Soil Management Plan
(SMP)

Site:

Former Brickyard Property
Sexton Ave & Lincoln Ave
Porter, IN 46304

Prepared For:

Town of Porter Redevelopment Commission
303 Franklin Street
Porter, IN 46304

Project Number: 23.2078

January 5, 2024

Amereco, Inc. 54 Michigan Avenue, Valparaiso, IN 46383

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Acronyms

ASI	Additional Site Investigation
AST	Aboveground Storage Tank
bgs	Below Ground Surface
COC	Contaminants of Concern
ERC	Environmental Restrictive Covenant
ESA	Environmental Site Assessment
FSI	Further Site Investigation
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IAC	Indiana Administrative Code
IDEM	Indiana Department of Environmental Management
LTC	Long Term Commercial
LUST	Leaking Underground Storage Tank
mg/Kg	Milligram per Kilogram (1 mg/Kg = 1 ppm)
NRCS	National Resources Conservation Service
NPD	Nonrule Policy Document
PAHs / PNAs	Polycyclic Aromatic Hydrocarbons / Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PID	Photoionization Detector
PL	Published Level (IDEM R2)
ppb	Parts Per Billion (1 ppb = 1 µg/L)
PPE	Personal Protective Equipment
ppm	Parts Per Million (1 ppm = 1 mg/Kg)
QA/QC	Quality Assurance/Quality Control
R2	Risk-based Closure Guide
RCG	Remediation Closure Guide (IDEM)
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RPG	Remediation Program Guide (IDEM)
SCP	State Cleanup Program
SGss	Sub-Slab Soil Gas
SL	Screening Level (IDEM RCG)
SMP	Soil Management Plan
TCLP	Toxicity Characteristic Leaching Procedure
TPH-ERO	Total Petroleum Hydrocarbons-Extended Range Organics
USDA	United States Department of Agriculture
U.S. EPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VFC	Virtual File Cabinet
VOCs	Volatile Organic Compounds
µg/L	Microgram per Liter (1 µg/L = 1 ppb)

1.0 Site Description and Summary of Conditions

1.1. Site Description and Background

Amereco has prepared this Soil Management Plan (SMP) on behalf of the Town of Porter Redevelopment Commission (Owner), for the Former Brickyard property located northwest of the intersection of Sexton Avenue and Lincoln Avenue in Porter, Porter County, IN 46304 (Site). The approximately 31.35-acre property consists of two parcels: 64-03-35-157-001.000-026 (western 6.70-acres, Lake Florence) and 64-03-35-177-001.000-026 (eastern 24.65-acres, Former Brickyard). A Regional Map and Site Map are provided in **Appendix A**.

1.1.1. Site History

The Site was developed for use as a brickyard and brick manufacturing facility in the early 1880s and operated as the Chicago Hydraulic Press Brick Company through 1925. Brick production at the facility ceased due to material resource shortages, notably clay, which was reportedly mined from the Site and resulted in significant re-working of surface soils, grade changes, and placing of backfill material. The Site has remained vacant since 1925, and the Site has become naturally vegetated. The southeast corner of the Site has recently been used by the Town of Porter for leaf and brush storage and an access drive is located near the northwest corner. The Site is predominately covered with tree canopy, with a small grass area located approximately 150-feet east of Lake Florence on the western parcel.

The Owner began investigating the environmental concerns associated with the property in 2006, with a Phase I completed by Weaver Boos Consultants (Weaver Boos). This Phase I ESA led to further site investigations, the first of which was preliminary and investigated previous oil tanks identified on the west side of the former brick facility. Results of the Preliminary Phase II ESA revealed no indication of petroleum impact in the areas of historical oil storage. However, elevated arsenic, lead and polynuclear aromatic hydrocarbons (PAH) concentrations were observed in surface soil near the southern portion of the Site. The impacts appeared to correspond to surficial fill soil containing cinders, which was estimated to cover a considerable portion of the Site.

The Town of Porter Redevelopment Commission began evaluating options for the Site in May 2011 and the second Phase II ESA, dated September 12, 2011, was conducted by Weaver Boos in accordance with an IDEM-approved scope of services to further characterize the concentration and extent contaminants at the Site and provide recommendations for mitigation of potential exposure in the context of future redevelopment and land use scenarios. As documented in this Phase II ESA, no evidence of groundwater impairments or contaminant leaching was identified, and contaminants of concern (COCs) appeared to be limited to PAHs, arsenic and lead in surface soil. The Site entered the State Cleanup Program (SCP) following a public complaint received on May 9, 2011. The SCP ID for the Site is #0000-00-352 and was assigned “inactive” status in 2012 pending initiation of redevelopment by the Town of Porter.

Multiple site investigations have been completed evaluating site conditions to evaluate risk management strategies for the Site. These investigations are further discussed in Section 1.1.5.

1.1.2. Previous Buildings

Former footprints of buildings associated with the brick facility were illustrated on historical maps reviewed during previous assessments. Generally, the main brick facility building was located in the south-central

portion of the property. A large storage warehouse was located in the area of the current leaf and brush storage area and was accessible by a railroad spur entering the Site on the southeast corner. While no large building foundations obstructing soil access remain, many bricks and brick fragments can be found in and around former footprints.

1.1.3. Current and Surrounding Land Use

The Site is generally referred to as the Former Brickyard Property and is located within an area of mixed industrial, commercial, and residential properties. The Subject Site is currently vacant and naturally vegetated apart from portions of the Site used for storage by the Town of Porter. The Site is accessible from the northwest corner off West Beam Street or from the southeast off Sexton Avenue and Lincoln Street. Adjoining property uses are as follows:

Current Use of Adjoining Properties	
Direction	**Use**
North	Yost Elementary School (100 W. Beam St.) Porter Town Office / Porter Fire Department (550 W. Beam St.)
Northeast	Residential
East	Residential
Southeast	Railroad, followed by Agricultural and Residential
South	Railroad, followed by Agricultural
Southwest	Railroad, followed by Agricultural
West	I-94 Right-of-Way, followed by Residential
Northwest	I-94 Right-of-Way, followed by Residential

1.1.4. Physical Setting

The Site is in Section 35, Township 37N, Range 6W of the 2nd Principal Meridian in Porter County, Indiana. The average elevation for the Subject Site is 636-feet above sea level, although numerous berms and depressions are present throughout the Site. Soils on-Site consist of Atherton Formation unconsolidated lacustrine clay, silt and sand. Bedrock is approximately 500-feet above mean sea level and consists of limestone and shale. Previous investigations conducted at the Site have generally identified interbedded sand, silt, and clay at various depth intervals. The United States Department of Agriculture (USDA)-Natural Resources Conservation Service (NRCS) Web Soil Survey for Porter County, Indiana (IN127) categorizes most soils on-Site as Udorthents loam, with a small area of Del Rey silt loam near the southeast corner. Urban Land – Whitaker complex loamy outwash is present along the east side of the Site.

The regional groundwater flow for the Subject Site is presumed to be primarily north towards Lake Michigan, located approximately 2.6-miles away, as identified by the Potentiometric Surface Map of The Unconsolidated Aquifers of Porter County, Indiana. Depth to groundwater data collected from soil boring logs indicate the water table ranges from approximately 8- to 16-feet below ground surface, or 618- to 627-feet above mean sea level on the Site.

1.1.5. Site Investigations

January 1994 ESA

An ESA, dated January 20, 1994, was performed on the Site by McMahon Associates, Inc. The ESA did not identify any RECs in connection with the Site. It should be noted that approximately 12-inches of snow cover significantly limited the ability of field personnel to observe Site conditions, specifically surface coverage.

July 2006 Phase I ESA

A Phase I ESA, dated July 5, 2006, was performed on the Site by Weaver Boos Consultants, LLC. The Phase I ESA identified the following RECs in connection with the Site:

- The former presence of oil tanks on the west side of the former kiln area was identified for potential petroleum contamination of soil and/or groundwater.

October 2009 Preliminary Phase II ESA

A Preliminary Phase II ESA, dated October 7, 2009, was performed on the Site by Weaver Boos Consultants, LLC on behalf of the Town of Porter. As part of the Phase II ESA, seven soil borings were advanced to approximate depths of 16- to 24-feet bgs. A total of three surface soil, three subsurface soil, and three groundwater samples were collected. Surface soil samples were analyzed for metals, PAHs, and TPH-ERO, subsurface samples were analyzed for PAHs and TPH-ERO, and groundwater samples were analyzed for volatile organic compounds (VOCs) and were compared to Risk Integrated System of Closure (RISC) closure levels. The Phase II ESA noted the following conclusions:

- No petroleum impacts were identified in the vicinity of historical on-Site oil storage.
- PAHs, lead, and arsenic were identified in surface soil on the southwest portion of the property above RISC closure levels. Elevated COC concentrations appear to be connected to dark-colored surficial fill, which covers a significant area along the south portion of the Site.
- Site conditions warrant additional characterization upon commencing redevelopment of the Site.

