



Operation and Maintenance Plan

OU1, Modified Zone 1, USS Lead Superfund Property | East Chicago, Indiana

March 2023

Prepared for:

Industrial Development Advantage of East
Chicago, LLC
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Appendix A	Soil Cover Inspection Form
Appendix B	Example Health and Safety Plan

List of Acronyms and Abbreviations

AMP	Air Monitoring Plan
ARARs	Applicable or Relevant and Appropriate Requirements
Bgs	below ground surface
BMP	Best Management Practices
CD	Consent Decree
CQAP	Construction Quality Assurance Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminants of Concern
CY	Cubic Yard
DOT	Department of Transportation
ECHA	East Chicago Housing Authority
EPA	U.S. Environmental Protection Agency
ERP	Emergency Response Plan
ESD	Explanation of Significant Differences
FS	Feasibility Study
FSAP	Field Sampling and Analysis Plan
GPS	Global Positioning System
HASP	Health and Safety Plan
HUD	Housing and Urban Development
ICS	Incremental Composite Sampling
IC	Institutional Controls
ICIAP	Institutional Controls Implementation and Assurance Plan
IDA	Industrial Development Advantage of East Chicago, LLC
IDEM	Indiana Department of Environmental Management
mg/kg	micro grams per kilograms
NPDES	National Pollutant Discharge Elimination System
OU	Operable Unit
O&M	Operations & Maintenance
O&M Plan	Operations & Maintenance Plan
ppm	parts per million
PC	Project Coordinator
PS	Performance Standards
PRSP	Periodic Review Support Plan
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAO	Remedial Action Objectives
RAL	Remedial Action Level
RD	Remedial Design
ROD	Record of Decision
RODA	Record of Decision Amendment
RI	Remedial Investigation
RPM	EPA Remedial Project Manager
Site	USS Lead OU1 Modified Zone 1
SMP	Soil Management Plan
SOW	Statement of Work
SPC	State Project Coordinator
T&D	Transportation and Disposal
TODP	Transportation and Off-site Disposal Plan
TCLP	Toxicity Characteristic Leaching Procedure
USS Lead	U.S. Smelter and Lead Refinery, Inc.
WCHC	West Calumet Housing Complex

1.0 Project Description

Verdantas LLC (Verdantas) has prepared this Operation and Maintenance Plan on behalf of Industrial Development Advantage of East Chicago, LLC (IDA) “Purchaser” of a portion of Operable Unit 1 (OU1), Modified Zone 1 of the U.S. Smelter and Lead Refinery, Inc. (USS. Lead) Superfund Site, in East Chicago, Indiana purchased by the Purchaser (Property). OU1 Modified Zone 1 is defined in Section III of the Administrative Settlement Agreement for Remedial Action by Prospective Purchaser (“Settlement”). For definition purposes throughout this document, the term “Property” is used consistent with the definition in the PPA/SOW to refer to OU1 Modified Zone 1. The U.S. Environmental Protection Agency (EPA) Region 5 is the lead agency, and the supporting agency is the Indiana Department of Environmental Management (IDEM).

This O&M plan was prepared to address lead and arsenic contaminated soil exceeding commercial/industrial Remedial Action Levels (RALs) remaining at the Property following implementation of the selected remedial action. This plan may be updated from time to time as conditions change during O&M.

1.1 Property Location and Description

The Property is located within a portion of OU1 Zone 1 included as part of the U.S. Smelter and Lead Refinery, Inc. Superfund Site. OU1 Modified Zone 1 encompasses the former West Calumet Housing Complex (WCHC), Goodman Park and adjacent utility corridor, generally bound by the former Carrie Gosch School to the north, East 151st Street to the south, McCook Avenue to the east and the Indiana Harbor Canal to the west (referred to as OU1 modified Zone 1). The Property Location is shown on Figure 1 and the Property Map is shown on Figure 2.

1.2 Selected Remedial Action and Performance Standards

The United States Environmental Protection Agency (EPA) selected remedy specified in the March 2020 ROD Amendment for commercial/Industrial land use (Alternate 4A) will serve as the remedial action (RA) for the Site. As detailed in the ROD Amendment, the major components of the selected remedy are:

- Property Preparation;
- Excavate contaminated soils that exceed the industrial/commercial RALs (787 mg/kg for lead and 19 mg/kg for arsenic) down to a maximum depth of 1 foot below ground surface (bgs);
- The horizontal and vertical limits of excavation will be surveyed and included in the as-built drawings;
- Following excavation, a geotextile demarcation barrier will be placed at the base of the excavation to denote and alert persons to the contact between clean and impacted soil;
- Backfill and grade excavated areas with a minimum of one (1) foot of clean fill material. If necessary, topsoil will only be used in areas that are currently greenspace in the utility corridor and outside of the area of re-development, specifically DUs F1, F2, F3, F4, F8, and F9;
- Implement institutional controls (ICs) in the form of a restricted covenant to restrict land use to commercial/industrial purposes, restrict groundwater use, and language to notify future prospective Purchasers that contaminated soil exists below 1 foot; and,
- Performance monitoring of ICs.

Soils that exceed the toxicity characteristic leaching procedure (TCLP) threshold of 5 mg/L for lead and are characteristically hazardous will be handled in accordance with the Area of Concern (AOC) Policy. The characteristically hazardous soil will be stabilized within the AOC using a reagent and concentration to be determined by a treatability study. Lead will be stabilized to render the material non-hazardous and disposed of at a licensed, off-Property Subtitle C or Subtitle D landfill, as appropriate.

1.3 O&M Plan Purpose and Scope

Pursuant with the requirements of the SOW, the O&M Plan describes the requirements for inspecting, operating, and maintaining the RA. The O&M Plan was developed in accordance with Guidance for Management of Superfund Remedies in Post Construction, OLEM 9200.3-105 (Feb. 2017) as well as the following requirements specified in the SOW:

- (1) A description of Performance Standards (PS) required to be met to implement the remedy selected in the Amended ROD and Explanation of Significant Differences;
- (2) A description of activities to be performed: (a) to provide confidence that the PS will be met; and (b) to determine whether PS have been met;
- (3) A description of records and reports that will be generated during O&M, such as daily operating logs, laboratory records, records of operating costs, reports regarding emergencies, personnel and maintenance records, monitoring reports, and monthly and annual reports to EPA and the State;
- (4) Description of corrective action in case of systems failure, including: (a) alternative procedures to prevent the release or threatened release of Waste Material which may endanger public health and the environment or may cause a failure to achieve PS; (b) analysis of vulnerability and additional resource requirements should a failure occur; (c) notification and reporting requirements should O&M systems fail or be in danger of imminent failure; and (d) community notification requirements; and
- (5) Description of corrective action to be implemented in the event that PS are not achieved; and a schedule for implementing these corrective actions.

