

Site Management Plan (SMP)

*Brownfield Cleanup Program
Tecumseh Phase I Business Park
NYSDEC Site Nos. C915197 through C915197K
Lackawanna, New York*

January 2014

0071-012-322

Prepared By:



BROWNFIELD CLEANUP PROGRAM

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NYSDEC SITE NUMBERS: C915197 through C915197K
LACKAWANNA, NEW YORK

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 Introduction

This document is a required element of the remedial program for the New York State Brownfield Cleanup Program (BCP) Sites within and collectively comprising the property referred to as the “Tecumseh Phase I Business Park,” located in City of Lackawanna, Erie County, New York (see Figures 1 through 3). These BCP Sites, listed below by name and New York State Department of Environmental Conservation (NYSDEC) Site Number, were remediated or are slated to undergo remediation in accordance with Brownfield Cleanup Agreement (BCA) Index No. B9-0696-05-06(A), which was executed on December 12, 2005 and amended on August 20, 2012:

| <u>Site Name:</u> | <u>NYSDEC Site Number:</u> |
|-------------------|----------------------------|
| Site I-1 | C915197 |
| Site I-2 | C915197B |
| Site I-3 | C915197C |
| Site I-4 | C915197D |
| Site I-5 | C915197E |
| Site I-6 | C915197F |
| Site I-7 | C915197G |
| Site I-8 | C915197H |
| Site I-9 | C915197I |
| Site I-10 | C915197J |
| Site I-11 | C915197K |

This SMP has been prepared in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement(s) governing the above-listed BCP Sites.

1.1.1 Background

Tecumseh Redevelopment Inc. (Tecumseh) submitted an application to the NYSDEC dated May 20, 2005 requesting a BCA for the approximate 102-acre Phase I Business Park property. The NYSDEC deemed Tecumseh's application complete, and assigned the Phase I Business Park as Site Number C915197. Tecumseh subsequently entered into the BCA with the NYSDEC on December 12, 2005, which required the company to investigate and remediate contaminated media within the Phase I Business Park.

Upon substantial completion of the Remedial Investigation activities described later in this document, Tecumseh prepared a letter to the NYSDEC dated December 22, 2011 requesting division of the Phase I Business Park project area into 11 sub-parcels to stimulate sale and redevelopment of more manageable sized properties and promote "green remediation" by coordinating certain final remedial measures (i.e., cover placement) with associated sub-parcel build-out. The NYSDEC agreed to Tecumseh's request and, in August 2012, the original BCA for Site C915197 was amended to cover the smaller Site I-1, with separate BCAs issued and executed for the remaining 10 BCP Sites (i.e., Sites I-2 through I-11; C915197B through C915197K, respectively). It was further determined that individual Decision Documents, Remedial Action Work Plans (RAWPs), Final Engineering Reports (FERs), and Certificates of Completion (COCs) would be prepared for each of the 11 BCP Sites, with a common Site Management Plan (SMP) and Environmental Easement prepared to cover all of the BCP Sites within the Phase I Business Park¹.

1.1.2 Site Location and Description

The overall boundaries of the Controlled Property as well as the boundaries of the individual Sites contained therein are more fully described in the survey metes and bounds description (see Appendix A-1). The Controlled Property is identified as part of tax parcel number 141.11-1-50 on the Erie County Tax Map, and is comprised of an approximate 102-acre area bounded by property owned by Gateway Trade Center to the north; the Phase II

¹ For clarity and in recognition of the intent of this SMP to address post-remedial requirements applicable to all of the sub-parcels within the Phase I Business Park, the term "Controlled Property" hereafter refers to the collective group of BCP Sites comprising the Phase I Business Park, with the term "Site" used to reference the individual BCP sub-parcels.

Business Park to the south; the Gateway Metroport Ship Canal to the west; and New York State Route 5 (Hamburg Turnpike) to the east (see Figure 2).

1.1.3 Purpose and Organization

After completion of the remedial work described in the Site-specific RAWPs, some contamination will remain in the subsurface, which is hereafter referred to as ‘remaining contamination.’ This Site Management Plan (SMP) was prepared to manage remaining contamination on the Controlled Property until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

Engineering Controls (ECs) have been incorporated into the remedy to control exposure to remaining contamination during the use of the Controlled Property to ensure protection of public health and the environment. The Environmental Easement (see Appendix A-2) granted to the NYSDEC, and recorded with the Erie County Clerk, will require compliance with this SMP and all ECs and ICs placed on the Controlled Property. The ICs place restrictions on use of the Controlled Property, and mandate operation, maintenance, monitoring, and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains on the Controlled Property. This SMP has been approved by the NYSDEC, and compliance with this SMP is required by the grantor of the Environmental Easement and the grantor’s successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination on the Controlled Property after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports (PRRs); and (5) defining criteria for termination of any remaining treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring

Plan for implementation of required Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems). To the extent these requirements are generic to the Controlled Property they are incorporated within the body of this SMP. Site-specific requirements (e.g., groundwater monitoring; operation and maintenance of ongoing active remediation systems, etc.) are incorporated in Appendix E for Sites where remedial work is substantially complete. Remaining Site-specific requirements will be added or modified by addenda as the remedial work progresses on those Sites.

This SMP also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to the NYSDEC. It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement and is grounds for revocation of the Certificate of Completion (COC).
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375, and the BCA (Index # B9-0696-05-06(A); Site #C951197) for the Controlled Property, and thereby subject to applicable penalties.

1.1.4 Revisions

Revisions to this Plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the Controlled Property, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 Site Background

1.2.1 Site History

The approximate 102-acre Controlled Property formerly housed several facilities used in Bethlehem Steel Corporation's (BSC's) steel manufacturing processes. These included:

open hearth furnaces; blooming mill; billet preparation mills; roughing mills; rail mills; foundry; and a water treatment plant.

Twelve SWMUs, designated as P-43 through P-53 and P-64, were present within the Controlled Property. BSC performed assessments of these SWMUs during a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) and subsequent RCRA Facility Investigation (RFI). Based on the assessment findings, USEPA Region II issued “No Further Assessment” designations for 11 of the 12 SWMUs in December of 1990; a “No Further Assessment” designation was issued for the final SWMU in September 1991. Accordingly, all 12 SWMUs located within the Controlled Property were excluded from the RFI Order by the USEPA in January 2001.

The Controlled Property contains few structural remnants and other features associated with historic integrated steel-making facilities. These include: numerous slabs and concrete piers from former buildings and foundations; the former plant Fire Department Headquarters building located at the northeast corner of the Controlled Property near Gate 1 at Fuhrman Boulevard; and an active rail spur that traverses the eastern boundary of the Controlled Property adjacent to Route 5 and Fuhrman Boulevard.

Immediately west of the Controlled Property boundary is a man-made drainage channel designated as the North Return Water Trench (NRWT) that begins near the former Pumping Station No. 1 and flows north to the Union Ship Canal (see Figure 2). Historically, the trench collected treated wastewater and non-contact cooling water from SPDES permitted outfalls from BSC operations. Currently, there are no active outfalls into the NRWT from the Controlled Property. Further south and immediately west of the Controlled Property boundary is another man-made drainage channel designated as the South Return Water Trench (SRWT) that begins near the former Blowing Engine House No. 1 and flows south to Smokes Creek (see Figure 2). Historically and currently, the SRWT collects and discharges groundwater and stormwater to Smokes Creek under an active SPDES permit (No. NY-0269310).

1.2.2 BCP Application Process and Remedial Investigations

The BCP application for the Controlled Property was submitted May 20, 2005 and a BCA was executed on December 12, 2005. The application was accompanied by a Remedial Investigation Work Plan that identified characterization requirements to be completed

pursuant to the BCP and NYSDEC DER-10 guidance. Remedial Investigation (RI) activities were initiated in January 2006 and substantially completed in February 2006. The RI Report was submitted to NYSDEC in October 2006, revised, and resubmitted in June 2007. The RI Report recommended remediation of soil/fill with cover placement recommended as the final remedial measure for all areas of the Controlled Property. TurnKey submitted a draft Alternatives Analysis Report (AAR) to the NYSDEC in July 2007 and the revised AAR in May 2010.

1.2.3 Geologic Conditions

The United States Department of Agriculture Soil Survey of Erie County, New York indicates that the Controlled Property is covered by surface soil classified as Urban Land; soil consisting of paved, foreign, or disturbed soils. Boring logs from monitoring wells constructed on or near the Controlled Property indicate that the upper two feet (east side) to eight feet (west side) is typically a soil/fill unit comprised of non-cohesive coal and coke fines, slag, cinders, brick, concrete, metal, railroad ballast etc., which was ubiquitous on the Controlled Property. The fill is underlain by lacustrine clays and silts (i.e., a reworked native sandy clay unit) that are, in turn, underlain by shale or limestone bedrock. Bedrock is about 60 feet below grade near the eastern perimeter of the Controlled Property.

Historically, due to the proximity of Lake Erie and municipal supplied water, groundwater in the area has not been developed for industrial, agricultural, or public supply purposes. There is a deed restriction that prohibits the use of groundwater on the 1,100-acre Tecumseh property; consequently, no groundwater supply wells are present on the Controlled Property.

Groundwater elevation measurements taken on May 6, 2006 from existing and newly installed monitoring wells and piezometers on the Controlled Property indicate that the first water bearing zone (i.e., water table) ranges from approximately 4 to 6 feet below ground surface (fbgs) within the soil/slag-fill unit. Examination of the isopotential map prepared for the fill unit from the June 1, 2006 groundwater elevations (see Figure 4) indicates that shallow groundwater generally flows west/southwest toward the Gateway Metroport Ship Canal and Lake Erie as well as northwest toward the Union Ship Canal and Buffalo Outer Harbor.

1.3 Summary of Remedial Investigation Findings

The RI was performed to characterize the nature and extent of contamination on the Controlled Property. The results of the RI are described in detail in the following reports:

- Remedial Investigation Report, Phase I Business Park, Tecumseh Redevelopment Inc., Lackawanna, New York, prepared by TurnKey Environmental Restoration, LLC, October 2006. Revised June 2007.
- Supplemental Remedial Investigation Letter Report for Phase I Business Park, Tecumseh Redevelopment Inc., Lackawanna, New York, prepared by TurnKey Environmental Restoration, LLC, June 23, 2008.

Generally, the RI determined that conditions were consistent with the historic use of the Controlled Property for steel-making and finishing operations. Soil/fill concentrations, where identified above 6NYCRR Part 375 commercial-use soil cleanup objectives (SCOs), varied according to the type and nature of the constituents. Specifically, elevated concentrations of petroleum volatile organic compounds (VOCs) were limited to discrete locations of the Controlled Property where visual or olfactory evidence of impact was observed (e.g., UST and oil-stained areas), or where past operational practices indicate an increased potential for releases of these substances (former transformer areas). Certain metals and base-neutral semi-volatiles (i.e., polyaromatic hydrocarbons or PAHs) were detected at several locations above SCOs, including composite sample locations. The detection of these substances in widespread areas is consistent with the observed presence of coal/coke fines and slag within the soil/fill matrix and macadam cover. The RI findings indicate that, as would be expected based on the relatively low solubility of the soil/fill constituents prevalent in the soil/fill matrix, groundwater is not impacted by constituents of concern.

Below is a summary of conditions on the Controlled Property when the RI was performed in January/ February 2006 and supplemented in April 2008. Tables 1a through 1j summarize the soil/fill concentrations detected during the RI with a comparison to the commercial SCOs; Table 2 summarizes the groundwater concentrations detected during the RI with a comparison to Class GA groundwater quality standards and guidance values (GWQS/GVs); and Figures 5 and 6 present the results of the supplemental investigation.

1.3.1 Soil/Fill

Surface and subsurface soil/fill samples were collected in January and February 2006 in accordance with the NYSDEC-approved August 2005 RI Work Plan for the Controlled Property.

As shown on Figure 2, the Controlled Property was broken into 10 Areas of Assessment (AOAs), identified as AOA-1 through AOA-10. The AOAs were developed to focus the soil/fill investigation according to area-specific concerns based on known past uses and potential contaminant releases and to facilitate data presentation. AOAs-1, -4, -5, and -6 comprise the former main operational steel mill area of the Site. AOAs-2 and -3 consist primarily of support buildings located south of the main mill complex as well as several fuel oil tank locations. AOAs-7 and -8 contain the former Open Hearth, Stripper, Foundry, Machine Shop buildings, and portions of the Billet Prep No. 2 Building. AOAs-9 and -10 contain the former rail yard, support buildings (e.g., rigger shop, repair shop), and the fire department headquarters; the only remaining buildings on the Controlled Property.

Surface and subsurface soil/fill was investigated during the RI at 82 test pit locations and an additional 37 surface locations (119 total locations) to evaluate the nature of potential impacts within the 10 AOAs. A total of 49 surface soil samples and 35 subsurface soil samples were collected from those locations during the RI.

Samples were analyzed for constituents of potential concern (COPCs), which were identified in the RI Work Plan based on operational history and Phase I ESA findings. The primary COPCs included base-neutral Target Compound List (TCL) semi-volatile organic compounds (SVOCs) associated with petroleum bulk storage and fossil fuels, and select inorganic compounds (i.e., arsenic, cadmium, chromium, lead, mercury, and cyanide) typically associated with steel manufacturing. Other COPCs analyzed on a location-specific basis included polychlorinated biphenyls (PCBs), which were analyzed at rail yard and former transformer areas, and petroleum-based VOCs analyzed in former gasoline storage locations. Pesticides, herbicides, and dioxins were also added to the list of COPCs at two surface soil sample locations per NYSDEC's request. In addition to the COPCs, an expanded list of parameters was developed as part of the RI Work Plan. The "expanded" list was employed during the RI at a minimum frequency of 1 per 20 samples per matrix to check for the presence of a broad range of other constituents less likely to be encountered.

The RI findings were compared to both commercial and unrestricted use SCOs per 6 NYCRR Part 375. Unrestricted use SCOs are deemed protective of human health and the environment under any future use scenario, including agricultural, residential, and other applications that could involve high contact with soil materials. Accordingly, unrestricted use SCOs are generally not applicable for sites such as the Controlled Property, which has a long (more than 100 years) industrial history in an urban setting. The RI therefore focused on the more meaningful discussion of the data as compared to commercial SCOs.

In general, the data indicated the presence of COPC metals and base-neutral SVOCs above commercial SCOs at several sample locations, including composite sample locations. The frequent detection of these substances above SCOs is consistent with the observed presence of coal/coke fines and slag within the soil/fill matrix and macadam cover. Pesticides, herbicides, and dioxins were reported as not detected or identified at trace levels well below commercial SCOs. With limited exceptions, PCBs were either not detected or at detected at concentrations well below the commercial SCO of 1 part per million (ppm), with no PCB Aroclors detected above 3 ppm.

VOCs were not detected above commercial SCOs; however, field evidence of petroleum impact was observed in discrete locations of the Controlled Property. Specifically, subsurface impacts were identified at 11 test pit locations (i.e., TP-1-6, TP-1-13, TP-5-3, TP-5-7, TP-6-6, TP-6-7, TP-7-2, TP-7-4, TP-9-3, TP-10-1, and TP-10-3). Some of these impacts were described as petroleum in nature with staining and/or visible product, while others were described as potentially indicative of former tar-bound macadam road or floor. Test pit TP-10-6 also uncovered an underground storage tank (UST).

Because the extent of impact at several of the above-described test pit locations was not fully defined during the RI, a pre-IRM investigation was proposed. The pre-IRM field activities were performed during the period of April 2 through 7, 2008. The work generally involved: re-establishing each of these original test pit locations via GPS coordinates recorded during the RI; collecting a representative sample for waste profiling (i.e., for off-site disposal, if deemed necessary); and for those areas not previously delineated, excavating a series of supplemental test pits in each of four compass directions from the original test pit location until the extent of impact was determined. Soil/fill removed from the supplemental test pits was logged for visual/olfactory/PID evidence of petroleum/organic impacts until the approximate area and depth of impact was delineated. In addition, the extent of lead-

impact at TP-6-6 was delineated via sample collection in a grid pattern over the area surrounding the original test pit.

At NYSDEC's request, supplemental metals sampling was also undertaken at three of the RI test pit areas during the pre-IRM investigation to check for potential metal hotspots. These areas included: TP-1-1 through TP-1-5 (an RI composite sample area), which was re-sampled to check for discrete mercury impacts; TP-5-3, which was tested for lead and cadmium impacts concurrent with the additional petroleum delineation described above; and TP-7-1-1(1-3)/8-4 (an RI composite sample area) that was re-sampled to check for discrete arsenic impacts.

In general, the pre-IRM investigation showed that the combined petroleum impacts encompassed several thousand cubic yards of soil/fill. No additional metal hotspots requiring removal were encountered. In addition, it was agreed with the NYSDEC that potential tar impacts originally identified at TP-5-7 were macadam and therefore did not need to be removed.

1.3.2 Site-Related Groundwater

A groundwater monitoring program was conducted at the Controlled Property to assess groundwater quality and potential groundwater contaminant migration pathways. Following completion of soil/fill portion of the RI, seven new piezometers and seven new monitoring wells were installed to better determine shallow groundwater flow direction and upgradient/downgradient groundwater quality on the Controlled Property. Figure 2 presents the groundwater monitoring points used during the RI, including: existing upgradient monitoring well MW-8A; newly installed temporary piezometers P-50S, P-51S, P-52S, P-54S, P-55S, P-56S, and P-57S; and newly installed monitoring wells MW-12A, MW-13A, MW-14A, MW-15A, MW-16A, MW-17A, and MW-18A.

Of the eight groundwater monitoring wells sampled, only one well contained concentrations above NYSDEC Class GA Groundwater Quality Standards/Guidance Values (GWQS/GVs) per 6NYCRR Part 703. Specifically, monitoring well MW-12A contained concentrations of barium, iron, magnesium, manganese, and sodium that exceeded their respective GWQS/GVs. The RI findings indicate that, as would be expected based on the relatively low solubility of the soil/fill constituents prevalent in the soil/fill matrix, groundwater is not impacted by COPCs. Although MW-12A indicated somewhat

elevated concentrations of barium, MW-12A is located near the upgradient side of the Controlled Property, in an area where soils exhibited barium concentrations much less than the corresponding SCO presented in 6NYCRR Part 375-6 for protection of groundwater due to leaching. In addition, barium was not detected above its GWQS/GV at downgradient well locations. As such, the RI concluded that the presence of barium in MW-12A is not indicative of an on-site source of contamination.

1.3.3 Site-Related Soil Vapor Intrusion

Elevated PID readings were recorded during the RI in certain areas exhibiting visible petroleum impact. Therefore, the soil-to-air pathway may be relevant to locations near former petroleum storage tanks and petroleum-impacted soil/fill. However, the sub-slab vapor intrusion pathway does not pose a risk under the reasonably-anticipated (remediated) future use scenario.

1.3.4 Underground Storage Tanks

During excavation of test pit TP-10-6, one UST and suspected petroleum-impacted soil/fill were identified along the west side of the Former Fire Station building. Petroleum impacts were projected to encompass an approximate 30-foot by 40-foot by 10-foot deep area. Historical information indicated additional UST(s) may be located north of the building. Due to the unknown location of suspected underground utilities (i.e., high-pressure natural gas and sewer), further investigation along the north side of the building was not performed. Subsurface soil/fill samples TP-10-6 (0.0-1.0) and TP-10-6 (1.0-5.5) were collected near the UST and analyzed for TCLP VOCs, lead, flashpoint, corrosivity, reactivity, and leachable pH. Comparing the results to the limits contained in 40 CFR Part 261, the soil/fill did not exhibit hazardous waste characteristics.

1.4 Summary of Remedial Actions

An Interim Remedial Measures (IRM) Work Plan was completed in April 2008. IRM activities, substantially complete in August 2009, included: removal of two USTs; excavation and on-site bioremediation of petroleum-impacted soil/fill; and excavation of tar- and lead-impacted soil/fill. Table 3 summarizes the IRMs performed on the Controlled Basis by Site. The IRMs are more fully described in the May 2010 AA Report for the Controlled Property.

Completed remedial actions will be described within the Site-specific appendices (E-1 through E-11), which will be modified via addenda as the work progresses. The following Remedial Actions are common to all Sites:

1. Execution and recording of an Environmental Easement to restrict land use to commercial or industrial applications and prevent future exposure to any contamination remaining at the Site.
2. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting.

1.4.1 Removal of Contaminated Materials from the Site

1.4.1.1 Excavated Materials

Details on the removal of contaminated materials are presented within the Site-specific appendices. Figure 7 shows the approximate extent of these completed excavations.

1.4.1.2 Underground Storage Tanks

Removal of the USTs and impacted soil/fill is described in Appendix E-11 for Site I-11.

1.4.2 Backfill Materials

With NYSDEC concurrence, completed excavations will be backfilled with: steel slag under Beneficial Use Determination (BUD) #555-9-15; bioremediated soil/fill; and non-impacted crushed asphalt or slag/fill generated from the on-site excavation work. Backfill material will be placed into the excavation and compacted/tracked with the excavator/backhoe bucket in 2-foot lifts.

1.4.3 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the remedy on the Controlled Property. Site-specific treatment systems are described in Appendix E.

1.4.4 Remaining Contamination

The remedial work conducted on the Controlled Property has removed all known “source area” soil/fill, which included petroleum-, metal-, and tar-impacted soil/fill. USTs and associated impacted soil/fill were also removed.

The remaining soil/fill is generally characterized by widespread exceedance of the Part 375 unrestricted-use SCOs for several ubiquitous constituents. Specifically, nearly all samples collected during the RI exhibited exceedance of the commercial SCOs for carcinogenic PAHs, as well as arsenic, cadmium, lead, and mercury. Other constituents remaining above unrestricted-use SCOs in select areas of the Controlled Property include PCBs (Aroclors 1248, 1254, and 1260) and 4-4' DDT. It is not possible to quantify with any certainty areas that do not exceed one or more of the unrestricted-use SCO criteria; therefore, it is therefore assumed that the entire 102-acre Controlled Property is impacted above the unrestricted-use SCOs to the approximate native soil depth of 8 fbg.

Remaining soil/fill contamination is described further within the Site-specific appendices.

2.0 ENGINEERING & INSTITUTIONAL CONTROL PLAN

2.1 Introduction

2.1.1 General

Since remaining contaminated soil/fill exists beneath the Controlled Property, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

The EC/IC Plan provides:

- A description of all EC/ICs on the Controlled Property.
- The basic implementation and intended role of each EC/IC.
- A description of the key components of the ICs set forth in the Environmental Easement.
- A description of the features to be evaluated during each required inspection and periodic review.
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Controlled Property.
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the remedy, as determined by the NYSDEC.

2.2 Engineering Controls

The engineering control common to the Controlled Property is the cover system described below. Other engineering controls (e.g., vapor barriers, sub-slab depressurization systems) specific to Sites are described in Appendix E.

2.2.1 Cover System

Exposure to remaining contamination in soil/fill will be prevented by a cover system placed over the Controlled Property. Ideally the cover system will be placed as each Site is redeveloped, but will otherwise be required before sunset of the NYSDEC BCP to avoid forfeit of BCP tax credits. This cover system will be comprised of a minimum of 12 inches of clean soil, stone, or NYSDEC-approved material, with a demarcation layer (i.e., geotextile fabric, orange poly netting, or similar non-degradable visual demarcation) in all areas that are not paved or covered by concrete or structures. The cover system will be placed to address remaining non-mobile, ubiquitous contaminants (e.g., metals, PAHs, etc.) during the redevelopment stage and prior to occupancy. Paved areas (i.e., buildings, roadways, parking lots) will be covered by asphalt pavement or concrete. The final soil cover shall meet the specifications presented in the Excavation Work Plan (see Appendix B, Section 4.0). The Excavation Work Plan outlines the procedures required to be implemented in the event the cover system is breached, penetrated, or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

The cover system is a permanent control and the quality and integrity of the system will be inspected at defined, regular intervals in perpetuity.

2.3 Institutional Controls

A series of Institutional Controls is required to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination and precluding groundwater use for potable purposes; and, (3) limit the use and development of the Controlled Property to commercial/industrial type uses only. Adherence to these Institutional Controls is required

by the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns.
- All Engineering Controls must be installed, operated, and maintained as specified in this SMP.
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Environmental or public health monitoring must be performed as defined in this SMP.
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The Controlled Property has a series of site-wide Institutional Controls in the form of restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Restrictions for the Controlled Property:

- Allow the use and development of the Controlled Property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- Restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- Requires compliance with the Department-approved Site Management Plan; and
- Requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3.)

Additional Site-specific restrictions (if any) are presented in Appendix E.

2.3.1 Excavation Work Plan

The Controlled Property was remediated for restricted-commercial/industrial use. Any future intrusive work that will penetrate the soil cover or cap, or encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover

system, will be performed in compliance with the Excavation Work Plan (EWP) included as Appendix B. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Controlled Property. Appendix C includes a sample HASP that is in current compliance with DER-10; 29 CFR 1910; 29 CFR 1926; and all other applicable Federal, State, and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification described in Section 1.2 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP, and CAMP, and will be included in the periodic inspection and certification reports described in Section 5.0.

The Site Owners and associated parties preparing the remedial documents for submittal to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The Site Owners will ensure that redevelopment activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.4 Inspections and Notifications

2.4.1 Inspections

A comprehensive inspection of the Controlled Property will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed.
- If these controls continue to be protective of human health and the environment.
- Compliance with requirements of this SMP and the Environmental Easement.
- Achievement of remedial performance criteria.
- Sampling and analysis of appropriate media during monitoring events.

- If Site records are complete and up to date.
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in Section 3.0, Site Monitoring Plan. Reporting requirements are outlined in Section 5.3, Periodic Review Report.

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the affected area of the Controlled Property will be conducted within five days of the event to verify the effectiveness of the EC/ICs implemented at the Site by a Qualified Environmental Professional (QEP) as defined in NYSDEC DER-10.

2.4.2 Notifications

Notifications will be submitted by the Site Owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in use that are required under the terms of the Brownfield Cleanup Agreement (BCA), 6NYCRR Part 375, and/or Environmental Conservation Law. This shall include planned expansions onto any undeveloped portion of the Site that is not already covered with 12 inches of approved cover material.
- 15-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Notice within 48 hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48 hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of any Site within the Controlled Property or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions. These conditions are addressed in the Emergency Response Plan (ERP) included as Appendix A to the HASP. This Contingency Plan, a summary of the ERP, describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This Contingency Plan also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the affected Site Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the QEP. These emergency contact lists must be maintained in an easily accessible location at the Site. Site-specific contacts will be included in Appendix E.

Table 4: Emergency Contact Numbers

| | |
|--------------------------------------|--|
| Medical, Fire, and Police: | 911 |
| One Call Center: | (800) 272-4480 (3-day notice required for utility mark out) |
| Poison Control Center: | (800) 222-1222 |
| Pollution Toxic Chemical Oil Spills: | (800) 424-8802 |
| NYSDEC Spills Hotline | (800) 457-7362 |

Table 5: Contact Numbers

| | |
|--|--|
| Thomas H. Forbes, P.E. Qualified Environmental Professional (QEP) | Work: (716) 856-0599 Mobile: (716) 864-1730 |
| Thomas H. Forbes, P.E. Site Safety and Health Officer (SSHO) | Work: (716) 856-0635 Mobile: (716) 864-1730 |
| Richard L. Dubisz Alternate SSHO | Work: (716) 856-0635 Mobile: (716) 998-4334 |

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 1951 Hamburg Turnpike, Lackawanna, New York 14218

Nearest Hospital Name: Mercy Hospital

Hospital Location: 565 Abbott Road, Buffalo, NY 14220

Hospital Telephone: (716) 826-7000

Directions to the Hospital (see Figure 8):

1. From the Buffalo Crushed Stone site access drive (or Gate2); turn left onto the Hamburg Turnpike (Route 5).
2. Proceed east on Hamburg Turnpike (Route 5) to the Tiff Street exit; turn right onto Tiff Street.
3. Take Tiff Street east crossing South Park Avenue and McKinley Parkway. Bear left on Edgewood Avenue.