September 2011 Phase II ESA

A Phase II ESA, dated September 12, 2011, was performed by Weaver Boos Consultants, LLC to further characterize environmental conditions identified in the 2006 Phase I ESA and the 2009 Preliminary Phase II ESA. Nineteen soil borings were advanced, and six groundwater samples were collected. Analytes included arsenic, lead, TPH-ERO, and PAHs. The conclusions of the 2011 Phase II ESA were:

- No contaminant conditions warranting immediate action were identified.
- No groundwater impairments were identified in the Site subsurface, and migration from soil to groundwater is not suspected to be occurring.
- Redevelopment of the approximate 6-acre portion on the south of the property will require mitigation of potential exposure to surface soil contamination for commercial use. Potential exposure to impacted surface soil can be mitigated by excavation and disposal, consolidation, imposing engineered barriers, or a combination of mitigation measures.

July 2021 Phase II ESA

A Phase II ESA dated July 26, 2021, was performed by Amereco on behalf of a prospective developer to further evaluate known Site contamination. A total of 25 hand auger soil borings were advanced and a

total of 28 soil samples were collected and analyzed for PAHs and RCRA metals. The findings of the Phase II ESA included:

- Elevated arsenic and lead concentrations were present in surface soils in areas of visible fill material (cinders, slag, coal, brick, etc.), primarily on the majority of the south portion of the Site.
- Leaf and brush debris stored near the southeast portion of the Site by the Town of Porter had not significantly impacted the Site with contaminants.

December 2023 Additional Site Investigation

An Additional Site Investigation (ASI) was performed by Amereco to satisfy IDEM requests for additional characterization sampling and development of an SMP to be used in conjunction with potential future redevelopment of the Site. Amereco performed step-out sampling from five historical sampling locations exhibiting elevated arsenic and lead concentrations. This included a total of 19 surface soil samples, with samples collected at approximately 20-linear-feet in each cardinal direction from the points of concern. The sampling plan was designed with the objective of delineating the lateral extents of elevated contaminant concentrations; however, arsenic and lead results suggested that contaminated areas were more widespread throughout the area of the former brickmaking facility.

To evaluate Site-specific exposure risk mitigation strategies for future redevelopments, all arsenic and lead sampling data were grouped into four spatial areas. Statistical analyses recommended by the EPA and IDEM R2 were then performed on each data group to calculate arsenic and lead concentrations representative of conditions across each of the four spatial areas, or Decision Units. The Site was divided into two areas, which were further subdivided into surface soils and subsurface soils, thus providing four decision units:

1. Soil Decision Unit 1 – Former primary area of operation, including the main brickmaking facility building and immediate surrounding area. Decision Unit 1 is generally defined as the south end of the property where historical brickmaking activities occurred.
    a. Surface Soils (1a) – The surface soil (0- to 2-feet bgs) is a combination of organic, black topsoil and fill (ash, cinders, slag, etc.).
    b. Subsurface Soils (1b) – The subsurface soil (2- to 4-feet bgs) is generally identified as loamy mixtures of clay and sand underlain by fine to medium grained sand, although fill material is present in areas west of the former facility.

2. Soil Decision Unit 2 – Surrounding the former primary area of operation. This area is defined as an area of the Site that was not heavily developed, yet some soil disturbance is suspected given the Site history and varying elevation. Decision Unit 2 generally corresponds to the north area of the Site.
    a. Surface Soils (2a) – The surface soil (0- to 2-feet bgs) is a combination of organic black topsoil, sand, and clays.
    b. Subsurface Soils (2b) – Overall, this area of the Site has little to no evidence of fill materials and consists predominately of native soils.

The representative arsenic concentrations were found to exceed the IDEM R2 Long Term Commercial (LTC) PL in Decision Unit 1a and the IDEM R2 Long Term Residential (LTR) PL in Decision Units 1b and 2b.

1.1.6. Objective

This SMP was developed to assist in implementing hazard mitigation requirements for handling of contaminated soil at the Site based on current use and in the event of redevelopment. Proper management includes the identification of environmentally and economically feasible soil handling measures. This SMP is designed to be used in conjunction with other administrative controls (e.g., health and safety plan, permits) required during future construction activities. Implementation of this SMP will be the responsibility of the Owner and the contractor(s) performing excavation activities at the Site. However, the protocols presented in this SMP are to be used by all parties involved in soil disturbance activities (e.g., excavation, grading, trucking, and final placement). This Plan is intended to define the project need, characteristics of the soil to be managed, and methods utilized to verify compliance with this Plan.

This SMP does not address activities other than the removal and proper handling of subsurface soils during construction activities. This SMP is not intended to serve as a remedial plan, but rather a document for proper management of impacted on-Site soils. It is the goal of the Town of Porter Redevelopment Commission that IDEM issue approval of this SMP and closure of inactive State Cleanup Program (SCP) Incident #0000-00-352 registered at the Site. Upon SMP approval and incident closure, the Site, or portions of the Site, can be safely redeveloped in accordance with the approved SMP.

1.2. Site Characterization

The contaminants of concern (COCs) identified at the Site include arsenic, lead, and PAHs. The nature of contamination is not associated with an acute point-source release or plume, rather the contamination is a result of the cumulative emplacement of dubious fill containing hazardous materials near the surface. Therefore, the sampling design for later phases of investigation was focused on soils from 0- to 2-feet below existing grade. While contamination has been identified in surface soils, previous soil borings WB-9, WB-12, and WB-16 advanced by Weaver Boos identified fill material as deep as 8-feet below grade and fill-associated contamination may exist below 2-feet below grade. Guidance on handling unforeseen contaminated soil is provided in *Section 7.0 Contingency Plan* of this SMP.

Characterization of the extents of contaminated surface soil was performed in accordance with *Section 3.2.2.1 Determining Representative Concentrations in Soil* of the IDEM Risk-based Closure Guide (R2). This approach utilizes statistical analysis of concentration datapoints within selected spatial areas to determine representative concentrations over sub-portions of the Site, or decision units. Representative concentrations for two surface soil decision units (0- to 2-feet below grade) and two subsurface decision units (2- to 4-feet below grade) were calculated in an Additional Site Investigation Report prepared by Amereco. Decision unit 1 consists of the former primary area of brickyard operation and decision unit 2 consists of the area surrounding former brickyard operations. Representative concentrations for decision units are summarized below.

Representative Concentrations Summary					
Decision Unit	**Contaminant of Concern**	**IDEM R2 LTR PL (mg/kg)**	**IDEM R2 LTC PL (mg/kg)**	**IDEM R2 STE PL (mg/Kg)**	**Representative Concentration (mg/Kg)**
Decision Unit 1a – Surface Soils	Arsenic	10	30	900	**38.0**
	Lead	400	800	1,000	341.4
Decision Unit 2a – Subsurface Soils	Arsenic	10	30	900	7.3
	Lead	400	800	1,000	25.4

Representative Concentrations Summary					
Decision Unit	**Contaminant of Concern**	**IDEM R2 LTR PL (mg/kg)**	**IDEM R2 LTC PL (mg/kg)**	**IDEM R2 STE PL (mg/Kg)**	**Representative Concentration (mg/Kg)**
Decision Unit 1b – Surface Soils	Arsenic	10	30	900	**22.1***
	Lead	400	800	1,000	132.6
Decision Unit 2b – Subsurface Soils	Arsenic	10	30	900	**12.1***
	Lead	400	800	1,000	32.6

*Residential PL exceedances for Decision Units 1b and 2b represent indigenous arsenic background levels

The representative arsenic concentrations exceed the IDEM R2 Long Term Commercial (LTC) PL in decision unit 1a and the IDEM R2 Long Term Residential (LTR) PL in decision units 1b and 2b. Thus, in accordance with the IDEM Agency Nonrule Policy document: *Waste-0075-NPD*: *Soil Management Plan*, effective December 9, 2022, soils across decision unit 1a have been categorized as Level 3 soils, defined as "soil containing chemicals at concentrations less than Excavation Worker Direct Contact PLs but greater than PLs for Commercial Direct Contact".

Representative arsenic concentrations for decision units 1b and 2b have been interpreted as indigenous background levels, due to the majority of the subsurface samples being representative of native, undisturbed soils free of fill material. Therefore, the residential level exceedances for both subsurface decision units are not considered Level 4 soils.

A Site map depicting the lateral extents of Level 3 soils is provided in **Appendix B**. A summary of analytical soil results is provided in **Appendix C** which includes known soil contaminant concentrations present at the Site at levels above current applicable IDEM R2 Published Levels. All COC concentrations were compared to currently applicable IDEM R2 PLs. A soil sample locations map is provided in **Appendix B**.