1.4 Objectives

The objective of this work plan is to describe the basic steps and procedures for safe operation of OU1 Modified Zone 1, and to monitor and maintain the integrity of the constructed remedial components to achieve the RA performance standards. The ultimate objective is to reduce human health risk from exposure to contaminants of concern (COCs) in impacted surface and subsurface soils through ingestion, direct contact, or inhalation exposure pathways to acceptable levels assuming commercial/industrial uses, and prevention of the release of contaminants to off-Property media.

2.0 O&M Personnel Training, Equipment, and Materials

2.1 Personnel Training

This plan discusses the requirements for providing appropriate Property monitoring and O&M report review by experienced personnel to provide oversight of O&M activities and to address any Property issues. All anticipated monitoring personnel shall be approved by the Purchaser or their designee the Purchaser or their designee prior to authorization for the performance of the monitoring activities.

The monitoring and O&M activities will be assigned to a qualified inspector or multiple inspectors based on the type of work being performed. The person(s) designated as the inspector(s) will be properly trained by the Purchaser or their designee on appropriate O&M procedures for the completed OU1 remedial components, and will possess a general knowledge of the OU1, Modified Zone 1 RA and be capable of identifying potential concerns with any component of the RA to provide the Purchaser or their designee with adequate information for evaluation of a specific O&M or corrective action activity. Subsequently approved inspectors will be trained by the previous inspector and/or the Purchaser or their designee.

The inspector is responsible for observing and documenting all monitoring and O&M activities during each required monitoring period using the Soil Cover Inspection Form (SCIF), provided in Appendix B, which will be submitted to the Purchaser or their designee for review. If deficiencies are noted in the SCIF, an appropriate corrective action will be evaluated by the Purchaser or their designee and coordinated with the responsible party. The Purchaser or their designee shall verify that the corrective actions are implemented by pre-approved qualified person(s) capable of performing the specific corrective action for each noted condition. The corrective action activities will be observed and documented by the inspector, as directed by the Purchaser or their designee.

In general, the responsibilities and authorities of the inspector(s) may include:

1. scheduling, coordinating, and performing monitoring activities;
2. performing on-Property observation and documentation of the Property's conditions to support the Purchaser or their designee's assessment for compliance with the intended RA goals and objectives;
3. recognizing and reporting changed Property conditions or potential deviations from the implemented RA, or the RD drawings and specifications, to the Purchaser or their designee;
4. assisting the Purchaser or their designee with identification of RA components that should be further evaluated;
5. supporting observation of corrective action activities for the Purchaser or their designee's verification that the corrective measures are implemented correctly;
6. documenting and reporting monitoring and O&M activities;
7. documenting that institutional controls remain in place; and
8. maintaining open lines of communications with other parties involved in the performance monitoring.

The inspector(s) will be evaluated by the Purchaser or their designee on the following

qualifications to satisfy to the Purchaser or their designee that their education and experience are appropriate to conduct the duties as the inspector:

1. working experience on a project(s) with related monitoring and inspection activities;
2. expertise with similar observation and documentation processes that are required for the OU1, Modified Zone 1 O&M;
3. knowledge of the Code of Federal Regulations (CFR) Title 29 - Part 1910 - Occupational Safety and Health Standards; and
4. must maintain appropriate Occupational Safety and Health Administration (OSHA) 40 Hour Hazardous Waste Operations and Emergency Response(HAZWOPER) certification, and meet all current relevant IDA safety training and requirements.

2.2 Equipment and Material Needs

As noted in Section 1.0, the final remedy involves the excavation of 1 foot of impacted soils from the DUs shown on Figure 2. Following excavation of the soil, a geosynthetic fabric will be placed as a barrier at the base of the excavation to serve as a “warning” to any future excavation contractors that impacted soils are located below the fabric barrier. Then a minimum of one foot of clean fill will be placed atop the fabric, graded to maintain adequate surface drainage and then sodded or seeded. Some areas may be top dressed with topsoil if needed.

Once the soil cover has been placed and seeded, it is not anticipated that any additional equipment or materials will be needed during routine inspection of the soil cover. In the event repairs must be made to ensure at least one foot of borrow fill is present, the selected contractor will provide the appropriate equipment and materials to repair the soil cover.

It is assumed that the equipment required to perform routine maintenance of all future green space across the Property will be provided by a landscaping contractor selected by the Purchaser or their designee.

3.0 Routine O&M Activities of Major Components of the RA

The following sections discuss the technical specifications governing components of the remedy, and describes the normal O&M of the major components of the RA.

All activities completed as part of the RA met the substantive requirements of applicable federal and state laws and regulations for any portion of the work conducted entirely on-Property (i.e., within the areal extent of contamination, or in close proximity to the contamination necessary for implementation of the work). EPA is required to perform a Five-Year Review (FYR) due to waste material remaining on-site. The first FYR was completed on August 24, 2021 and the next review is scheduled to be completed prior to August 24, 2026. The inspection reports will be part of the Administrative Record documenting that the remedy remains protective of human health and the environment.

3.1 Soil Cover

The Soil Cover will consist of approximately one foot of borrow soils imported by the Purchaser to prevent direct contact with the contaminated soils remaining in place below a depth of one foot below ground surface. Prior to placement of the Soil Cover, a geosynthetic fabric will be placed at the base of the excavation to separate in-situ impacted soils from the clean fill. The Soil Cover will be graded to promote adequate surface drainage. Backfilled areas will be restored with seeding and mulched with straw where required. Areas that are currently greenspace in the utility corridor and outside of the area of re-development, specifically DUs F1, F2, F3, F4, F8, and F9 shall be seeded and mulched with straw and topsoil will only be added as necessary. Seeding and mulching with straw will be conducted in areas outside of the current greenspace areas (DUs F1, F2, F3, F4, F8, and F9) only if the placement of proposed development related backfill is delayed more than 90 days from remedy completion.