4. Turn right onto Abbott Road and Mercy Hospital will be on right hand side. Follow signs to emergency room (ER).

Total Distance: 5 miles

Total Estimated Time: 10 minutes

2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be immediately notified of the emergency. Table 4 provides the emergency telephone numbers.

3.0 SITE MONITORING PLAN

3.1 Introduction

3.1.1 General

The Site Monitoring Plan describes the measures for evaluating the performance and effectiveness of: the remedy to reduce or mitigate contamination on the Controlled Property; the cover system; and all affected media. Monitoring of other Engineering Controls is described in Section 4.0, Operation, Monitoring, and Maintenance Plan. The Site Monitoring Plan may only be revised with the approval of NYSDEC.

Because the RI did not indicate the presence of on-site contamination, and sufficient monitoring data are anticipated to be available for adjoining Business Park Sites to confirm no migration of impacted groundwater onto the Controlled Property, groundwater monitoring is not required by this Site Monitoring Plan.

3.1.2 Purpose and Schedule

The Monitoring Plans presented within the Site-specific appendices describe the methods to be used for:

- Assessing achievement of the remedial performance criteria.
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, the Monitoring Plans provide information on:

- Annual inspection and periodic certification.

3.2 Cover System Monitoring and Maintenance

The cover system is common to the Controlled Property and is therefore discussed herein. All other monitored systems (if any) are discussed within the Site-specific appendices.

Annual visual inspection and maintenance (e.g., filling in ruts with approved cover materials, re-vegetation of soil covered areas, pothole repair, etc.) of the cover systems will be required to assure cover integrity and prevent exposure to underlying soil/fill.

3.3 Annual Inspection

Inspections of the Controlled Property will be performed on a regular schedule at a minimum of once per year. Inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix D). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including usage restrictions.
- An evaluation of the condition and continued effectiveness of ECs.
- General conditions at the time of the inspection.
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection.
- Compliance with permits and schedules included in the Operation and Maintenance Plan.
- Confirm that required records are up to date.

4.0 OPERATION & MAINTENANCE PLAN

The remedy for the Controlled Property does not rely on mechanical systems to protect public health and the environment. Therefore, the operation and maintenance (O&M) of such components is not included in the body of this SMP. To the extent that certain Sites require reliance on such systems, the system descriptions and O&M requirements are included in Appendix E.

Information on non-mechanical Engineering Controls (i.e., cover system) is provided in Section 3.0 - Engineering and Institutional Control Plan.

5.0 INSPECTIONS, REPORTING & CERTIFICATIONS

5.1 Site Inspections

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the Section 3.0 of this SMP. At a minimum, inspections will be conducted annually across the Controlled Property. Inspections of the cover system will also be conducted whenever a severe condition has taken place, such as erosion or a flooding event.

5.1.2 Inspection Forms

Appendix D includes the forms for recording cover system inspections and the annual inspection. Site-specific inspection forms will be mailed by the Department with its standard 45-day notice. A common entity (e.g., Business Park Association) will complete a separate IC/EC inspection form for each Site and include these as an attachment to the Period Review Report discussed in Section 5.3. All applicable inspection forms and system maintenance reports, generated during the reporting period, will be provided in electronic format in the Periodic Review Report described in Section 5.3.

5.1.3 Evaluation of Records & Reporting

The results of the inspections and monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Site Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items;
- The remedy, including Site-specific remedial measures, continues to be protective of public health and the environment and is performing as designed in the Site-specific RAWPs and FERs.

5.2 Certification of Engineering and Institutional Controls

Following the last inspection, a Professional Engineer (P.E.) licensed to practice in New York State or a QEP² will complete an IC/EC certification form for each of the Sites having received COCs. The IC/EC forms, which will be signed by the P.E. and the Site Owner or the Owner's representative, will include the following certification:

For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;
- Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the Site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A"

² A Qualified Environmental Professional other than a licensed Professional Engineer (P.E.) may complete the certification if the engineering controls are limited to non-mechanical systems. Active groundwater remediation systems, soil vapor extraction systems, etc. require P.E. certification.

misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] (and if the site consists of multiple properties): [and I have been authorized and designated by all site owners to sign this certification] for the site.

For Sites that the Department has determined do not represent a significant threat to public health or the environment, but where contaminants in groundwater exceed drinking water standards, the following should also be included:

- No new information has come to my attention, including groundwater monitoring data from wells located at the Site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and

Every five years the following certification will be added:

- The assumptions made in the qualitative exposure assessment remain valid.

The signed certification will be included in the common Periodic Review Report described below.

5.3 Periodic Review Report

A Periodic Review Report (PRR) covering all Sites in the Controlled Property for which COCs were issued will be submitted to the Department every year, beginning 16 months after the first COC is issued. A common entity (e.g., Business Park Association) will be designated as the responsible entity for receiving PRR notices, coordinating and arranging for the above-described inspections and certifications, and preparing the PRR deliverables. The PRR will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results will also be incorporated into the PRR. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for each Site;
- Results of the required annual inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated during the reporting period in electronic format;

- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media, which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- An evaluation, which includes the following:
 - The compliance of the remedy with the requirements of the Site-specific Decision Documents;
 - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
 - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
 - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
 - The overall performance and effectiveness of the remedy.
- A performance summary for all treatment systems at the Site during the calendar year, including information such as:
 - The number of days the system was run for the reporting period;
 - The average, high, and low flows per day;
 - The contaminant mass removed;
 - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
 - A description of the resolution of performance problems;
 - A summary of the performance, effluent and/or effectiveness monitoring; and
 - Comments, conclusions, and recommendations based on data evaluation.

The PRR will be submitted, in hard-copy format, to the NYSDEC Central Office and Region 9 Office, and in electronic format to NYSDEC Central Office, Region 9 Office, and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Plan will be submitted to the NYSDEC for approval. This Plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Plan until it is approved by the NYSDEC.

TABLES



TABLE 1a

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 1

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|---------------|---------------|---------------|----------------|--------------|---------------|-----------------------------------|
| | TP-1-(1-5) | TP-1-(1-5) | TP-1-(6-10) | TP-1-(67810) | TP-1-9 | TP-1-(11-12) | TP-1-(11-12) | |
| | 0.0 - 2.0 | 2.0 - 5.0 | 0.0 - 2.0 | 2.0 - 5.0 | 1.0 - 4.8 | 0.0 - 2.0 | 2.0 - 4.5 | |
| | composite | composite | composite | grab | composite | composite | | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | | |
| Total VOCs | -- | 5.0 (max) | -- | 2.8 (max) | 1.4 | -- | 0.8 (max) | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | | |
| Total VOCs | 0.0 (max) | 1.4 (max) | 2.4 (max) | 5.7 (max) | 0.2 | 2.1 (max) | 4.3 (max) | -- |
| STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg | | | | | | | | |
| Benzene | -- | -- | -- | -- | 0.0013 | -- | -- | 44 |
| Naphthalene | -- | -- | -- | -- | 0.076 J | -- | -- | 500 |
| Methylene Chloride | -- | -- | -- | -- | -- | -- | -- | 500 |
| TOTAL VOCs (mg/kg) | 0 | 0 | 0 | 0 | 0.0773 | 0 | 0 | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | | |
| Acenaphthene | 0.98 J | 0.31 J | 0.28 J | ND | 0.22 J | 0.26 J | 0.11 J | 500 |
| Acenaphthylene | 2.2 | 1.5 J | 1.4 J | 0.17 J | 0.44 J | 2.9 | 1.9 | 500 |
| Anthracene | 2.9 | 1.7 J | 1.2 J | 0.096 J | 0.41 J | 2.2 | 1.9 | 500 |
| Benzo(a)anthracene | 7.8 | 5.5 | 2.9 | 0.45 J | 1.2 J | 8.3 | 5.6 | 5.6 |
| Benzo(b)fluoranthene | 16 J | 8.4 J | 4.5 J | 0.73 J | 1.9 J | 11 J | 7.7 J | 5.6 |
| Benzo(k)fluoranthene | 5 J | 2.3 J | 1.8 J | 0.25 J | 0.61 J | 3 J | 2.4 J | 56 |
| Benzo(g,h,i)perylene | 6.5 | 2.7 | 2.5 | 0.28 J | 0.42 J | 3.9 | 2.7 | 500 |
| Benzo(a)pyrene | 8 | 5.5 | 3.1 | 0.47 J | 1.2 J | 7.7 | 4.9 | 1 |
| Chrysene | 8.8 | 6.1 | 3.2 | 0.44 J | 1 J | 7.5 | 5.2 | 56 |
| Dibenzo(a,h)anthracene | 1.9 | 0.8 J | 0.55 J | ND | 0.2 J | 1.1 J | 0.79 J | 0.56 |
| Dibenzofuran | 0.68 J | 0.72 J | 0.35 J | ND | 0.24 J | 0.6 J | 0.69 J | 350 |
| Fluoranthene | 19 | 12 | 5.9 | 0.66 J | 2.0 | 17 | 11 | 500 |
| Fluorene | 1.1 J | 0.84 J | 0.53 J | ND | ND | 1 J | 1 J | 500 |
| Indeno(1,2,3-cd)pyrene | 6.3 | 2.5 | 1.8 | 0.28 J | 0.49 J | 3.5 | 2.4 | 5.6 |
| 2-Methylnaphthalene | 0.34 J | 0.43 J | 0.18 J | ND | 0.23 J | 0.31 J | 0.32 J | -- |
| Phenanthrene | 12 | 7.7 | 4.1 | 0.3 J | 1.4 J | 8.2 | 7.3 | 500 |
| Pyrene | 13 | 7.7 | 3.9 | 0.47 J | 1.4 J | 11 | 7.3 | 500 |
| TOTAL SVOCs (mg/kg) | 112.5 | 66.7 | 38.19 | 4.596 | 13.36 | 89.47 | 63.21 | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | | |
| Aroclor 1248 | -- | -- | -- | -- | -- | -- | -- | 1 |
| Aroclor 1254 | -- | -- | -- | -- | -- | -- | -- | 1 |
| Aroclor 1260 | -- | -- | -- | -- | -- | -- | -- | 1 |
| Inorganic Compounds - mg/kg | | | | | | | | |
| Arsenic, Total | 121 | 34.6 | 13.1 | 10.2 | 12.1 | 25.4 | 21.8 | 16 |
| Cadmium, Total | ND | ND | ND | ND | ND | ND | ND | 9.3 |
| Chromium, Total | 123 J | 40.3 J | 70.1 J | 79.9 J | 13.2 J | 152 J | 128 J | 1,500 |
| Lead, Total | 257 J | 126 J | 210 J | 108 J | 59.2 J | 240 J | 176 J | 1,000 |
| Mercury, Total | 12 | 0.206 | 0.075 | 0.051 | 0.041 | 0.131 | 0.082 | 2.8 |
| Cyanide, Total | 123 | 14.2 | ND | 9.2 | ND | 1.6 | ND | 27 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Soil/fill sample TP-1-22 (2.0 - 6.5) was analyzed for TCL VOCs plus STARS, all other samples were analyzed for STARS VOCs, only.
3. Soil/fill sample TP-1-22 (2.0 - 6.5) was analyzed for TCL SVOCs (BNAs), all other samples were analyzed for BN SVOCs, only.
4. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
5. ND = parameter not detected above laboratory detection limit.
6. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
7. "--" = not analyzed for this parameter or no individual SCO
8. "***" = Field scan was not obtained due to inclement weather conditions.
9. "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|--|
| compound | = TCL VOC |
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Restricted-Commercial SCO. |



TABLE 1a (continued)

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 1

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|------------------------|-------------------|-------------------|------------------------|-------------------|-------------------|-----------------------------------|
| | TP-1-(13-17) | TP-1-(13-17) | TP-1-18 | TP-1-19 | TP-1-22 ^{2,3} | SS-06 | SS-22 | |
| | 0.0 - 2.0 composite | 2.0 - 5.0 composite | 2.0 - 5.0 grab | 2.0 - 7.0 grab | 2.0 - 6.5 grab | 0.0 - 1.0 grab | 0.0 - 1.0 grab | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | | |
| Total VOCs | -- | 2.3 (max) | 0.0 | 0.0 | 0.0 | -- | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | | |
| Total VOCs | 0.0 (max) | 0.0 (max) | * | * | 0.0 | -- | -- | -- |
| STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg | | | | | | | | |
| Benzene | -- | -- | -- | -- | ND | -- | -- | 44 |
| Naphthalene | -- | -- | -- | -- | ND | -- | -- | 500 |
| Methylene Chloride | -- | -- | -- | -- | 0.012 | -- | -- | 500 |
| TOTAL VOCs (mg/kg) | 0 | 0 | 0 | 0 | 0.012 | 0 | 0 | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | | |
| Acenaphthene | 0.2 J | ND | ND | 0.89 J | ND | -- | -- | 500 |
| Acenaphthylene | 0.55 J | 1.1 J | 0.41 J | 5.2 | 1.6 J | -- | -- | 500 |
| Anthracene | 0.8 J | 0.66 J | 0.44 J | 5.3 | 0.89 J | -- | -- | 500 |
| Benzo(a)anthracene | 2.4 | 2.2 | 1.6 J | 16 | 5.9 J | -- | -- | 5.6 |
| Benzo(b)fluoranthene | 3.3 J | 3.2 J | 2.1 J | 21 J | 7.1 J | -- | -- | 5.6 |
| Benzo(k)fluoranthene | 1.3 J | 1.1 J | 0.65 J | 7 J | 2.4 J | -- | -- | 56 |
| Benzo(g,h,i)perylene | 1.4 J | 1.4 J | 0.85 J | 6 | 3.9 J | -- | -- | 500 |
| Benzo(a)pyrene | 2.5 | 2.3 | 1.6 J | 14 | 5.3 J | -- | -- | 1 |
| Chrysene | 2.3 | 2.2 | 1.4 J | 15 | 5.7 J | -- | -- | 56 |
| Dibenzo(a,h)anthracene | 0.39 J | 0.38 J | 0.25 J | 2.1 | 1.3 J | -- | -- | 0.56 |
| Dibenzofuran | 0.21 J | ND | 0.1 J | 1.2 J | ND | -- | -- | 350 |
| Fluoranthene | 4.8 | 3.8 | 2.3 | 36 J | 9.4 | -- | -- | 500 |
| Fluorene | 0.27 J | 0.2 J | ND | 1.7 J | ND | -- | -- | 500 |
| Indeno(1,2,3-cd)pyrene | 1.2 J | 1.1 J | 0.76 J | 6.1 | 3.7 J | -- | -- | 5.6 |
| 2-Methylnaphthalene | 0.21 J | ND | ND | 0.3 J | ND | -- | -- | -- |
| Phenanthrene | 2.9 | 1.5 J | 1.4 J | 24 | 2.7 J | -- | -- | 500 |
| Pyrene | 3.5 | 2.7 | 1.8 J | 23 | 9.8 | -- | -- | 500 |
| TOTAL SVOCs (mg/kg) | 28.23 | 23.84 | 15.66 | 184.8 | 59.69 | 0 | 0 | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | | |
| Aroclor 1248 | -- | -- | -- | -- | -- | ND | 0.067 | 1 |
| Aroclor 1254 | -- | -- | -- | -- | -- | 0.47 | ND | 1 |
| Aroclor 1260 | -- | -- | -- | -- | -- | ND | 0.19 | 1 |
| Inorganic Compounds - mg/kg | | | | | | | | |
| Arsenic, Total | 21.2 | 15.7 | -- | -- | -- | -- | -- | 16 |
| Cadmium, Total | 1.7 J | ND | -- | -- | -- | -- | -- | 9.3 |
| Chromium, Total | 104 J | 46.8 J | -- | -- | -- | -- | -- | 1,500 |
| Lead, Total | 437 J | 231 J | -- | -- | -- | -- | -- | 1,000 |
| Mercury, Total | 0.146 | 0.112 | -- | -- | -- | -- | -- | 2.8 |
| Cyanide, Total | 1.3 | 1.2 | -- | -- | -- | -- | -- | 27 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Soil/fill sample TP-1-22 (2.0 - 6.5) was analyzed for TCL VOCs plus STARS, all other samples were analyzed for STARS VOCs, only.
3. Soil/fill sample TP-1-22 (2.0 - 6.5) was analyzed for TCL SVOCs (BNAs), all other samples were analyzed for BN SVOCs, only.
4. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
5. ND = parameter not detected above laboratory detection limit.
6. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
7. "--" = not analyzed for this parameter or no individual SCO
8. "*" = Field scan was not obtained due to inclement weather conditions.
9. "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|--|
| compound | = TCL VOC |
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Restricted-Commercial SCO. |



TABLE 1b

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 2

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|---------------|---------------|--------------|-----------------------------------|
| | TP-2-(1-3) | TP-2-(1-3) | SS-23 | SS-24 | |
| | 0.0 - 2.0 | 2.0 - 5.5 | 0.0 - 1.0 | 0.0 - 1.0 | |
| | composite | composite | grab | grab | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | |
| Total VOCs | -- | 0.0 (max) | -- | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | |
| Total VOCs | * | * | -- | -- | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | |
| Acenaphthene | 0.44 J | 0.67 J | ND | 1.1 J | 500 |
| Acenaphthylene | 0.59 J | 20 | ND | 0.89 J | 500 |
| Anthracene | 1 J | 17 J | 0.4 J | 3.9 J | 500 |
| Benzo(a)anthracene | 6.7 J | 50 | 1.6 J | 14 | 5.6 |
| Benzo(b)fluoranthene | 11 J | 86 J | 2.6 J | 15 J | 5.6 |
| Benzo(k)fluoranthene | 3.7 J | 25 J | 0.53 J | 6 J | 56 |
| Benzo(g,h,i)perylene | 3.3 J | 34 | 1.3 J | 7 J | 500 |
| Benzo(a)pyrene | 6.8 J | 62 | 1.5 J | 12 | 1 |
| Chrysene | 8 | 52 | 1.5 J | 11 | 56 |
| Dibenzo(a,h)anthracene | 1 J | 8.6 | ND | 2.3 J | 0.56 |
| Dibenzofuran | ND | 3.8 J | ND | 1 J | 350 |
| Fluoranthene | 14 | 95 J | 3.5 J | 28 | 500 |
| Fluorene | 0.38 J | 4.2 J | ND | 1.5 J | 500 |
| Indeno(1,2,3-cd)pyrene | 3 J | 30 | 1.1 J | 6.9 J | 5.6 |
| 2-Methylnaphthalene | ND | 1.6 J | ND | ND | -- |
| Naphthalene | ND | 4.2 J | ND | ND | 500 |
| Phenanthrene | 6.5 J | 52 J | 1.4 J | 16 | 500 |
| Pyrene | 11 | 94 | 3.3 J | 20 | 500 |
| TOTAL SVOCs (mg/kg) | 77.41 | 640.07 | 18.73 | 146.59 | -- |
| Inorganic Compounds - mg/kg | | | | | |
| Arsenic, Total | 10 | 7.4 | 7.8 | -- | 16 |
| Cadmium, Total | 2.8 | 1.4 | 2.9 | -- | 9.3 |
| Chromium, Total | 136 J | 15.9 J | 95.6 | -- | 1,500 |
| Lead, Total | 267 J | 103 J | 198 | -- | 1,000 |
| Mercury, Total | 2.9 J | 1.8 J | 1.9 | -- | 2.8 |
| Cyanide, Total | 11.5 | ND | 14.7 J | -- | 27 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds reported
2. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
3. ND = parameter not detected above laboratory detection limit.
4. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final Decem
5. "--" = not analyzed for this parameter or no individual SCO
6. "*" = Field scan was not obtained due to inclement weather conditions.
7. "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|--|
| compound | |
| BOLD | |

= Polycyclic Aromatic Hydrocarbon (PAH)
= Value exceeds Restricted-Commercial SCO.



TABLE 1c

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 3

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|------------|------------|-----------|-----------------------------------|
| | TP-3-(1-2) | TP-3-(1-2) | SS-(19-21) | MW-13A | |
| | 0.0 - 1.0 | 1.0 - 3.0 | 0.0 - 1.0 | 0.0 - 1.0 | |
| | composite | composite | composite | grab | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | |
| Total VOCs | -- | 0.0 (max) | -- | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | |
| Total VOCs | 0.0 (max) | 0.0 (max) | -- | -- | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | |
| Acenaphthene | ND | 0.68 J | 2.5 J | -- | 500 |
| Acenaphthylene | 3.9 J | 4.8 J | 3.1 J | -- | 500 |
| Anthracene | 1.9 J | 4.8 J | 9.3 | -- | 500 |
| Benzo(a)anthracene | 10 | 23 | 24 | -- | 5.6 |
| Benzo(b)fluoranthene | 15 J | 32 J | 26 J | -- | 5.6 |
| Benzo(k)fluoranthene | 5.2 J | 8.5 J | 7.5 J | -- | 56 |
| Benzo(g,h,i)perylene | 9.2 | 14 | 12 | -- | 500 |
| Benzo(a)pyrene | 12 | 24 | 21 | -- | 1 |
| Chrysene | 10 | 22 | 20 | -- | 56 |
| Dibenzo(a,h)anthracene | 2.5 J | 4.4 J | 3.7 J | -- | 0.56 |
| Dibenzofuran | ND | 0.65 J | 3.6 J | -- | 350 |
| Fluoranthene | 18 | 48 | 50 | -- | 500 |
| Fluorene | ND | 1.5 J | 4.6 J | -- | 500 |
| Indeno(1,2,3-cd)pyrene | 8.3 | 14 | 11 | -- | 5.6 |
| 2-Methylnaphthalene | ND | 0.4 J | 2.6 J | -- | -- |
| Naphthalene | ND | 0.38 J | 6.1 J | -- | 500 |
| Phenanthrene | 4 J | 19 | 33 | -- | 500 |
| Pyrene | 14 J | 37 | 38 | -- | 500 |
| TOTAL SVOCs (mg/kg) | 114 | 259 | 278 | -- | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | |
| Aroclor 1254 | -- | -- | 0.29 | -- | 1 |
| Aroclor 1260 | -- | -- | 0.22 J | -- | 1 |
| Inorganic Compounds ² - mg/kg | | | | | |
| Aluminum, Total | -- | 13800 | -- | -- | -- |
| Arsenic, Total | 11.6 J | 36.7 J | 11.8 | -- | 16 |
| Barium, Total | -- | 166 J | -- | -- | 400 |
| Beryllium, Total | -- | 2.1 | -- | -- | 590 |
| Cadmium, Total | 1.3 | 4.1 | 1.2 | -- | 9.3 |
| Calcium, Total | -- | 87000 J | -- | -- | -- |
| Chromium, Total | 175 J | 59.1 J | 35.8 | -- | 1,500 |
| Cobalt, Total | -- | 6.8 | -- | -- | -- |
| Copper, Total | -- | 119 J | -- | -- | 270 |
| Iron, Total | -- | 45300 J | -- | -- | -- |
| Lead, Total | 141 J | 280 J | 151 | -- | 1,000 |
| Magnesium, Total | -- | 19400 | -- | -- | -- |



TABLE 1c

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 3

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|------------|------------|-----------|-----------------------------------|
| | TP-3-(1-2) | TP-3-(1-2) | SS-(19-21) | MW-13A | |
| | 0.0 - 1.0 | 1.0 - 3.0 | 0.0 - 1.0 | 0.0 - 1.0 | |
| | composite | composite | composite | grab | |
| Manganese, Total | -- | 3710 | -- | -- | 10,000 |
| Inorganic Compounds ² - mg/kg | | | | | |
| Mercury, Total | 0.161 | 0.08 | 0.217 | -- | 2.8 |
| Nickel, Total | -- | 18.6 | -- | -- | 310 |
| Potassium, Total | -- | 1090 | -- | -- | -- |
| Sodium, Total | -- | 633 | -- | -- | -- |
| Vanadium, Total | -- | 33.2 | -- | -- | -- |
| Zinc, Total | -- | 452 | -- | -- | 10,000 |
| Cyanide, Total | ND | ND | ND | -- | 27 |
| Dioxins - mg/kg | | | | | |
| 2,3,7,8-TCDD | -- | -- | -- | ND | -- |
| Herbicides - mg/kg | | | | | |
| 2,4-D | -- | -- | -- | ND | -- |
| Pentachlorophenol | -- | -- | -- | ND | -- |
| Pesticides - mg/kg | | | | | |
| 4,4'-DDT | -- | -- | -- | 0.094 | 47 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Sample TP-3-(1-2) (1.0 - 3.0) analyzed for TAL Metals, all other samples analyzed for arsenic, cadmium, chromium, cyanide, lead, & mercury, only.
3. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
4. ND = parameter not detected above laboratory detection limit.
5. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
6. "--" = not analyzed for this parameter or no individual SCO
7. " **RED TEXT** " = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| compound | = TAL Metal |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 1d

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 4

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | Restricted-Commerical SCO (mg/kg) |
|---|--|---------------------|----------------|----------------|----------------|----------------|-----------------------------------|
| | TP-4 (1-5) | TP-4 (1-5) | SS-04 | SS-05 | SS-25 | SS-26 | |
| | 0.0 - 1.0 composite | 1.0 - 3.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 grab | 0.0 - 1.0 grab | 0.0 - 1.0 grab | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | |
| Total VOCs | -- | 0.0 (max) | -- | -- | -- | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | |
| Total VOCs | * | * | -- | -- | -- | -- | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | |
| Acenaphthene | ND | ND | -- | -- | 0.16 J | -- | 500 |
| Acenaphthylene | ND | 0.68 J | -- | -- | 0.27 J | -- | 500 |
| Anthracene | 1.2 J | 0.61 J | -- | -- | 0.78 | -- | 500 |
| Benzo(a)anthracene | 4.4 J | 1.9 | -- | -- | 1.6 | -- | 5.6 |
| Benzo(b)fluoranthene | 5.5 J | 3.1 J | -- | -- | 2.2 J | -- | 5.6 |
| Benzo(k)fluoranthene | 1.8 J | 0.99 J | -- | -- | 0.61 J | -- | 56 |
| Benzo(g,h,i)perylene | 2.4 J | 1.6 J | -- | -- | 0.81 | -- | 500 |
| Benzo(a)pyrene | 4.2 J | 2.2 | -- | -- | 1.6 | -- | 1 |
| Chrysene | 4.4 J | 2 | -- | -- | 1.6 | -- | 56 |
| Dibenzo(a,h)anthracene | 0.72 J | 0.5 J | -- | -- | 0.23 J | -- | 0.56 |
| Dibenzofuran | ND | 0.13 J | -- | -- | 0.24 J | -- | 350 |
| Fluoranthene | 9 | 3.3 | -- | -- | 4 | -- | 500 |
| Fluorene | ND | 0.2 J | -- | -- | 0.42 | -- | 500 |
| Indeno(1,2,3-cd)pyrene | 2.1 J | 1.4 J | -- | -- | 0.78 | -- | 5.6 |
| 2-Methylnaphthalene | ND | ND | -- | -- | 0.068 J | -- | -- |
| Naphthalene | ND | 0.11 J | -- | -- | 0.065 J | -- | 500 |
| Phenanthrene | 3.3 J | 2 | -- | -- | 3.2 | -- | 500 |
| Pyrene | 8.1 J | 2.8 | -- | -- | 2.8 | -- | 500 |
| TOTAL SVOCs (mg/kg) | 47.12 | 23.52 | 0 | 0 | 21.43 | 0 | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | |
| Aroclor 1248 | -- | -- | 1.2 | 0.54 | -- | -- | 1 |
| Aroclor 1254 | -- | -- | 3.0 | ND | -- | -- | 1 |
| Aroclor 1260 | -- | -- | ND | 0.38 | -- | -- | 1 |
| Inorganic Compounds - mg/kg | | | | | | | |
| Arsenic, Total | 9.3 J | 7 | -- | -- | 7.6 | 12.6 | 16 |
| Cadmium, Total | 3.2 J | 2.1 | -- | -- | 1.4 | 5.8 | 9.3 |
| Chromium, Total | 114 J | 82.3 J | -- | -- | 67.8 | 245 | 1,500 |
| Lead, Total | 642 J | 800 J | -- | -- | 166 | 355 | 1,000 |
| Mercury, Total | 1.5 J | 0.559 J | -- | -- | 0.148 | 3.8 | 2.8 |
| Cyanide, Total | ND | ND | -- | -- | 3.5 J | 8.2 J | 27 |
| Wet Chemistry - units shown parenthetically | | | | | | | |
| pH (S.U.) | -- | -- | -- | -- | -- | 8.40 | -- |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds reported as non-detect.
2. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
3. ND = parameter not detected above laboratory detection limit.
4. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
5. "--" = not analyzed for this parameter or no individual SCO
6. "*" = Field scan was not obtained due to inclement weather conditions.
7. "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 1e

