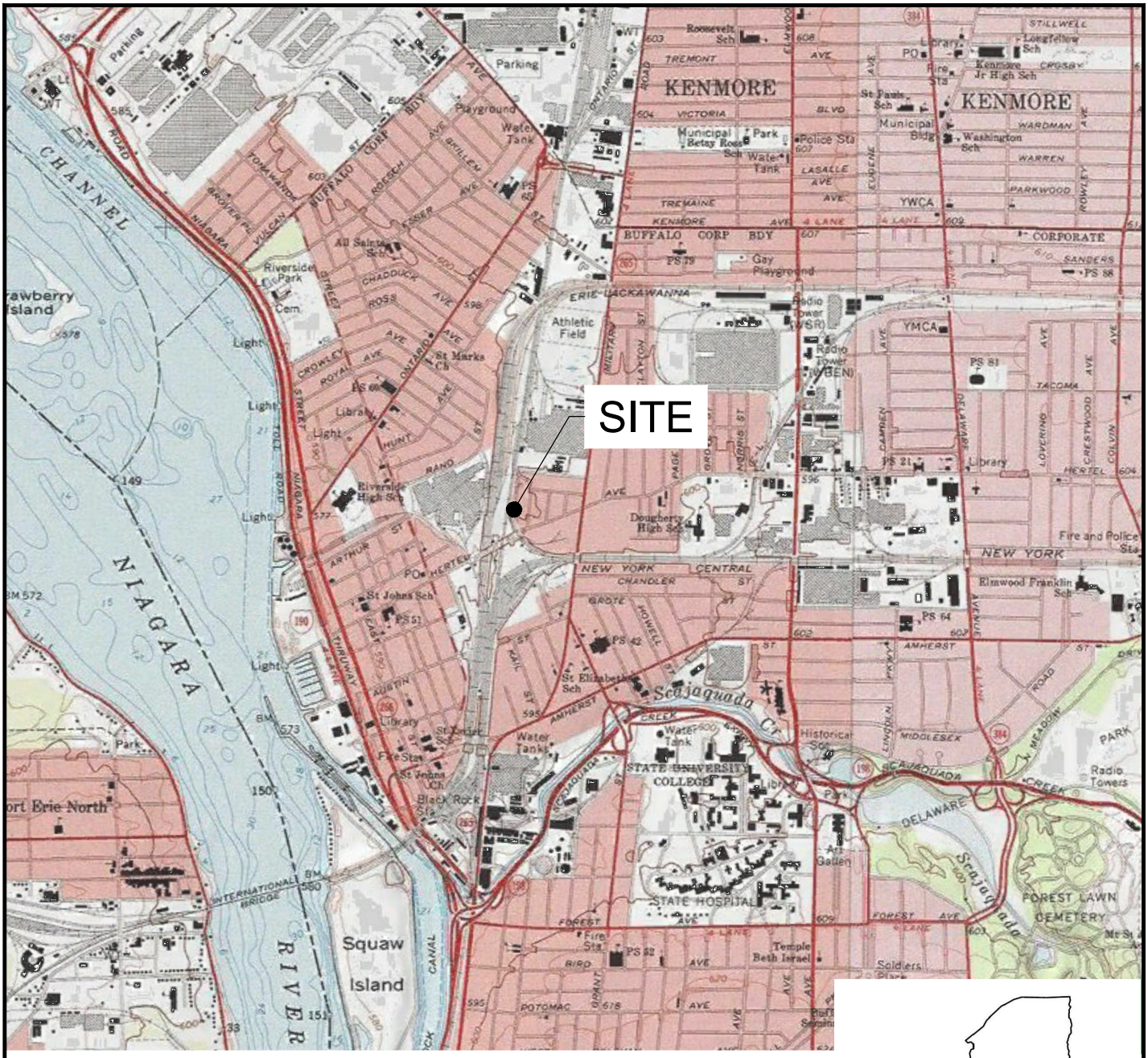
TABLE 3
REQUIRED LEVELS OF PROTECTION FOR RA TASKS
HEALTH AND SAFETY PLAN
HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

Activity	Respiratory Protection [1]	Clothing	Gloves [2]	Boots [2, 3]	Other Required PPE/Modifications [2, 4]
Remedial Investigation Tasks					
1. Excavation of impacted soil/fill and off-site disposal	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	HH SGSS
2. Waste characterization sampling	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	HH SGSS
3. Post-excavation sampling	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	SGSS
4. Backfilling	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	SGSS
5. Groundwater management	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	HH SGSS