- The primary performance standard in the RA is maintaining the integrity of the soil cover. An inspection of the established vegetation on the Soil Cover will be conducted at least once per year by the Purchaser or their designee to minimize the growth of potentially deep-rooted plants, shrubs or trees, that could penetrate down and through the geosynthetic barrier. An inspection will be required at least once per year.

3.2 Perimeter Controls

The property is currently surrounded by a perimeter fence. As defined in the Remedial Design, some portions of the existing fence will be removed and replaced to facilitate the RA. A replacement chain link fence will be constructed around the perimeter of the Property to maintain Property security. The specific location of a gate(s) cannot be specified until the redevelopment plans for the property have been completed. The perimeter fence and gates will preclude unauthorized access of trespassers to the area. No trespassing signs shall be maintained on the gates. Additional signage may be installed and maintained at locations along the fence that have been identified as potentially vulnerable.

4.0 Routine Performance Monitoring

Remedial maintenance will be performed for OU1, Modified Zone 1 based on the results of Soil Cover performance monitoring used to evaluate the integrity and environmental protectiveness of the cover. The main objective of this long-term performance monitoring is to ensure the Soil Cover is performing in accordance with the RD and is capable of achieving the remedial objectives (e.g., chemical and physical isolation of underlying soils from all potential receptors). Performance monitoring will be more intensive during and immediately following remedial construction, followed by less frequent long-term monitoring after the Soil Cover has been established and the Property is redeveloped. Laboratory testing is not required for the routine O&M activities or the long-term Soil Cover performance monitoring. Table 1 below summarizes the timing and frequency of the long-term performance monitoring activities.

Operation And Maintenance Plan for Post-Capping

Table 1

Summary of Long-Term Performance Monitoring Activities

Activity	Timing	Frequency
Soil Cover	Years 1 and 2 (during construction)	Quarterly (4 times)
	Post Construction	Annually
Perimeter Controls	Years 1 and 2 (during construction)	Quarterly (4 times)
	Post Construction	Annually
Signage	Years 1 and 2 (during construction)	Quarterly (4 times)
	Post Construction	Annually
Vegetation	Years 1 and 2 (during construction)	Quarterly (4 times)
	Post Construction	Annually (terminate after Five-year review)
Institutional Controls	Years 1 and 2 (during construction)	Annually
	Post Construction	

*Frequency shall be quarterly during construction related to redevelopment, frequency transitions to annually when construction is complete, and Property is redeveloped.

4.1 Inspection and Maintenance of Soil Cover

4.1.1 Overview

Monitoring of the Soil Cover will be conducted during post-remedy monitoring Years 1 and 2 (during redevelopment related construction) on a quarterly basis, and during on an annual basis post construction after redevelopment is complete, unless monitoring activities determine otherwise. The SCIF, provided in Appendix B, will be completed by the selected inspector during each required monitoring activity and reviewed by the Purchaser or their designee. If deficiencies are noted in the SCIF, an appropriate corrective action will be evaluated for each deficiency and implemented, as directed by the Purchaser or their designee, and be subject to a special inspection the quarter following any maintenance repair activities, or at other frequency set by the Purchaser or their designee. Any corrective actions taken and follow-up inspections will be properly documented and reported, on an annual basis, at a minimum. Inspection categories related to the Soil Cover are discussed in more detail within the following

sections. If it is determined that corrective actions are needed to address any deficiencies resulting from the Soil Cover inspection, the Purchaser or their designee's selected activities and repairs shall follow the guidelines of this plan and the specifications of the RD. In addition, data gathered from these inspections will be used to help evaluate whether the remedy is meeting specific performance standards. Additional corrective actions may be specified by the Purchaser or their designee based on the Purchaser or their designee's evaluations. Detailed discussions on the Soil Cover inspection and maintenance process are discussed in the following sections.

4.1.2 Erosion Inspection and Maintenance

The objective of the Soil Cover erosion inspection is to identify any signs of significant erosion or disturbance to the Soil Cover material that may have compromised the overall thickness of the Soil Cover. A visual inspection will be completed and documented on the SCIF, at a minimum, on a quarterly basis for the first two years post-remedy, Years 1 and 2, during development related construction and annually thereafter (post construction). Additional Soil Cover erosion inspections will be conducted after significant rain events, which can be concurrently completed with the next routine monitoring event if this inspection is scheduled to be conducted within a reasonable timeframe from the significant rain event. The perimeter sediment and erosion control features established for the RA may remain in place and be maintained /inspected during O&M at the discretion of the Purchaser during re-development within the RA.

In accordance with the SCIF, inspection of the soil cover should consist of looking for visible signs of acute Soil Cover erosion. Indicators of Soil Cover erosion may be areas of visible or exposed demarcation barrier, scoured areas of the Soil Cover, erosion rills or gullies, and washed out vegetation. Any swale areas or areas of concentrated flow may be especially susceptible to erosion and should be given special attention.

If erosion is identified in isolated areas during the inspection, further investigations may be performed to verify that a minimum equivalent mean thickness of 12 inches of clean backfill is present above the geosynthetic barrier. The Purchaser or their designee will determine if survey activities will be beneficial for investigating Soil Cover thickness. The limits of the impacted area (Soil Cover areas with less than an equivalent mean thickness of 12 inches of clean backfill above the geosynthetic barrier) shall be properly documented as detailed in this plan and the Purchaser or their designee shall be consulted to determine an appropriate corrective action, prior to performing any maintenance.

4.1.3 Damage Inspection and Maintenance

A visual inspection for Soil Cover disturbance from wildlife will be completed and documented on the SCIF at a minimum on a quarterly basis for the first two years post-remedy, Years 1 and 2, during development related construction, and annually thereafter (post construction). Visible signs of disturbance or damage from wildlife may consist of burrows, large footprints, and ruts in the Soil Cover that penetrate through the Soil Cover or displace Soil Cover material. Photographs and notes shall be taken and documented, in order to identify the potential animal that has caused the damage. If it is determined that the damage was caused by an animal, there is a potential that the perimeter controls (i.e., fence) have been compromised in some way. Refer to the perimeter controls O&M (section 4.3 below) for instruction on inspection and maintenance. Consult the Purchaser or their designee to determine the proper method of removal of wildlife from the protected area. Removal of wildlife shall only be done in a manner that does not cause additional damage to the Soil Cover or other remedial components.