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 5

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|---------------------|----------------|---------------------|---------------------|----------------|-----------------------------------|
| | TP-5-(1-5) | TP-5-(1245) | TP-5-3 | TP-5-(6-10) | TP-5-(6-10) | TP-5-11 | |
| | 0.0 - 1.0 composite | 1.0 - 4.5 composite | 1.0 - 4.5 grab | 0.0 - 1.0 composite | 1.0 - 4.0 composite | 0.0 - 1.0 grab | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | |
| Total VOCs | -- | 0.0 (max) | 0.0 | -- | 0.0 (max) | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | |
| Total VOCs | 0.0 (max) | 0.0 (max) | 0.0 | 0.0 (max) | 0.0 (max) | 0.0 | -- |
| STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg | | | | | | | |
| Naphthalene | -- | -- | 1.6 | -- | -- | -- | 500 |
| TOTAL VOCs (mg/kg) | -- | -- | 1.6 | -- | -- | -- | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | |
| Acenaphthene | 4.4 J | 2.1 J | 2.2 J | 0.54 J | 0.19 J | 0.039 J | 500 |
| Acenaphthylene | 5.6 J | 10 | 6.2 J | 0.65 J | 0.18 J | 0.15 J | 500 |
| Anthracene | 24 | 20 | 15 | 1.9 J | 0.52 J | 0.17 J | 500 |
| Benzo(a)anthracene | 36 | 41 | 31 | 4.6 J | 1.3 J | 0.68 | 5.6 |
| Benzo(b)fluoranthene | 40 J | 48 J | 36 J | 6.2 J | 2.3 J | 1.2 J | 5.6 |
| Benzo(k)fluoranthene | 13 J | 18 J | 9.8 J | 2.1 J | 0.83 J | 0.31 J | 56 |
| Benzo(g,h,i)perylene | 17 | 22 | 17 | 2.7 J | 1 J | 0.44 | 500 |
| Benzo(a)pyrene | 32 | 40 | 29 | 4.4 J | 1.5 | 0.75 | 1 |
| Chrysene | 33 | 37 | 27 | 4.1 J | 1.3 J | 0.71 | 56 |
| Dibenzo(a,h)anthracene | 4.8 J | 5.8 J | 4.4 J | 0.86 J | 0.31 J | 0.12 J | 0.56 |
| Dibenzofuran | 7.7 | 6.6 J | 4.3 J | ND | 0.21 J | 0.079 J | 350 |
| Fluoranthene | 100 | 130 D | 94 | 10 | 2.5 | 1.1 | 500 |
| Fluorene | 13 | 12 | 9 | 0.66 J | 0.29 J | 0.047 J | 500 |
| Indeno(1,2,3-cd)pyrene | 16 | 20 | 16 | 2.4 J | 0.92 J | 0.4 | 5.6 |
| 2-Methylnaphthalene | 2.8 J | 1.4 J | 0.99 J | ND | 0.16 J | 0.087 J | -- |
| Naphthalene | 18 | 2.9 J | 2.5 J | ND | 0.41 J | 0.078 J | 500 |
| Phenanthrene | 82 | 92 | 66 | 5.5 J | 1.9 | 0.6 | 500 |
| Pyrene | 72 | 84 | 68 | 7.3 J | 1.9 | 0.86 | 500 |
| TOTAL SVOCs (mg/kg) | 521.3 | 592.8 | 438.4 | 53.9 | 17.7 | 7.8 | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | |
| TOTAL PCBs (mg/kg) | -- | -- | -- | -- | -- | -- | -- |
| Inorganic Compounds ² - mg/kg | | | | | | | |
| Aluminum, Total | 6630 | -- | -- | -- | -- | -- | -- |
| Arsenic, Total | 12.8 J | 2.8 J | 103 J | 23.5 | 12.8 | 7.5 | 16 |
| Barium, Total | 73 J | -- | -- | -- | -- | -- | 400 |
| Beryllium, Total | 0.99 | -- | -- | -- | -- | -- | 590 |
| Cadmium, Total | 8.2 | ND | 94.9 | 16 J | 9.3 J | 0.52 J | 9.3 |
| Calcium, Total | 84300 J | -- | -- | -- | -- | -- | -- |
| Chromium, Total | 299 J | 3.3 J | 161 J | 138 J | 75.1 J | 47.7 J | 1,500 |
| Cobalt, Total | 6.9 | -- | -- | -- | -- | -- | -- |
| Copper, Total | 126 J | -- | -- | -- | -- | -- | 270 |
| Iron, Total | 78700 J | -- | -- | -- | -- | -- | -- |
| Lead, Total | 535 J | 6.4 J | 10200 J | 814 J | 427 J | 50.8 J | 1,000 |
| Magnesium, Total | 18600 | -- | -- | -- | -- | -- | -- |
| Manganese, Total | 14500 | -- | -- | -- | -- | -- | 10,000 |
| Mercury, Total | 1.9 | 0.591 | 0.375 | 2.0 | 5.9 | 0.068 | 2.8 |
| Nickel, Total | 27.4 | -- | -- | -- | -- | -- | 310 |
| Potassium, Total | 639 J | -- | -- | -- | -- | -- | -- |
| Selenium, Total | 4.7 | -- | -- | -- | -- | -- | 1,500 |
| Sodium, Total | 225 J | -- | -- | -- | -- | -- | -- |
| Vanadium, Total | 211 | -- | -- | -- | -- | -- | -- |
| Zinc, Total | 905 | -- | -- | -- | -- | -- | 10,000 |
| Cyanide, Total | ND | ND | ND | ND | ND | ND | 27 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Sample TP-5-(1-5) (0.0 - 1.0) was analyzed for TAL Metals, all other samples were analyzed for arsenic, cadmium, chromium, cyanide, lead, and mercury, only.
3. D = Analyzed at the secondary dilution factor.
4. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
5. ND = parameter not detected above laboratory detection limit.
6. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
7. "--" = not analyzed for this parameter or no individual SCO
8. "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| compound | = TAL Metal |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 1e (continued)

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 5

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|----------------|---------------------|----------------|----------------|-----------------------------------|
| | TP-5-11 | TP-5-12 | SS-(1-2) | SS-03 | SS-27 | |
| | 1.0 - 4.0 grab | 1.0 - 3.5 grab | 0.0 - 1.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 grab | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | |
| Total VOCs | 0.0 | 0.0 | -- | -- | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | |
| Total VOCs | 0.0 | 0.0 | -- | -- | -- | -- |
| STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg | | | | | | |
| Naphthalene | -- | -- | -- | -- | -- | 500 |
| TOTAL VOCs (mg/kg) | -- | -- | -- | -- | -- | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | |
| Acenaphthene | 0.16 J | -- | ND | -- | 0.58 J | 500 |
| Acenaphthylene | 0.31 J | -- | ND | -- | ND | 500 |
| Anthracene | 0.54 J | -- | 0.35 J | -- | 1.4 J | 500 |
| Benzo(a)anthracene | 1.9 | -- | 1.6 J | -- | 11 | 5.6 |
| Benzo(b)fluoranthene | 2.4 J | -- | 2.4 J | -- | 23 J | 5.6 |
| Benzo(k)fluoranthene | 0.87 J | -- | 0.78 J | -- | 25 J | 56 |
| Benzo(g,h,i)perylene | 1.1 | -- | 0.93 J | -- | 8.9 | 500 |
| Benzo(a)pyrene | 1.9 | -- | 1.7 J | -- | 12 | 1 |
| Chrysene | 1.8 | -- | 1.7 J | -- | 12 | 56 |
| Dibenzo(a,h)anthracene | 0.32 J | -- | 0.27 J | -- | 2.6 J | 0.56 |
| Dibenzofuran | 0.19 J | -- | ND | -- | ND | 350 |
| Fluoranthene | 3.3 | -- | 3 J | -- | 24 | 500 |
| Fluorene | 0.22 J | -- | ND | -- | 0.55 J | 500 |
| Indeno(1,2,3-cd)pyrene | 0.98 | -- | 0.93 J | -- | 7.9 | 5.6 |
| 2-Methylnaphthalene | 0.17 J | -- | ND | -- | ND | -- |
| Naphthalene | 0.29 J | -- | ND | -- | ND | 500 |
| Phenanthrene | 1.6 | -- | 1 J | -- | 11 | 500 |
| Pyrene | 2.8 | -- | 2.6 J | -- | 19 | 500 |
| TOTAL SVOCs (mg/kg) | 20.85 | 0 | 17.26 | 0 | 158.9 | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | |
| TOTAL PCBs (mg/kg) | -- | -- | -- | ND | -- | 1 |
| Inorganic Compounds ² - mg/kg | | | | | | |
| Aluminum, Total | -- | -- | -- | -- | -- | -- |
| Arsenic, Total | 7.7 | 43.7 | 13.2 | -- | -- | 16 |
| Barium, Total | -- | -- | -- | -- | -- | 400 |
| Beryllium, Total | -- | -- | -- | -- | -- | 590 |
| Cadmium, Total | 3 J | 45.3 J | 11.2 | -- | -- | 9.3 |
| Calcium, Total | -- | -- | -- | -- | -- | -- |
| Chromium, Total | 141 J | 98.7 J | 39.5 | -- | -- | 1,500 |
| Cobalt, Total | -- | -- | -- | -- | -- | -- |
| Copper, Total | -- | -- | -- | -- | -- | 270 |
| Iron, Total | -- | -- | -- | -- | -- | -- |
| Lead, Total | 157 J | 1340 J | 574 | -- | -- | 1,000 |
| Magnesium, Total | -- | -- | -- | -- | -- | -- |
| Manganese, Total | -- | -- | -- | -- | -- | 15,000 |
| Mercury, Total | 0.045 | 0.349 | 2.5 | -- | -- | 2.8 |
| Nickel, Total | -- | -- | -- | -- | -- | 310 |
| Potassium, Total | -- | -- | -- | -- | -- | -- |
| Selenium, Total | -- | -- | -- | -- | -- | 1,500 |
| Sodium, Total | -- | -- | -- | -- | -- | -- |
| Vanadium, Total | -- | -- | -- | -- | -- | -- |
| Zinc, Total | -- | -- | -- | -- | -- | 89,000 |
| Cyanide, Total | ND | ND | ND | -- | -- | 27 |

Notes:

- Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
- Sample TP-5-(1-5) (0.0 - 1.0) was analyzed for TAL Metals, all other samples were analyzed for As, Cd, Cr, CN, Pb, & Hg, only.
- D = Analyzed at the secondary dilution factor.
- J = Estimated value; result is less than the sample quantitation limit but greater than zero.
- ND = parameter not detected above laboratory detection limit.
- SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
- "--" = not analyzed for this parameter or no individual SCO
- * **RED TEXT** = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| compound | = TAL Metal |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 1f

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 6

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | | | | | Restricted-Commercial SCO (mg/kg) |
|---|---|--------------------------------------|-----------------------------|-----------------------------|------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------------------------|
| | TP-6-(1-5) 0.0 - 2.0 composite | TP-6-(1-5) 2.0 - 6.0 composite | TP-6-6 2.0 - 6.0 grab | TP-6-7 2.0 - 4.0 grab | TP-6-10 2.0 - 6.0 grab | SS-07 0.0 - 1.0 grab | SS-08 0.0 - 1.0 grab | SS-28 0.0 - 1.0 grab | SS-29 0.0 - 1.0 grab | SS-30 0.0 - 1.0 grab | |
| | Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | | | | |
| Total VOCs | -- | 0.0 (max) | 0.0 | 0.0 | 0.0 | -- | -- | -- | -- | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | | | | | |
| Total VOCs | 1.0 (max) | 1.1 (max) | 0.0 | 0.0 | 0.0 | -- | -- | -- | -- | -- | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | | | | | |
| Acenaphthene | 5.4 J | 6.8 J | 0.84 J | -- | -- | -- | -- | -- | 0.31 J | -- | 500 |
| Acenaphthylene | ND | ND | 2 J | -- | -- | -- | -- | -- | 0.23 J | -- | 500 |
| Anthracene | 14 J | 14 J | 3.8 J | -- | -- | -- | -- | -- | 0.94 J | -- | 500 |
| Benzo(a)anthracene | 30 J | 28 J | 17 | -- | -- | -- | -- | -- | 2.4 J | -- | 5.6 |
| Benzo(b)fluoranthene | 36 J | 27 J | 16 J | -- | -- | -- | -- | -- | 3.2 J | -- | 5.6 |
| Benzo(k)fluoranthene | 41 J | 6.8 J | 6 J | -- | -- | -- | -- | -- | 1.1 J | -- | 56 |
| Benzo(g,h,i)perylene | 15 J | 14 J | 9 | -- | -- | -- | -- | -- | 1.7 J | -- | 500 |
| Benzo(a)pyrene | 22 J | 22 J | 14 | -- | -- | -- | -- | -- | 2.5 J | -- | 1 |
| Chrysene | 28 J | 25 J | 17 | -- | -- | -- | -- | -- | 2.5 J | -- | 56 |
| Dibenzo(a,h)anthracene | 4.5 J | 4.1 J | 2.7 J | -- | -- | -- | -- | -- | 0.4 J | -- | 0.56 |
| Dibenzofuran | 3.1 J | 3.6 J | 0.5 J | -- | -- | -- | -- | -- | 0.32 J | -- | 350 |
| Fluoranthene | 71 | 65 | 40 | -- | -- | -- | -- | -- | 5.6 | -- | 500 |
| Fluorene | 5.8 J | 6.4 J | 0.95 J | -- | -- | -- | -- | -- | 0.45 J | -- | 500 |
| Indeno(1,2,3-cd)pyrene | 13 J | 12 J | 8.2 | -- | -- | -- | -- | -- | 1.4 J | -- | 5.6 |
| Naphthalene | ND | 2.2 J | 0.4 J | -- | -- | -- | -- | -- | 0.57 J | -- | 500 |
| Phenanthrene | 52 | 51 | 15 | -- | -- | -- | -- | -- | 4.1 | -- | 500 |
| Pyrene | 55 | 51 | 35 | -- | -- | -- | -- | -- | 4.6 | -- | 500 |
| TOTAL SVOCs (mg/kg) | 395.8 | 338.9 | 188.4 | 0 | 0 | 0 | 0 | 0 | 32.32 | 0 | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | | | | | |
| Aroclor 1254 | -- | -- | -- | -- | 0.58 | ND | 0.88 | ND | -- | -- | 1 |
| Aroclor 1260 | -- | -- | -- | -- | ND | 1.6 | ND | 0.35 | -- | -- | 1 |
| Inorganic Compounds - mg/kg | | | | | | | | | | | |
| Arsenic, Total | 14.7 J | 22.6 J | 152 J | 39.2 J | -- | -- | -- | -- | 17.7 | 18.5 | 16 |
| Cadmium, Total | 5.3 J | 5.1 J | 7.9 J | 3 J | -- | -- | -- | -- | 8 | 6.7 | 9.3 |
| Chromium, Total | 123 | 99.1 | 242 | 52.8 | -- | -- | -- | -- | 171 | 97.5 | 1,500 |
| Lead, Total | 454 | 474 | 774 | 1660 | -- | -- | -- | -- | 440 | 549 | 1,000 |
| Mercury, Total | 1.2 | 1.1 | 0.429 | 0.362 | -- | -- | -- | -- | 0.389 | 3 | 2.8 |
| Cyanide, Total | ND | ND | ND | 2.0 | -- | -- | -- | -- | ND | ND | 27 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
3. ND = parameter not detected above laboratory detection limit.
4. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
5. "--" = not analyzed for this parameter or no individual SCO
6. "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 1g

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 7

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|------------------------|-------------------|------------------------|------------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------------|
| | TP-7-(1-3)/8-4 | TP-7-(1,3)/8-4 | TP-7-2 | TP-7-(4-7) | TP-7-(4-7) | SS-15 | SS-16 | SS-17 | SS-31 | |
| | 0.0 - 2.0 composite | 1.5 - 5.5 composite | 2.0 - 5.0 grab | 0.0 - 1.0 composite | 2.0 - 7.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 grab | 0.0 - 1.0 grab | 0.0 - 1.0 grab | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | | | | |
| Total VOCs | -- | 0.0 (max) | 3123 | -- | 0.0 (max) | -- | -- | -- | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | | | | |
| Total VOCs | 0.0 (max) | 0.0 (max) | 12.8 | 0.0 (max) | 0.0 (max) | -- | -- | -- | -- | -- |
| STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg | | | | | | | | | | |
| n-Butylbenzene | -- | -- | 7.6 | -- | -- | -- | -- | -- | -- | 500 |
| Ethylbenzene | -- | -- | 1.8 | -- | -- | -- | -- | -- | -- | 390 |
| Isopropylbenzene | -- | -- | 0.48 | -- | -- | -- | -- | -- | -- | -- |
| p-Cymene | -- | -- | 1.4 | -- | -- | -- | -- | -- | -- | -- |
| n-Propylbenzene | -- | -- | 1.6 | -- | -- | -- | -- | -- | -- | 500 |
| 1,2,4-Trimethylbenzene | -- | -- | 26 | -- | -- | -- | -- | -- | -- | 190 |
| m-Xylene | -- | -- | 3.1 | -- | -- | -- | -- | -- | -- | 500 |
| Xylenes, Total | -- | -- | 3.1 | -- | -- | -- | -- | -- | -- | 500 |
| Naphthalene | -- | -- | 120 | -- | -- | -- | -- | -- | -- | 500 |
| TOTAL VOCs (mg/kg) | 0 | 0 | 162.0 | 0 | 0 | 0 | 0 | 0 | 0 | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | | | | |
| Acenaphthylene | 1.6 J | 0.25 J | 3.8 J | 0.68 J | 0.9 J | -- | -- | -- | 0.2 J | 500 |
| Anthracene | 1 J | ND | 2.7 J | 0.48 J | 1.4 J | -- | -- | -- | 0.072 J | 500 |
| Benzo(a)anthracene | 6 J | 1 J | 9.3 | 2.2 J | 4.3 J | -- | -- | -- | 0.33 J | 5.6 |
| Benzo(b)fluoranthene | 8.7 J | 1.1 J | 12 J | 2.8 J | 5.1 J | -- | -- | -- | 0.78 J | 5.6 |
| Benzo(k)fluoranthene | 2.2 J | 0.46 J | 3 J | 1 J | 1.6 J | -- | -- | -- | 0.23 J | 56 |
| Benzo(g,h,i)perylene | 5.8 J | 0.65 J | 6.8 J | 1.1 J | 2.7 J | -- | -- | -- | 0.62 | 500 |
| Benzo(a)pyrene | 6.4 J | 0.87 J | 9.7 | 2 J | 3.6 J | -- | -- | -- | 0.51 | 1 |
| Chrysene | 6.2 J | 0.96 J | 10 | 2.1 J | 4.3 J | -- | -- | -- | 0.37 J | 56 |
| Dibenzo(a,h)anthracene | 1.5 J | 0.2 J | 1.7 J | 0.35 J | 0.81 J | -- | -- | -- | 0.18 J | 0.56 |
| Dibenzofuran | ND | ND | 1 J | ND | ND | -- | -- | -- | 0.04 J | 350 |
| Fluoranthene | 9.3 | 1.5 J | 16 | 3.2 J | 8.1 | -- | -- | -- | 0.35 J | 500 |
| Fluorene | ND | ND | 2.9 J | ND | 0.59 J | -- | -- | -- | ND | 500 |
| Indeno(1,2,3-cd)pyrene | 4.7 J | 0.59 J | 5.4 J | 0.98 J | 2.2 J | -- | -- | -- | 0.53 | 5.6 |
| 2-Methylnaphthalene | ND | ND | 15 | ND | ND | -- | -- | -- | 0.099 J | -- |
| Naphthalene | 0.83 J | ND | 7.5 J | ND | 0.44 J | -- | -- | -- | 0.063 J | 500 |
| Phenanthrene | 4.2 J | 0.45 J | 13 | 1.7 J | 5.2 J | -- | -- | -- | 0.15 J | 500 |
| Pyrene | 8.5 | 1.4 J | 17 | 2.8 J | 7.1 J | -- | -- | -- | 0.35 J | 500 |
| TOTAL SVOCs (mg/kg) | 66.93 | 9.43 | 136.8 | 21.39 | 48.34 | 0 | 0 | 0 | 4.874 | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | | | | |



TABLE 1g

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 7

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | | | | Restricted-Commercial SCO (mg/kg) |
|------------------------------------|--|------------------------|-------------------|------------------------|------------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------------|
| | TP-7-(1-3)/8-4 | TP-7-(1,3)/8-4 | TP-7-2 | TP-7-(4-7) | TP-7-(4-7) | SS-15 | SS-16 | SS-17 | SS-31 | |
| | 0.0 - 2.0 composite | 1.5 - 5.5 composite | 2.0 - 5.0 grab | 0.0 - 1.0 composite | 2.0 - 7.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 grab | 0.0 - 1.0 grab | 0.0 - 1.0 grab | |
| Aroclor 1260 | -- | -- | -- | -- | -- | ND | 0.017 J | 0.14 | -- | 1 |
| Inorganic Compounds - mg/kg | | | | | | | | | | |
| Arsenic, Total | 116 J | 15.8 J | 4.2 J | 10 J | 10.1 J | -- | -- | -- | -- | 16 |
| Cadmium, Total | 7.6 J | 1.4 J | 0.75 J | 4.4 J | 2.7 J | -- | -- | -- | -- | 9.3 |
| Chromium, Total | 315 | 124 | 52.1 | 118 | 34.4 | -- | -- | -- | -- | 1,500 |
| Lead, Total | 728 | 61.5 | 171 | 628 | 318 | -- | -- | -- | -- | 1,000 |
| Mercury, Total | 2.1 | 0.141 | 0.086 | 0.637 | 0.757 | -- | -- | -- | -- | 2.8 |
| Cyanide, Total | ND | ND | ND | ND | ND | -- | -- | -- | -- | 27 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. B = Analyte was detected in the associated blank as well as in the sample.
3. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
4. ND = parameter not detected above laboratory detection limit.
5. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
6. "--" = not analyzed for this parameter or no individual SCO
7. " RED TEXT " = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 1h

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 8

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | Restricted-Commercial SCO (mg/kg) |
|---|--|------------|-----------|-----------|------------|-----------|-----------------------------------|
| | TP-8-(1-3) | TP-8-(1-3) | TP-8-6 | SS-18 | SS-(32-33) | SS-34 | |
| | 0.0 - 1.0 | 1.0 - 7.0 | 1.0 - 3.0 | 0.0 - 1.0 | 0.0 - 1.0 | 0.0 - 1.0 | |
| | composite | composite | grab | grab | composite | grab | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | |
| Total VOCs | -- | 0.0 (max) | 0.0 | -- | -- | -- | -- |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | |
| Total VOCs | 0.0 (max) | 0.0 (max) | 0.0 | -- | -- | -- | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | |
| Acenaphthene | 0.62 J | ND | -- | -- | 0.41 J | 0.67 J | 500 |
| Acenaphthylene | 0.36 J | ND | -- | -- | 0.22 J | ND | 500 |
| Anthracene | 1.4 J | ND | -- | -- | 0.83 J | 1.6 J | 500 |
| Benzo(a)anthracene | 3.7 J | 0.81 J | -- | -- | 2.4 | 6.7 J | 5.6 |
| Benzo(b)fluoranthene | 4.2 J | 1.4 J | -- | -- | 3.2 J | 9.2 J | 5.6 |
| Benzo(k)fluoranthene | 1.6 J | 1.6 J | -- | -- | 1.1 J | 3.2 J | 56 |
| Benzo(g,h,i)perylene | 2.3 J | 0.7 J | -- | -- | 1.3 J | 4.3 J | 500 |
| Benzo(a)pyrene | 3.1 J | 0.85 J | -- | -- | 2.3 | 7.2 J | 1 |
| Chrysene | 3.8 J | 0.82 J | -- | -- | 2.5 | 6.6 J | 56 |
| Dibenzo(a,h)anthracene | 0.62 J | ND | -- | -- | 0.4 J | 1.2 J | 0.56 |
| Dibenzofuran | 0.31 J | ND | -- | -- | 0.27 J | ND | 350 |
| Di-n-butyl phthalate | ND | ND | -- | -- | 0.18 J | ND | -- |
| Fluoranthene | 8.6 | 1.2 J | -- | -- | 4.9 | 13 | 500 |
| Fluorene | 0.49 J | ND | -- | -- | 0.35 J | 0.48 J | 500 |
| Indeno(1,2,3-cd)pyrene | 1.9 J | 0.55 J | -- | -- | 1.2 J | 4.1 J | 5.6 |
| 2-Methylnaphthalene | ND | ND | -- | -- | 0.2 J | ND | -- |
| Naphthalene | 0.27 J | ND | -- | -- | 0.24 J | ND | 500 |
| Phenanthrene | 5.4 | 0.54 J | -- | -- | 3.5 | 6.2 J | 500 |
| Pyrene | 7.5 | 1.1 J | -- | -- | 4 | 10 | 500 |
| TOTAL SVOCs (mg/kg) | 46.2 | 9.57 | 0 | 0 | 29.5 | 74.5 | -- |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | |
| Aroclor 1248 | -- | -- | -- | 3.4 | -- | -- | 1 |
| Inorganic Compounds - mg/kg | | | | | | | |
| Arsenic, Total | 11.5 J | 6.3 J | 17.3 | -- | 4.6 J | 17.8 | 16 |
| Cadmium, Total | 2.6 J | 0.71 J | 6.3 | -- | 2.9 J | 4.8 | 9.3 |
| Chromium, Total | 84 | 101 | 180 J | -- | 71.5 J | 95.3 | 1,500 |
| Lead, Total | 286 | 57.9 | 2180 J | -- | 1250 J | 510 | 1,000 |
| Mercury, Total | 0.293 | 0.033 | 0.473 J | -- | 5.7 J | 4.2 | 2.8 |
| Cyanide, Total | 2.2 | ND | ND | -- | 7.7 J | 10.5 J | 27 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. B = Analyte was detected in the associated blank as well as in the sample.
3. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
4. ND = parameter not detected above laboratory detection limit.
5. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
6. "--" = not analyzed for this parameter or no individual SCO
7. "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 1i