2.0 Soil Management Activities

This SMP was prepared in accordance with the IDEM Nonrule Policy Document Waste-0075; Soil Management Plan (Waste-0075-NPD, effective December 9, 2022) and is applicable to Level 3 soils identified in decision unit 1a, surface soils within the former brickyard operational area. The requirements for a Site-specific SMP are based on the highest level of soil contamination compared to IDEM's Risk-Based Closure Guide (R2).

Level 3 soils exhibit contamination above commercial/industrial direct contact levels but below excavation direct contact levels.

Proper communication with all parties involved in the redevelopment project is imperative to ensuring that: a) workers and the general public are not exposed to contaminated soil; and b) that impacted soil is properly handled. Should conditions be identified that vary from those identified within this report, this SMP must be reviewed and revised to properly address the conditions on-Site.

2.1. Soil Handling and Disposal Activities

This SMP is intended to be used as a working document for Site activities that will result in disturbance of Level 3 soils present in the top 2-feet of soils within Decision Unit 1a. The primary objective of this SMP is to provide protocols for the management of surface soil based on current use and potentially subject to excavation in conjunction with future construction activities at the Site. The protocols developed within this SMP are designed to be: (1) protective of human health and the environment; (2) consistent with any future redevelopment; and (3) in compliance with applicable rules and regulations.

Soil disturbance activities are anticipated to be the predominate work activity resulting in the potential exposure of contaminants to workers on-Site. The two primary routes of exposure are direct contact with contaminated soil (dermal absorption and ingestion) and inhalation of dust particulates (inhalation and ingestion). The primary method of worker protection will be the use of engineering controls to prevent contact with soil and dust creation, utilizing personal protective equipment (PPE) as a last layer of protection. Implementation of proper hygiene activities will also be conducted to prevent worker exposure.

All soil shall be handled in a manner that prevents the distribution of contamination from the Site. The following procedures must be utilized to ensure that contaminated soil is properly managed:

1) Handle and transport contaminated soil within Site boundaries to minimize the spread of contamination.
2) Primarily use mechanized equipment (excavator, backhoe, Harley rake, etc.) to handle and transport contaminated soil. If hand tools are required, gloves will be donned.
3) Utilize water for dust suppression; however, soils should not reach saturation to prevent soil erosion and migration of contaminants.
4) Excavate and load soil directly into trucks when possible, limiting the stockpiling of material to be removed from the Site.
5) If staging/stockpiling is necessary, the soil will be covered or alternative methods will be utilized to prevent erosion/contamination runoff. Soil stockpile surfaces will be moistened by water spray, as necessary, to prevent fugitive dust. If visible migration is observed, covering will be required. Stockpiled soils shall be placed on an impermeable surface away from Site drainage patterns or lines, roadsides, or culverts, as feasible to the Site layout.

6) If previously unknown non-native/impacted soil is encountered, excavation activities shall cease to allow for proper soil characterization by a qualified individual. Suspect petroleum impacted soils will be screened for VOCs using a photoionization detector (PID) meter and soil samples will be collected, if determined necessary. See *Section 7.0 Contingency Plan* for additional information.

7) Appropriately decontaminate equipment which handled contaminated soil, prior to transporting clean soils with the same equipment.

8) All trucks will be covered before leaving the Site and soil will be brushed/removed off the wheels to avoid tracking onto public roadways. Trucks will minimize tracking by not traversing impacted soil, as feasible.

9) All soil to be removed from the Site will be properly characterized prior to leaving the Site. No Level 3 soil shall be removed from the Site for reuse without approval of a Legitimate Use Application with the IDEM.

10) The Contractor responsible for disposal of the soil shall maintain a register of disposal activities and records such as waste tracking manifests identifying the disposal location, quantity of material, etc. These documents shall be provided to the Owner.

11) The Contractor responsible for reuse of soil on-Site and off-Site per an IDEM-approved Legitimate Use shall maintain a record of all reuse activities, including the original soil location and the final location(s) for reuse. These documents shall be provided to the Owner.

2.1.1. Stockpile Management

If soil segregation/stockpiling is necessary, the soil shall be placed on plastic sheeting or an impermeable surface such that erosion/contamination runoff is directed away from topographical drainage patterns, roadsides, or culverts, as feasible to the Site layout. Stockpiles should be covered with plastic sheeting as soon as possible after segregation is complete. If covering cannot be performed in a timely manner, the stockpile will be moistened to prevent soil transport by wind or rainwater.

2.1.2. On-Site Transportation

Transportation of Level 3 soils within the Site boundary will be conducted in such a way to minimize spread of contamination. Waste tracking manifests are not required for transportation of soils within the Site boundaries. However, the Contractor must document and maintain records of work conducted, including the original soil location and the final location(s) of soils which have been relocated on-Site. Copies of these records are to be provided to the Site Owner. Level 3 soils can be backfilled into excavations without a Legitimate Use Approval if the depth of emplacement does not exceed that which the soil was taken.

Should significant movement of Level 3 soils be conducted on the Site, a Legitimate Use Application will be submitted to IDEM prior to soil movement.

2.1.3. Off-Site Disposal

Waste tracking manifests will accompany waste removed from the Site for disposal. The manifests will be accumulated, maintained, and provided to the Site Owner. Additionally, the contractor must document and maintain records for any soil relocated off-Site in accordance with an IDEM-approved Legitimate Use permit. The records are to include the original on-Site soil location and the final off-Site soil location(s) and corresponding quantities.

3.0 Contamination Containment

Best management practices will be utilized to prevent off-Site contaminant migration and spread of contaminants to un-impacted areas of the Site. Continuous dust control during disturbance of Level 3 soil is required by IDEM when within one-quarter mile of a residential setting to protect sensitive areas. The Yost Elementary School is located on the adjoining north property and is considered a sensitive area.

3.1. Fugitive Dust Control

All exposed soil surfaces following disturbance will be moistened by water spray, as necessary, to prevent fugitive dust. However, soil should not reach saturation to prevent soil erosion and migration or runoff of contaminants. Dust control measures include but are not limited to:

1) Reduction of vehicle speeds on-Site
2) Minimizing drop heights to material haulers from soil loaders
3) Timing excavation activities with consideration of prevalent wind speed and direction
4) Odor suppressants
5) Regular watering or application of dust suppressants to haul roads and soil stockpiles
6) Covering or tarping soil stockpiles when not in use
7) Revegetating, stabilizing, or covering exposed excavations as soon as practicable
8) Use of completely enclosed vehicles or tarping vehicles

Additionally, Site activities shall comply with the requirements of 326 IAC 6-5-4, Fugitive Dust Emissions.

3.2. Equipment Decontamination Plan

Decontamination procedures will be used in all areas of Level 3 soils. Decontamination of equipment shall include but is not limited to the following:

1) Brushes, shovels, etc., to conduct gross soil removal on equipment used for excavation or movement of soil on-Site

2) Prior to leaving the Site, cleaning and decontamination of all trucks and equipment

3) Brushing off loose soil on excavation and transport equipment and transferring to a truck containing Level 3 soil for transport to the designated landfill

4.0 Field Screening

Field screening of soils by use of instrumentation is not anticipated. Volatile contaminants have not been identified at the Site. Visual screening shall be a useful means for identifying areas of soil contamination, as the contaminant conditions are strongly associated with historically imported fill material consisting of cinders, coal, slag, glass, and brick.

5.0 Legitimate Use

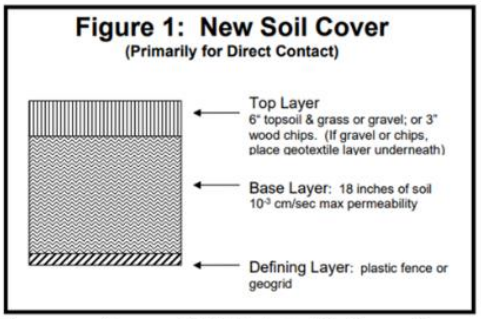
Legitimate use, as defined by IC 13-11-2-118.4, is the reuse of a material, otherwise defined as a solid or hazardous waste (i.e., contaminated soil). Level 3 and 4 soils may be approved for legitimate use. Level 1 and 2 soils cannot be approved by the commissioner for legitimate use [329 IAC 10-3-1(16)]. Two basic requirements for a legitimate use approval are: 1) the use is legitimate and 2) the use does not pose a threat to public health or the environment. If a legitimate use is approved for the use of Site soils at an off-Site location, all soil handling will occur in accordance with the approved use. Site boundaries are defined by the parcels identified in Section 1 of this SMP and depicted on the attached maps.