If the observed disturbances or damage affects the Soil Cover such that a minimum equivalent mean thickness of 12 inches of fill/topsoil is not present above the geosynthetic barrier, the areas shall be documented, and corrective actions shall be taken.

4.2 Inspection and Maintenance of Perimeter Controls

The perimeter fence and gates will be visually inspected at least quarterly for the first two years post-remedy, Years 1 and 2, during development related construction, and at least annually thereafter (post construction) to verify fence integrity and its ability to maintain control of wildlife disturbance of the Soil Cover. Vegetation along the perimeter control fence shall be maintained, as necessary, such that the routine visible inspection of the fence from top to the ground may be achieved. The entire length of the perimeter control fence will be visually inspected for damage to the fence, gaps under the fence caused by erosion or wildlife that may cause future damage to the fence.

If gaps under the perimeter fence or gates are observed, the inspector will photograph and document the observation. If the Purchaser or their designee determines the gaps may provide unwanted access of wildlife, corrective actions shall be taken to fill the gaps. Gaps under the fence shall be repaired according to the RD and/or as specified by the Purchaser or their designee. The inspector should document the potential cause of the gap to support determination of whether the gaps have been caused by wildlife or by erosion, and then consult in the Purchaser or their designee to determine the appropriate method to fill in the gaps.

If damage to the fence, gates, or fence posts is observed, the inspector will photograph and document the observation. The inspector should determine the extent of the damage and document the potential cause of the damage, and then consult the Purchaser or their designee to determine the appropriate method to repair. Damage to the fence shall be repaired in accordance with the RD and/or as specified by the Purchaser or their designee.

4.3 Vegetation Maintenance

The vegetation within the Soil Cover area will be visually inspected at least quarterly for the first two years post-remedy, Years 1 and 2, during development related construction, and at least annually thereafter (post construction) to verify seed propagation and desired plant growth is satisfactory, and to identify the existence of shrubs and/or trees that may require potential long-term O&M activities. Vegetation growth on the Soil Cover area shall be inspected to confirm healthy growth and appropriate cover of the capped area, with minimal intrusion of deeper/larger rooted vegetation (trees/shrubs).

Following initial seeding of the Soil Cover area, if the seed does not propagate satisfactorily such that the integrity of the Soil Cover may be compromised, potential re-seeding may be completed, as appropriate based on consultation with the Purchaser or their designee and a re-evaluation of the Soil Cover area. The inspector will document and photograph areas where vegetation has failed to establish or appears to be distressed, and then consult the Purchaser or their designee for the method of reestablishment of vegetation. Any re-seeding will only be done as specified by the Purchaser or their designee.

If potentially deep-rooted shrubs and/or trees are identified, document the location of the tree/shrub, and then inform the Purchaser or their designee to support consultation and evaluation with the Purchaser to determine if removal and repair is desired to minimize future

potential O&M activities. Depending on the size, type, and location of the tree/shrub, several O&M strategies, which include but are not limited to those identified below, may be considered, selected, and implemented:

- Leave the tree/shrub as is (it is determined that the root structure is not currently impacting the integrity of the Soil Cover or underlying geosynthetic barrier, will have a lower probability of future impacts to a significant portion of the soil cover, and/or access to the tree/shrub location is restricted and removal may cause other implications to the Soil Cover or underlying geosynthetic barrier);
- Remove the tree/shrub or cut it off level with the Soil Cover (it is determined that the root structure is currently impacting the integrity of the Soil Cover, will have a higher probability of future impacts to a significant portion of the Soil Cover, and/or the tree/shrub location is readily accessible); and
- Monitor the tree/shrub growth and the Soil Cover to vegetation interface for potential future evaluations to determine appropriate O&M activities.

All O&M activities shall be consulted with, and directed by, the Purchaser or their designee. When possible, the O&M activities shall be conducted during the drier season to minimize impacts to the Soil Cover. If the root mass must be removed in the future, or if a tree has been de-rooted during a storm event, all portions of the impacted Soil Cover shall be repaired as directed by the Purchaser or their designee.

5.0 Non-Routine Operations and Maintenance

5.1 Existing Power Lines

There are three existing electric transmission towers located in the eastern portion of the Property. No excavation or construction will be undertaken within 6 feet of the footprint of each tower. The towers are owned and operated the Northern Indiana Public Service Company (NIPSCO). Inspection and maintenance will not be required within the 6-foot setback area of each tower. NIPSCO requires a setback of 4 feet for wooden utility poles.

5.2 Catastrophic and Unforeseen Operations and Maintenance

In the event of a catastrophic failure of the Soil Cover, perimeter controls, or any issue not discussed in this plan, the Purchaser or their designee shall be consulted and an appropriate corrective action plan will be developed to amend the issue. The purchaser for their designee shall be consulted prior to conducting any excavation or maintenance impacting soils below an elevation of 585 feet AMSL (approximate elevation of demarcation barrier). Any corrective action should be completed in accordance with the RD or as specified by the Purchaser or their designee as necessary to achieve the RA objectives and goals.

6.0 Safety Plan

An example of a Health and Safety Plan (HASP) that describes the precautions to be taken, the required personal protection equipment, and procedures for monitoring personnel protection during inspection of the Soil Cover can be found in Appendix B. The HASP will be completed by the party conducting the inspections and shall be reviewed to ensure all corrective action activities are covered. If a specific corrective action outside of the typically anticipated operations and maintenance activities, the HASP shall be re-evaluated and updated as needed.

7.0 Records and Reporting Requirements

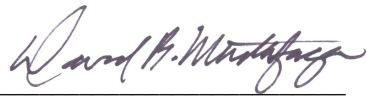
Inspection forms will be completed for each routine monitoring activity performed. Any deficiency, concern, or issue shall be identified on the inspection report with a detailed description of the observation including the location, relative size, severity, etc. Similarly, all corrective action activities that are implemented to resolve or repair an identified deficiency shall be documented with a detailed description of the repair including the location, the relative size, quantity of materials used, etc. Photographs to adequately memorialize all of the O&M activities shall be included in the repair documentation.

Documentation collected during monitoring and O&M activities will be summarized and incorporated into annual reports prepared by the Purchaser or their designee or their designated employer, and subsequently made available to the EPA for their use and review during the next five-year review. The purpose of the annual report is to provide documentation of the completed monitoring and O&M activities completed during the preceding year. The annual report will also include a summary of any corrective actions that were implemented. This documentation may be useful in evaluating the remedy and assisting with potential modifications (inspection frequencies, areas of concern, etc.) to the existing O&M Plan. Termination of all, or a portion of, O&M activities may be evaluated during a five-year review and must be approved by the EPA.