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 9

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | | | | | | Restricted-Commercial SCO (mg/kg) | |
|--|--|-------------------|-------------------|-------------------|-------------------|------------------------|------------------------|-------------------|------------------------|-------------------|-------------------|-----------------------------------|--|
| | TP-9-1 | TP-9-2 | TP-9-3 | TP-9-3 | TP-9-5 | TP-9-(125) | TP-9-(125) | SS-09 | SS-(10-13) | SS-35 | SS-36 | | |
| | 1.0 - 3.5 grab | 1.0 - 7.0 grab | 0.0 - 1.0 grab | 1.0 - 4.5 grab | 1.0 - 4.5 grab | 0.0 - 1.0 composite | 1.0 - 7.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 grab | | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | | | | | | | |
| Total VOCs | 0.0 | 0.0 | 0.0 | 328 | 0.0 | -- | 0.0 (max) | -- | -- | -- | -- | -- | |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | | | | | | | |
| Total VOCs | 0.0 | 0.0 | 0.0 | 25.8 | 0.0 | 0.0 (max) | 0.0 (max) | -- | -- | -- | -- | -- | |
| STARS Volatile Organic Compounds (VOCs - Method 8021) ² - mg/kg | | | | | | | | | | | | | |
| n-Butylbenzene | ND | ND | -- | 8.2 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| sec-Butylbenzene | ND | ND | -- | 6.0 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| tert-Butylbenzene | ND | ND | -- | 2.0 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| Isopropylbenzene | ND | ND | -- | 0.75 | ND | -- | -- | -- | -- | -- | -- | -- | |
| p-Cymene | ND | ND | -- | 2.3 | ND | -- | -- | -- | -- | -- | -- | -- | |
| n-Propylbenzene | ND | ND | -- | 3.4 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| Toluene | ND | ND | -- | 0.16 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| 1,2,4-Trimethylbenzene | ND | ND | -- | 7.9 | ND | -- | -- | -- | -- | -- | -- | 190 | |
| 1,3,5-Trimethylbenzene | ND | ND | -- | 1.6 | ND | -- | -- | -- | -- | -- | -- | 190 | |
| o-Xylene | ND | ND | -- | 2.1 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| m-Xylene | ND | ND | -- | 0.23 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| Xylenes, Total | ND | ND | -- | 2.3 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| Naphthalene | ND | ND | -- | 16 | ND | -- | -- | -- | -- | -- | -- | 500 | |
| Methylene Chloride | 0.007 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 500 | |
| TOTAL VOCs (mg/kg) | 0.007 | 0 | 0 | 50.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -- | |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) ³ - mg/kg | | | | | | | | | | | | | |
| Acenaphthene | -- | -- | 0.096 J | 5.1 | -- | ND | ND | -- | 0.18 J | -- | ND | 500 | |
| Acenaphthylene | -- | -- | 0.4 J | ND | -- | 0.62 J | ND | -- | 0.69 J | -- | 0.38 J | 500 | |
| Anthracene | -- | -- | 0.57 J | 3.2 | -- | 0.62 J | ND | -- | 0.62 J | -- | 0.24 J | 500 | |
| Benzo(a)anthracene | -- | -- | 1.3 | 0.21 J | -- | 1.6 J | 0.5 J | -- | 2.9 | -- | 1.1 J | 5.6 | |
| Benzo(b)fluoranthene | -- | -- | 2 J | ND | -- | 3.2 J | 0.75 J | -- | 6.1 J | -- | 2.4 J | 5.6 | |
| Benzo(k)fluoranthene | -- | -- | 0.64 J | ND | -- | 1 J | 0.2 J | -- | 1.7 J | -- | 0.87 J | 56 | |
| Benzo(g,h,i)perylene | -- | -- | 1.2 | ND | -- | 1.6 J | 0.38 J | -- | 4.4 | -- | 1.3 J | 500 | |
| Benzo(a)pyrene | -- | -- | 1.2 | ND | -- | 2 J | 0.46 J | -- | 4.2 | -- | 1.7 J | 1 | |
| Chrysene | -- | -- | 1.3 | 0.4 J | -- | 1.8 J | 0.51 J | -- | 3 | -- | 1.2 J | 56 | |
| Dibenzo(a,h)anthracene | -- | -- | 0.28 J | ND | -- | 0.48 J | ND | -- | 1.1 J | -- | 0.29 J | 0.56 | |
| Dibenzofuran | -- | -- | 0.17 J | 1.3 J | -- | 0.27 J | ND | -- | 0.13 J | -- | ND | 350 | |
| Fluoranthene | -- | -- | 2.4 | 0.55 J | -- | 2.6 J | 0.87 J | -- | 3.8 | -- | 1.6 J | 500 | |
| Fluorene | -- | -- | 0.16 J | 9 | -- | 0.2 J | ND | -- | 0.1 J | -- | ND | 500 | |
| Indeno(1,2,3-cd)pyrene | -- | -- | 0.89 | ND | -- | 1.4 J | 0.37 J | -- | 3.6 | -- | 1 J | 5.6 | |
| 2-Methylnaphthalene | -- | -- | 0.5 J | 35 | -- | 0.29 J | ND | -- | 0.17 J | -- | ND | -- | |
| Naphthalene | -- | -- | 0.32 J | ND | -- | 0.42 J | ND | -- | 0.25 J | -- | ND | 500 | |
| Phenanthrene | -- | -- | 1.9 | 23 | -- | 1.4 J | 0.75 J | -- | 1.5 | -- | 0.49 J | 500 | |
| Pyrene | -- | -- | 2 | 2.4 | -- | 2.4 J | 0.79 J | -- | 3.5 | -- | 1.5 J | 500 | |
| TOTAL SVOCs (mg/kg) | 0 | 0 | 17.33 | 80.16 | 0 | 21.9 | 5.58 | 0 | 37.94 | 0 | 14.07 | -- | |



TABLE 1i

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 9

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | | | | | | Restricted-Commercial SCO (mg/kg) | |
|---|--|-------------------|-------------------|-------------------|-------------------|------------------------|------------------------|-------------------|------------------------|-------------------|-------------------|-----------------------------------|--|
| | TP-9-1 | TP-9-2 | TP-9-3 | TP-9-3 | TP-9-5 | TP-9-(125) | TP-9-(125) | SS-09 | SS-(10-13) | SS-35 | SS-36 | | |
| | 1.0 - 3.5 grab | 1.0 - 7.0 grab | 0.0 - 1.0 grab | 1.0 - 4.5 grab | 1.0 - 4.5 grab | 0.0 - 1.0 composite | 1.0 - 7.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 grab | | |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | | | | | | | |
| Aroclor 1248 | -- | -- | -- | -- | -- | -- | -- | 0.088 | ND | -- | -- | 1 | |
| Aroclor 1260 | -- | -- | -- | -- | -- | -- | -- | 0.78 | 0.033 | -- | -- | 1 | |
| Inorganic Compounds - mg/kg | | | | | | | | | | | | | |
| Arsenic, Total | -- | -- | 26.8 | 4.8 | -- | 19.5 J | 5.4 J | -- | 79.8 J | -- | -- | 16 | |
| Cadmium, Total | -- | -- | 5.5 J | ND | -- | 2.8 | 0.41 | -- | 3.5 J | -- | -- | 9.3 | |
| Chromium, Total | -- | -- | 249 J | 6.3 J | -- | 174 J | 23.7 J | -- | 90.6 J | -- | -- | 1,500 | |
| Lead, Total | -- | -- | 620 J | 73.7 J | -- | 207 J | 126 J | -- | 389 J | -- | -- | 1,000 | |
| Mercury, Total | -- | -- | 0.144 | 0.031 | -- | 0.155 J | 0.037 J | -- | 0.421 J | -- | -- | 2.8 | |
| Cyanide, Total | -- | -- | ND | ND | -- | 1.8 J | 1.9 J | -- | 3 J | -- | -- | 27 | |
| Dioxins - mg/kg | | | | | | | | | | | | | |
| 2,3,7,8-TCDD | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | -- | -- | |
| Herbicides - mg/kg | | | | | | | | | | | | | |
| 2,4-D | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.083 J | -- | -- | |
| Pentachlorophenol | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.12 | -- | -- | |
| Pesticides - mg/kg | | | | | | | | | | | | | |
| 4,4'-DDT | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.023 | -- | 47 | |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Soil/fill sample TP-9-1 (1.0 - 3.5) was analyzed for TCL VOCs plus STARS, all other samples were analyzed for STARS VOCs, only.
3. Soil/fill sample TP-9-(125) (1.0 - 7.0) was analyzed for TCL SVOCs (BNAs), all other samples were analyzed for BN SVOCs, only.
4. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
5. ND = parameter not detected above laboratory detection limit.
6. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
7. "--" = not analyzed for this parameter or no individual SCO
8. " RED TEXT " = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = TCL VOC |
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 1j

SOIL ANALYTICAL SUMMARY FOR AREA OF ASSESSMENT 10

SITE MANAGEMENT PLAN

Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Sample Location, Depth Interval (fbgs), and Type | | | | | | | | | Restricted-Commercial SCO (mg/kg) |
|--|--|------------------------|------------------------|------------------------|------------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------------|
| | TP-10-1 | TP-10-(1-3) | TP-10-(2-3) | TP-10-(4-5) | TP-10-(4-5) | TP-10-6 | TP-10-6 | TP-10-7 | SS-14 | |
| | 1.0 - 4.5 grab | 0.0 - 1.0 composite | 1.0 - 4.0 composite | 0.0 - 1.0 composite | 1.0 - 2.5 composite | 0.0 - 1.0 grab | 1.0 - 5.5 grab | 1.0 - 2.5 grab | 0.0 - 1.0 grab | |
| Inorganic Compounds - mg/kg | | | | | | | | | | |
| Arsenic, Total | 18 J | 29.5 J | 2.4 J | 18.4 J | 2.7 J | -- | -- | -- | -- | 16 |
| Cadmium, Total | 1.2 | 3.3 | 0.38 | 2.7 | ND | -- | -- | -- | -- | 9.3 |
| Chromium, Total | 28.8 J | 167 J | 9.8 J | 29 J | 7.5 J | -- | -- | -- | -- | 1,500 |
| Lead, Total | 421 J | 234 J | 26.2 J | 260 J | 91.1 J | -- | -- | -- | -- | 1,000 |
| Mercury, Total | 0.113 J | 0.092 J | ND | 0.356 J | 0.043 J | -- | -- | -- | -- | 2.8 |
| Cyanide, Total | ND | 10.3 J | ND | ND | ND | -- | -- | -- | -- | 27 |
| TCLP - (units shown parenthetically) | | | | | | | | | | |
| 2-Butanone (mg/L) | -- | -- | -- | -- | -- | ND | 0.026 J | -- | -- | -- |
| Lead, Total (mg/L) | -- | -- | -- | -- | -- | 0.0167 | 0.0653 | -- | -- | -- |
| Flashpoint (°F) | -- | -- | -- | -- | -- | > 200 | > 200 | -- | -- | -- |
| H ₂ S Released from Waste (mg/kg) | -- | -- | -- | -- | -- | ND | ND | -- | -- | -- |
| HCN Released from Waste (mg/kg) | -- | -- | -- | -- | -- | ND | ND | -- | -- | -- |
| Leachable pH (S.U.) | -- | -- | -- | -- | -- | 8.39 | 9.04 | -- | -- | -- |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
3. ND = parameter not detected above laboratory detection limit.
4. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
5. "--" = not analyzed for this parameter or no individual SCO
6. " RED TEXT " = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Restricted-Commercial SCO |



TABLE 2

GROUNDWATER ANALYTICAL SUMMARY

SITE MANAGEMENT PLAN

Tecumseh Phase I Business Park
Lackawanna, New York

| Parameter ¹ | Monitoring Well Location | | | | | | | | | GWQS/ GV ⁵ | | | | | | | |
|---|--------------------------|---------------------|---------------|---------------------|---------------------|--------|----------------|----------------|---------------|--------------------------|------|------|------|------|------|------|------------------|
| | MW-8A | MW-12A ² | MW-13A | MW-14A ³ | MW-15A ⁴ | MW-16A | MW-17A | MW-18A | | | | | | | | | |
| Field Measurements (units as indicated) | | | | | | | | | | | | | | | | | |
| pH (units) | 7.47 | 7.73 | 9.69 | 9.46 | 7.07 | 7.28 | 7.81 | 7.80 | 7.51 | 7.91 | 7.14 | 7.27 | 7.47 | 7.72 | 7.64 | 7.81 | 6.5 - 8.5 |
| Temperature (°C) | 9.1 | 7.6 | 7.7 | 5.6 | 8.0 | 7.1 | 6.9 | 6.2 | 7.2 | 6.2 | 6.9 | 4.7 | 7.1 | 6.5 | 7.4 | 8.8 | -- |
| Specific Conductance (uS) | 2447 | 2410 | 507 | 483 | 843 | 1037 | 783 | 783 | 1331 | 1251 | 794 | 792 | 851 | 846 | 1129 | 1209 | -- |
| Turbidity | 19.2 | 19.2 | 15.7 | 21.4 | 21.1 | 13.4 | 19 | 12.3 | 82.1 | 40.3 | 12.3 | 8.3 | 14.9 | 4.52 | 37 | 58.3 | 50** |
| ORP (mV) | 85 | 84 | -79 | -79 | -28 | -15 | -51 | -67 | -107 | -87 | -4 | 8 | -18 | 14 | 67 | 86 | -- |
| Volatile Organic Compounds (VOCs) ⁷ - ug/L | | | | | | | | | | | | | | | | | |
| Acetone | -- | | 3 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 50* |
| n-Butylbenzene | ND | | ND | ND | ND | ND | 0.97 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 5 |
| 1,2,4-Trichlorobenzene | -- | | 1.9 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10* |
| TOTAL VOCs (ug/L) | 0 | | 4.9 | 0 | 0 | 0 | 0.97 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -- |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) ⁸ - ug/L | | | | | | | | | | | | | | | | | |
| TOTAL SVOCs (ug/L) | ND | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | -- |
| Polychlorinated Biphenyls (PCBs) - ug/L | | | | | | | | | | | | | | | | | |
| TOTAL PCBs (ug/L) | ND | | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | -- |
| Total Inorganic Compounds ⁹ - mg/L | | | | | | | | | | | | | | | | | |
| Aluminum, Total | -- | | 307 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium, Total | -- | | 8.7 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1 |
| Calcium, Total | -- | | 57,200 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron, Total | -- | | 248 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.3 |
| Magnesium, Total | -- | | 2,260 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 35* |
| Manganese, Total | -- | | 74.3 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.3 |
| Potassium, Total | -- | | 7,390 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, Total | -- | | 44,000 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 20 |
| Cyanide, Total | ND | | ND | ND | ND | ND | 0.013 J | 0.024 J | 0.16 J | ND | ND | ND | ND | ND | ND | ND | 0.2 |
| Dissolved Inorganic Compounds - mg/L | | | | | | | | | | | | | | | | | |
| Arsenic, Dissolved | -- | | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.025 |
| Cadmium, Dissolved | -- | | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.005 |
| Chromium, Dissolved | -- | | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.05 |
| Lead, Dissolved | -- | | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.025 |
| Mercury, Dissolved | -- | | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.0007 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. MS/MSD collected at monitoring well MW-12A.
3. Blind Duplicate collected at monitoring well MW-14A.
4. Due to turbidity greater than 50 NTU, a filtered sample was submitted for soluble metal analysis at this location.
5. NYSDEC Class "GA" Groundwater Quality Standards/Guidance Values (GWQS/GV) as per 6 NYCRR Part 703.
6. Groundwater collected from well MW-12A was analyzed for TCL VOCs plus STARS, all other wells were only analyzed for STARS VOCs.
7. Groundwater collected from well MW-12A was analyzed for TCL SVOCs (BNAs), all other wells were only analyzed for BN SVOCs.
8. Groundwater collected from well MW-12A was analyzed for TAL Metals, all other wells were only analyzed for arsenic, cadmium, chromium, cyanide, lead, and mercury.
9. J = Estimated value; result is less than the sample quantitation limit but greater than zero.
10. ND = parameter not detected above laboratory detection limit.
11. "--" = not analyzed for this parameter
12. "*" = Groundwater Quality Guidance Value
13. "***" = field threshold value; when exceeded, field filtered metals sample is collected (i.e., dissolved metals).
14. "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Scheme:

BOLD = value exceeds individual GWQS/GV concentration



TABLE 3

SUMMARY OF COMPLETED REMEDIAL ACTIONS BY SITE

SITE MANAGEMENT PLAN

**Tecumseh Phase I Business Park
Lackawanna, New York**

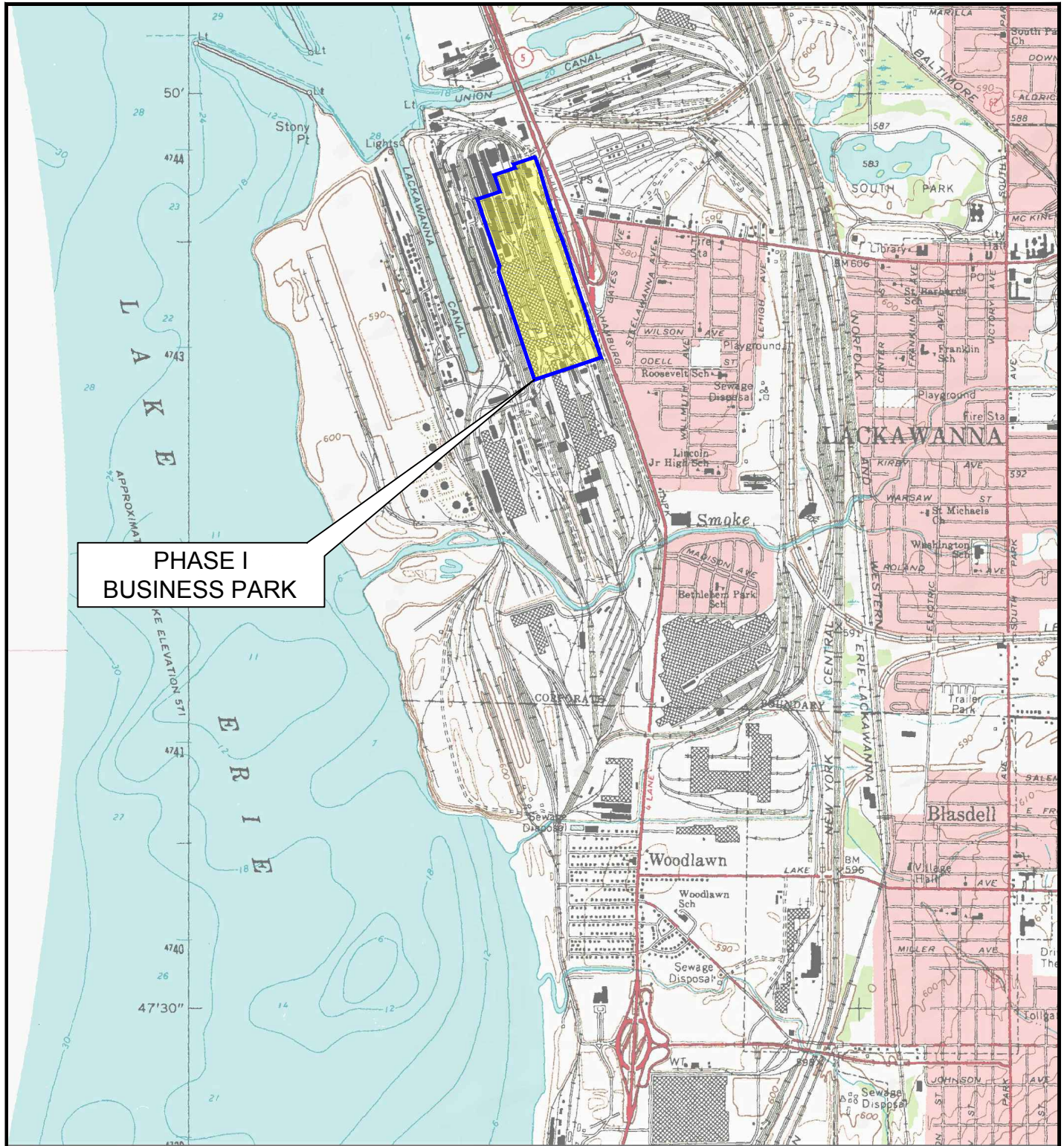
| Site No. | BCP Site No. | Acreage | Remedial Work ^{1,2} | Monitoring Wells | Piezometers | Post-Remedial Groundwater Monitoring Program |
|------------------------|--------------|---------------|--|------------------|--------------|--|
| I-1 | C915197 | 5.57 | No areas of impact identified. | None | None | None |
| I-2 | C915197B | 6.23 | No areas of impact identified. | MW-13A | P-57S | None |
| I-3 | C915197C | 7.63 | Excavated approximately 668 cubic yards of petroleum-impacted soil/fill from test pit TP-1-6 for on-site bioremediation. | MW-17A | P-50S | None |
| | | | Excavated approximately 300 cubic yards of petroleum-impacted soil/fill from composite test pit grids 7/ 8 for on-site bioremediation. | | | |
| I-4 | C915197D | 10.37 | Excavated approximately 100 cubic yards of tar-impacted soil/fill from test pit TP-5-3 for off-site disposal. | None | None | None |
| I-5 | C915197E | 10.05 | Excavated approximately 251 cubic yards of petroleum-impacted soil/fill from test pit TP-1-13 for on-site bioremediation. | None | P-51S, P-55S | None |
| I-6 | C915197F | 10.02 | No areas of impact identified. | MW-12A | None | None |
| I-7 | C915197G | 10.03 | Excavated approximately 251 cubic yards of petroleum-impacted soil/fill from test pit TP-6-7 for on-site bioremediation. | B-2, MW-16A | None | None |
| I-8 | C915197H | 10.24 | Excavated approximately 1,850 cubic yards of petroleum-impacted soil/fill from test pits TP-9-3 and TP-9-4 for on-site bioremediation. | MW-8A/8B | P-56S | None |
| I-9 | C915197I | 10.01 | Excavated approximately 202 cubic yards of lead-impacted soil/fill from test pit TP-6-6 for off-site disposal. | None | P-45S, P-52S | None |
| I-10 | C915197J | 9.98 | Excavated approximately 1,850 cubic yards of petroleum-impacted soil/fill from test pits TP-9-3 and TP-9-4 for on-site bioremediation. | MW-14A | None | None |
| | | | Excavated approximately 15 cubic yards of petroleum-impacted soil/fill from test pit TP-1-6 for on-site bioremediation. | | | |
| | | | Excavated approximately 4,500 cubic yards of petroleum-impacted soil/fill from test pit TP-7-2 for on-site bioremediation. | | | |
| I-11 | C915197K | 12.36 | Removed two USTs and excavated approximately 2,000 cubic yards of petroleum-impacted soil/fill from test pit TP-10-6 for on-site bioremediation. | MW-15A, MW-18A | P-54S | None |
| TOTAL ACREAGE = | | 102.49 | | | | |

Notes:

1. All Sites to receive a minimum 1 foot of NYSDEC-approved clean cover material or 6 inches structural cover (pavement, building, etc.) in addition to listed remedial work.
2. On-site bioremediation refers to use of the Bioremediation Pads #1-#3 constructed on Sites I-8, I-10, and I-11.

FIGURES

FIGURE 1



PHASE I
BUSINESS PARK



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www.delorme.com



2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 858-0835

SITE LOCATION & VICINITY MAP

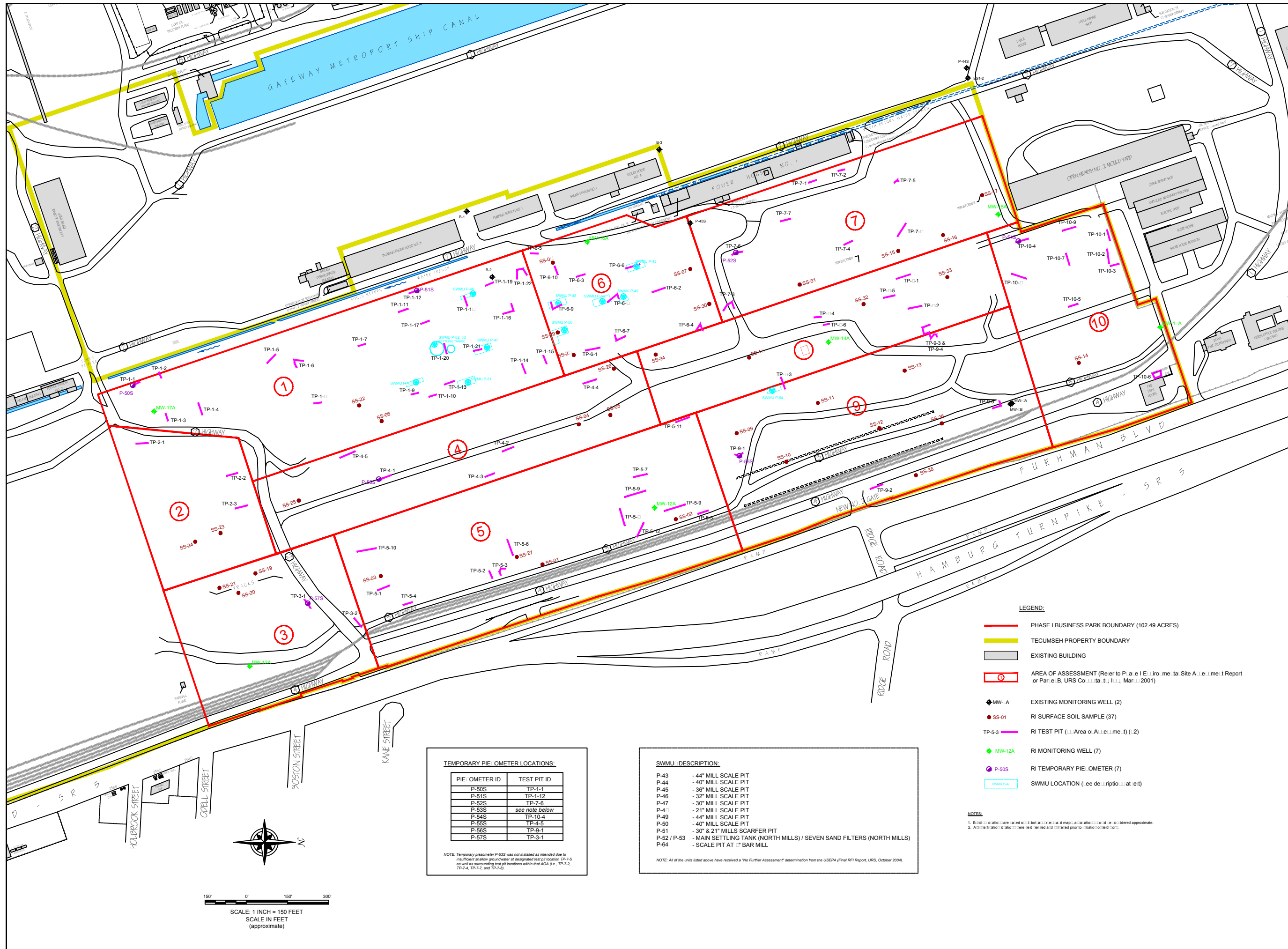
SITE MANAGEMENT PLAN

PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

PROJECT NO.: 0071-012-322

DATE: DECEMBER 2013

DRAFTED BY: BLR



SCALE: 1 INCH = 150 FEET
SCALE IN FEET (approximate)

TEMPORARY PIEZOMETER LOCATIONS:

| PIEZOMETER ID | TEST PIT ID |
|---------------|----------------|
| P-50S | TP-1-1 |
| P-51S | TP-1-12 |
| P-52S | TP-7-6 |
| P-53S | see note below |
| P-54S | TP-10-4 |
| P-55S | TP-4-5 |
| P-56S | TP-9-1 |
| P-57S | TP-3-1 |

NOTE: Temporary piezometer P-53S was not installed as intended due to insufficient stable groundwater at designated test pit location TP-7-6 as well as surrounding test pit locations within that ADA (i.e., TP-7-2, TP-7-4, TP-7-7, and TP-7-8).

SWMU DESCRIPTION:

- P-43 - 44" MILL SCALE PIT
- P-44 - 40" MILL SCALE PIT
- P-45 - 36" MILL SCALE PIT
- P-46 - 32" MILL SCALE PIT
- P-47 - 30" MILL SCALE PIT
- P-48 - 21" MILL SCALE PIT
- P-49 - 44" MILL SCALE PIT
- P-50 - 40" MILL SCALE PIT
- P-51 - 30" & 21" MILLS SCARFER PIT
- P-52 / P-53 - MAIN SETTLING TANK (NORTH MILLS) / SEVEN SAND FILTERS (NORTH MILLS)
- P-64 - SCALE PIT AT 1" BAR MILL

NOTE: All of the units listed above have received a "No Further Assessment" determination from the USEPA (Final RI Report, URS, October 2004).

LEGEND:

- PHASE I BUSINESS PARK BOUNDARY (102.49 ACRES)
- TECUMSEH PROPERTY BOUNDARY
- EXISTING BUILDING
- AREA OF ASSESSMENT (Refer to Phase I EIR for more information Site Assessment Report or Part B, URS Contract 111, March 2001)
- ◆ MW-A EXISTING MONITORING WELL (2)
- SS-01 RI SURFACE SOIL SAMPLE (37)
- TP-5-3 RI TEST PIT (Area of Assessment) (2)
- ◆ MW-12A RI MONITORING WELL (7)
- P-50S RI TEMPORARY PIEZOMETER (7)
- SWMU LOCATION (see description at left)

NOTES:
1. All test pits are located on the left side of the map.
2. All test pits are located on the left side of the map.

REVISIONS

| NO. | BY | DATE | REMARKS |
|-----|----|------|---------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

DRAWN BY: BCH
DATE: AUGUST 2009
CHECKED BY: THF
APPROVED BY:

DISCLAIMER: THIS DRAWING IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT TO BE USED FOR CONSTRUCTION OR AS A BASIS FOR ANY OTHER ACTION WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENGINEERING, P.C.