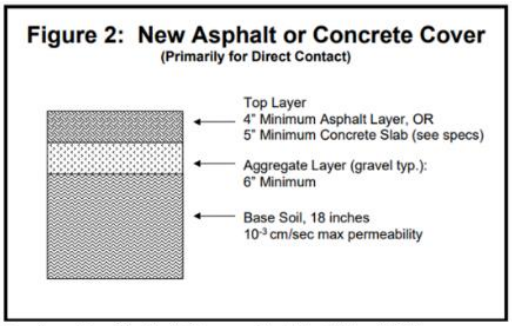
At this time a legitimate use cannot be determined for soil for the Site, as redevelopment plans are unknown. Should legitimate use be considered, it must meet two requirements: the use is legitimate, and the use will not pose a threat to public health or the environment.

6.0 Final Restoration

Final coverage for the contaminated soil shall comply with IDEM's requirements for an engineering barrier (Waste-0074-NPD: Supplemental Guidance on Engineered Exposure Controls and Technical Guidance Document: Engineering Control: Covers).

Should Level 3 soils be reused on-Site, the new soil cover will consist of (bottom to top) a defining layer (plastic fencing or a geogrid for visual demarcation purposes) placed on top of Level 3 soils, followed by at least 18-inches of soil as a base layer, and a minimum 6-inch top layer of topsoil and grass (see Figure 1 below). Similarly, a new asphalt or concrete cover will consist of (bottom to top) at least 18-inches of base soil, a minimum 6-inches aggregate layer (typically gravel), followed by a minimum 4-inch asphalt layer or 5-inch concrete slab (see Figure 2 below).





Source - IDEM Technical Guidance Document, Engineering Control: Covers, Updated May 2021

7.0 Contingency Plan

This section outlines the steps to be taken in the event unexpected contamination and/or hazardous materials are discovered during the excavation activities. The procedures outlined below provide the Contractor with protocols to identify potential contamination and take appropriate action to avoid the dispersion of contaminants into the surrounding environment.

Contamination indicators or hazardous materials may include but are not limited to the following:

1) Presence of cinders, coal, slag, glass, bricks or brick fragments, or foreign gravel (outside of that already identified in decision unit 1)
2) Intact or broken drums and containers
3) Unusual odors
4) Discolored or stained water seepage and soils
5) Petroleum hydrocarbon contaminated soil and/or free product
6) Liquid waste, putrescible waste, household refuse and any material that normally would be sent to a licensed landfill
7) Gas bubbles in standing/pooled water
8) Broken suspect ACM sheets, pipes, or fragments

During the excavation activities, the Contractor shall actively monitor for the conditions and materials specified above. In the event that one of these is identified, the Contractor should take the following actions:

1) Stop all excavation activities within a 50-foot radius of the area where the suspect material, emission, or discharge has been recorded.
2) Immediately notify the Site Owner and Amereco, or another environmental consultant.
3) Cordon off the area as practicable with a suitable barrier.
4) Work shall not resume or commence within a 50-foot radius of the area unless authorized by the Owner or its environmental consultant.

The Contractor shall contact the Owner's environmental consultant who will advise on the appropriate course of action in consultation with the Owner. The environmental consultant shall:

1) Characterize the contamination by collecting samples for chemical laboratory analysis.
2) Advise construction/excavation work to proceed to an area clear of contamination indicators until material testing, as necessary, defines the material characteristics and contaminant Level.
3) When the material characteristics have been established, advise the Contractor as to whether the materials may remain on-Site or whether materials should be removed for disposal at a licensed landfill, assuming it can be accepted without prior stabilization.
4) Instruct relevant staff of all appropriate information such as location and quantity of material.
5) Record all details on an incident form, including GPS coordinates of location.
6) Notify the appropriate regulatory authority, if required, that contamination has been discovered and contingency action is being implemented.

If free product is encountered during excavation activities, all excavation activities are to immediately cease, the area is to be barricaded off as much as practicable, and the Owner shall be notified. The Owner will retain an environmental consultant to mobilize to the Site to determine applicable next steps to properly contain and prevent the spread of free product. IDEM will be notified if free product is encountered. Beyond the aforementioned steps, this SMP is not applicable to soils containing free product (Level 1).

8.0 Record Keeping

Waste manifests are generally only required for classified hazardous wastes. However, any soils transported off-Site for disposal must comply with applicable laws including 329 IAC 3.1 and 329 IAC 10.

8.1. Imported Soil Verification

All imported soil material will meet regulatory standards as “Uncontaminated Soil,” per IDEM’s Uncontaminated Soil Policy. Should other soil be imported that does not qualify as uncontaminated soil, a Legitimate Use Application shall be submitted to IDEM. No contaminated soil shall be imported onto the Site without authorization by IDEM. Details of the material supplier’s imported soil source, and total quantity of imported soil material for each distinct supplier and source of imported soil will be documented. This documentation will be provided to Site Owner.

9.0 Worker Protection, Notifications, and Training

All contractors bidding or conducting outlined work on-Site shall be provided this SMP. All workers on-Site shall be made aware of this plan and have sufficient knowledge of the potential hazards they may be exposed. All workers shall be provided with adequate training to properly handle contaminated media identified on the Site.

Soil disturbance activities are anticipated to be the predominate work activity resulting in the potential exposure of contaminants to workers on-Site. The two primary routes of exposure are direct contact with contaminated soil (dermal absorption and ingestion) and inhalation of dust particulates (inhalation and ingestion). The primary method of worker protection will be the use of engineering controls to prevent contact with soil and dust creation, utilizing personal protective equipment (PPE) as a last layer of protection. Implementation of proper hygiene activities shall also be conducted to prevent worker exposure.

While Level 2 soils have yet to be identified on-Site, care should be taken to prevent exposure to workers. Workers should be notified of the presence of the material, and proper hygiene methods should be taken to prevent worker exposure to any contaminants. Implementation of the work procedures will limit worker exposure to contaminated soil.

To prevent direct contact with contaminated soils, soil disturbance work will be primarily conducted utilizing mechanized equipment (excavator, back hoe, Harley rake, etc.). However, certain activities will require the utilization of hand tools. Workers shall work upwind of the work area as much as feasible.

In addition to work practices, PPE may be utilized to prevent worker exposure. Level D PPE is anticipated to be sufficient for Site excavation activities. However additional PPE should be worn in accordance with Occupational Safety and Health Administration (OSHA) standards, if applicable. Gloves should be donned whenever handling soil. At a minimum, workers must be made aware of the potential to transport contaminated soil off-Site on clothing and that all clothing should be laundered prior to reuse.

This SMP does not alleviate employers from their OSHA requirements, nor should this document be interpreted as an exclusion of each employer's responsibility under the Indiana and federal OSHA rules and regulations. It is the responsibility of each employer to ensure the safety of their employees, including, but not limited to hazard identification and development of a project specific Health and Safety Plan.

10.0 Storm Water and Erosion Control

Should the soil disturbance activity qualify, a performance-based Construction Run-off general permit may be required under 327 IAC 15-5. Prior to initiation of Site work, a Storm Water and Erosion Control Plan may be required in accordance with local, state and federal rules and regulations.

11.0 References

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Weaver Boos Consultants, LLC, *Phase II Environmental Site Assessment* – Former Brickyard Property, Sexton Avenue & Lincoln Street, Porter, IN 46304, Project No. 2379351-03, September 12, 2011.