Electronic files will be maintained by the Purchaser or their designee and made available upon request. It is assumed that hard copy documents will be maintained by the Purchaser or their designee in a project-specific location once the Property has been redeveloped.

8.0 Certification by Project Coordinator

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A handwritten signature in black ink, appearing to read "David B. Mustafaga".

David B. Mustafaga, PG, CPG
Project Coordinator

9.0 References

United States Environmental Protection Agency. Guidance for Management of Superfund Remedies in Post Construction. February 2017.

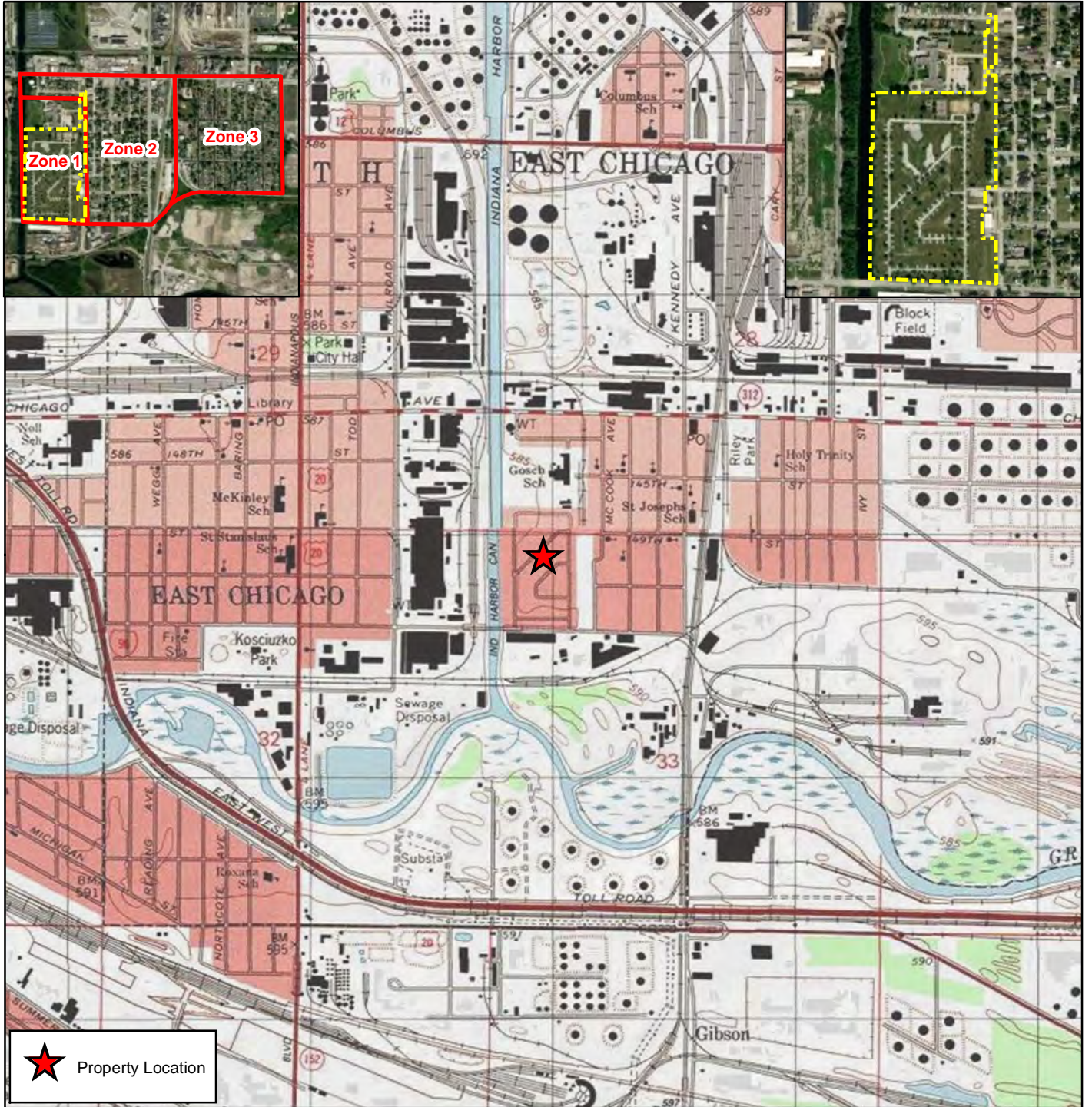
United States Environmental Protection Agency. Record of Decision Amendment for the USS Lead Superfund Site Zone 1, East Chicago, Indiana. March 24, 2020.

United States Environmental Protection Agency. Administrative Settlement Agreement for Remedial Action by Prospective Purchaser, US Smelter and Lead Refinery Site. March 28, 2022.

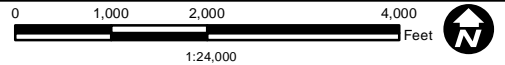
United States Environmental Protection Agency. Second Explanation of Significant Differences, USS Lead Superfund Site Zone 1, East Chicago, Indiana. September 2, 2022.

Verdantas LLC. Remedial Design/Remedial Action Work Plan, OU1 Modified Zone 1, USS Lead Superfund Site, east Chicago, Indiana. December 2022.

Figures



DISCLAIMER:
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Quadrangles: Whiting and Highland, IN

Source: The topographic map was acquired through the USGS Topographic Map web service.

The aerial photo was acquired through the Esri Imagery Web Service. Aerial photography dated 2020.