Notes:
1. Respiratory equipment shall conform to guidelines presented in Section 7.0 of this HASP. The Level C requirement is an air-purifying respirator equiped with organic compound/acid gas/dust cartridge.
2. HH = hardhat; L= Latex; L/N = latex inner glove, nitrile outer glove; N = Nitrile; S = Saranex; SG = safety glasses; SGSS = safety glasses with sideshields; STSS = steel toe safety shoes.
3. Latex outer boot (or approved overboot) required whenever contact with contaminated materials may occur. SSHO may downgrade to STSS (steel-toed safety shoes) if contact will be limited to cover/replacement soils.
4. Dust masks shall be donned as directed by the SSHO (site safety and health officer) or site safety technician whenever potentially contaminated airborne particulates (i.e., dust) are present in significant amounts in the breathing zone. Goggles may be substituted with safety glasses w/side-shields whenever contact with contaminated liquids is not anticipated.

FIGURES

FIGURE 1



BENCHMARK
IN ASSOCIATION WITH
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0508-019-001

DATE: MARCH 2022

DRAFTED BY: CEH

SITE LOCATION AND VICINITY MAP

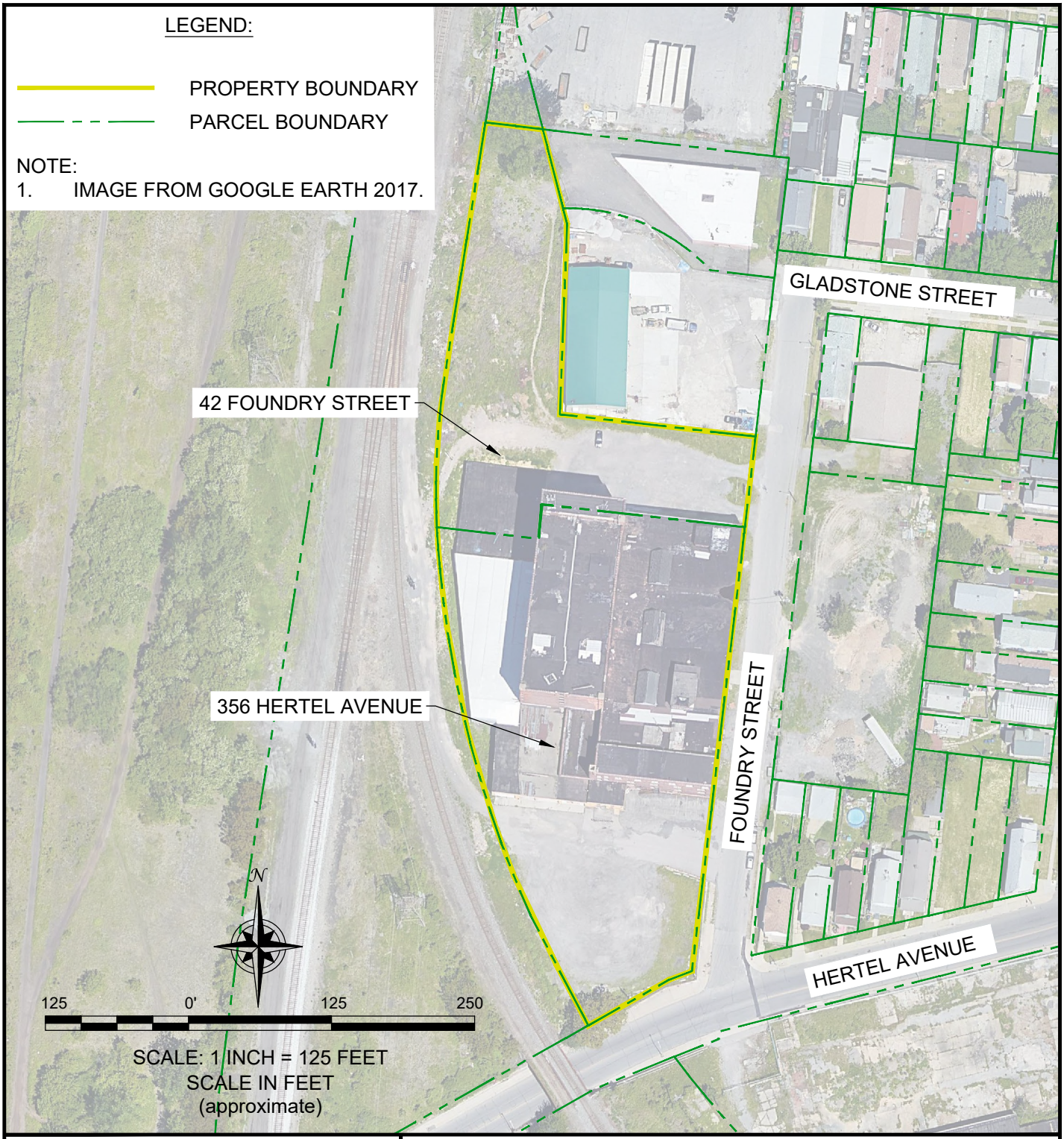
HEALTH AND SAFETY PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR