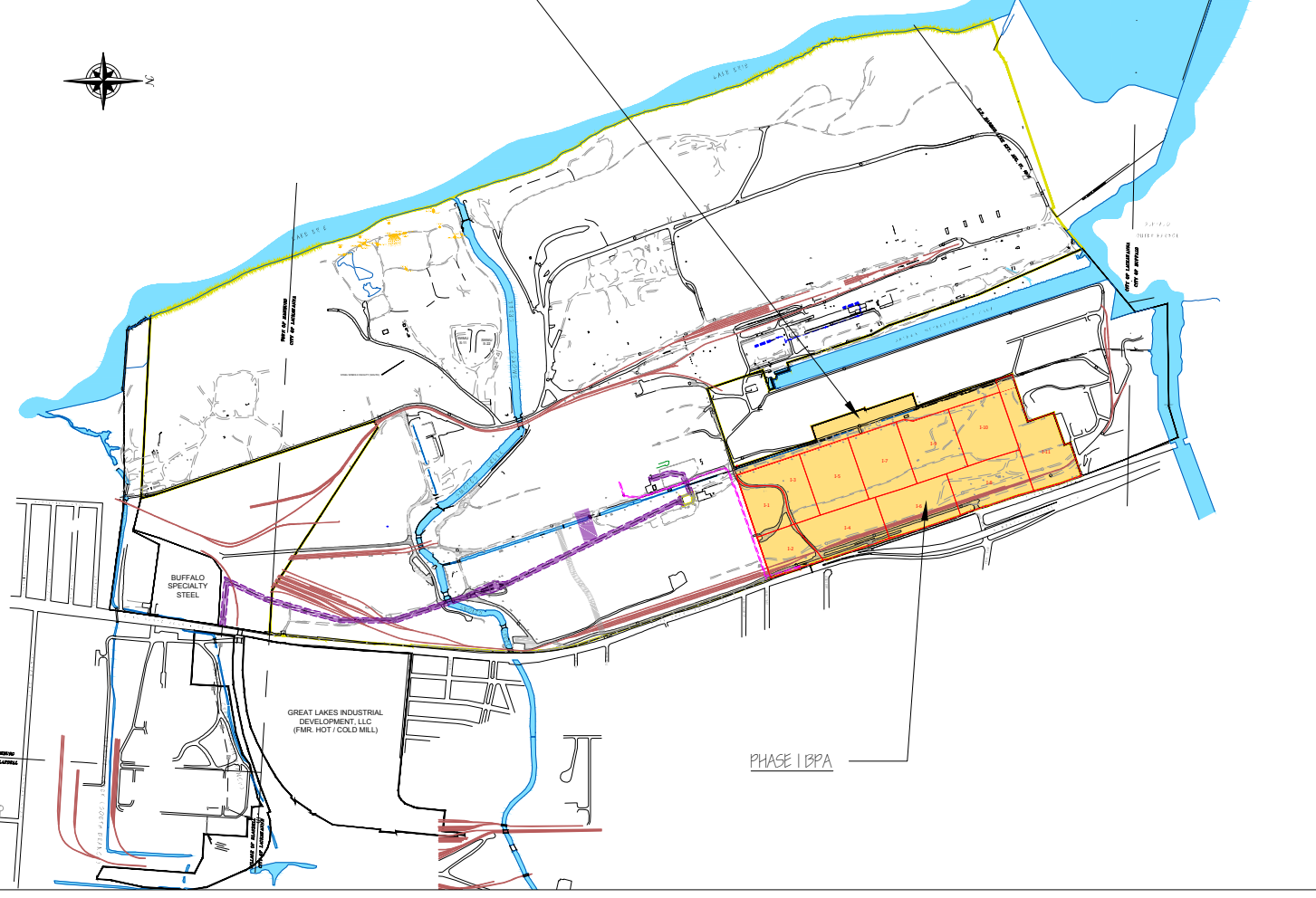
SITE PLAN
SITE MANAGEMENT PLAN
PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

FIGURE 2

2658 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NEW YORK 14218
(716) 866-0698

JOB NO.: 007-1012-302

PLAN VIEW:
SCALE 1" = 2000'

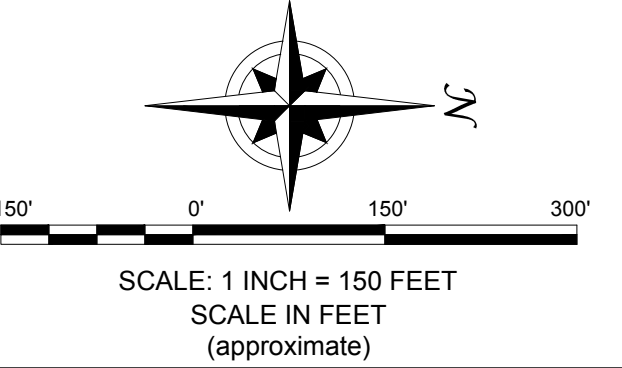


PHASE IA BUSINESS PARK
± 12.27 ACRES

PHASE I BUSINESS PARK
± 101.85 ACRES

| Parcel Identification | Total Acreage | Encumbered Acreage | Developable Acreage | Percent Developable |
|-----------------------|---------------|--------------------|---------------------|---------------------|
| I-1 | 5.57 | 1.27 | 4.30 | 77.14% |
| I-2 | 6.23 | 1.04 | 5.19 | 83.25% |
| I-3 | 7.63 | 1.42 | 6.21 | 81.39% |
| I-4 | 10.37 | 2.60 | 7.77 | 74.92% |
| I-5 | 10.05 | 0.74 | 9.31 | 92.67% |
| I-6 | 10.01 | 2.37 | 7.64 | 76.33% |
| I-7 | 10.04 | 0.76 | 9.28 | 92.42% |
| I-8 | 10.22 | 2.02 | 8.20 | 80.20% |
| I-9 | 10.03 | 0.88 | 9.15 | 91.21% |
| I-10 | 9.98 | 0.87 | 9.11 | 91.24% |
| I-11 | 12.37 | 1.26 | 11.11 | 89.78% |
| BP-I Totals | 102.50 | 15.25 | 87.25 | 85.12% |

- LEGEND:**
- TECUMSEH PROPERTY BOUNDARY
 - EXISTING BUILDING / STRUCTURE
 - PHASE I BUSINESS PARK BOUNDARY (± 101.85 ACRES)
 - RAILROAD TRACK
 - SOUTH BUFFALO RAILROAD EASEMENT
 - PUBLIC UTILITY EASEMENT
 - STEEL WINDS I FACILITY ABOVE-GROUND ELECTRIC UTILITY
 - STEEL WINDS I FACILITY BURIED ELECTRIC UTILITY
 - PLANNED STEEL WINDS II ABOVE GROUND ELECTRICAL EASEMENT
 - PLANNED STEEL WINDS II BURIED ELECTRICAL EASEMENT
 - INDUSTRIAL WATER SYSTEM EASEMENT
 - SANITARY SEWER EASEMENT
 - APPROXIMATE LOCATION OF OVERHEAD HIGH-TENSION ELECTRIC TRANSMISSION LINES WITH TOWERS & 60' EASEMENT (APPROX.)
 - ROADWAY ENCUMBRANCES



TURNKEY
Environmental, LLC

2558 HAMBURG TURNPIKE
SUITE 100
LACKAWANNA, NY 14218
(716) 856-0635

JOB NO.: 0071-012-322

REVISIONS

| NO. | BY | DATE | REMARKS |
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SEAL

DRAWN BY: BCH
DATE: MAY 2011

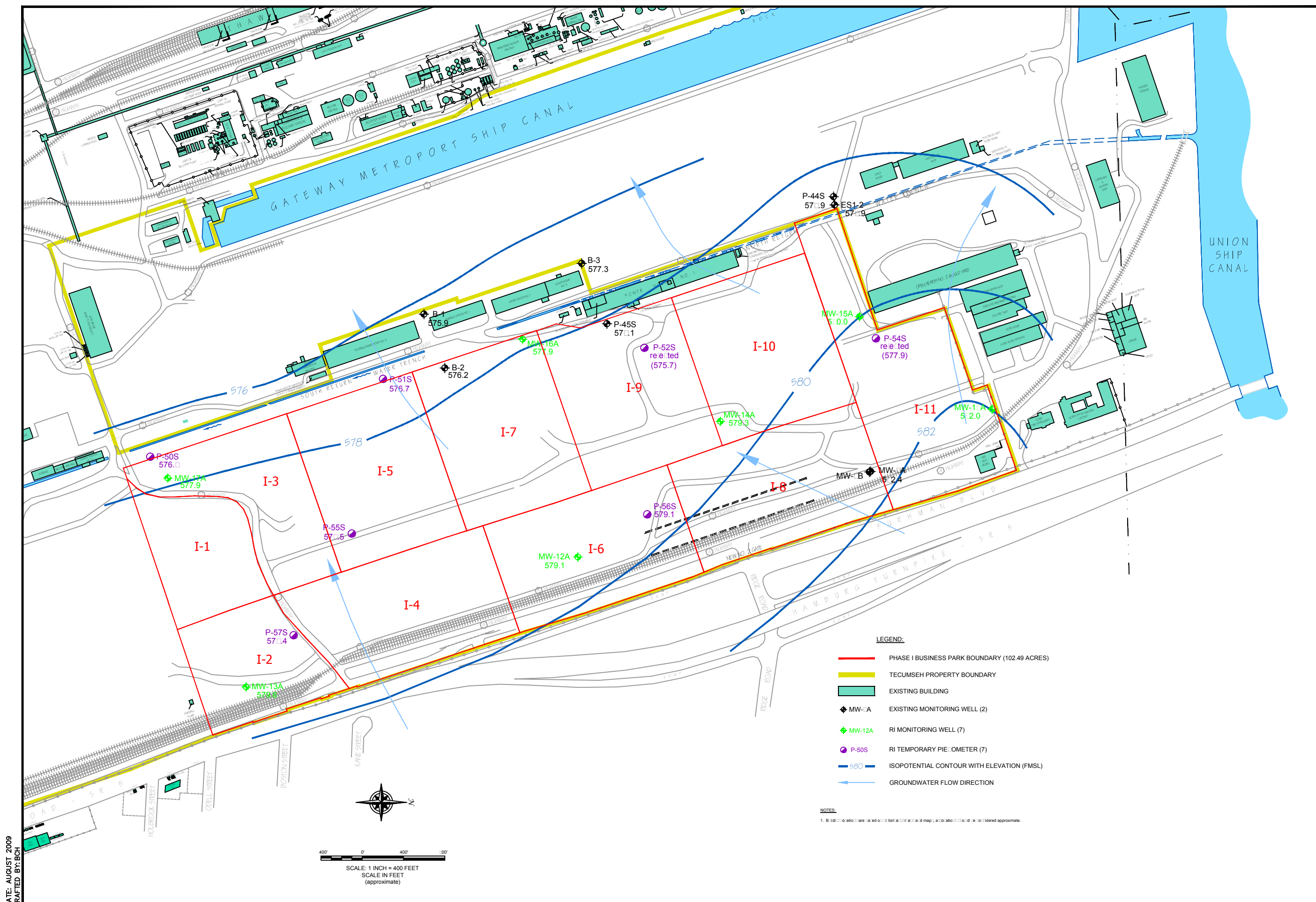
CHECKED BY:
APPROVED BY:

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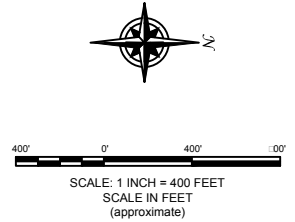
SITE DELINEATION MAP

SITE MANAGEMENT PLAN
PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

FIGURE 3



DATE: AUGUST, 2009
DRAFTED BY: BCH



- LEGEND:**
- PHASE I BUSINESS PARK BOUNDARY (102.49 ACRES)
 - TECUMSEH PROPERTY BOUNDARY
 - EXISTING BUILDING
 - ◆ MW-A EXISTING MONITORING WELL (2)
 - ◆ MW-12A RI MONITORING WELL (7)
 - ◆ P-50S RI TEMPORARY PIEZOMETER (7)
 - 580 ISOPOTENTIAL CONTOUR WITH ELEVATION (FMSL)
 - GROUNDWATER FLOW DIRECTION

NOTES:
1. Boundaries are indicated on this map, also indicated are considered approximate.

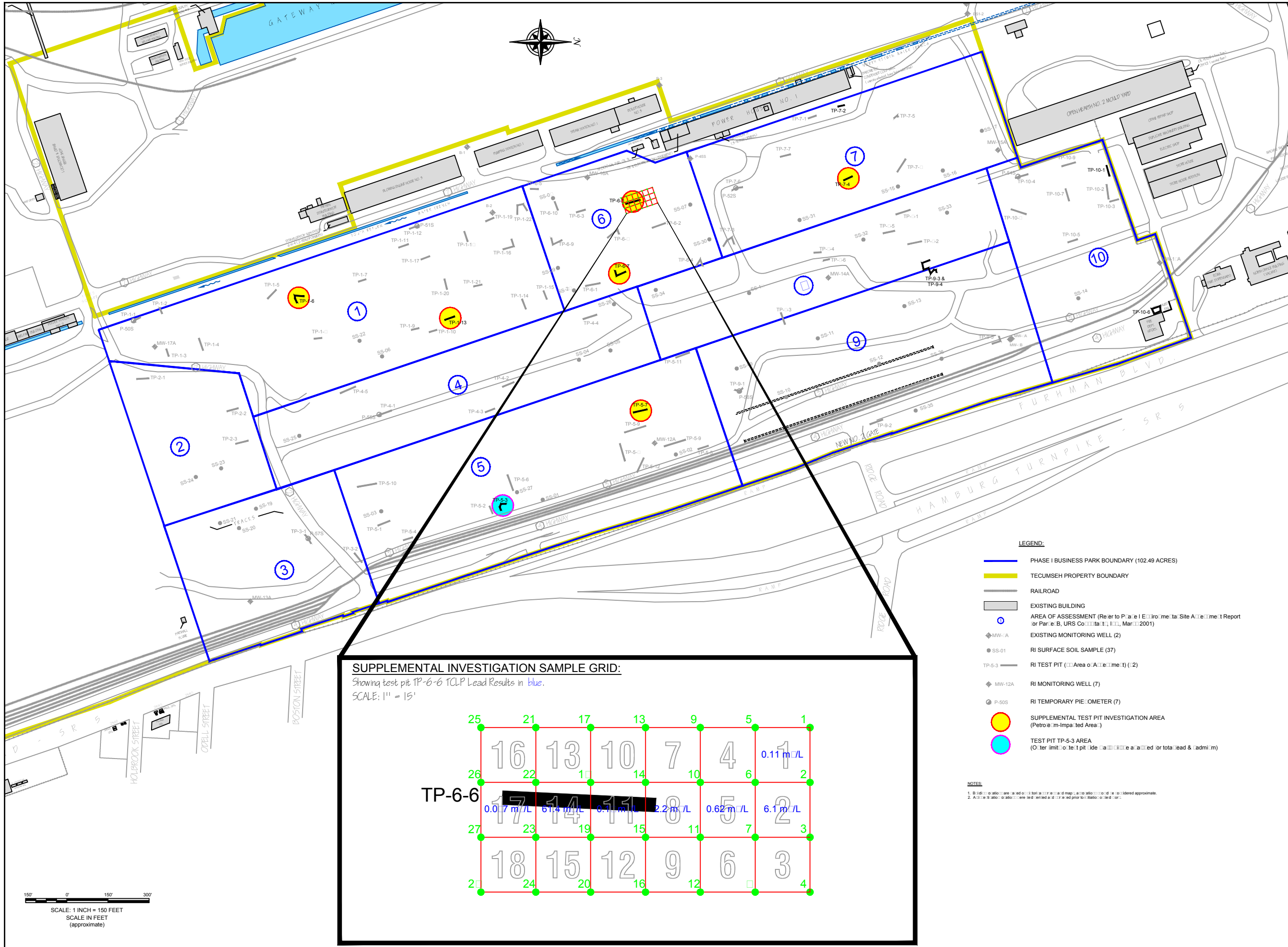
**SHALLOW GROUNDWATER ISOPOTENTIAL MAP
(JUNE 1, 2006)**
SITE MANAGEMENT PLAN
PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

FIGURE 4

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NEW YORK 14218
(716) 858-0599

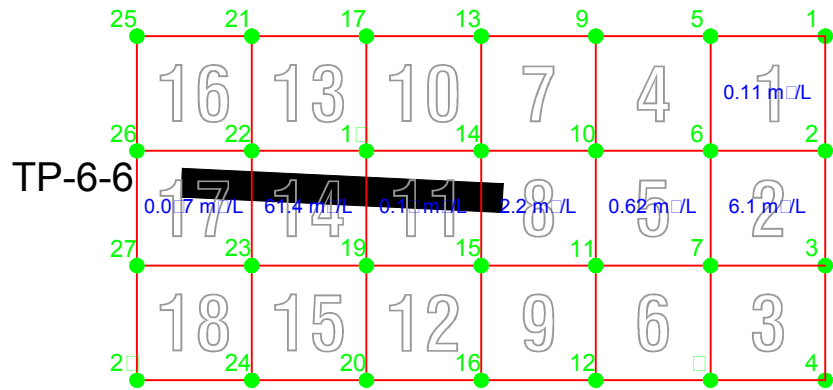


JOB NO.: 0071-012-322



SUPPLEMENTAL INVESTIGATION SAMPLE GRID:

Showing test pit TP-6-6 TCLP Lead Results in blue.
SCALE: 1" = 15'

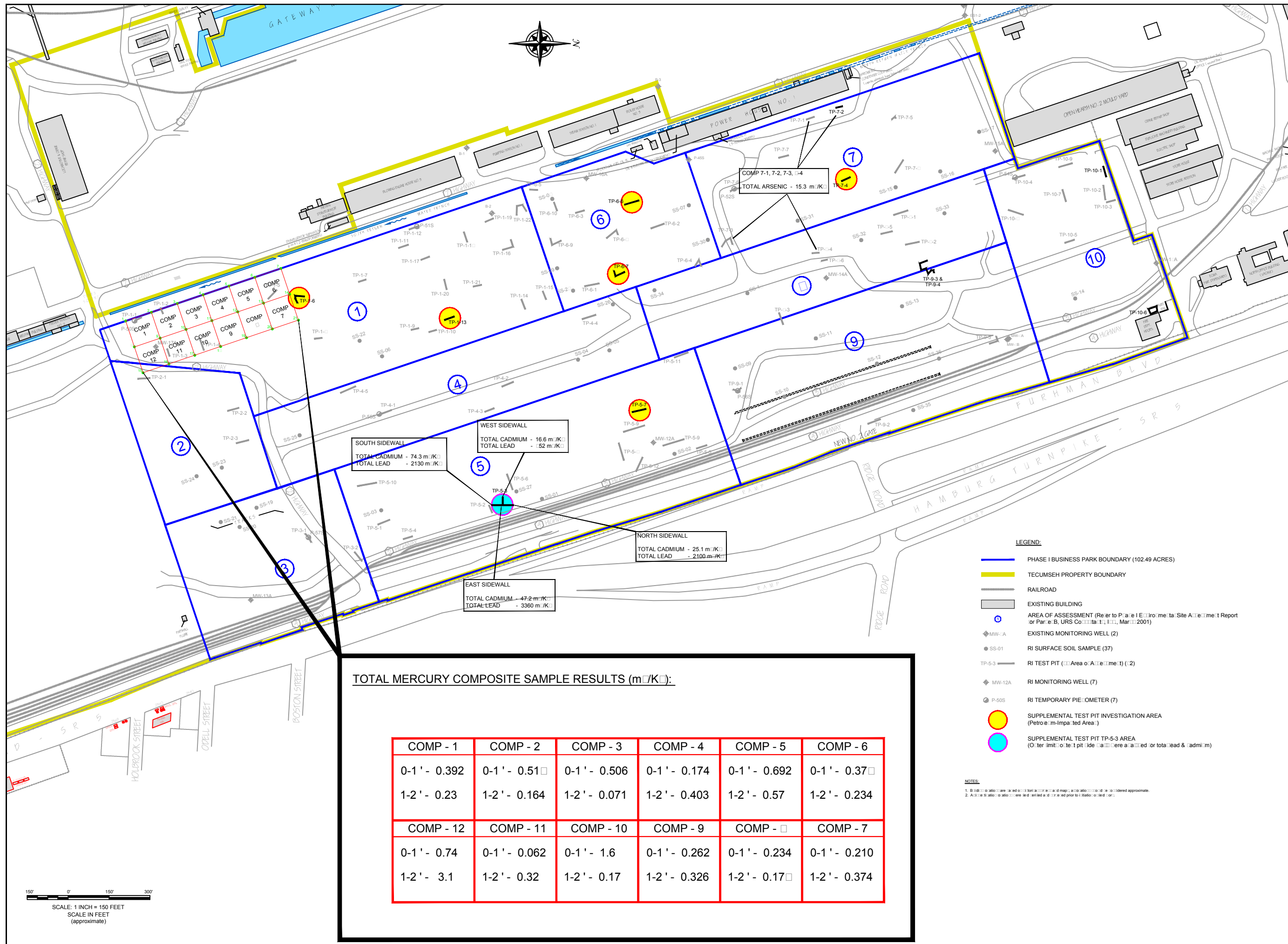


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| DRAWN BY: BCH | DATE: AUGUST 2009 |
| CHECKED BY: THF | APPROVED BY: |

DISCLAIMER: THE INFORMATION CONTAINED HEREIN IS FOR THE BENEFIT OF PARTIES OTHER THAN THE CLIENT AND IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF BENCHMARK EES, PLLC.



| NO. | BY | DATE | REVISIONS |
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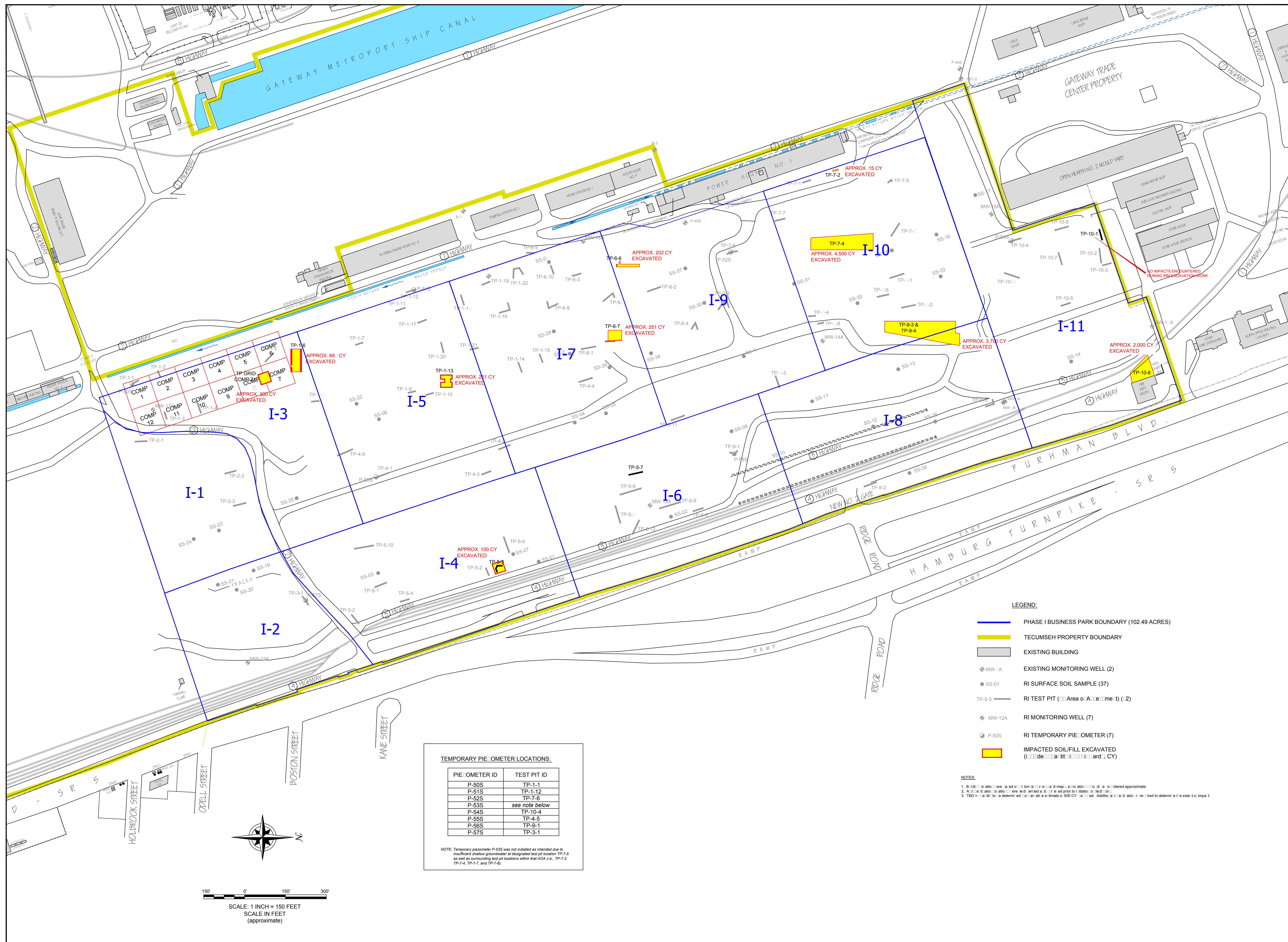
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| DRAWN BY: BCH/NTM | DATE: AUGUST 2009 |
| CHECKED BY: THF | APPROVED BY: [Signature] |

DISCLAIMER: THIS DRAWING IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT TO BE USED FOR CONSTRUCTION OR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF BENCHMARK REMEDIATION, LLC.

SUPPLEMENTAL METALS INVESTIGATION ANALYTICAL DATA SUMMARY
SITE MANAGEMENT PLAN
PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

FIGURE 6



SCALE: 1 INCH = 150 FEET
SCALE IN FEET (approximate)

TEMPORARY PIEZOMETER LOCATIONS:

| PIEZOMETER ID | TEST PIT ID |
|---------------|----------------|
| P-50S | TP-1-1 |
| P-51S | TP-1-12 |
| P-52S | TP-7-6 |
| P-53S | see note below |
| P-54S | TP-10-4 |
| P-55S | TP-4-5 |
| P-56S | TP-9-1 |
| P-57S | TP-3-1 |

NOTE: Temporary piezometer P-53S was not installed as intended due to insufficient shallow groundwater at designated test pit location TP-7-6 as well as surrounding test pit locations within the ADA (i.e., TP-7-2, TP-7-4, TP-7-7, and TP-7-8).

- LEGEND:**
- PHASE I BUSINESS PARK BOUNDARY (102.49 ACRES)
 - TECUMSEH PROPERTY BOUNDARY
 - EXISTING BUILDING
 - MW-A EXISTING MONITORING WELL (2)
 - RI SURFACE SOIL SAMPLE (37)
 - RI TEST PIT (Area of Area of Interest) (-2)
 - MW-12A RI MONITORING WELL (7)
 - P-50S RI TEMPORARY PIEZOMETER (7)
 - IMPACTED SOIL/FILL EXCAVATED (Area of Area of Interest) (CY)

NOTES:

- Boundaries are indicated on this map; all dimensions are approximate.
- All excavations were performed prior to the start of remedial work.
- TP-1-11 is a determined to be approximately 500 CY. Additional excavations are required to determine the extent of impacted soil.