Operations & Maintenance Plan
 OU1, Modified Zone 1, USS Lead Superfund Site

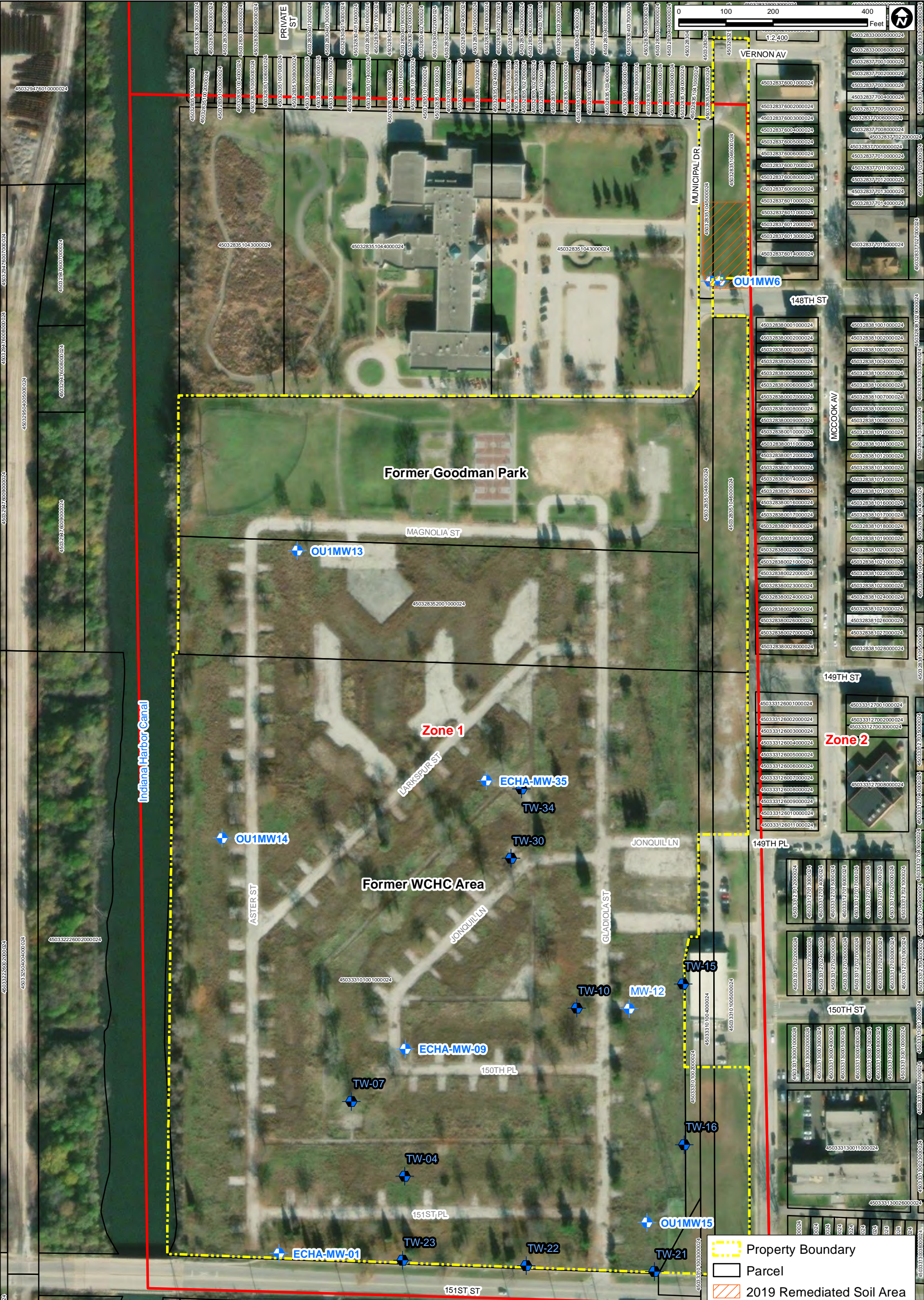
Property Location Map

East Chicago, Lake County, Indiana

Date:
March 2023

File Name:
 15773_08_Fig01_PLM.mxd
 Edited: 3/24/2023 By: kyusuf

Figure
1



Notes:
 1) The aerial photo was acquired through the Esri Imagery Web Service. Aerial photography dated 2020.
 2) Road names in gray have been vacated and removed.
 3) The location of TW-04 is estimated from Ameresco Phase II PDF Figures, this well is missing from digital files provided by others.

- Property Boundary
- Parcel
- 2019 Remediated Soil Area
- Operable Unit 1
- ◆ Existing Monitoring Wells
- ◆ Temporary Monitoring Wells



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March 2023
 Operations & Maintenance Plan
 OU1, Modified Zone 1, USS Lead Superfund Site

Property Plan

East Chicago, Lake County, Indiana

Figure
2

Appendix A

Soil Cover Inspection Form

SOIL COVER INSPECTION FORM

Operation and Maintenance (O&M) Plan

Project: USS LEAD OU1 ZONE 1 **Inspection Type:** Quarterly/Biannual/Other **Inspector:** _____ **Date:** ___/___/___

The inspector shall complete entire Soil Cover Inspection Form, and return original copy to Purchaser or their designee. If unable to inspect an item, or cannot clearly conclude an answer, select no answer (**NA**); and include reason for selection in comments/notes column.

YES = May Need Further Evaluation

No = No Evaluation Needed

<u>Soil Cover Erosion:</u>	Soil Cover Area A:	Comments/Notes
Visual signs of erosion?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Indicate if a field method was used to verify cap erosional area severity.	<input type="checkbox"/> Visual <input type="checkbox"/> Bathymetric/Survey <input type="checkbox"/> Core Sampling	
<u>Soil Cover Disturbance:</u>	Soil Cover Area A:	Comments/Notes
Soil Cover disturbed by wildlife?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Established vegetation disturbed?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Soil Cover integrity compromised?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	

OTHER:

<u>Perimeter Control Fence & Gate Damage:</u>	Soil Cover Area A:	Comments/Notes
Perimeter fence compromised?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Fence compromised allowing wildlife access?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Excess gaps under fence? ($\geq 4''$)	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Damage to gates, locks, or fence posts?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Gate locks inoperable or unlocked?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Excess debris against fence?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Signage missing or unreadable?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	

<u>Vegetation Concerns:</u>	<u>Soil Cover Area A:</u>	<u>Comments/Notes</u>
Established vegetative growth unhealthy?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Uninundated cap area without vegetative growth?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Vegetation impacting cap integrity?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
Deep rooted shrubs/trees penetrating cap? (≥ 2 " trunk)	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
<u>Power Pole Concerns:</u>	<u>De-Energized Poles:</u>	<u>Comments/Notes</u>
Are there any structural integrity concerns with the power poles?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	
<u>Institutional Controls</u>	<u>Property:</u>	<u>Comments/Notes</u>
Do Institutional Controls Remain in Place?	<input type="checkbox"/> NA <input type="checkbox"/> YES <input type="checkbox"/> NO	

General Notes/Comments (indicate if additional sheets were required for notes):

Summary of Potential Action Items (indicate if additional sheets were required):

Inspection Completed By: _____ Date: _____

Inspection Report Reviewer Verification:

Purchaser or Their Designee _____



Appendix B

Example Health and Safety Plan

I. PROJECT DESCRIPTION

Check appropriate categories (more than one may apply):

- Phase I Site Reconnaissance Engineering/Construction
Observation/Documentation
- Other: Describe _____

A. SCOPE OF WORK (BRIEFLY SUMMARIZE ACTIVITIES COVERED UNDER THIS HASP)

NOTE: If appropriate, a site map is attached which indicates existing facilities, work zones and evacuation routes.