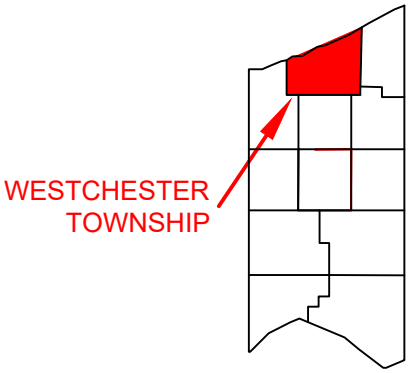
Appendix A

Figure A1 – Regional Map

Figure A2 – Site Map

Figure A3 – Sampling Locations and Geological Cross Section Locations

Figure A4 – Geological Cross Section



T 37 N / R 6 W

PORTER COUNTY

WESTCHESTER TOWNSHIP

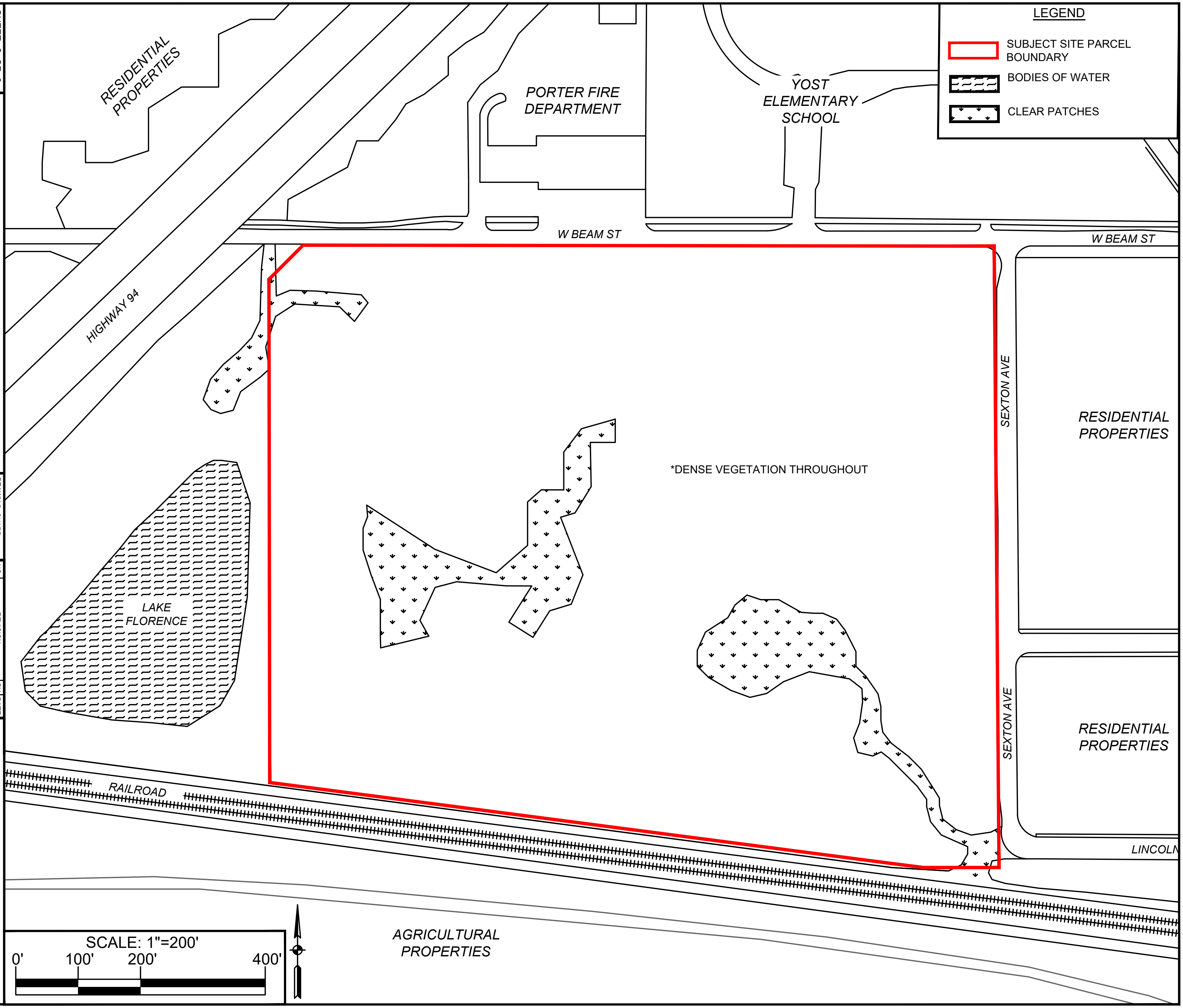
PORTER, INDIANA

46304

NEIGHBORHOOD: 1150

N

SHEET 1 OF 6	REGIONAL MAP	DRAWN: D. SHARP	NO.	REVISION	BY	DATE	AMERECO, INC.
FIGURE	SOIL MANAGEMENT PLAN	DESIGNED:					CONSULTING ENGINEERS-PROJECT MANAGERS
A1	FORMER BRICKYARD SITE	APPRV'D:					54 MICHIGAN AVENUE
		DATE: JAN. 3, 2024					VALPARAISO, IN 46383 219-531-0531
	VALPARAISO INDIANA	PROJECT NUMBER: 23.2078					