KAM CLEANUP LLC

FIGURE 2



BENCHMARK
IN ASSOCIATION WITH
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0508-019-001

DATE: MARCH 2022

DRAFTED BY: CNK

SITE PLAN (AERIAL)

HEALTH AND SAFETY PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR

KAM CLEANUP LLC

ATTACHMENT A

EMERGENCY RESPONSE PLAN

EMERGENCY RESPONSE PLAN
for
BROWNFIELD CLEANUP PROGRAM
REMEDIAL ACTIVITIES

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

April 2022 0508-019-001

Prepared for:

KAM CLEANUP LLC

HERTEL AND FOUNDRY SITE
HEALTH AND SAFETY PLAN FOR REMEDIAL ACTIVITIES
APPENDIX A: EMERGENCY RESPONSE PLAN

TABLE OF CONTENTS

LIST OF FIGURES

1.0 GENERAL

This report presents the site-specific Emergency Response Plan (ERP) referenced in the Site Health and Safety Plan (HASP) prepared for Remedial Action (RA) activities at the Hertel and Foundry Site in Buffalo, New York (C915359). This appendix of the HASP describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This ERP also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

This ERP is consistent with the requirements of 29 CFR 1910.120(l) and provides the following site-specific information:

- Pre-emergency planning.
- Personnel roles, lines of authority, and communication.
- Emergency recognition and prevention.
- Safe distances and places of refuge.
- Evacuation routes and procedures.
- Decontamination procedures.
- Emergency medical treatment and first aid.
- Emergency alerting and response procedures.
- Critique of response and follow-up.
- Emergency personal protective equipment (PPE) and equipment.

2.0 PRE-EMERGENCY PLANNING

This Site has been evaluated for potential emergency occurrences, based on site hazards, the required work tasks, the site topography, and prevailing weather conditions. The results of that evaluation indicate the potential for the following site emergencies to occur at the locations indicated.

Type of Emergency:

1. Medical, due to physical injury

Source of Emergency:

1. Slip/trip/fall

Location of Source:

1. Non-specific

3.0 ON-SITE EMERGENCY RESPONSE EQUIPMENT

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean up. Emergency response equipment available on the Site is listed below. The equipment inventory and storage locations are based on the potential emergencies described above. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this Site but not ordinarily stocked.

Any additional personal protective equipment (PPE) required and stocked for emergency response is also listed in below. During an emergency, the Emergency Response Coordinator (ERC) is responsible for specifying the level of PPE required for emergency response. At a minimum, PPE used by emergency responders will comply with Section 7.0, Personal Protective Equipment, of this HASP. Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Emergency Equipment	Quantity	Location
First Aid Kit	1	Site Vehicle
Chemical Fire Extinguisher	2 (minimum)	All heavy equipment and Site Vehicle

Emergency PPE	Quantity	Location
Full-face respirator	1 for each worker	Site Vehicle
Chemical-resistant suits	4 (minimum)	Site Vehicle

4.0 EMERGENCY PLANNING MAPS

An area-specific map of the Site will be developed on a daily basis during performance of field activities. The map will be marked to identify critical on-site emergency planning information, including: emergency evacuation routes, a place of refuge, an assembly point, and the locations of key site emergency equipment. Site zone boundaries will be shown to alert responders to known areas of contamination. There are no major topographical features, however the direction of prevailing winds/weather conditions that could affect emergency response planning are also marked on the map. The map will be posted at site-designated place of refuge and inside the Benchmark-TurnKey personnel field vehicle.