B. SITE DESCRIPTION

1. Current Site Description _____
2. Site History _____

II. PROJECT PERSONNEL

A. COMPANY PROJECT TEAM

<u>Project Team Members</u>	<u>Names</u>
Site Safety Officer	_____
Additional Field Staff	_____

B. SUBCONTRACTOR

Yes No

Subcontractor Name: _____

Phone Number: _____

Scope of Work: _____

Subcontractor received required training? Yes No

Is the required training documented? Yes No

Add'l Subcontractor Name (if applicable): _____

Phone Number: _____

Scope of Work: _____

Subcontractor received required Training? Yes No

Is the required training documented? Yes No

III. HAZARD EVALUATION

A. COMMON PHYSICAL HAZARDS

Check all of those that apply:

<input type="checkbox"/> Traffic/Driving	<input type="checkbox"/> Electrocution/LOTO*	<input type="checkbox"/> Working around Water	<input type="checkbox"/> Biological
<input type="checkbox"/> Overhead Utilities*	<input type="checkbox"/> Underground Utilities*	<input type="checkbox"/> Power tools	<input type="checkbox"/> Severe Weather
<input type="checkbox"/> Slip, Trip & Fall	<input type="checkbox"/> Trenches / Excavation*	<input type="checkbox"/> Hot Work*	<input type="checkbox"/> Physical Exertion
<input type="checkbox"/> Site Security	<input type="checkbox"/> Cold/Heat Stress	<input type="checkbox"/> Flammable Liquids / Gas	<input type="checkbox"/> Vapor/Fumes/Dust
<input type="checkbox"/> Working at Heights*	<input type="checkbox"/> Noise	<input type="checkbox"/> Uneven Terrain	<input type="checkbox"/> Lifting Operations*
<input type="checkbox"/> Confined Space*	<input type="checkbox"/> Other (Describe): _____		

Note: * - An appropriate work permit is required if this project includes any of the following high-risk activities conducted by Company personnel or subcontractors: ground disturbance, work near overhead utilities, lockout/tagout, hot work, confined space, working at heights, or lifting operations.

B. OVERHEAD UTILITIES

Is any work to be conducted within 20 feet of an overhead utility? YES NO

If **NO**, skip to next section.

If **YES**, the following documentation is needed:

Is the utility an electric power line? YES NO If **YES**, what is the voltage in the line? _____ Volts

List precautions taken to avoid entering the minimum safe distance or eliminate the potential hazard: _____

NOTE: Working within 20 feet of any overhead utility requires authorization by PM and HSO.

OSHA MINIMUM SAFE DISTANCES AROUND OVERHEAD POWER LINES:

<u>Line Voltage</u>	<u>Minimum Safe Distance</u>	
Up to 50,000 volts	10 feet	NOTE: Minimum is 20 feet without authorization
50,000 to 200,000 volts	15 feet	NOTE: Minimum is 20 feet without authorization
200,000 to 350,000 volts	20 feet	
350,000 to 500,000 volts	25 feet	
500,000 to 750,000 volts	35 feet	
750,000 to 1,000,000 volts	45 feet	

C. LONE WORKER AND SITE SECURITY CONSIDERATIONS

(A "Lone Worker" is a worker assigned to perform a task in a location isolated from sub-contractors, client representatives, or other on-site personnel who could recognize and respond to an emergency experienced by the lone worker.)

Is a "Lone Worker" situation considered for any tasks on this project? YES NO

If "No," disregard this section and continue to next section of this HASP.

If "Yes," continue with the Lone Worker Safety Evaluation, described below.

Safety Evaluation for Potential Lone Worker Tasks

Safety evaluation for Lone Worker tasks should consider the following:

- **Potential conflicts** with: property owners, tenants, or neighbors, onsite workers or contractors, trespassers, protesters, hunters, or others.
- **Experience and training** of the proposed Lone Worker;
- **physical demands** of tasks to be performed, fatigue factors, and any pre-existing medical conditions;
- **jobsite security** and safety conditions;
- **equipment** to be used (and any hazards posed by the equipment);
- potential **chemical exposures**, if any;
- potential **physical hazards or heat / cold stress hazards**; and
- potential **biological hazards** (animals, insects, poison plants).

Based on the safety evaluation above, can the potential hazards be reasonably managed by a Lone Worker?

YES NO

If "Yes," then proceed with planning for a lone worker on the project. If no, assign a two-person crew to conduct the work or coordinate on-site security protection for the Lone Worker while on-site (see below).

Check-In Protocol for Lone Workers:

1. Call in upon arrival on-site (complete Tailgate Safety Meeting section of this document).
2. Call in mid-day
3. Call in immediately prior to leaving the jobsite

Lone Worker to call: _____ (PM/Primary contact) or _____ (UM/Secondary contact)

Site Security/Personal Safety Considerations

Describe any potential site security or personal safety concerns: _____

Are there personal safety hazards sufficient to require on-site security while we are on site?

YES NO

If "No" then continue to next section. If "Yes," then proceed with identifying and coordinating on-site security.

Site Security Provider: _____ phone number: _____

D. TASK-SPECIFIC JOB SAFETY ANALYSIS (JSA) – See Attachment

IV. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Hard hats, safety glasses, safety boots, glove that are appropriate for the task, and fluorescent green shirt or vest are required on all sites, except when in a vehicle, or when working in an office area. Earplugs are required during direct-push drilling and during other loud activities. Safety vests are required when working near vehicular traffic or in low light situations.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE IN THE FIELD WITHOUT APPROVAL OF THE PROJECT MANAGER AND THE SITE SAFETY OFFICER.