A2
FIGURE
SHEET 2 OF 6

PORTER INDIANA

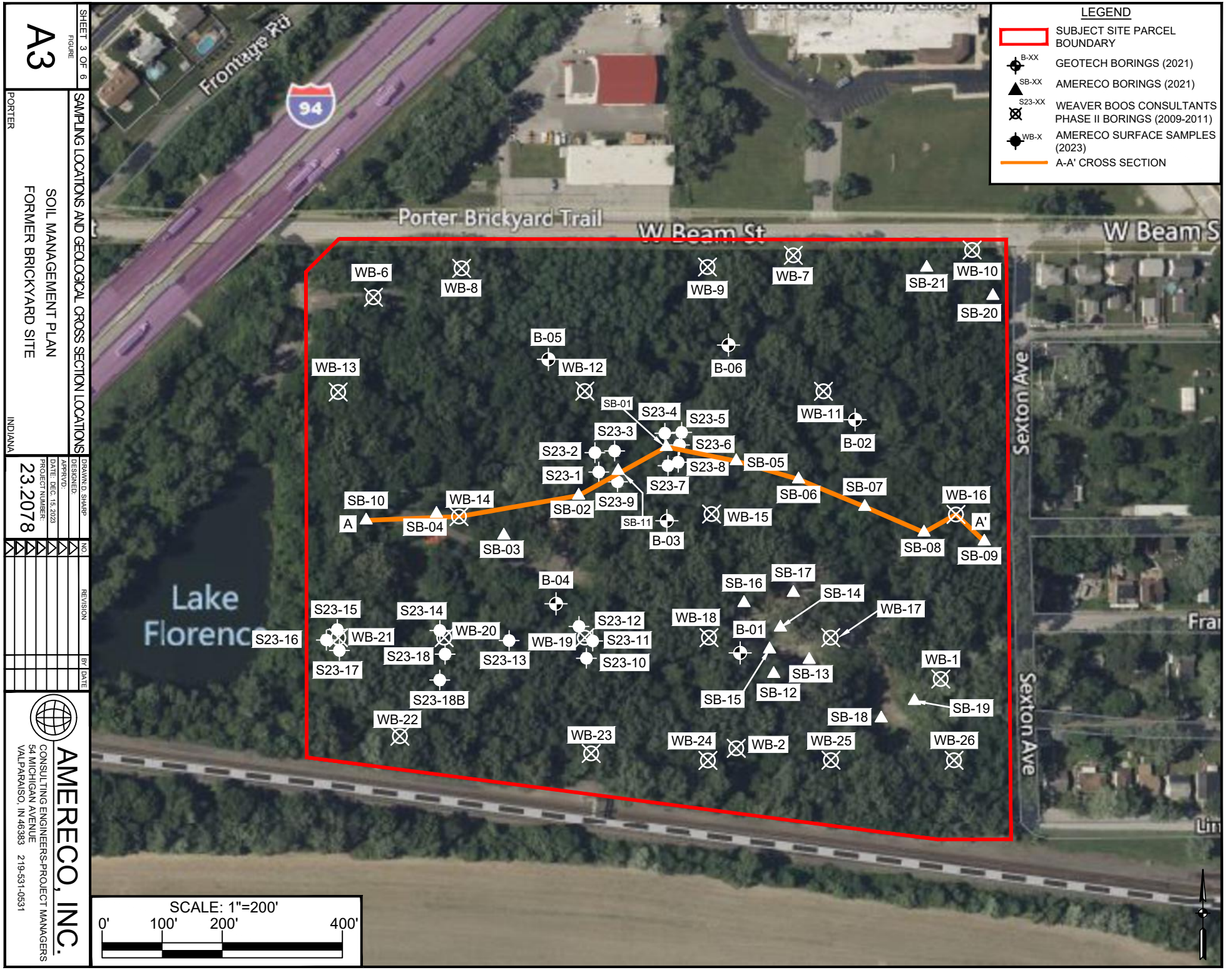
SITE MAP

SOIL MANAGEMENT PLAN
FORMER BRICKYARD SITE

DRAWN: D. SHARP
DESIGNED:
APPR'VD:
DATE: DEC. 15, 2023
PROJECT NUMBER:
23.2078

NO.	REVISION	BY	DATE

AMERECO, INC.
CONSULTING ENGINEERS-PROJECT MANAGERS
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531



SHEET 3 OF 6

FIGURE

A3

SAMPLING LOCATIONS AND GEOLOGICAL CROSS SECTION LOCATIONS

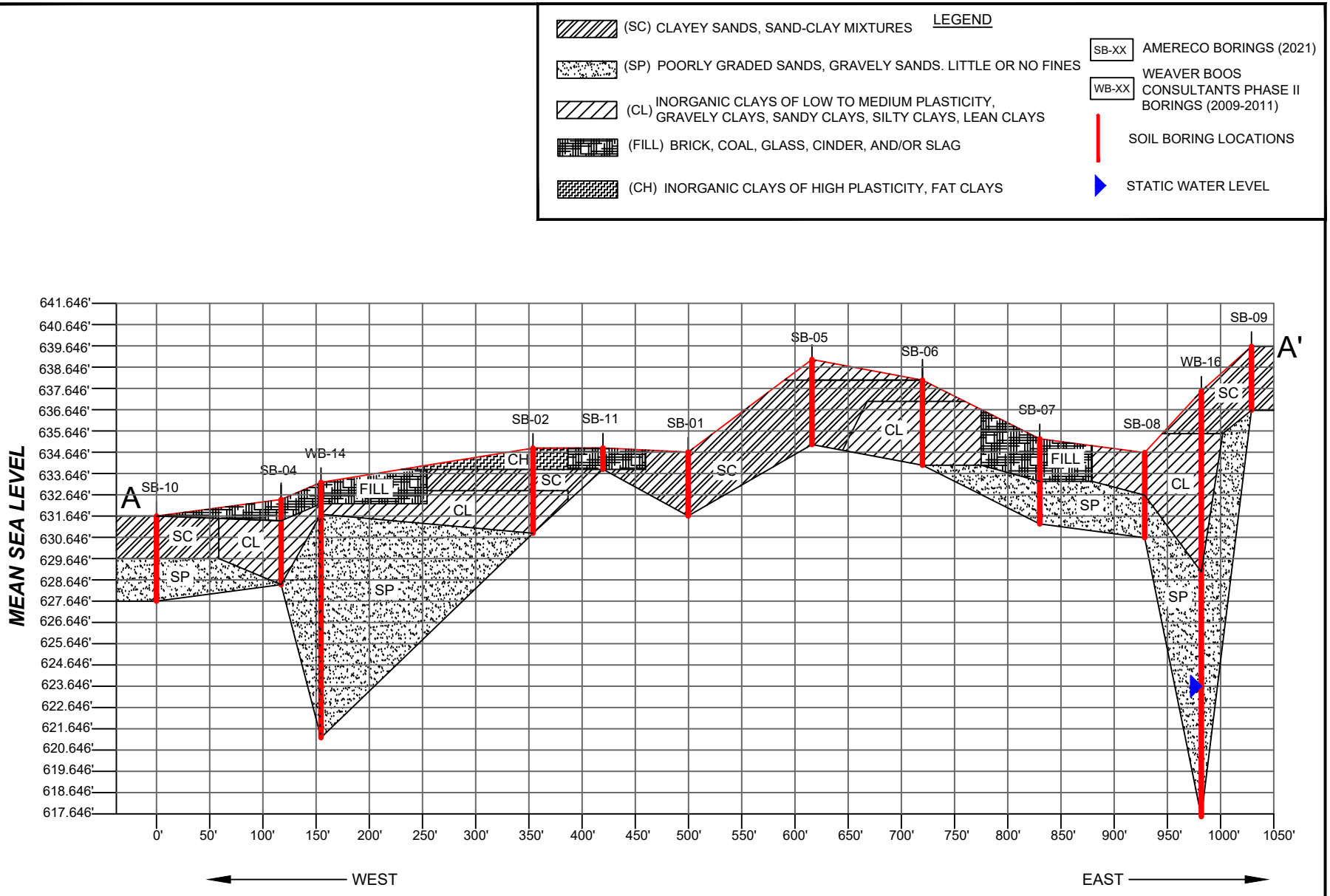
SOIL MANAGEMENT PLAN
FORMER BRICKYARD SITE

PORTER
INDIANA

PROJECT NUMBER: 23.2078
DATE: DEC. 15, 2023
APPRVD:
DESIGNED:
DRAWN D. SHARP

NO.	REVISION	BY	DATE

AMERECO, INC.
CONSULTING ENGINEERS-PROJECT MANAGERS
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531



NOTE: SOIL LITHOLOGIES ADAPTED FROM BORING LOGS INCLUDED IN 2009, 2011, 2021 PHASE II REPORTS (AMERECO, WEAVER BOOS)

CROSS SECTION A-A'

SOIL MANAGEMENT PLAN
FORMER BRICKYARD SITE
PORTER
INDIANA

DRAWN: D. SHARP
DESIGNED:
APPRVD:
DATE: DEC. 18, 2023
PROJECT NUMBER: 23.2078

NO. | REVISION | BY | DATE

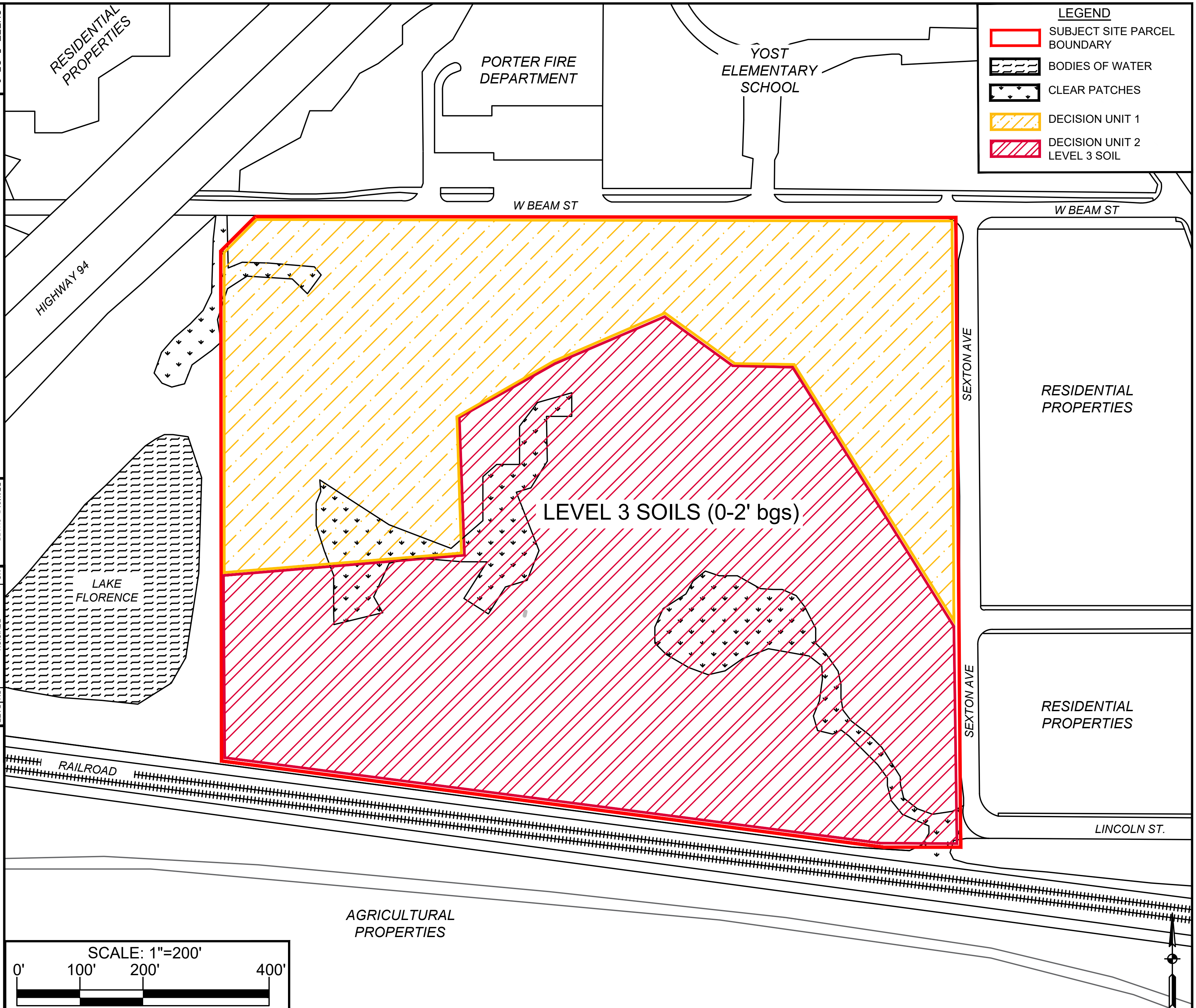
AMERECO, INC.
CONSULTING ENGINEERS-PROJECT MANAGERS
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531

FIGURE A4

Appendix B

Figure B1 – Soil Restriction Areas

Figure B2 – Soil Sample Locations Map



B1

FIGURE

SHEET 5 OF 6

SOIL RESTRICTION AREAS

SOIL MANAGEMENT PLAN

FORMER BRICKYARD SITE

PORTER

INDIANA

DRAWN: D. SHARP

DESIGNED:

APPRV'D:

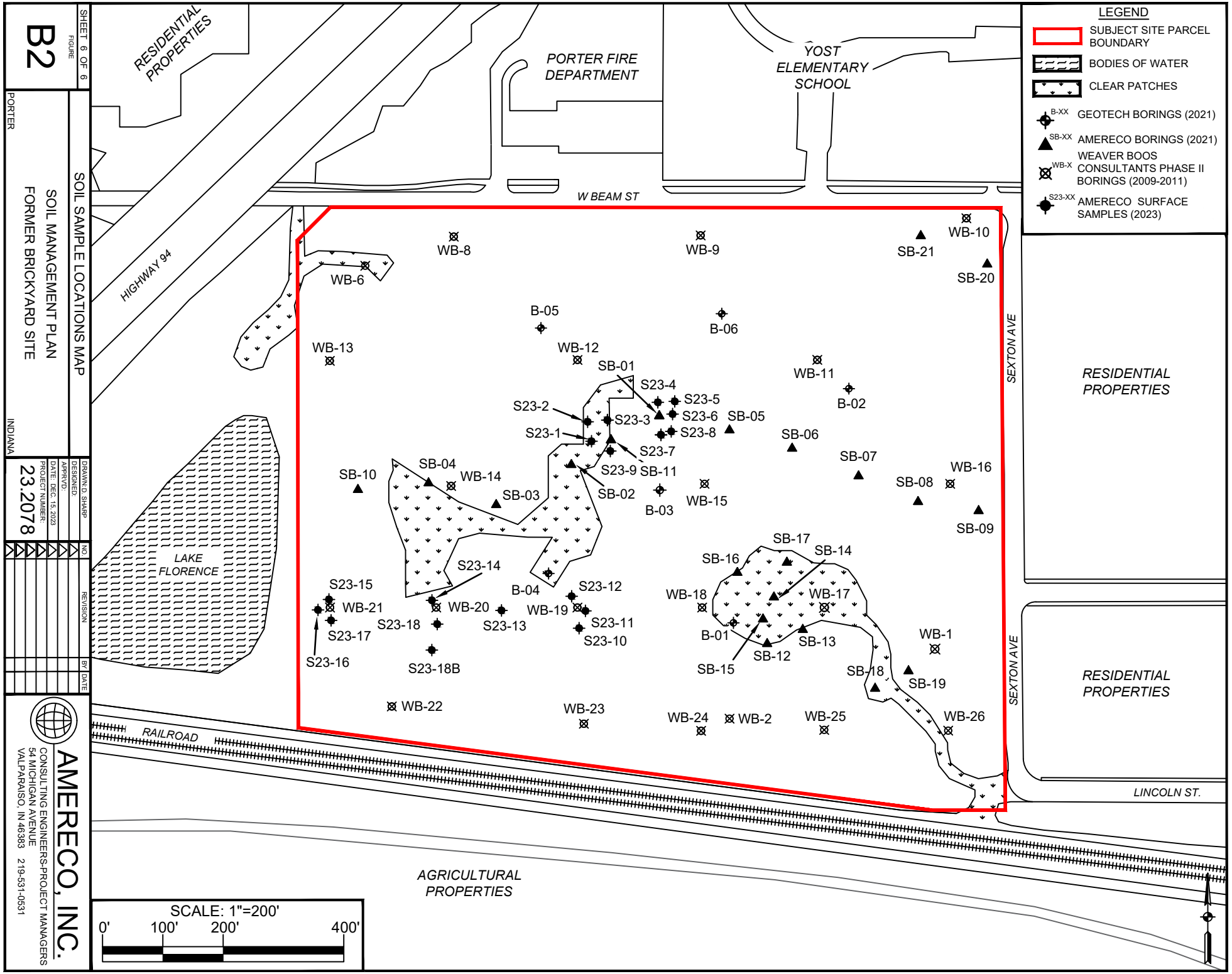
DATE: DEC. 15, 2023

PROJECT NUMBER:

23.2078

NO.	REVISION	BY	DATE

AMERECO, INC.
CONSULTING ENGINEERS-PROJECT MANAGERS
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531



B2

SHEET 6 OF 6

FIGURE

SOIL SAMPLE LOCATIONS MAP

SOIL MANAGEMENT PLAN
FORMER BRICKYARD SITE

PORTER

INDIANA

23.2078

PROJECT NUMBER:

DATE: DEC. 15, 2023

APPRVD:

DESIGNED:

DRAWN D. SHARP

NO.	REVISION	BY	DATE

AMERECO, INC.

CONSULTING ENGINEERS-PROJECT MANAGERS
54 MICHIGAN AVENUE
VALPARAISO, IN 46383 219-531-0531

Appendix C

Soil Analytical Data Summary – PAHs, Arsenic, and Lead

Appendix C
Soil Analytical Data Summary - PAHs, Arsenic, and Lead

Sample ID :	Sample Depth (ft.):	Date Collected :	Primary Lithology:	Chemical	Benz(a)anthracene	Benzo(a)pyrene	Dibenz(a,h)anthracene	Naphthalene	Arsenic	Lead
				CASRN / Unit	56-55-3	50-32-8	53-70-3	91-20-3	7440-38-2	7439-92-1
WB-1	0-1'	9/21/2009	Sand	mg/Kg	< 28.7	< 28.7	< 28.7	0.0567	**6.5**	16.6
WB-2	0-1'	9/18/2009	Sand	mg/Kg	4.15	**3.34**	1.02	1.7	**29.5**	191
WB-6	0-1'	9/21/2009	Sand	mg/Kg	< 26.9	< 26.9	< 26.9	< 26.9	3.6	20.8
WB-8	0-1'	7/7/2011	Clay	mg/Kg	0.0664	0.0652	< 0.0360	< 0.0360	9.6	34.5
	2-3'		Sand	mg/Kg	0.039	0.0406	< 0.0305	< 0.0305	6	75.4
WB-9	0-1'	7/7/2011	Clay	mg/Kg	0.0524	0.0647	< 0.0305	< 0.0305	6.5	26.3
	2-3'		Clay	mg/Kg	0.0608	0.0638	< 0.0308	< 0.0308	**14.9**	34.4
WB-10	0-1'	7/7/2011	Sand	mg/Kg	0.217	0.178	0.0531	< 0.0258	< 1.8	8.4
WB-11	0-1'	7/8/2011	Clay	mg/Kg	< 0.0295	< 0.0295	< 0.0295	< 0.0295	**12.1**	14.8
	2-3'		Clay	mg/Kg	< 0.0966	< 0.0296	< 0.0966	< 0.0296	8.9	11.7
WB-12	0-1'	7/8/2011	Clay	mg/Kg	0.0349	0.0365	< 0.0311	< 0.0311	6.6	34.8
	2-3'		Clay	mg/Kg	< 0.0298	0.0424	< 0.0298	< 0.0298	9	51.1
WB-13	0-1'	7/8/2011	Clay	mg/Kg	< 0.0306	< 0.0306	< 0.0306	< 0.0306	8	11.7
	2-3'		Clay	mg/Kg	< 0.0302	< 0.0302	< 0.0302	< 0.0302	8.4	6.9
WB-14	0-1'	7/8/2011	Clay	mg/Kg	0.312	0.322	0.0938	0.0401	5.8	47.1
	2-3'		Sand	mg/Kg	< 0.0264	< 0.0264	< 0.0264	< 0.0264	2.5	4.6
WB-15	0-1'	7/8/2011	Clay	mg/Kg	< 0.0305	< 0.0305	< 0.0305	< 0.0305	**11.4**	12.6
	2-3'		Clay	mg/Kg	< 0.0291	< 0.0291	< 0.0291	< 0.0291	**10.3**	14.8
WB-16	0-1'	7/7/2011	Clay	mg/Kg	0.0372	0.0441	< 0.0299	0.0732	7.5	30.4
WB-17	0-2'	7/12/2011	Clay	mg/Kg	0.98	1.07	0.338	0.273	**12.3**	119
WB-18	0-1'	7/8/2011	Fill	mg/Kg	< 0.0321	< 0.0321	< 0.0321	< 0.0321	**32.4**	28.8
	2-3'		Clay	mg/Kg	< 0.0306	< 0.0306	< 0.0306	< 0.0306	4.5	8.3
WB-19	0-1'	7/12/2011	Fill	mg/Kg	0.37	0.442	0.142	0.352	**11.2**	**495**
	2-3'		Clay	mg/Kg	0.0328	< 0.0323	< 0.0323	0.0398	**26.4**	48.7
WB-20	0-1'	7/8/2011	Fill	mg/Kg	0.984	0.939	0.28	0.452	**34.6**	**1450**
	2-3'		Fill	mg/Kg	0.189	0.175	0.0498	0.0897	**77.6**	**1580**
WB-21	1-2'	7/7/2011	Fill	mg/Kg	0.81	0.708	0.237	0.73	**66.4**	**644**
WB-22	0-1'	7/7/2011	Fill	mg/Kg	0.936	0.75	0.238	1.03	**32.8**	249
	2-3'		Clay	mg/Kg	2.42	1.92	0.53	0.736	**18.3**	240
WB-23	0-1'	7/7/2011	Fill	mg/Kg	0.674	0.618	0.185	0.548	**20.2**	182
WB-24	0-1'	7/7/2011	Fill	mg/Kg	0.15	0.142	0.0394	0.0526	**39.2**	29.6
	2-3'		Sand	mg/Kg	0.0978	0.0881	< 0.0318	0.198	**7.4**	25.2
WB-25	0-1'	7/7/2011	Clay	mg/Kg	0.22	0.181	0.0554	0.438	**33.5**	64.0
	2-3'		Sand	mg/Kg	0.0415	0.0495	0.0519	< 0.0301	5.5	10.1
WB-26	2-3'	7/7/2011	Sand	mg/Kg	0.235	0.242	0.071	0.12	**11.9**	98.9
S-B05	2-3'	6/10/2021	Clay	mg/Kg	< 0.041	< 0.041	< 0.041	< 0.041	**11**	23
S-B01	3-4'	6/14/2021	Sand	mg/Kg	2.3	**2.3**	0.83	< 0.35	5.3	32
S-B02	3-4'	6/14/2021	Sand	mg/Kg	< 0.034	< 0.034	< 0.034	< 0.034	1.9	3.9
S-B04	2-3'	6/14/2021	Fill	mg/Kg	1.2	1.4	0.45	0.18	**40**	360
S-B03	3-4.5'	6/14/2021	Sand	mg/Kg	< 0.037	< 0.037	< 0.037	< 0.037	2.7	4.2
S-B06	3-4'	6/14/2021	Fill	mg/Kg	0.32	0.36	0.11	0.10	**24**	82
S-01 (SB-01)	0.5-1.0'	6/10/2021	Fill	mg/Kg	3.5	**3.9**	1.3	0.19	**58**	**1000**
S-02 (SB-02)	0-1'	6/10/2021	Clay	mg/Kg	< 0.038	< 0.038	< 0.038	< 0.038	10	28
S-03 (SB-03)	0-2'	6/10/2021	Clay	mg/Kg	0.045	< 0.039	< 0.039	< 0.039	5.2	16
IDEM R2 2023 PLs - Long Term Residential					**20**	**2**	**2**	**30**	**10**	**400**
IDEM R2 2023 PLs - Long Term Commercial					**200**	**20**	**20**	**90**	**30**	**800**
IDEM R2 2023 PLs - Short Term Excavation					**10000**	**500**	**1000**	**3000**	**900**	**1000**