REVISIONS

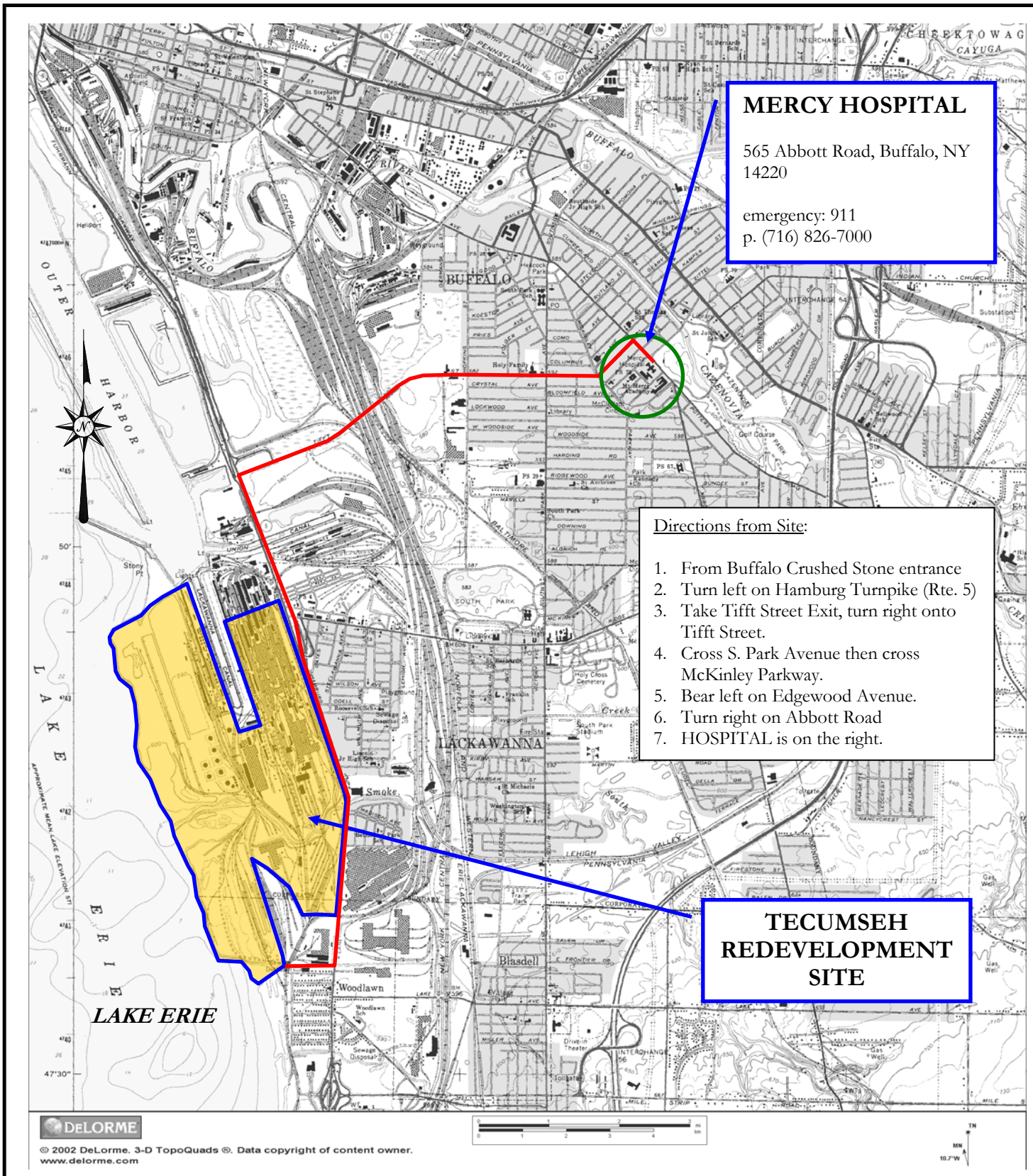
| NO. | BY | DATE | REMARKS |
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COMPLETED REMEDIAL MEASURES

SITE MANAGEMENT PLAN
PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

DRAWN BY: BCH/NTM
DATE: MAY 2010
CHECKED BY: THF
APPROVED BY:

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MERCY HOSPITAL
 565 Abbott Road, Buffalo, NY
 14220
 emergency: 911
 p. (716) 826-7000

- Directions from Site:**
1. From Buffalo Crushed Stone entrance
 2. Turn left on Hamburg Turnpike (Rte. 5)
 3. Take Tift Street Exit, turn right onto Tift Street.
 4. Cross S. Park Avenue then cross McKinley Parkway.
 5. Bear left on Edgewood Avenue.
 6. Turn right on Abbott Road
 7. HOSPITAL is on the right.

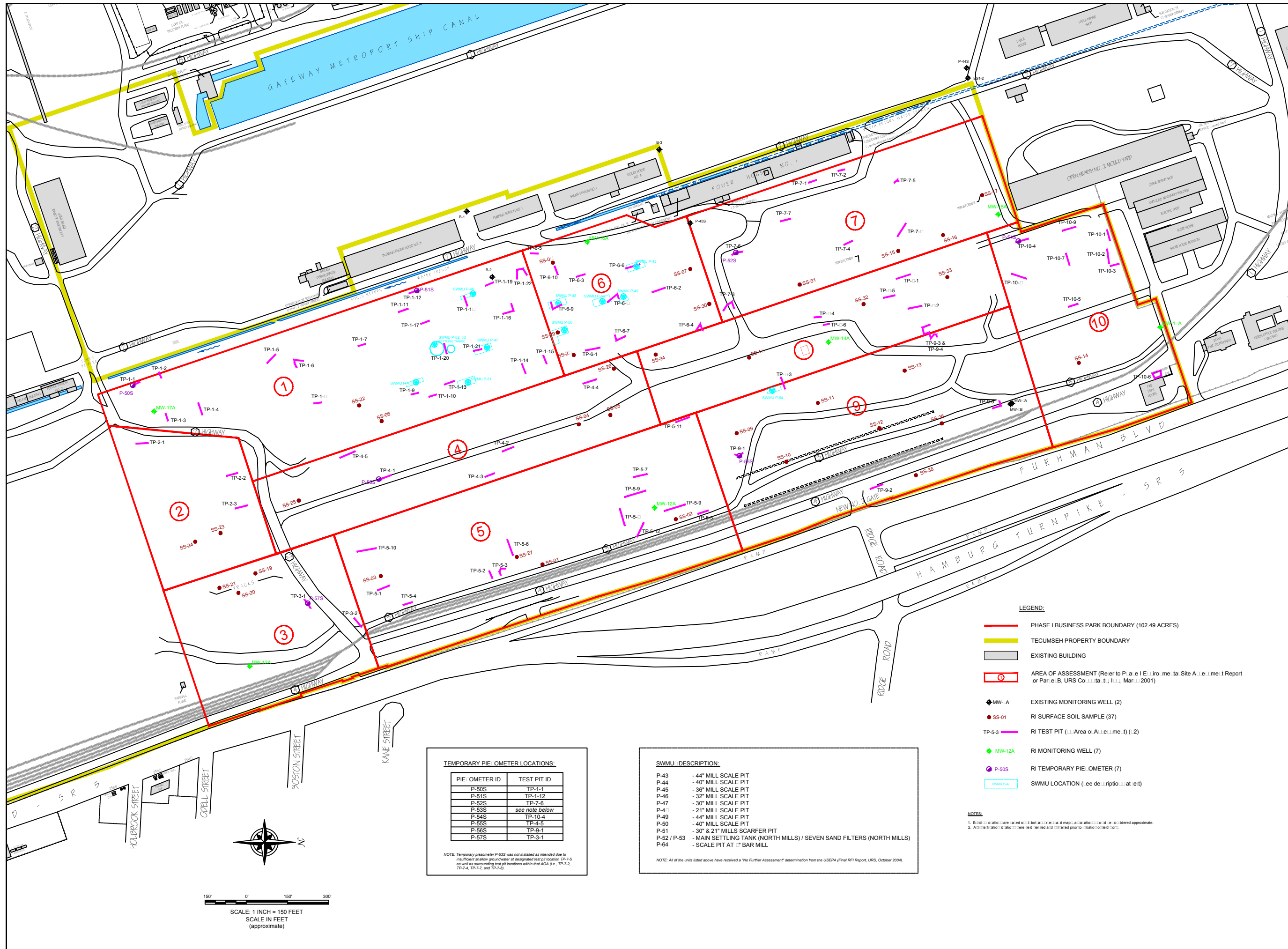
**TECUMSEH
 REDEVELOPMENT
 SITE**

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 www.delorme.com

 **2558 HAMBURG TURNPIKE
 SUITE 300
 BUFFALO, NEW YORK 14218
 (716) 856-0599**

PROJECT NO.: 0071-012-322
 DATE: AUGUST 2009
 DRAFTED BY: AJZ

HOSPITAL ROUTE MAP
 SITE MANAGEMENT PLAN
 PHASE I BUSINESS PARK
 LACKAWANNA, NEW YORK



SCALE: 1 INCH = 150 FEET
SCALE IN FEET (approximate)

TEMPORARY PIEZOMETER LOCATIONS:

| PIEZOMETER ID | TEST PIT ID |
|---------------|----------------|
| P-50S | TP-1-1 |
| P-51S | TP-1-12 |
| P-52S | TP-7-6 |
| P-53S | see note below |
| P-54S | TP-10-4 |
| P-55S | TP-4-5 |
| P-56S | TP-9-1 |
| P-57S | TP-3-1 |

NOTE: Temporary piezometer P-53S was not installed as intended due to insufficient stable groundwater at designated test pit location TP-7-6 as well as surrounding test pit locations within that ADA (i.e., TP-7-2, TP-7-4, TP-7-7, and TP-7-8).

SWMU DESCRIPTION:

| | |
|-------------|---|
| P-43 | - 44" MILL SCALE PIT |
| P-44 | - 40" MILL SCALE PIT |
| P-45 | - 36" MILL SCALE PIT |
| P-46 | - 32" MILL SCALE PIT |
| P-47 | - 30" MILL SCALE PIT |
| P-48 | - 21" MILL SCALE PIT |
| P-49 | - 44" MILL SCALE PIT |
| P-50 | - 40" MILL SCALE PIT |
| P-51 | - 30" & 21" MILLS SCARFER PIT |
| P-52 / P-53 | - MAIN SETTLING TANK (NORTH MILLS) / SEVEN SAND FILTERS (NORTH MILLS) |
| P-64 | - SCALE PIT AT 1" BAR MILL |

NOTE: All of the units listed above have received a "No Further Assessment" determination from the USEPA (Final RFI Report, URS, October 2004).

- LEGEND:**
- PHASE I BUSINESS PARK BOUNDARY (102.49 ACRES)
 - TECUMSEH PROPERTY BOUNDARY
 - EXISTING BUILDING
 - AREA OF ASSESSMENT (Refer to Phase I EIR for more information Site Assessment Report or Part B, URS Contract # 111, March 2001)
 - ◆ MW-A EXISTING MONITORING WELL (2)
 - SS-01 RI SURFACE SOIL SAMPLE (37)
 - TP-5-3 RI TEST PIT (Area of Assessment) (2)
 - ◆ MW-12A RI MONITORING WELL (7)
 - P-50S RI TEMPORARY PIEZOMETER (7)
 - SWMU LOCATION (see description at #1)

NOTES:

1. All test pits are located on the site and are not to be used for any other purpose.
2. All test pits are located on the site and are not to be used for any other purpose.

TURNKEY
2658 HAMBURG TURNPIKE
SUITE 300
LACKAWANNA, NEW YORK 14218
(716) 866-0698

JOB NO.: 007-1012-302

REVISIONS

| NO. | BY | DATE | REMARKS |
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|------------------------|--------------------------|
| DRAWN BY: BCH | DATE: AUGUST 2009 |
| CHECKED BY: THF | APPROVED BY: |

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SITE PLAN
SITE MANAGEMENT PLAN
PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

FIGURE 2

APPENDIX A

METES AND BOUNDS / ENVIRONMENTAL EASEMENT

ENVIRONMENTAL EASEMENT DESCRIPTION FOR BUSINESS PARK PHASE I
TITLE No. 1313-25072 (AMENDED)
FOR BCP SITES C915197, C915197B, C915197C, C915197D, C915197E, C915197F, C915197G, C915197H, C915197I, C915197J, & C915197K

ALL THAT TRACT OF PARCEL OF LAND, SITUATE IN THE CITY OF LACKAWANNA, COUNTY OF ERIE, STATE OF NEW YORK, BEING PART OF LOTS 20, 21, 22, 23, 24, & 25 OF THE OGDEN GORE TRACT AND PART OF LOT 36, TOWNSHIP 10, RANGE 8 OF THE BUFFALO CREEK RESERVATION AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE WESTERLY HIGHWAY BOUNDARY OF HAMBURG TURNPIKE, (ALSO KNOWN AS STATE ROUTE NO. 36) AND THE SOUTHERLY LINE OF LANDS CONVEYED TO GATEWAY TRADE CENTER, INC. BY DEED RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 10886 OF DEEDS AT PAGE 1115, SAID POINT BEING 547.89 FEET FROM THE INTERSECTION OF THE WESTERLY HIGHWAY BOUNDARY OF HAMBURG TURNPIKE AND THE NORTHERLY LINE OF THE CITY OF LACKAWANNA (ALSO BEING THE SOUTHERLY LINE OF THE CITY OF BUFFALO);

THENCE S 19°-33'-00" E ALONG THE WESTERLY HIGHWAY BOUNDARY OF HAMBURG TURNPIKE A DISTANCE OF 279.01 FEET;

THENCE S 16°-04'-57" E ALONG THE WESTERLY HIGHWAY BOUNDARY OF THE HAMBURG TURNPIKE ARTERIAL HIGHWAY (MAP NUMBER 303, PARCEL 303), A DISTANCE 482.30 FEET TO AN ANGLE POINT THEREIN;

THENCE S 18°-29'-00" E AND CONTINUING ALONG THE SAID WESTERLY HIGHWAY BOUNDARY (MAP NUMBER 303, PARCEL 303), A DISTANCE OF 30.00 FEET TO A POINT;

THENCE CONTINUING ALONG THE WESTERLY HIGHWAY BOUNDARY OF HAMBURG TURNPIKE AS APPROPRIATED BY THE NEW YORK STATE DEPARTMENT OF PUBLIC WORKS AS SHOWN ON MAP NO. 40-R2, PARCEL NO. 44 RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 5650 OF DEEDS AT PAGE 388, THE FOLLOWING 18 COURSES AND DISTANCES:

1. S 18°-28'-38" E, A DISTANCE OF 355.00 FEET;
2. S 71°-39'-20" W, A DISTANCE OF 2.00 FEET;
3. S 18°-28'-44" E, A DISTANCE OF 223.00 FEET;
4. S 22°-17'-43" E, A DISTANCE OF 150.35 FEET;
5. S 18°-28'-39" E, A DISTANCE OF 512.00 FEET;
6. S 16°-37'-53" E, A DISTANCE OF 260.12 FEET;
7. S 18°-22'-18" E, A DISTANCE OF 79.20 FEET;
8. S 71°-35'-29" W, A DISTANCE OF 4.00 FEET;
9. S 18°-01'-20" E, A DISTANCE OF 132.00 FEET;
10. N 71°-35'-29" E, A DISTANCE OF 4.67 FEET;
11. S 18°-17'-49" E, A DISTANCE OF 38.00 FEET;
12. S 71°-35'-29" W, A DISTANCE OF 4.86 FEET;
13. S 18°-01'-20" E, A DISTANCE OF 160.00 FEET;
14. N 71°-35'-29" E, A DISTANCE OF 9.80 FEET;
15. S 18°-24'-31" E, A DISTANCE OF 159.00 FEET;
16. S 71°-35'-29" W, A DISTANCE OF 3.89 FEET;
17. S 18°-22'-14" E, A DISTANCE OF 180.00 FEET;
18. S 20°-44'-09" E, A DISTANCE OF 8.40 FEET TO A POINT;

THENCE S 71°-31'-33" W, A DISTANCE OF 1251.00 FEET TO THE OUTLINE BCP SITE NUMBER C915218;

THENCE N 18°-22'-06" W ALONG SAID EAST LINE, A DISTANCE OF 2030.00 FEET TO AN ANGLE POINT THEREIN;

THENCE N 09°-40'-30" E AND CONTINUING ALONG SAID EAST LINE, A DISTANCE OF 106.50 FEET TO AN ANGLE POINT THEREIN;

THENCE N 18°-23'-42" W AND CONTINUING ALONG SAID LINE, A DISTANCE OF 1051.55 FEET TO NORTHEAST CORNER OF SAID BCP SITE NUMBER C915218;

THENCE S 71°-00'-00" W AND ALONG THE SAID NORTH LINE OF BCP SITE NUMBER C915218, A DISTANCE OF 143.38 FEET TO A POINT IN THE EAST LINE OF SAID LANDS CONVEYED TO GATEWAY TRADE CENTER, INC. BY DEED RECORDED IN LIBER 10886 OF DEEDS AT PAGE 1064;

THENCE NORTHERLY AND EASTERLY ALONG SAID LANDS CONVEYED TO GATEWAY TRADE CENTER, INC. AFORESAID THE FOLLOWING 2 COURSES AND DISTANCES:

1. N 18°-42'-30" W, A DISTANCE OF 199.75 FEET TO AN ANGLE POINT THEREIN;
2. N 71°-29'-21" E, A DISTANCE OF 519.24 FEET TO THE SOUTHWEST CORNER OF LANDS CONVEYED TO GATEWAY TRADE CENTER, INC. BY DEED RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 10886 OF DEEDS AT PAGE 1115;

THENCE EASTERLY AND NORTHERLY ALONG SAID LANDS CONVEYED TO GATEWAY TRADE CENTER, INC. BY LAST DEED AFORESAID, THE FOLLOWING 5 COURSES AND DISTANCES:

1. N 71°-29'-21" E, A DISTANCE OF 50.00 FEET TO A POINT TO AN ANGLE POINT THEREIN;
2. N 18°-30'-39" W, A DISTANCE OF 314.71 FEET TO A POINT TO AN ANGLE POINT THEREIN;
3. N 70°-59'-36" E, A DISTANCE OF 386.47 FEET TO A POINT TO AN ANGLE POINT THEREIN;
4. N 18°-30'-39" W, A DISTANCE OF 70.00 FEET TO A POINT TO AN ANGLE POINT THEREIN;
5. N 70°-59'-36" E, A DISTANCE OF 400.00 FEET TO THE POINT OF BEGINNING, CONTAINING 102.49 ACRES OF LAND, MORE OR LESS.

BEING PART OF THE PIECE OR PARCEL OF LAND IN A BARGAIN AND SALE DEED DATED 5/06/2003 AND RECORDED 5/22/2003 IN LIBER 11040 OF DEEDS AT PAGE 8953 IN THE ERIE COUNTY CLERK'S OFFICE, THIS PARCEL OF LAND IS PART OF THE OVERALL DEED.

ENGINEERING / INSTITUTIONAL CONTROLS

- COVER SYSTEM THE COVER SYSTEM IS A PERMANENT CONTROL. PROCEDURES FOR THE INSPECTION AND MAINTENANCE OF THIS COVER ARE PROVIDED IN THE MONITORING PLAN IN SECTION 4 OF THE SITE MANAGEMENT PLAN (SMP).
- COMPLIANCE WITH THE ENVIRONMENTAL EASEMENT AND THE SMP BY THE GRANTOR AND THE GRANTOR'S SUCCESSORS AND ASSIGNS;
- ALL ENGINEERING CONTROLS MUST BE OPERATED AND MAINTAINED AS SPECIFIED IN THE SMP;
- ALL ENGINEERING CONTROLS ON THE CONTROLLED PROPERTY MUST BE INSPECTED AT A FREQUENCY AND IN A MANNER DEFINED IN THE SMP;
- GROUNDWATER, SOIL VAPOR AND OTHER ENVIRONMENTAL OR PUBLIC HEALTH MONITORING MUST BE PERFORMED AS DEFINED IN THE SMP;
- DATA AND INFORMATION PERTINENT TO SITE MANAGEMENT OF THE CONTROLLED PROPERTY MUST BE REPORTED AT THE FREQUENCY AND IN A MANNER DEFINED IN THE SMP;
- THE USE AND DEVELOPMENT OF THE SITE IS LIMITED TO COMMERCIAL AND INDUSTRIAL USES ONLY AS DESCRIBED IN 6NYCRR PART 375-1.8(G) (2) (III) & (IV).
- THE PROPERTY MAY NOT BE USED FOR A HIGHER LEVEL OF USE, SUCH AS RESTRICTED RESIDENTIAL USE WITHOUT ADDITIONAL REMEDIATION AND AMENDMENT OF THE ENVIRONMENTAL EASEMENT AS APPROVED BY THE NYSDEC;
- ALL FUTURE ACTIVITIES ON THE PROPERTY THAT WILL DISTURB REMAINING CONTAMINATED MATERIAL MUST BE CONDUCTED IN ACCORDANCE WITH THE SMP;
- THE USE OF THE GROUNDWATER UNDERLYING THE PROPERTY IS PROHIBITED WITHOUT TREATMENT RENDERING IT SAFE FOR INTENDED USE;
- THE SITE OWNER OR REMEDIAL PARTY WILL SUBMIT TO NYSDEC A WRITTEN STATEMENT THAT CERTIFIES, UNDER PENALTY OF PERJURY, THAT: (1) CONTROLS EMPLOYED AT THE CONTROLLED PROPERTY ARE UNCHANGED FROM THE PREVIOUS CERTIFICATION OR THAT ANY CHANGES TO THE CONTROLS WERE APPROVED BY THE NYSDEC; AND, (2) NOTHING HAS OCCURRED THAT IMPAIRS THE ABILITY OF THE CONTROLS TO PROTECT PUBLIC HEALTH AND ENVIRONMENT OR THAT CONSTITUTE A VIOLATION OR FAILURE TO COMPLY WITH THE SMP.

THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK ENVIRONMENTAL CONSERVATION LAW.

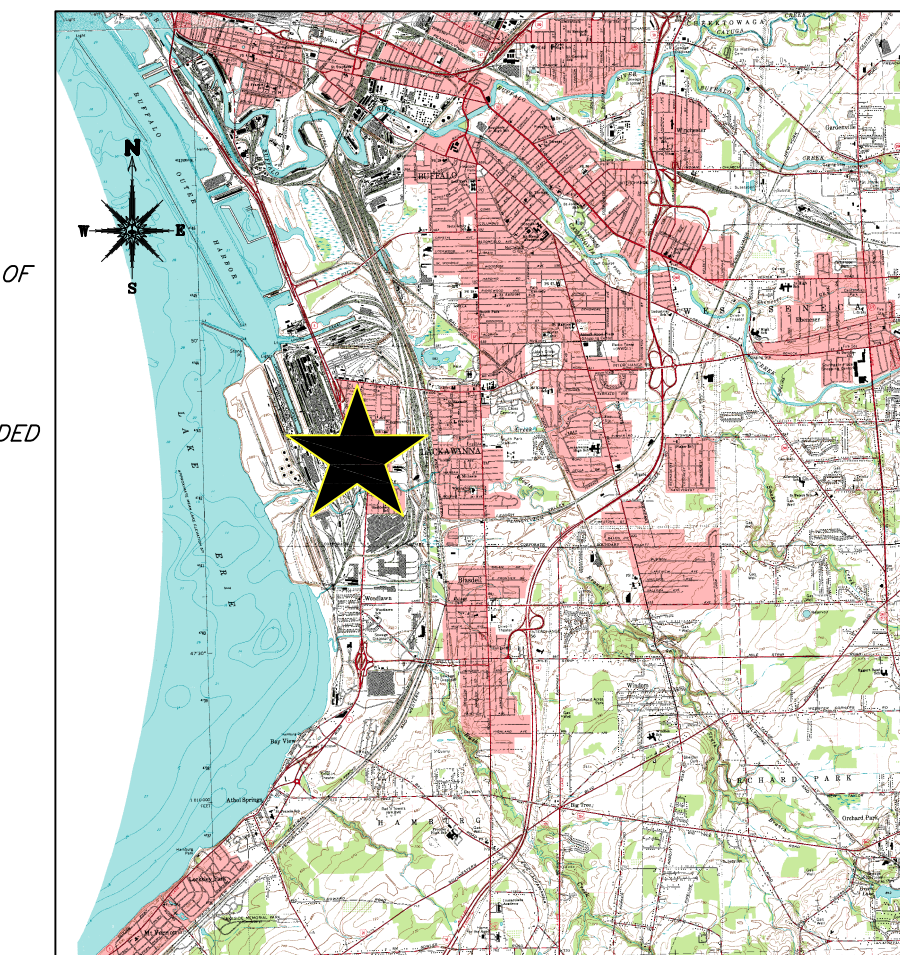
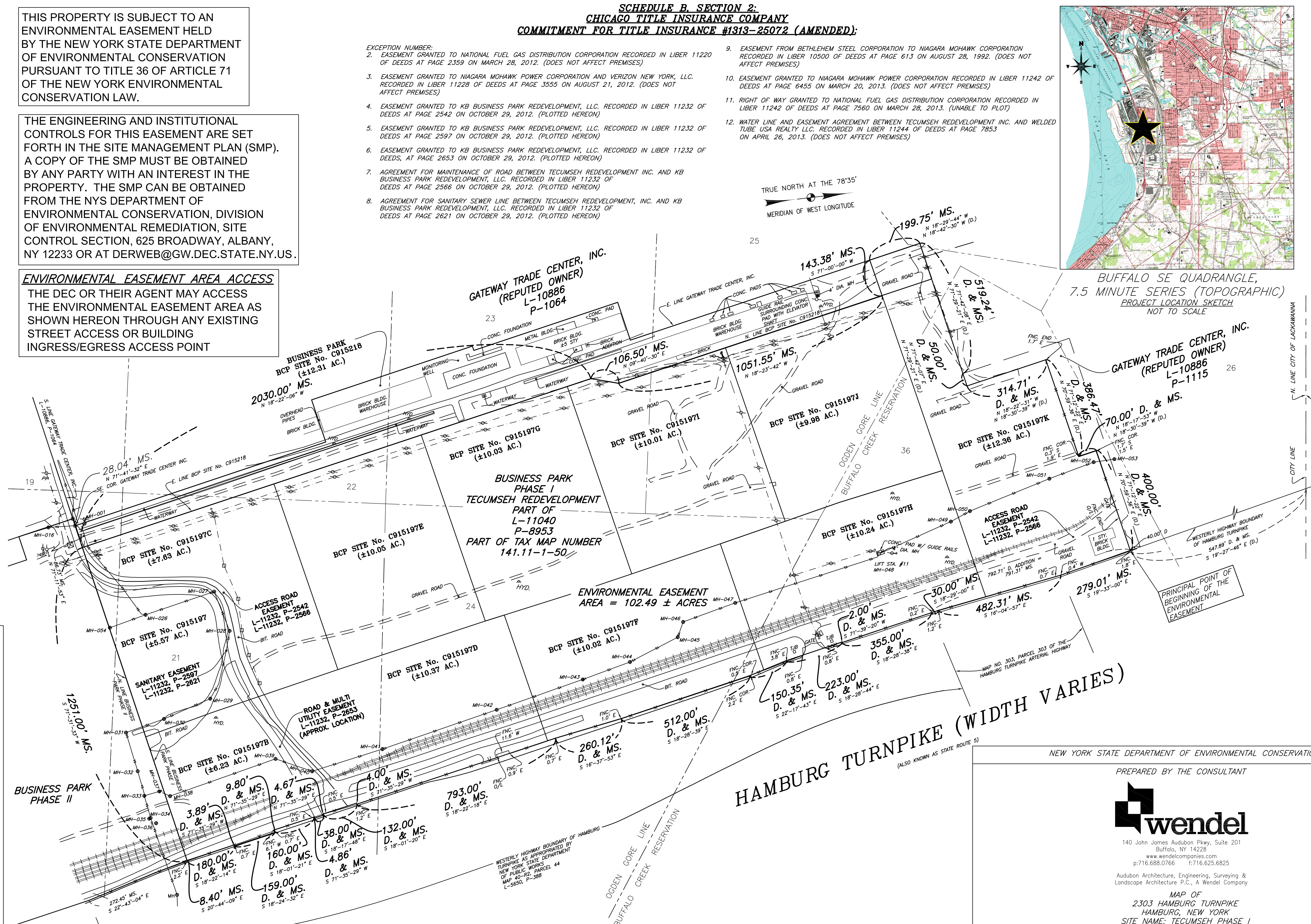
THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN THE SITE MANAGEMENT PLAN (SMP). A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT DERWEB@GW.DEC.STATE.NY.US.