5.0 EMERGENCY CONTACTS

The following identifies the emergency contacts for this ERP.

Emergency Telephone Numbers:

Project Manager: *Michael Lesakowski*
Work: (716) 856-0599
Mobile: (716) 818-3954

Corporate Health and Safety Director: *Thomas H. Forbes*
Work: (716) 856-0599
Mobile: (716) 864-1730

Site Safety and Health Officer (SSHO): *Bryan Mayback*
Work: (716) 856-0599
Mobile: (716) 844-1699

Alternate SSHO: *Christopher Boron*
Work: (716) 856-0635
Mobile: (716) 864-2726

KENMORE MERCY HOSPITAL (ER):	(716) 447-6100
FIRE:	911
AMBULANCE:	911
BUFFALO POLICE:	911
STATE EMERGENCY RESPONSE HOTLINE:	(800) 457-7362
NATIONAL RESPONSE HOTLINE:	(800) 424-8802
NYSDOH:	(716) 847-4385
NYSDEC:	(716) 851-7220
NYSDEC 24-HOUR SPILL HOTLINE:	(800) 457-7252

The Site location is:

356 Hertel Avenue and 42 Foundry Street
Buffalo, New York 14207
Site Phone Number: Benchmark-TurnKey Staff Cell Phones to be used.

6.0 EMERGENCY ALERTING & EVACUATION

Internal emergency communication systems are used to alert workers to danger, convey safety information, and maintain site control. Any effective system can be employed. Two-way radio headsets or field telephones are often used when work teams are far from the command post. Hand signals and air-horn blasts are also commonly used. Every system must have a backup. It shall be the responsibility of each contractor's Site Health and Safety Officer to ensure all personnel entering the site understand an adequate method of internal communication. Unless all personnel are otherwise informed, the following signals shall be used.

1) Emergency signals by portable air horn, siren, or whistle: two short blasts, personal injury; continuous blast, emergency requiring site excavation.

2) Visual signals: hand gripping throat, out of air/cannot breathe; hands on top of head, need assistance; thumbs up, affirmative/ everything is OK; thumbs down, no/negative; grip partner's wrist or waist, leave area immediately.

If evacuation notice is given, site workers leave the worksite with their respective buddies, if possible, by way of the nearest exit. Emergency decontamination procedures detailed in Section 12.0 of the HASP are followed to the extent practical without compromising the safety and health of site personnel. The evacuation routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by rehearsals and inputs from emergency response organizations. Wind direction indicators are located so that workers can determine a safe up wind or cross wind evacuation route and assembly area if not informed by the emergency response coordinator at the time the evacuation alarm sounds. Since work conditions and work zones within the site may be changing on daily basis, it shall be the responsibility of the construction Site Health and Safety Officer to review evacuation routes and procedures as necessary and to inform all Benchmark-TurnKey workers of any changes.

Personnel exiting the site will gather at a designated assembly point. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to the SSHO (***Bryan Mayback***

or ***Christopher Boron***) so that appropriate action can be initiated. Contractors and subcontractors on this site have coordinated their emergency response plans to ensure that these plans are compatible, and that source(s) of potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

7.0 EXTREME WEATHER CONDITIONS

In the event of adverse weather conditions, the Site Safety and Health Officer in conjunction with the Contractor's SSHO will determine if engineering operations can continue without sacrificing the health and safety of site personnel. Items to be considered prior to determining if work should continue include but are not limited to:

- Potential for heat/cold stress.
- Weather-related construction hazards (e.g., flooding or wet conditions producing undermining of structures or sheeting, high wind threats, etc).
- Limited visibility.
- Potential for electrical storms.
- Limited site access/egress (e.g., due to heavy snow)

8.0 EMERGENCY MEDICAL TREATMENT & FIRST AID

Personnel Exposure:

The following general guidelines will be employed in instances where health impacts threaten to occur acute exposure is realized:

- Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area for at least 15 minutes. Decontaminate and provide medical attention. Eyewash stations will be provided on site. If necessary, transport to Buffalo General Hospital.

- Inhalation: Move to fresh air and, if necessary, transport to Hospital.

- Ingestion: Decontaminate and transport to Hospital.