A. SPECIAL PROTECTIVE EQUIPMENT FOR EACH LEVEL OF PROTECTION

- Level D:
- Safety Glasses or Goggles
 - Face Shield
 - Task-appropriate Gloves
 - Safety Boots
 - Hard-hat
 - Coveralls
 - Earplugs
 - Safety Vest

B. TASK-SPECIFIC PPE REQUIREMENTS

Task Description: _____

- Hard-hat
 - Safety Glasses
 - Safety Vest
 - Gloves
 - Boots
 - Hearing Protection
 - Other: _____
-

V. TRAFFIC CONTROL AND SAFETY EQUIPMENT

Describe site-specific traffic-related and other safety precautions for this project: _____

Check the items that are appropriate for this project (add to this list as needed):

- First Aid Kit
- Other Traffic Control or Safety Items (List): _____
- Poison Ivy Ointment/Sunscreen/Insect Repellent

VI. EMERGENCY ACTION PLAN

NOTE – Non-emergency treatment requires pre-notification to Health and Safety Officer or Human Resources Director. Non-emergency treatment is to be obtained from the occupational clinic listed below or the office-specific clinic whenever possible.

Emergency Care/Hospital Name: _____

Address: _____

Phone Number: _____

Occupational Clinic Name: _____

Address: _____

Phone Number: _____

EMERGENCY INFORMATION:

Emergency Medical Provider Route Map: Attach maps with written directions to the nearest emergency care facility/hospital and to nearest occupational clinic, if not the same.

Evacuation Route/Emergency Equipment Station Map (if applicable): Attach a site-specific map indicating evacuation route, location, and description of emergency safety equipment as part of an attachment.

Emergency Assembly Area Description (Rally Location): _____

VII. SAFETY PLAN AMENDMENTS

Scope of Work / Change / Amendment / Update / Modification Made to the Plan:

Reason for Amendment: _____

Hazard Evaluation: _____

Level of Protection: _____

Air Monitoring: _____

PERSON REQUESTING AMENDMENT:

Name: _____

Title: _____

Date: _____

Signature: _____

APPROVAL:

Name: _____

Project Manager: _____

Date: _____

Signature: _____

VIII. ADDITIONAL REQUIREMENTS

A. STOP WORK AUTHORITY

All Company personnel and subcontractors have a responsibility to stop unsafe work and to stop work if unsafe conditions exist. If work is stopped for any reason, the reason and corrective action are to be documented below.

Reason for stop work: _____

Corrective Action: _____

PM has been notified and agrees to corrective action? Yes No

NOTE: Site Safety Officer or PM **must notify HSO** of stop work and corrective action via telephone or email.

B. CLOSE CALL (GOOD CATCH) / INCIDENT REPORTING

All close calls (good catches) are to be reported via SharePoint site or cell phone widget at the first opportunity.

All potential injuries or incidents must be reported immediately to the Supervisor, Safety Representative, HSO or HR Director by voice via phone (voicemail message is not sufficient).

EXAMPLE

EMERGENCY CARE/HOSPITAL ROUTE MAP

NON-EMERGENCY OCCUPATIONAL CLINIC ROUTE MAP

EXAMPLE

DAILY TAILGATE SAFETY MEETING, JOB SAFETY ANALYSIS, AND PPE HAZARD ASSESSMENT

Date:		Project #:	
Location:			
Task Summary:		Site Safety Officer Name / Signature:	
BASIC REQUIRED PPE: hard hat, safety boots, safety glasses, appropriate work gloves, hi-viz shirt/vest			
Identify Potential Hazard Types:		Identify Specific Hazard(s):	Hazard Mitigation Method(s): Eliminate/ Substitute, Engineering & Administrative Controls and Work Methods, PPE
<input type="checkbox"/>	Slip / Trip / Fall Hazards		
<input type="checkbox"/>	Heat/Cold Exposure or Severe Weather Hazards		
<input type="checkbox"/>	Abrasion / Cut / Sharps Hazards		
<input type="checkbox"/>	Pinch Point/ Rotating Equip/ Caught Between Hazards		
<input type="checkbox"/>	Vehicle Traffic/Heavy Equipment / Struck-by Hazards		
<input type="checkbox"/>	Eye Hazards -Flying Particles/Dust/Splash		
<input type="checkbox"/>	Noise Exposure		
<input type="checkbox"/>	Back Safety/Manual Lifting / Overexertion Hazards		
<input type="checkbox"/>	Chemical Exposure/Respiratory Hazard (review SDS)		
<input type="checkbox"/>	Flammable Gas or Liquid/Flash Fire Hazard		
<input type="checkbox"/>	Conflicting Work/SIMOPS Hazards		
<input type="checkbox"/>	Electrical Hazards (use of GFCI, trip circuit breakers, etc.)		
<input type="checkbox"/>	Biological Hazards (insects, plants, animals, BBP, waste)		
<input type="checkbox"/>	Overhead/Underground Utility/Structure Hazards		
<input type="checkbox"/>	Excavation / Trench Hazards		
<input type="checkbox"/>	Hot Work Hazard/Ignition Source Present		
<input type="checkbox"/>	Confined Space Hazards (is a permit required?)		
<input type="checkbox"/>	Radiation Hazards (UV and ionizing radiation)		
<input type="checkbox"/>	Personal Security Hazards		
<input type="checkbox"/>	Critical Lift / Working at Heights (>4 ft)		
<input type="checkbox"/>	Additional information needed to do this job safely, including:		
Stretch/warmup (list out stretches/warmup performed that are appropriate to the task(s) listed above):			
Worker Signatures: I have read and understand the hazards noted above and understand the actions needed to eliminate or reduce the hazards and have warmed up or stretched to minimize the chance of injury. I am fit for duty.			
PRINT NAME		SIGNATURE	
/		/	
1.	6.		
2.	7.		
3.	8.		
4.	9.		
5.	10.		

Four Key Questions – Job Safety Tailgate

1. What are the primary tasks to complete? (List the general sequence of activities.)

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

2. For each task, what is the most likely cause of an incident/injury?
(Consider the abilities of individuals, equipment used, site conditions, and the time pressure.)

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

3. What is the worst thing that could happen while completing each task?
(For each primary task, discuss/consider what could go wrong.)

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

4. How will you prevent the negative outcomes listed above in Question 3?

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____