ENVIRONMENTAL EASEMENT AREA ACCESS

THE DEC OR THEIR AGENT MAY ACCESS THE ENVIRONMENTAL EASEMENT AREA AS SHOWN HEREON THROUGH ANY EXISTING STREET ACCESS OR BUILDING INGRESS/EGRESS ACCESS POINT

SCHEDULE B, SECTION 2:
CHICAGO TITLE INSURANCE COMPANY
COMMITMENT FOR TITLE INSURANCE #1313-25072 (AMENDED):

- EXCEPTION NUMBER:
1. EASEMENT GRANTED TO NATIONAL FUEL GAS DISTRIBUTION CORPORATION RECORDED IN LIBER 11220 OF DEEDS AT PAGE 2359 ON MARCH 28, 2012. (DOES NOT AFFECT PREMISES)
 2. EASEMENT GRANTED TO NIAGARA MOHAWK POWER CORPORATION AND VERIZON NEW YORK, LLC. RECORDED IN LIBER 11228 OF DEEDS AT PAGE 3555 ON AUGUST 21, 2012. (DOES NOT AFFECT PREMISES)
 3. EASEMENT GRANTED TO KB BUSINESS PARK REDEVELOPMENT, LLC. RECORDED IN LIBER 11232 OF DEEDS AT PAGE 2542 ON OCTOBER 29, 2012. (PLOTTED HEREON)
 4. EASEMENT GRANTED TO KB BUSINESS PARK REDEVELOPMENT, LLC. RECORDED IN LIBER 11232 OF DEEDS AT PAGE 2597 ON OCTOBER 29, 2012. (PLOTTED HEREON)
 5. EASEMENT GRANTED TO KB BUSINESS PARK REDEVELOPMENT, LLC. RECORDED IN LIBER 11232 OF DEEDS, AT PAGE 2653 ON OCTOBER 29, 2012. (PLOTTED HEREON)
 6. AGREEMENT FOR MAINTENANCE OF ROAD BETWEEN TECUMSEH REDEVELOPMENT INC. AND KB BUSINESS PARK REDEVELOPMENT, LLC. RECORDED IN LIBER 11232 OF DEEDS AT PAGE 2566 ON OCTOBER 29, 2012. (PLOTTED HEREON)
 7. AGREEMENT FOR SANITARY SEWER LINE BETWEEN TECUMSEH REDEVELOPMENT, INC. AND KB BUSINESS PARK REDEVELOPMENT, LLC. RECORDED IN LIBER 11232 OF DEEDS AT PAGE 2621 ON OCTOBER 29, 2012. (PLOTTED HEREON)
 8. EASEMENT FROM BETHLEHEM STEEL CORPORATION TO NIAGARA MOHAWK CORPORATION RECORDED IN LIBER 10500 OF DEEDS AT PAGE 613 ON AUGUST 28, 1992. (DOES NOT AFFECT PREMISES)
 9. EASEMENT GRANTED TO NIAGARA MOHAWK POWER CORPORATION RECORDED IN LIBER 11242 OF DEEDS AT PAGE 6455 ON MARCH 20, 2013. (DOES NOT AFFECT PREMISES)
 10. RIGHT OF WAY GRANTED TO NATIONAL FUEL GAS DISTRIBUTION CORPORATION RECORDED IN LIBER 11242 OF DEEDS AT PAGE 7560 ON MARCH 28, 2013. (UNABLE TO PLOT)
 11. WATER LINE AND EASEMENT AGREEMENT BETWEEN TECUMSEH REDEVELOPMENT INC. AND WELDED TUBE USA REALTY LLC. RECORDED IN LIBER 11244 OF DEEDS AT PAGE 7853 ON APRIL 26, 2013. (DOES NOT AFFECT PREMISES)



BUFFALO SE QUADRANGLE,
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 PROJECT LOCATION SKETCH
 NOT TO SCALE

GENERAL NOTES:

1. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83), WESTERN ZONE, US SURVEY FEET.
2. MONUMENTS ACQUIRED:
 NGS MONUMENT "LEHR" PID: AE2177
 NORTHING: 1030094.885
 EASTING: 1076447.880
 SITE CONTROL MONUMENT PIN WITH ALUMINUM CAP "BSP2"
 NORTHING: 1024721.330
 EASTING: 1076610.356
3. BUFFALO CREEK RESERVATION & OGDEN GORE TRACT INFORMATION IS SHOWN IN ITS APPROXIMATE LOCATION FROM MAPS FILED IN THE ERIE COUNTY CLERK'S OFFICE.
4. REFER TO NEW YORK STATE DEPARTMENT OF TRANSPORTATION APPROPRIATION MAPS FOR MAP DISTANCES & BEARINGS.
5. THIS PROPERTY IS LOCATED WITHIN THE AREA HAVING A ZONE DESIGNATION "C" BY FEDERAL EMERGENCY AGENCY (FEMA) OF FLOOD INSURANCE RATE MAP NO. 3602470001B, WITH AN EFFECTIVE DATE JULY 2, 1980 FOR COMMUNITY NO. 360247, IN THE CITY OF LACKAWANNA, ERIE COUNTY AND THE STATE OF NEW YORK.
6. PROPERTY CORNERS TO BE STAKED AT A LATER DATE.
7. BCP SITE NO. ### = PARCEL DESIGNATION
8. REFERENCE MAPS: MAP PREPARED BY BERGMANN ASSOCIATES 10/16/00, MAP NO. 303, PARCEL 303 OF THE HAMBURG TURNPIKE ARTERIAL HIGHWAY, DATED APRIL 15, 1960, PREPARED BY THE NEW YORK STATE DEPARTMENT OF PUBLIC WORKS AND BUSINESS PARK PHASE I, PREPARED BY WENDEL, JUNE 2012, PROJECT NO. 411107.
9. THIS SURVEY HAS BEEN REVISED WITH THE BENEFIT OF TITLE REPORT NO. 1313-25072 (AMENDED) AS PREPARED BY CHICAGO TITLE INSURANCE COMPANY, DATED SEPTEMBER 18, 2013.

| | | | | | | | | |
|---------|-----------------------|-------------------------------|-----------------------|----------------------|-------------------|-------------------------------|-------------------------------|--------------------|
| Legend: | AC = ACRES | ± = CENTERLINE | FNC = FENCE | MS = MEASURED | ⊕ = PROPERTY LINE | STA = STATION | APPROXIMATE LOCATION LOT LINE | EDGE OF ROADWAY |
| | APPROX = APPROXIMATE | DA = DIAMETER | GLM = GAS LINE MARKER | MW = MONITORING WELL | ○ = POWER POLE | SMW = SANITARY MANHOLE | RAILROAD | PROPERTY LINES |
| | AVE = AVENUE | DIS = DISTANCE | HYD = HYDRANT | N = NORTH | 2.4 = LOT NO. | T.M.# = TAX MAP NO. | OVERHEAD WIRES | SUB-PARCELS |
| | BFT = BITUMINOUS | L = LIBER | LIB = LIBER | N/S = NOT TO SCALE | R = RADIIUS | T.B. = TELEPHONE JUNCTION BOX | VEGETATION/WOODS | FENCE (TYPE NOTED) |
| | CB = CATCH BASIN | LS = LIFT STATION | LS = LIFT STATION | O/H = OVERHEAD | W = WEST | TYP. = TYPICAL | SANITARY SEWER LINE | |
| | CH = CHAIN | ELEV = ELEVATION | RD = ROAD | O/L = ON LINE | W/W = WITH | W.D. = WOOD | | |
| | CONC. = CONCRETE | ELM = ELECTRICAL JUNCTION BOX | MP = MAP P. = PAGE | ST. = STREET | W.C. = WOODFRAME | | | |
| | C.T.V. = CABLE TV BOX | EX = EXISTING | □ = METAL POWER POLE | | | | | |

NOTES:
 -ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MAP MARKED WITH THE SIGNATURE AND AN ORIGINAL OF THE LAND SURVEYOR'S SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.
 -UNAUTHORIZED ALTERATION OR ADDITION TO ANY SURVEY DRAWING, DESIGN SPECIFICATION PLAN OR REPORT IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

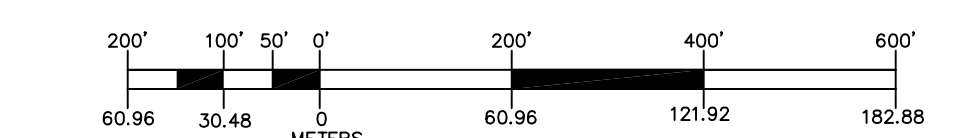
PREPARED BY THE CONSULTANT



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 Buffalo, NY 14228
 www.wendelcompanies.com
 p:716.638.0766 f:716.625.6825

MAP OF
 2303 HAMBURG TURNPIKE
 HAMBURG, NEW YORK
 SITE NAME: TECUMSEH PHASE I
 BCA BOUNDARIES & PLANNED SUB-PARCELS
 BROWNFIELD CLEAN-UP PROGRAM
 TO

THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SITUATE IN PARTS OF COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, (2) TECUMSEH REDEVELOPMENT INC., (3) CHICAGO TITLE INSURANCE COMPANY, THAT THIS IS AN ACCURATE SURVEY MAP UNDER MY DIRECTION, OF AN ACTUAL SURVEY, AND THAT THE SURVEY WAS PERFORMED IN ACCORDANCE TO THE STANDARDS AND PROCEDURES ADOPTED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, SEPTEMBER 14, 2012. FIELD SURVEY COMPLETED JUNE 12, 2012



I HEREBY CERTIFY TO (1) THE PEOPLE OF THE STATE OF NEW YORK ACTING THROUGH THEIR COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, (2) TECUMSEH REDEVELOPMENT INC., (3) CHICAGO TITLE INSURANCE COMPANY, THAT THIS IS AN ACCURATE SURVEY MAP UNDER MY DIRECTION, OF AN ACTUAL SURVEY, AND THAT THE SURVEY WAS PERFORMED IN ACCORDANCE TO THE STANDARDS AND PROCEDURES ADOPTED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, SEPTEMBER 14, 2012. FIELD SURVEY COMPLETED JUNE 12, 2012

CHRISTOPHER J. SCOTT, LAND SURVEYOR #050708 DATE
 BRIAN S. SMITH, CST 3, SURVEY DRAFTER DATE

APPENDIX B

EXCAVATION WORK PLAN

BROWNFIELD CLEANUP PROGRAM

APPENDIX B EXCAVATION WORK PLAN

TECUMSEH PHASE I BUSINESS PARK
NYSDEC SITE NUMBERS: C915197 through C915197K
LACKAWANNA, NEW YORK

December 2013

0071-012-322

Prepared By:



TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

EXCAVATION WORK PLAN
TECUMSEH PHASE I BUSINESS PARK

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**EXCAVATION WORK PLAN
TECUMSEH PHASE I BUSINESS PARK**

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1.0 INTRODUCTION

1.1 Purpose and Scope

This document is a required element of the remedial program for the New York State Brownfield Cleanup Program (BCP) Sites within and collectively comprising the property referred to as the “Tecumseh Phase I Business Park,” located in City of Lackawanna, Erie County, New York (hereinafter referred to as the “Controlled Property”) under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Controlled Property is comprised of an approximate 102-acre area bounded by property owned by the Gateway Trade Center to the north; Tecumseh Phase II Business Park to the south; Gateway Metroport Ship Canal to the west; and New York State Route 5 (Hamburg Turnpike) to the east (see Figures 1 and 2). As shown on Figure 2, the Controlled Property collectively includes Sites I-1 through I-11 (C915197 through C915197K).

This Excavation Work Plan (EWP) has been prepared by TurnKey Environmental Restoration, LLC (TurnKey) in accordance with NYSDEC Program Policy DER-10 (Ref. 1). An Interim EWP was followed during all ground intrusive activities conducted during preparation work (e.g., excavation for utility lines, grading work performed in advance of cover placement, etc.) as remedial measures proceeded toward final cleanup and issuance of the Certificate of Completion (COC). In accordance with DER-10 Section 6.1(b)2, the Interim EWP was modified for post-remedial use and has been incorporated into this Excavation Work Plan component of the SMP.

1.2 Notification

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the Site Owner or their representative will notify the NYSDEC. Currently, this notification will be made to:

Mr. Maurice Moore
Engineering Geologist I
NYSDEC – Region 9
270 Michigan Avenue
Buffalo, NY 14203-2999

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent; plans for re-grading, intrusive elements or utilities to be installed below the soil cover; estimated volumes of contaminated soil to be excavated; and any work that may impact an existing engineering control. Appropriate locations for staging and stockpiling of non-impacted and impacted (if encountered) soil/fill materials will also be identified.
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling.
- A schedule for the work, detailing the start and completion of all intrusive work.
- A summary of the applicable components of this EWP.
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120.
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the Site-Wide Health and Safety Plan (HASp).
- Identification of disposal facilities for potential waste streams.
- Identification of sources of any anticipated backfill, along with all required analytical testing results.

2.0 SCREENING, SEGREGATION AND STOCKPILING

Requirements for screening, segregation, and stockpiling of excavated soil/fill materials are presented below. As further discussed in Section 3.0, all soil and fill excavated from the Site is to be treated as regulated contaminated material regardless of field evidence of impact. If any such material is removed from the Site it must be transported by a licensed hauler and either treated or disposed at a permitted facility in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations or reused, with NYSDEC pre-approval subject to a 6 NYCRR Part 360 Beneficial Use Determination (BUD), at another regulated cleanup site having an Environmental Easement and Site Management Plan.

2.1 Soil Screening and Segregation Methods

Visual, olfactory, and/or instrument (photoionization detector or equivalent)-based, soil screening will be performed by a qualified environmental professional (QEP), as defined by NYSDEC in DER-10 Section 1.3(b)49, or a person under their supervision, during all intrusive activities, as necessary.

Non-impacted soil/fill may be replaced in the excavation or reused on-site in accordance with Section 3.4. If field evidence of potentially impacted soil/fill is encountered during intrusive work, the NYSDEC Project Manager will be contacted and the contractor will be directed to stockpile the material on polyethylene sheeting in an accessible location near the impacted area. The location of staged materials will be coordinated with the Site Owner, but will remain within the same Site as the source to avoid administrative issues associated with import/export of these materials among differing BCP Sites. Field evidence of impact is defined as having readily identifiable visual or olfactory signs of contamination, including product, tars, or elevated photoionization detector (PID) readings (i.e., sustained readings >5 ppm). All impacted soil/fill removal work will be directed by an experienced QEP. Removal and stockpiling will continue until visually impacted soil/fill is removed from the limits of the planned excavation or NYSDEC agrees that no further removal of soil/fill is required. If the impact extends beyond the proposed limits of the excavation the Site Owner will be consulted and a plan for delineation and remediation of the remaining impacted material will be developed.

2.2 Stockpile Methods

Excavated soil/fill will be segregated, based on field screening and its status at the time of the excavation work, into material that can be reused as cover (i.e., if cover soil or slag has been placed), non-impacted material that can be returned to the subsurface, and impacted material that requires treatment or off-site disposal. A continuous berm and/or silt fence will be placed around soil/fill stockpiles. Hay bales will be used as needed near catch basins, surface waters, and other discharge points. Stockpiles will be covered at all times with appropriately anchored tarps or poly sheeting. Stockpiles will be routinely inspected at a minimum once each week and after every storm event. Damaged tarp covers will be promptly replaced.

Results of inspections will be recorded in a logbook, maintained with the Site Owner or Owner's representative, and made available for inspection by NYSDEC.

3.0 EXCAVATION, TRANSPORT, DISPOSAL, AND REUSE

3.1 Materials Excavation and Load Out

A QEP, or person under their supervision, will monitor all intrusive work and the excavation and load-out of all excavated material. The Site Owner and its contractors are responsible for safe execution of all intrusive and other work performed under this EWP; however, any entity performing intrusive work on the Site is required to abide by the requirements identified herein. The QEP will investigate the presence of utilities and easements on the Site and determine whether they pose a risk or impediment to the planned work under this EWP.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State (NYSDOT), local, and all other applicable transportation requirements.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking. The QEP will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. If truck tires will be in contact with impacted materials and/or ground conditions result in mud carryout on vehicles a truck wash will be operated on-site. Truck wash waters will be collected and disposed off-site in an appropriate manner. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

3.2 Material Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers; loose-fitting canvas-type truck covers are prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes will be pre-determined for wastes designated as hazardous and requiring off-site transport to a secure landfill (RCRA Subtitle C facility) or other RCRA-

permitted Treatment Storage and Disposal Facility (TSDF). The truck transport route to the nearest Subtitle C facility from the Controlled Property is as follows:

To Model City Landfill, 4746 Model City Rd., Model City, NY

- From the Site, turn left (north) onto Route 5
- Exit onto I-190 north
- Take Exit 25A/RT 265
- Turn left on RT 265
- Turn right onto Upper Mountain Rd.
- Turn left onto Indian Hill Rd.
- End at 4746 Model City Rd.

All trucks loaded with Site materials will exit the vicinity of the Site using only approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. If an alternate RCRA Subtitle C facility or TSDF is employed the corresponding truck transport route shall be provided to the NYSDEC for approval.

Trucks will be prohibited from stopping and idling in the neighborhood outside the Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials. Queuing of trucks will be performed on-site in order to minimize off-site disturbance; off-site queuing will be prohibited.

3.3 Materials Disposal Off-Site

All soil/fill/solid waste excavated and removed from the Site will be considered contaminated, regulated material to be transported and treated or disposed at a permitted facility in accordance with all local, State (including 6NYCRR Part 360), and Federal regulations. If alternate off-site disposal of soil/fill from this Site is proposed (e.g., at another regulated brownfield site), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this Site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal

facility (i.e., hazardous waste facility, solid waste landfill, permitted petroleum treatment facility, C/D recycling facility, etc.), if appropriate. The disposal documentation submitted to NYSDEC will include: a summary of disposal quantities, waste profiles, test results, facility acceptance letters, manifests, bills of lading, and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a municipal solid waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

3.4 Materials Reuse On-Site

3.4.1 Soil/Fill

On-site reuse of soil/fill material, including slag material, is acceptable provided that the material does not exhibit visual or olfactory evidence of contamination and PID measurements of the atmosphere at the soil/fill interface do not exceed 5 parts per million (ppm) above background. The QEP will ensure that procedures defined for materials reuse are followed and that unacceptable material does not remain on-site. On-site material, including historic fill, that is acceptable for re-use on-site will be placed below the engineered cover demarcation layer or impervious surface (if in place at the time of excavation), and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

3.4.2 Petroleum-Impacted Soil/Fill

Petroleum-impacted soil/fill suitable for on-site bioremediation (e.g., materials impacted by non-tarry petroleum hydrocarbons) may be transported, with NYSDEC approval, to a designated portion of the Tecumseh property (specifically one of the Business Parks) for biotreatment. Qualitative assessment of treatment performance will be made based on field assessment of visual and olfactory conditions, with the goal of eliminating gross impacts. Once the soil/fill is considered treated, confirmatory samples will be collected at a frequency of no less than one per 1,000 cubic yards of treated soil/fill. The samples will be analyzed for USEPA Target Compound List (TCL) volatile organic compounds (VOCs) and base-neutral semi-volatile organic compounds (SVOCs) and compared to restricted

(Industrial) health-based SCOs consistent with other on-site soil/fill materials. Once the samples meet these SCOs, the treated soil/fill will be removed and preferably transferred back to the original excavated Site as subgrade material; bioremediated soils will not be considered suitable for use as cover soil. No bioremediated soil/fill will be transported off-site unless deemed necessary due to poor treatment response. In such instance the material will be disposed, with NYSDEC approval, in accordance with Section 3.3.

3.4.3 Debris

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-site without prior NYSDEC approval.

3.5 Fluids Management

All liquids to be removed from the Site, including excavation dewatering and truck wash water, will be verified to be visually free of any product, non-aqueous phase liquid, odor, or other visual indications of impact. In such instance it may be acceptable to discharge such water back to subgrade with prior NYSDEC approval. Generated water exhibiting signs of impact will not be recharged back to the land surface or subsurface of the Site unless treated to render it acceptable for discharge as approved by the NYSDEC.

Water generated during large-scale construction activities proposed for discharge to surface waters (i.e., a local pond, stream, or river) will require a NY State Pollutant Discharge Elimination System (SPDES) permit.

4.0 BACKFILL AND RESTORATION

4.1 Cover Materials

A minimum of 12 inches of NYSDEC-approved cover material (e.g., vegetated soil, stone, or Beneficial Use Determination [BUD]-approved steel slag), where appropriate, will be placed over any unpaved areas of the Site as a component of the final remedy. The upper 6 inches of any soil cover must be of suitable quality to support vegetation. In general, this would be well-graded topsoil with a pH of 5.5 to 7.6, a minimum organic content of 2.5%, and a soluble salt content not greater than 500 ppm. Vegetation must be comprised of grasses or other plantings sufficiently dense to prevent wind and surface water erosion. All imported cover must also meet the criteria identified in Section 4.2.

After the completion of soil removal and any other invasive activities, the cover system will be restored in a manner that complies with the Site Management Plan (SMP) and Final Engineering Report (FER). The demarcation layer will be replaced to provide a visual reference to the top of the remaining in-place material. A change in the type of cover system that existed prior to the excavation (e.g., a soil cover is replaced by asphalt) constitutes a modification of the cover element of the remedy, and a figure showing the modified surface will be included in the subsequent Periodic Review Report (PRR) and in any updates to the SMP.

4.2 Backfill from Off-Site Sources

The criteria under which off-site material may be imported for use as backfill are presented below.

- **Off-Site Soil/Fill:** Off-site soil/fill may be used as backfill provided that it originates from: 1) an NYSDEC-approved borrow site; or 2) a known source having no evidence of disposal or releases of hazardous substances, hazardous, toxic or radioactive wastes, or petroleum. In both instances the imported soil must be tested and demonstrated to meet the criteria shown on Table B-1 in accordance with Appendix 5 of DER-10. In addition, no off-site materials meeting the definition of a solid waste as defined in 6 NYCRR, Part 360-1.2 (a) shall be used as backfill. The criteria presented in Table 1 represent the lesser of the Commercial Soil Cleanup Objectives (SCOs) or levels protective of groundwater quality as published in 6NYCRR Part 375-6.7(d)(c) and 375-6.8.

- **Other Off-Site Material:** Certain material may be imported as backfill, without chemical testing, provided it contains less than 10% (by weight) material that would pass through a size 80 sieve: 1) Rock or stone, consisting of virgin material from a permitted mine or quarry; 2) steel slag under BUD #555-9-152; 3) Recycled concrete, brick, or asphalt from a NYSDEC-registered or permitted C&D debris processing facility (as specified in Section 360-16.1 of 6 NYCRR Part 360) that conforms to Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002). As stated in Section 360-16.4(b)(2), the facility may only accept recognizable, uncontaminated, non-pulverized C&D debris or C&D debris from other authorized C&D processing facilities. According to Section 360-16.2(c), “uncontaminated” means C&D debris that is not mixed or commingled with other solid waste at the point of generation, processing, or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste, or industrial waste.

As indicated above, off-site borrow soils shall be tested to assure conformance with the criteria identified on Table B-1. A tiered approach based on the volume of impacted soil/fill being excavated will be used to determine the frequency of characterization sampling in accordance with DER-10 or as pre-approved by the NYSDEC.

Grab samples will be collected for VOC analysis. For all other required analyses, a minimum of four grab samples will be collected to form a single composite sample. Approximately equal aliquots of the grab samples will be composited in the field using a stainless steel trowel and bowl. The trowel and bowl shall be decontaminated with a non-phosphate detergent (e.g., Alconox®) and potable water wash solution followed by a distilled water rinse between sampling locations. The soil/fill samples will be analyzed for USEPA Target Compound List (TCL) VOCs, TCL SVOCs, pesticides, and PCBs, as well as select metals¹ and cyanide in accordance with USEPA SW-846 Methodology by a NYSDOH ELAP-certified laboratory. Analytical results will be compared to Table 1 criteria and provided to the NYSDEC as part of the approval process and reported in the PRR. Analytical results must be maintained on file for review in support of the periodic Institutional and Engineering Control (IC/EC) certification required as part of the final SMP.

¹ Metals shall include those regulated under 6NYCRR Part 375-6.8, which presently include: Arsenic; Barium; Beryllium; Cadmium; Chromium (total and hexavalent forms); Copper; Lead; Manganese; Mercury; Nickel; Selenium; Silver; and Zinc.

Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

All materials proposed for import onto the Site will be approved by the QEP and in compliance with the provisions of this EWP prior to receipt at the Site. Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

4.3 Backfill from On-Site Sources

On-site soil/fill may be used as subgrade backfill beneath existing approved cover provided that it does not exhibit field evidence of impact. Soil/fill that is bioremediated on-site, or within another designated and approved area within the Tecumseh Business Parks, may be similarly used as subgrade backfill provided that it meets the treatment criteria discussed in Section 3.4.2. Backfill material will be compacted with the excavator/backhoe bucket in maximum 2-foot lifts to minimize settling.

5.0 MONITORING AND INSPECTIONS

5.1 Stormwater Pollution Prevention

If construction activities disturb more than 1 acre of land, the Federal Water Pollution Control Act (as amended, 33 U.S.C. 1251 et. seq.) and the New York State Environmental Conservation Law (Article 17, Titles 7 and 8, and Article 70) would apply.

With some exceptions, operators of construction activities and property development that will result in the disturbance of 1 or more acres of land must obtain coverage under SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001, expires 01/28/15) prior to the commencement of soil disturbance. (In the case of a remediation site, such as the Controlled Property, soil disturbances associated with remedial activities are exempt from State-issued permits; however, functional equivalent approvals, mitigation and compliance measures are required). Also requiring a permit are construction activities disturbing less than 1 acre if they are part of a larger common plan of development or sale with a planned disturbance of equal to or greater than 1 acre, or activities that are designated by the NYSDEC. The NYSDEC can require a permit for construction activities disturbing less than 1 acre based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

To obtain coverage under the General Permit, the operator of a construction activity must file a completed Notice of Intent (NOI) with the NYSDEC. Submitting a NOI is an affirmation that a Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the site and will be implemented prior to the commencement of construction activities. Coverage under the General Permit will begin either 5 or 60 business days after receipt of a completed NOI by the NYSDEC. Appendix B-1 includes the NOI application form and SPDES General Permit GP-0-10-001.

For smaller disturbances not subject to SPDES General Permit requirements, erosion controls must be installed as necessary to mitigate impacted stormwater and sediment runoff. These controls (which may include silt fencing around stockpiles, berms, and hay bale checks) will be required in areas of disturbance proximate to surface water bodies and drainage structures, and will also be required if disturbances occur in areas where the surrounding slag/fill is not sufficiently permeable to allow re-infiltration. Erosion and

sediment controls shall be installed in accordance with the standards and specifications presented in Appendix B-2.

The controls will be installed and inspected once a week and after every storm event. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the controls functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Results of inspections will be recorded in a logbook, maintained by the Site Owner or Owner's representative, and made available for inspection by NYSDEC.

5.2 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during intrusive activities, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment, and surrounding soils as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a comprehensive list of analytes (RCRA metals, TCL VOCs, SVOCs, and PCBs, and cyanide), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval.

Identification of unknown or unexpected contaminated media identified by screening during intrusive activities will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline.

5.3 Community Air Monitoring Plan

As detailed in Appendix B-3, the following criteria shall also be adhered to during intrusive activities for the protection of the nearby community.

5.3.1 Organic Vapor Community Air Monitoring:

Community air monitoring will be performed at the downwind perimeter of the exclusion zone on a continuous basis during intrusive activities performed outdoors that may be reasonably expected to potentially release organic vapors, or when sustained readings are detected in the work zone (i.e., proximate to the source of the intrusive activity). Otherwise, the monitoring will be performed on an hourly basis. A photoionization detector (PID), or other equipment suitable to the types of contaminants known or suspected to be present, capable of calculating 15-minute running average concentrations will be used. All air monitoring equipment will be calibrated at least daily and an upwind concentration will be taken at least daily to establish background conditions. The 15-minute average concentrations will be compared to the levels specified below.