Personal Injury:

Minor first-aid will be applied on-site as deemed necessary. In the event of a life-threatening injury, the individual should be transported to Hospital via ambulance. The Site Health and Safety Officer will supply available chemical specific information to appropriate medical personnel as requested.

First aid kits will conform to Red Cross and other applicable good health standards and shall consist of a weatherproof container with individually sealed packages for each type of item. First aid kits will be fully equipped before being sent out on each job and will be checked weekly by the SSHO to ensure that the expended items are replaced.

Directions to Kenmore Mercy Hospital (see Figure 1):

The following directions describe the best route from the Site to Kenmore Mercy Hospital:

- Head north on Foundry Street toward Gladstone Street.
- Turn right onto Gladstone Street.
- Turn left onto NY-265 N/Military Road.
- Turn right onto Woodward Avenue.
- Turn left on to Elmwood Avenue.
- Turn left into the Kenmore Mercy Hospital parking lot.
- Turn right into the Emergency Room drop-off area.

9.0 EMERGENCY RESPONSE CRITIQUE & RECORD KEEPING

Following an emergency, the SSHO and Project Manager shall review the effectiveness of this Emergency Response Plan (ERP) in addressing notification, control and evacuation requirements. Updates and modifications to this ERP shall be made accordingly. It shall be the responsibility of each contractor to establish and assure adequate records of the following:

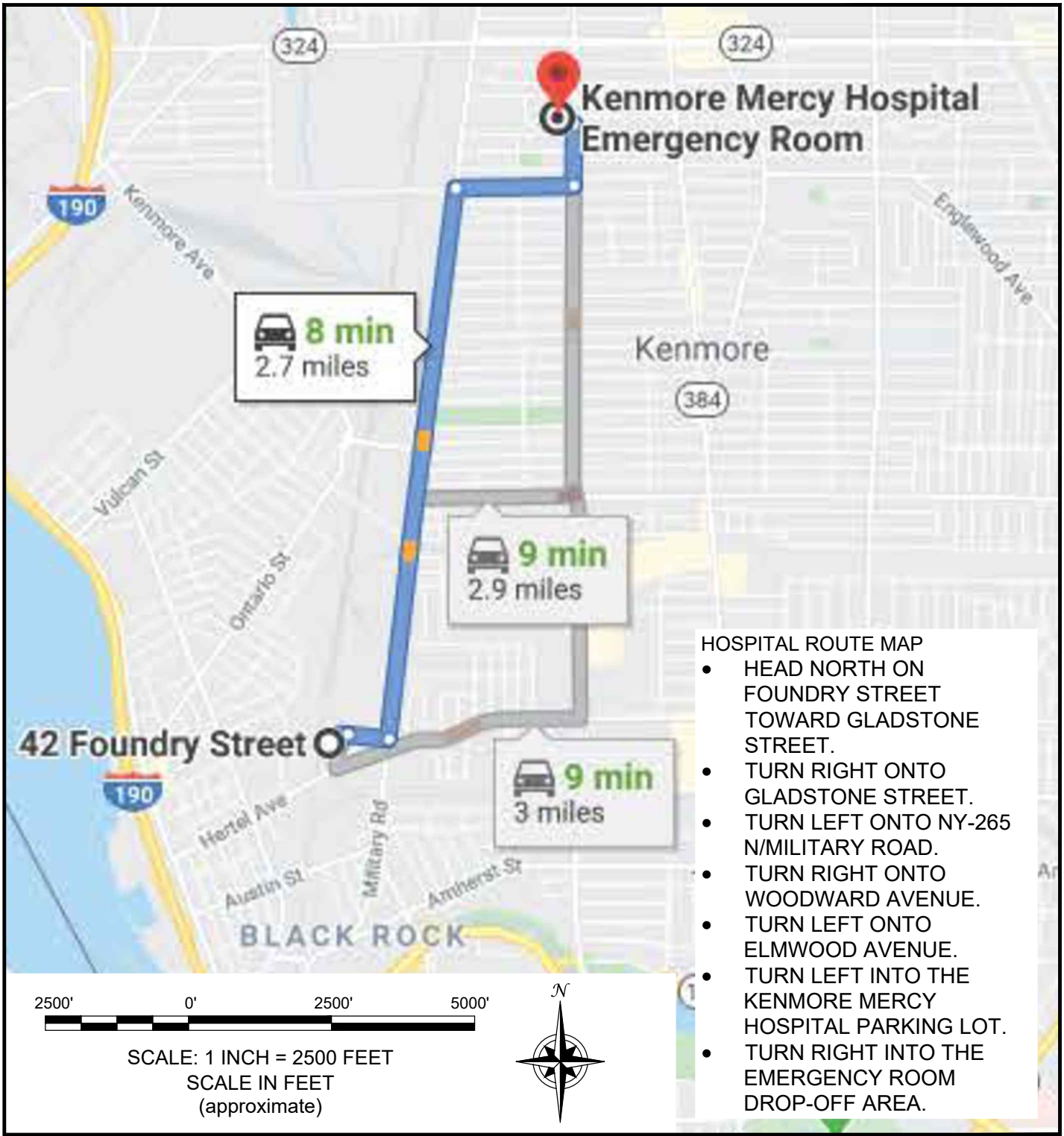
- Occupational injuries and illnesses.
- Accident investigations.
- Reports to insurance carrier or State compensation agencies.
- Reports required by the client.
- Records and reports required by local, state, federal and/or international agencies.
- Property or equipment damage.
- Third party injury or damage claims.
- Environmental testing logs.
- Explosive and hazardous substances inventories and records.
- Records of inspections and citations.
- Safety training.