Appendix C
Soil Analytical Data Summary - PAHs, Arsenic, and Lead

Sample ID :	Sample Depth (ft.):	Date Collected :	Primary Lithology:	Chemical	Benz(a)anthracene	Benzo(a)pyrene	Dibenz(a,h)anthracene	Naphthalene	Arsenic	Lead
				CASRN / Unit	56-55-3	50-32-8	53-70-3	91-20-3	7440-38-2	7439-92-1
S-04 (SB-04)	1-2'	6/10/2021	Clay	mg/Kg	0.041	0.042	< 0.040	< 0.040	10	38
S-05 (SB-05)	2-3'	6/10/2021	Sand	mg/Kg	< 0.041	< 0.041	< 0.041	< 0.041	**13**	15
S-06 (SB-06)	0-1'	6/10/2021	Sand	mg/Kg	< 0.040	< 0.040	< 0.040	< 0.040	**14**	27
S-07 (SB-07)	1-2'	6/10/2021	Fill	mg/Kg	0.89	1.0	0.37	0.12	**29**	340
S-08 (SB-08)	2.5-3.0'	6/10/2021	Sand	mg/Kg	< 0.035	< 0.035	< 0.035	< 0.035	2.6	4.2
S-09 (SB-09)	2.5-3.5'	6/14/2021	Sand	mg/Kg	< 0.046	< 0.046	< 0.046	< 0.046	9.6	16
S-10 (SB-10)	1-2'	6/14/2021	Sand	mg/Kg	0.17	0.21	0.095	< 0.035	5.0	25
S-11 (SB-11)	0-1'	6/14/2021	Fill	mg/Kg	2.7	**2.5**	0.82	0.37	**26**	**1900**
S-12 (SB-12)	1-2'	6/14/2021	Clay	mg/Kg	0.33	0.39	0.19	< 0.036	4.8	33
S-13 (SB-13)	1-2'	6/14/2021	Clay	mg/Kg	0.29	0.30	0.13	< 0.038	8.2	20
S-14 (SB-14)	1-2'	6/14/2021	Sand	mg/Kg	0.44	0.50	0.21	< 0.037	4.5	29
S-15 (SB-15)	1-2'	6/15/2021	Clay	mg/Kg	0.52	0.60	0.23	< 0.038	4.0	20
S-16 (SB-16)	2-3'	6/15/2021	Sand	mg/Kg	0.28	0.31	0.13	0.057	5.8	26
S-17 (SB-17)	2-3'	6/15/2021	Fill	mg/Kg	3.4	**5.5**	**2.1**	0.26	5.8	64
S-18 (SB-18)	2.5-3.5'	6/15/2021	Sand	mg/Kg	0.046	0.051	< 0.038	< 0.038	3.3	7.7
S-22		Duplicate of S-18		mg/Kg	< 0.038	< 0.038	< 0.038	< 0.038	3.9	7.7
S-19 (SB-19)	1-2'	6/15/2021	Clay	mg/Kg	0.070	0.10	0.065	< 0.037	6.3	33
S-20 (SB-20)	0-1.5'	6/15/2021	Sand	mg/Kg	0.045	0.059	< 0.034	< 0.034	2.1	12
S-21 (SB-21)	0-2'	6/15/2021	Sand	mg/Kg	0.21	0.20	0.083	< 0.038	6.6	25
S23-1	0-1'	9/18/2023	Clay	mg/Kg	NA	NA	NA	NA	**27**	336
S23-2	0-1'	9/18/2023	Sand	mg/Kg	NA	NA	NA	NA	**49**	**497**
S23-3	0-1'	9/18/2023	Sand	mg/Kg	NA	NA	NA	NA	**82**	357
S23-4	0-1'	9/18/2023	Fill	mg/Kg	NA	NA	NA	NA	**24**	198
S23-5	0-1'	9/18/2023	Fill	mg/Kg	NA	NA	NA	NA	**18**	363
S23-6	0-1'	9/18/2023	Clay	mg/Kg	NA	NA	NA	NA	9.5	46.8
S23-7	0-1'	9/18/2023	Sand	mg/Kg	NA	NA	NA	NA	5.5	<9.92
S23-8	0-1'	9/18/2023	Sand	mg/Kg	NA	NA	NA	NA	7.5	16.9
S23-9	0-1'	9/18/2023	Clay	mg/Kg	NA	NA	NA	NA	**12**	16.7
S23-10	0-1'	9/18/2023	Fill	mg/Kg	NA	NA	NA	NA	**21**	NA
S23-11	0-1'	9/22/2023	Fill	mg/Kg	NA	NA	NA	NA	**25**	NA
S23-12	0-1'	9/22/2023	Fill	mg/Kg	NA	NA	NA	NA	**51**	NA
S23-13	0-1'	9/22/2023	Fill	mg/Kg	NA	NA	NA	NA	**83**	**2220**
S23-14	0-1'	9/22/2023	Fill	mg/Kg	NA	NA	NA	NA	**150**	**409**
S23-15	0-1'	9/22/2023	Fill	mg/Kg	NA	NA	NA	NA	**31**	**421**
S23-16	0-1'	9/22/2023	Sand	mg/Kg	NA	NA	NA	NA	**14**	205
S23-17	0-1'	9/18/2023	Fill	mg/Kg	NA	NA	NA	NA	**62**	**412**
S23-18	0-1'	9/18/2023	Fill	mg/Kg	NA	NA	NA	NA	**45**	**855**
(S23)S3-18B	0-1'	9/22/2023	Sand	mg/Kg	NA	NA	NA	NA	NA	28.4
IDEM R2 2023 PLs - Long Term Residential					**20**	**2**	**2**	**30**	**10**	**400**
IDEM R2 2023 PLs - Long Term Commercial					**200**	**20**	**20**	**90**	**30**	**800**
IDEM R2 2023 PLs - Short Term Excavation					**10000**	**500**	**1000**	**3000**	**900**	**1000**

IDEM = Indiana Department of Environmental Management

Published Levels (PLs) are per Table 1 of IDEM's Risk-based Closure Guide (R2), July 8, 2022

Screening Levels (SLs) are per Table A-6 of IDEM's Remediation Closure Guide (RCG)

All analytical and IDEM PLs are reported in milligrams per kilogram (mg/Kg) unless otherwise stated.

Bolded/Shaded values have detected results exceeding IDEM 2023 PLs

NA = Not Analyzed