10.0 EMERGENCY RESPONSE TRAINING

All persons who enter the worksite, including visitors, shall receive a site-specific briefing about anticipated emergency situations and the emergency procedures by the SSHO. Where this site relies on off-site organizations for emergency response, the training of personnel in those off-site organizations has been evaluated and is deemed adequate for response to this site.

FIGURE

FIGURE 1



HOSPITAL ROUTE MAP

- HEAD NORTH ON FOUNDRY STREET TOWARD GLADSTONE STREET.
- TURN RIGHT ONTO GLADSTONE STREET.
- TURN LEFT ONTO NY-265 N/MILITARY ROAD.
- TURN RIGHT ONTO WOODWARD AVENUE.
- TURN LEFT ONTO ELMWOOD AVENUE.
- TURN LEFT INTO THE KENMORE MERCY HOSPITAL PARKING LOT.
- TURN RIGHT INTO THE EMERGENCY ROOM DROP-OFF AREA.

2500' 0' 2500' 5000'

SCALE: 1 INCH = 2500 FEET
SCALE IN FEET
(approximate)

N

HOSPITAL ROUTE MAP

EMERGENCY RESPONSE PLAN

HERTEL AND FOUNDRY SITE
BCP SITE NO. C915359
BUFFALO, NEW YORK

PREPARED FOR

KAM CLEANUP LLC

BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0508-019-001

DATE: MARCH 2022

DRAFTED BY: CNK

ATTACHMENT B

HOT WORK PERMIT FORM

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

HOT WORK PERMIT

PART 1 - INFORMATION

Issue Date:	
Date Work to be Performed: Start:	Finish (permit terminated):
Performed By:	
Work Area:	
Object to be Worked On:	

PART 2 - APPROVAL

(for 1, 2 or 3: mark Yes, No or NA)*

Will working be on or in:	Finish (permit terminated):	
1. Metal partition, wall, ceiling covered by combustible material?	yes	no
2. Pipes, in contact with combustible material?	yes	no
3. Explosive area?	yes	no

* = If any of these conditions exist (marked "yes"), a permit will not be issued without being reviewed and approved by Thomas H. Forbes (Corporate Health and Safety Director). Required Signature below.

PART 3 - REQUIRED CONDITIONS**

(Check all conditions that must be met)

	PROTECTIVE ACTION		PROTECTIVE EQUIPMENT
	Specific Risk Assessment Required		Goggles/visor/welding screen
	Fire or spark barrier		Apron/fireproof clothing
	Cover hot surfaces		Welding gloves/gauntlets/other:
	Move movable fire hazards, specifically		Wellintons/Knee pads
	Erect screen on barrier		Ear protection: Ear muffs/Ear plugs
	Restrict Access		B.A.: SCBA/Long Breather
	Wet the ground		Respirator: Type:
	Ensure adequate ventilation		Cartridge:
	Provide adequate supports		Local Exhaust Ventilation
	Cover exposed drain/floor or wall cracks		Extinguisher/Fire blanket
	Fire watch (must remain on duty during duration of permit)		Personal flammable gas monitor
	Issue additional permit(s):		

Other precautions:

** Permit will not be issued until these conditions are met.

SIGNATURES

Orginating Employee:	Date:
Project Manager:	Date:
Part 2 Approval:	Date:

ATTACHMENT C

NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN

Appendix C1
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix C2
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX B

COMMUNITY AIR MONITORING PROGRAM (CAMP)

Appendix C1
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

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December 2009

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APPENDIX C

PROJECT DOCUMENTATION FORMS

TURNKEY ENVIRONMENTAL RESTORATION, LLC

DAILY LOG	DATE			
	NO.			
	SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME:	PROJECT NO.
PROJECT LOCATION:	CLIENT:
FIELD ACTIVITY:	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	DESCRIPTION

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:

WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
A.M.:	
P.M.:	

PERSONNEL ON SITE:

SIGNATURE DATE:

(CONTINUED)

TURNKEY ENVIRONMENTAL RESTORATION, LLC

DAILY LOG	DATE			
	NO.			
	SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME:	PROJECT NO.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	DESCRIPTION

SIGNATURE DATE:

(CONTINUED)

TurnKey Environmental Restoration, LLC

DAILY LOG	DATE			
	NO.			
	SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME:	PROJECT NO.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	DESCRIPTION

REFERENCED PROJECT FIELD FORMS:

☐ Aquifer Test Data Sheet	☐ Impacted Soil Excavation Log	☐ Soil Gas Survey Log
☐ Chain-of-Custody Form	☐ Impacted Soil Transportation Log	☐ Step-Drawdown Test Data Sheet
☐ Construction Sample Summary Log	☐ Monitoring Well Inspection Form	☐ Survey Elevation Log
☐ Corrective Measures Report	☐ Nuclear Densitometer Field Log	☐ Tailgate Safety Meeting Form
☐ Daily Drilling Report	☐ Photographic Log	☐ Test Pit Excavation Log
☐ Drilling Safety Checklist	☐ Pipe Leakage Testing Log	☐ Underground/Overhead Utility Checklist
☐ Equipment Calibration Log	☐ Post-Closure Field Inspection Report	☐ Variance Log
☐ Field Borehole Log	☐ Pressure Packer Testing Log	☐ Water Level Monitoring Record
☐ Field Borehole/Monitoring Well Installation Log	☐ Problem Identification Report	☐ Water Quality Field Collection Log
☐ Field Investigation Report	☐ Real-Time Air Monitoring Log	☐ Water Sample Collection Log
☐ Field Slug Test Log	☐ Record of Telecom Meeting	☐ Well Abandonment/Decomm. Log
☐ Groundwater Elevation Log	☐ Sample Summary Collection Log	☐ Well Completion Detail
☐ GW Well Development and Purge Log	☐ Sediment Sample Collection Log	☐
☐ Hot Work Permit	☐ Seep Sample Collection Log	☐
☐ IDW Container Log	☐ Seepage Meter Sample Collection Log	☐

SIGNATURE DATE:

DAILY LOG	DATE			
	REPORT NO.			
	PAGE		OF	

PROBLEM IDENTIFICATION REPORT

Date:

Project:

Job No:

Location:

CQA Monitor(s):

Client:

Contractor:

Contractor's Supervisor:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:

Ambient Air Temp. - P.M.:

Wind Direction:

Wind Speed:

Precipitation:

Problem Description:

Problem Location (reference test location, sketch on back of form as appropriate):

Problem Causes:

Suggested Corrective Measures or Variances:

Linked to Corrective Measures Report No. *or Variance Log No.*

Approvals (initial):

CQA Engineer:

Project Manager:

Signed:

CQA Representative

DAILY LOG	DATE			
	REPORT NO.			
	PAGE		OF	

CORRECTIVE MEASURES REPORT

Date:

Project:

Job No:

Location:

CQA Monitor(s):

Client:

Contractor:

Contractor's Supervisor:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:

Ambient Air Temp. - P.M.:

Wind Direction:

Wind Speed:

Precipitation:

Corrective Measures Undertaken (reference Problem Identification Report No.)

Retesing Location:

Suggested Method of Minimizing Re-Occurrence:

Approvals (initial):

CQA Engineer:

Project Manager:

Signed:

CQA Representative

APPENDIX D

ELECTRONIC COPY