- If the 15-minute ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds 5 ppm above background, work activities will be halted and monitoring continued. If the organic vapor decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If the ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone persists at levels above 5 ppm over background but less than 25 ppm, activities must be halted, the source of vapors identified, corrective actions to abate the emissions taken, and monitoring continued. After these steps, work activities can resume provided that: the organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest off-site potential receptor or residential or commercial structure, whichever is less (but in no case less than 20 feet), is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the exclusion zone, work activities must be shut down and the following activities will be performed:
 - All Emergency Response Contacts as listed in the HASP (Ref. 2) and the Emergency Response Plan (an appendix to the HASP) will be advised.
 - The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.
 - Air monitoring will be continued at ½ the distance from the exclusion zone to the nearest receptor.

All readings will be recorded and will be available for NYSDEC and NYSDOH personnel to review.

5.3.2 Explosive Vapor Community Air Monitoring

Explosive vapor community air monitoring will be performed at the downwind perimeter of the site on a continuous basis whenever sustained atmospheric concentrations of greater than 10% of the LEL are recorded in the exclusion zone. If sustained atmospheric concentrations of greater than 10% LEL are recorded at the downwind site perimeter, the local Fire Department will be contacted.

5.3.3 Airborne Particulate Community Air Monitoring

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

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

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

Air sampling stations will be located based on generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

5.4 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis are described below. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the associated Site Owner, and any measures that are implemented will be documented.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

5.5 Dust Control Plan

Particulate monitoring will be performed along the downwind perimeter of the Site during subgrade excavation, grading, and handling activities in accordance with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under DER-10 Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring) both included as Appendix B-3.

Dust suppression techniques will be employed as necessary to mitigate fugitive dust from non-vegetated or disturbed soil/fill during post-remediation construction and redevelopment.

A dust suppression plan that addresses dust management during intrusive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.
- Hauling materials in properly tarped containers or vehicles.
- Restricting vehicle speeds on-site.
- Covering or proof-rolling excavated areas and materials after excavation activity ceases.
- Reducing the excavation size and/or number of excavations.

All reasonable attempts will be made to keep visible and/or fugitive dust to a minimum.

5.6 Other Nuisances

A plan will be developed and used by the contractor for all remedial work to ensure compliance with local noise control ordinances. At a minimum, this shall include limiting construction to typical daylight work hours.

6.0 REFERENCES

1. New York State Department of Environmental Conservation. *DEC Program Policy DER-10/Technical Guidance for Site Investigation and Remediation*. May 3, 2010.
2. TurnKey Environmental Restoration, LLC in affiliation with Benchmark Environmental Engineering & Science, PLLC, *Site-Wide Health and Safety Plan (HASP)*. *Tecumseh Redevelopment Site, Lackawanna, NY*. April 2010.

TABLES



TABLE B-1

CRITERIA FOR IMPORTED SOILS

**Site Management Plan
 Tecumseh Phase I Business Park
 Lackawanna, New York**

| Parameter | Cover Soil Criteria¹ |
|---|--|
| Volatile Organic Compounds (mg/kg) | |
| 1,1,1-Trichloroethane | 0.68 |
| 1,1-Dichloroethane | 0.27 |
| 1,1-Dichloroethene | 0.33 |
| 1,2-Dichlorobenzene | 1.1 |
| 1,2-Dichloroethane | 0.02 |
| 1,2-Dichloroethene(cis) | 0.25 |
| 1,2-Dichloroethene(trans) | 0.19 |
| 1,3-Dichlorobenzene | 2.4 |
| 1,4-Dichlorobenzene | 1.8 |
| 1,4-Dioxane | 0.1 |
| Acetone | 0.05 |
| Benzene | 0.06 |
| Butylbenzene | 12 |
| Carbon tetrachloride | 0.76 |
| Chlorobenzene | 1.1 |
| Chloroform | 0.37 |
| Ethylbenzene | 1 |
| Hexachlorobenzene | 3.2 |
| Methyl ethyl ketone | 0.12 |
| Methyl tert-butyl ether | 0.93 |
| Methylene chloride | 0.05 |
| Propylbenzene-n | 3.9 |
| Sec-Butylbenzene | 11 |
| Tert-Butylbenzene | 5.9 |
| Tetrachloroethene | 1.3 |
| Toluene | 0.7 |
| Trichloroethene | 0.47 |



TABLE B-1

CRITERIA FOR IMPORTED SOILS

**Site Management Plan
 Tecumseh Phase I Business Park
 Lackawanna, New York**

| Parameter | Cover Soil Criteria¹ |
|--|--|
| Volatile Organic Compounds (mg/kg) | |
| Trimethylbenzene-1,2,4 | 3.6 |
| Trimethylbenzene-1,3,5 | 8.4 |
| Vinyl chloride | 0.02 |
| Xylene (mixed) | 1.6 |
| Semi-Volatile Organic Compounds (mg/kg) | |
| Acenaphthene | 98 |
| Acenaphthylene | 107 |
| Anthracene | 500 |
| Benzo(a)anthracene | 1 |
| Benzo(a)pyrene | 1 |
| Benzo(b)fluoranthene | 1.7 |
| Benzo(g,h,i)perylene | 500 |
| Benzo(k)fluoranthene | 1.7 |
| Chrysene | 1 |
| Dibenz(a,h)anthracene | 0.56 |
| Fluoranthene | 500 |
| Fluorene | 386 |
| Indeno(1,2,3-cd)pyrene | 5.6 |
| m-Cresol(s) | 0.33 |
| Naphthalene | 12 |
| o-Cresol(s) | 0.33 |
| p-Cresol(s) | 0.33 |
| Pentachlorophenol | 0.8 |
| Phenanthrene | 500 |
| Phenol | 0.33 |
| Pyrene | 500 |



TABLE B-1

CRITERIA FOR IMPORTED SOILS

**Site Management Plan
Tecumseh Phase I Business Park
Lackawanna, New York**

| Parameter | Cover Soil Criteria¹ |
|-----------------------------------|--|
| Metals (mg/kg) | |
| Arsenic | 16 |
| Barium | 400 |
| Beryllium | 47 |
| Cadmium | 7.5 |
| Chromium, Hexavalent ² | 19 |
| Chromium, Trivalent ² | 1500 |
| Copper | 270 |
| Cyanide | 27 |
| Lead | 450 |
| Manganese | 2000 |
| Mercury (total) | 0.73 |
| Nickel | 130 |
| Selenium | 4 |
| Silver | 8.3 |
| Zinc | 2480 |
| PCBs/Pesticides (mg/kg) | |
| 2,4,5-TP Acid (Silvex) | 3.8 |
| 4,4'-DDE | 17 |
| 4,4'-DDT | 47 |
| 4,4'-DDD | 14 |
| Aldrin | 0.19 |
| Alpha-BHC | 0.002 |
| Beta-BHC | 0.009 |
| Chlordane (alpha) | 2.9 |
| Delta-BHC | 0.25 |
| Dibenzofuran | 210 |
| Dieldrin | 0.1 |
| Endosulfan I | 102 |



TABLE B-1

CRITERIA FOR IMPORTED SOILS

**Site Management Plan
Tecumseh Phase I Business Park
Lackawanna, New York**

| Parameter | Cover Soil Criteria ¹ |
|--------------------------------|----------------------------------|
| PCBs/Pesticides (mg/kg) | |
| Endosulfan II | 102 |
| Endosulfan sulfate | 200 |
| Endrin | 0.06 |
| Heptachlor | 0.38 |
| Lindane | 0.1 |
| Polychlorinated biphenyls | 1 |

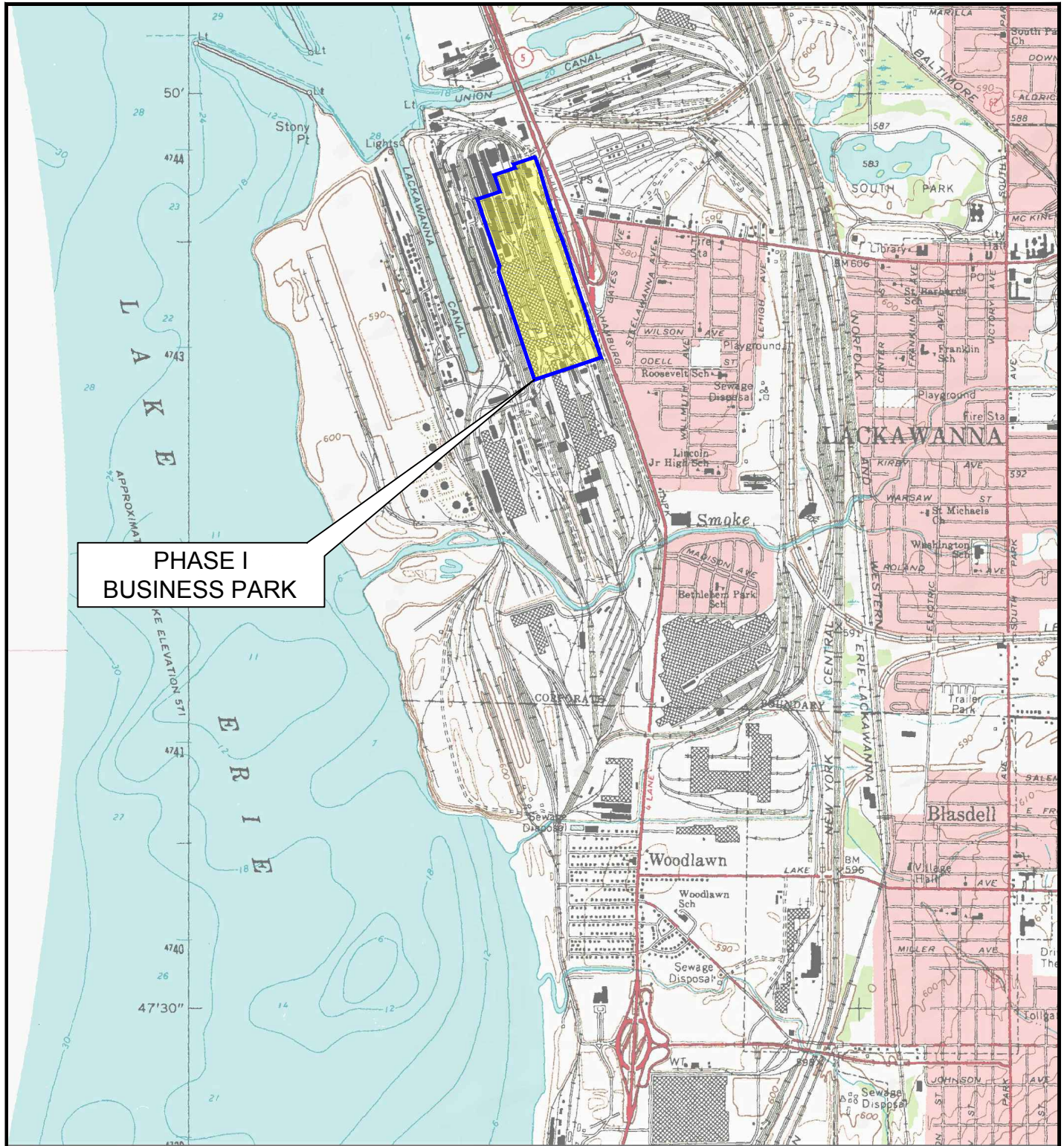
Notes:

¹ Soil criteria are lesser of concentrations protective of groundwater or commercial health-based soil cleanup objectives per 6 NYCRR 375-6.8(b).

² The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analysis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

FIGURES

FIGURE 1



PHASE I
BUSINESS PARK



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www.delorme.com



2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 858-0835

SITE LOCATION & VICINITY MAP

SITE MANAGEMENT PLAN

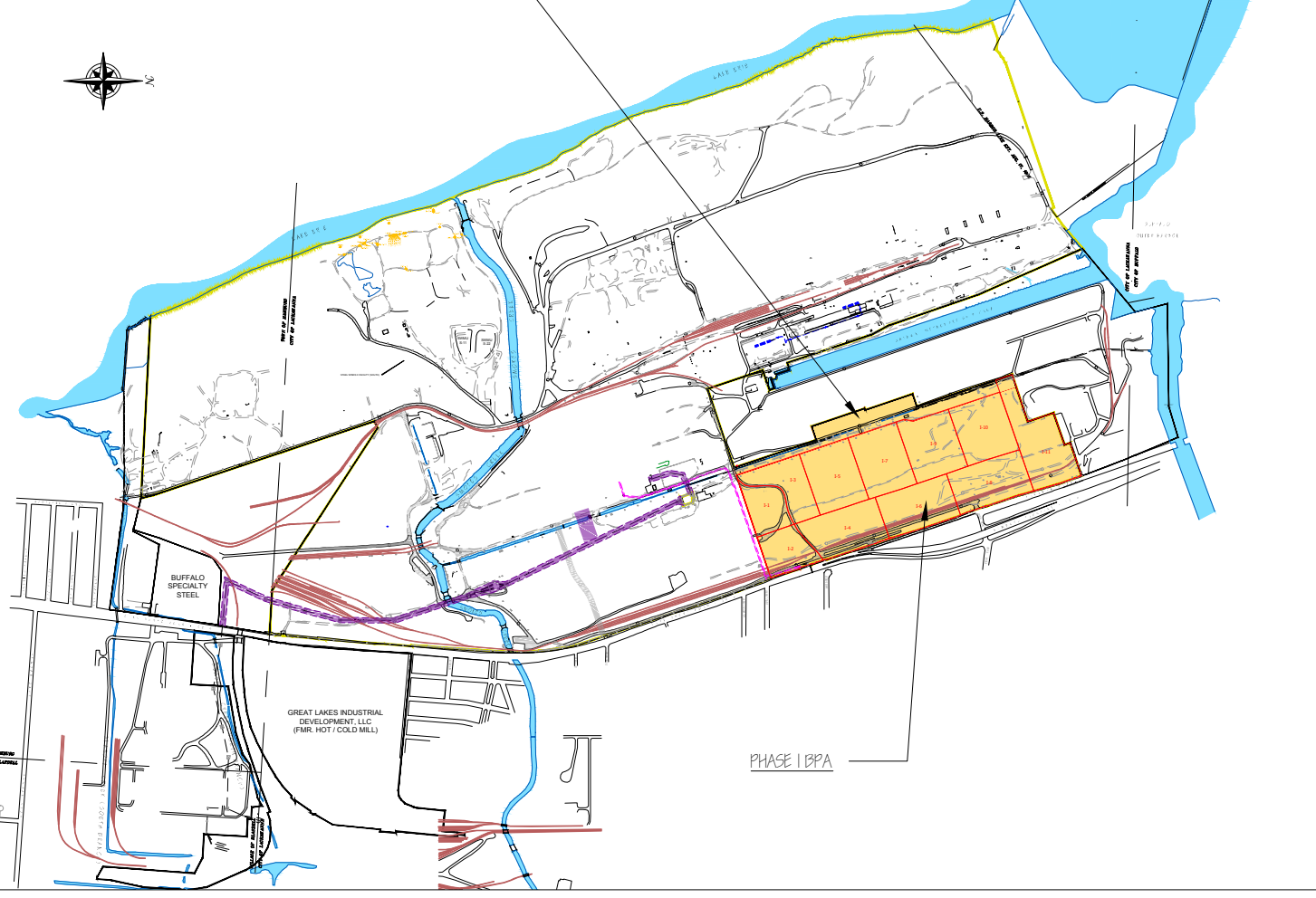
PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

PROJECT NO.: 0071-012-322

DATE: DECEMBER 2013

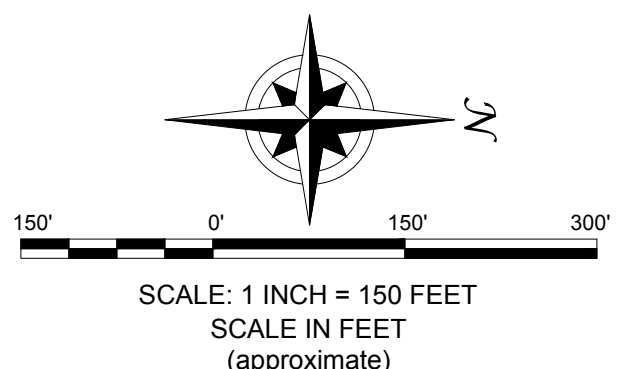
DRAFTED BY: BLR

PLAN VIEW:
SCALE 1" = 2000'



PHASE IA BUSINESS PARK
± 12.27 ACRES

PHASE I BUSINESS PARK
± 101.85 ACRES



| Parcel Identification | Total Acreage | Encumbered Acreage | Developable Acreage | Percent Developable |
|-----------------------|---------------|--------------------|---------------------|---------------------|
| I-1 | 5.57 | 1.27 | 4.30 | 77.14% |
| I-2 | 6.23 | 1.04 | 5.19 | 83.25% |
| I-3 | 7.63 | 1.42 | 6.21 | 81.39% |
| I-4 | 10.37 | 2.60 | 7.77 | 74.92% |
| I-5 | 10.05 | 0.74 | 9.31 | 92.67% |
| I-6 | 10.01 | 2.37 | 7.64 | 76.33% |
| I-7 | 10.04 | 0.76 | 9.28 | 92.42% |
| I-8 | 10.22 | 2.02 | 8.20 | 80.20% |
| I-9 | 10.03 | 0.88 | 9.15 | 91.21% |
| I-10 | 9.98 | 0.87 | 9.11 | 91.24% |
| I-11 | 12.37 | 1.26 | 11.11 | 89.78% |
| BP-I Totals | 102.50 | 15.25 | 87.25 | 85.12% |

- LEGEND:**
- TECUMSEH PROPERTY BOUNDARY
 - EXISTING BUILDING / STRUCTURE
 - PHASE I BUSINESS PARK BOUNDARY (± 101.85 ACRES)
 - RAILROAD TRACK
 - SOUTH BUFFALO RAILROAD EASEMENT
 - PUBLIC UTILITY EASEMENT
 - STEEL WINDS I FACILITY ABOVE-GROUND ELECTRIC UTILITY
 - STEEL WINDS I FACILITY BURIED ELECTRIC UTILITY
 - PLANNED STEEL WINDS II ABOVE GROUND ELECTRICAL EASEMENT
 - PLANNED STEEL WINDS II BURIED ELECTRICAL EASEMENT
 - INDUSTRIAL WATER SYSTEM EASEMENT
 - SANITARY SEWER EASEMENT
 - APPROXIMATE LOCATION OF OVERHEAD HIGH-TENSION ELECTRIC TRANSMISSION LINES WITH TOWERS & 60' EASEMENT (APPROX.)
 - ROADWAY ENCUMBRANCES

SITE DELINEATION MAP

SITE MANAGEMENT PLAN
PHASE I BUSINESS PARK
LACKAWANNA, NEW YORK

FIGURE 2

REVISIONS

| NO. | BY | DATE | REMARKS |
|-----|----|------|---------|
| | | | |
| | | | |
| | | | |
| | | | |

DRAWN BY: BCH
DATE: MAY 2011

CHECKED BY:
APPROVED BY:
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SEAL

2558 HAMBURG TURNPIKE
SUITE 100
LACKAWANNA, NY 14218
(716) 856-0635
JOB NO.: 0071-012-322

APPENDIX B-1

STORM WATER POLLUTION PREVENTION



NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

from

CONSTRUCTION ACTIVITY

Permit No. GP-0-10-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 29, 2010

Expiration Date: January 28, 2015

William R. Adriance
Chief Permit Administrator

William R. Adriance
Authorized Signature

January 28, 2010
Date

Address: NYS DEC
Div. Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act (“CWA”), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System (“NPDES”)* permit or by a state permit program. New York’s *State Pollutant Discharge Elimination System (“SPDES”)* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law (“ECL”)*.

This general permit (“permit”) is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this permit by submitting a Notice of Intent (“NOI”) to the Department. Copies of this permit and the NOI for New York are available by calling (518) 402-8109 or at any New York State Department of Environmental Conservation (“the Department”) regional office (see Appendix G). They are also available on the Department’s website at:

<http://www.dec.ny.gov/>

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of “*construction activity*”, as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a point source and therefore, pursuant to Article 17-0505 of the ECL, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. They cannot wait until there is an actual *discharge* from the construction site to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES**

FROM CONSTRUCTION ACTIVITIES

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Part I. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application - This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

B. Maintaining Water Quality - It shall be a violation of this permit and the *ECL* for any *discharge* to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

C. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph D. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater discharges from *construction activities*.

(Part I. C)

3. Notwithstanding paragraphs C.1 and C.2 above, the following non-stormwater *discharges* may be authorized by this permit: discharges from fire fighting activities; fire hydrant flushings; waters to which cleansers or other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated groundwater or spring water; uncontaminated discharges from construction site de-watering operations; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this permit, and who discharge as noted in this paragraph, and with the exception of flows from fire fighting activities, these discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with water quality standards in Part I.B.

D. Activities Which Are Ineligible for Coverage Under This General Permit - All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;
2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection C.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII, subparagraph K of this permit;
4. *Discharges* from *construction activities* that adversely affect a listed, or proposed to be listed, endangered or threatened species, or its critical habitat;
5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects that:
 - a. are tributary to waters of the state classified as AA or AA-s; and

(Part I. D. 6)

- b. disturb one or more acres of land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey for the County in which the disturbance will occur.
7. *Construction activities* for linear transportation projects and linear utility projects that:
 - a. are tributary to waters of the state classified as AA or AA-s; and
 - b. disturb two or more acres of land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey for the County in which the disturbance will occur.
8. *Construction activities* that adversely affect a property that is listed or is eligible for listing on the State or National Register of Historic Places (Note: includes Archeological sites), unless there are written agreements in place with the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) or other governmental agencies to mitigate the effects, or there are local land use approvals evidencing the same.

Part II. OBTAINING PERMIT COVERAGE

A. Notice of Intent (NOI) Submittal

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a *regulated, traditional land use control MS4* must first develop a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the address below in order to be authorized to *discharge* under this permit. The NOI form shall be one which is associated with this permit, signed in accordance with Part VII.H. of this permit.

**NOTICE OF INTENT
NYS DEC, Bureau of Water Permits
625 Broadway, 4th Floor
Albany, New York 12233-3505**

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first develop a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the *MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person, and then submit that form along with the NOI to the address referenced under “Notice of Intent (NOI) Submittal”.

(Part II. A.2)

This requirement does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.E. (Change of Owner or Operator).

3. The *owner or operator* shall have the SWPPP preparer sign the “SWPPP Preparer Certification” statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

B. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
 - a. project review pursuant to the State Environmental Quality Review Act (SEQRA) have been satisfied, when SEQRA is applicable,
 - b. where required, all necessary Department permits subject to the *Uniform Procedures Act (UPA)* (see 6 NYCRR Part 621) have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators of construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Regional Office in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,
 - c. the final SWPPP has been prepared, and
 - d. an NOI has been submitted to the Department in accordance with the requirements of this permit.
3. An *owner or operator* that has satisfied the requirements of Part II.B.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

(Part II. B. 3)

- a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:
 - i. Five (5) business days from the date the Department receives a complete NOI for *construction activities* with a SWPPP that has been prepared in conformance with the technical standards referenced in Parts III.B.1, 2 and/or 3, or
 - ii. Sixty (60) business days from the date the Department receives a complete NOI for *construction activities* with a SWPPP that has not been prepared in conformance with the technical standards referenced in Parts III.B.1, 2 or 3.
- b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:
 - i. Five (5) business days from the date the Department receives a complete NOI and signed “MS4 SWPPP Acceptance” form,
4. The Department may suspend or deny an *owner’s or operator’s* coverage under this permit if the Department determines that the SWPPP does not meet the permit requirements.
5. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department.

C. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (NOT) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4.
2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-10-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form and inspection reports at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department.

(Part II. C. 2)

The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:
 - a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
 - b. In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.
 - c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
 - d. The *owner or operator* shall install any additional site specific practices needed to protect water quality.
 - e. The *owner or operator* shall include the requirements above in their SWPPP.
4. The Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements.

(Part II. C)

5. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the *MS4* in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *MS4* prior to commencing construction of the post-construction stormwater management practice.

D. Permit Coverage for Discharges Authorized Under GP-0-08-001

1. Upon renewal of SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-08-001), an *owner or operator* of *construction activity* with coverage under GP-0-08-001, as of the effective date of GP-0-10-001, shall be authorized to *discharge* in accordance with GP-0-10-001 unless otherwise notified by the Department.

E. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.A.1.. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*.

(Part III. A)

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the pollutants in stormwater discharges and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.
3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.
4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP:
 - a. whenever the current provisions prove to be ineffective in minimizing pollutants in stormwater *discharges* from the site;
 - b. whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the discharge of pollutants; and
 - c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority.
5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit.
6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP.

(Part III. A. 6)

The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings. "

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the construction site. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.
8. The SWPPP must include documentation supporting the determination of permit eligibility with regard to Part I.D.8. (Historic Places or Archeological Resource). At a minimum, the supporting documentation shall include the following:

(Part III. A. 8)

- a. Information on whether the stormwater discharge or *construction activities* would have an effect on a property (historic or archeological resource) that is listed or eligible for listing on the State or National Register of Historic Places;
- b. Results of historic resources screening determinations conducted. Information regarding the location of historic places listed, or eligible for listing, on the State or National Registers of Historic Places and areas of archeological sensitivity that may indicate the need for a survey can be obtained online by viewing the New York State Office of Parks, Recreation and Historic Places (OPRHP) online resources located on their web site at: <http://nysparks.state.ny.us/shpo/online-tools/> (using The Geographic Information System for Archeology and National Register). OPRHP can also be contacted at: NYS OPRHP, State Historic Preservation Office, Peebles Island Resources Center, P.O. Box 189, Waterford, NY 12188-0189, phone: 518-237-8643;
- c. A description of measures necessary to avoid or minimize adverse impacts on places listed, or eligible for listing, on the State or National Register of Historic Places. If the *owner or operator* fails to describe and implement such measures, the stormwater *discharge* is ineligible for coverage under this permit; and
- d. Where adverse effects may occur, any written agreements in place with OPRHP or other governmental agency to mitigate those effects, or local land use approvals evidencing the same.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control. Where erosion and sediment control practices are not designed in conformance with this technical standard, the *owner or operator* must demonstrate equivalence to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:
 - a. Background information about the scope of the project, including the location, type and size of project;

(Part III. B. 1)

- b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater discharge(s);
- c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);
- d. A construction phasing plan and sequence of operations describing the intended order of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;
- e. A description of the minimum erosion and sediment control practices to be installed or implemented for each construction activity that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
- f. A temporary and permanent soil stabilization plan that meets the requirements of the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of final stabilization;
- g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
- h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

(Part III. B. 1)

- i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6., to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control;
 - j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the stormwater *discharges*;
 - k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the construction site; and
 - l. Identification of any elements of the design that are not in conformance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is equivalent to the technical standards.
2. Post-construction stormwater management practice component - All construction projects identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the most current version of the technical standard, New York State Stormwater Management Design Manual (“Design Manual”). If the Design Manual is revised during the term of this permit, an *owner or operator* must begin using the revised version of the Design Manual to prepare their SWPPP six (6) months from the final revision date of the Design Manual.

Where post-construction stormwater management practices are not designed in conformance with this technical standard, the *owner or operator* must demonstrate equivalence to the technical standard.

At a minimum, the post-construction stormwater management practice component of the SWPPP shall include the following:

- a. Identification of all post-construction stormwater management practices to be constructed as part of the project;

(Part III. B. 2)

- b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;
 - c. The dimensions, material specifications and installation details for each post-construction stormwater management practice;
 - d. Identification of any elements of the design that are not in conformance with the Design Manual. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is equivalent to the technical standards;
 - e. A hydrologic and hydraulic analysis for all structural components of the stormwater management control system;
 - f. A detailed summary (including calculations) of the sizing criteria that was used to design all post-construction stormwater management practices. At a minimum, the summary shall address the required design criteria from the applicable chapter of the Design Manual; including the identification of and justification for any deviations from the Design Manual, and identification of any design criteria that are not required based on the design criteria or waiver criteria included in the Design Manual; and
 - g. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.
3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.g. above.

(Part III. C)

C. Required SWPPP Components by Project Type - Unless otherwise notified by the Department, *owners or operators of construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1. *Owners or operators of the construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times.
2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

B. Owner or Operator Maintenance Inspection Requirements

1. The *owner or operator* shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.
2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *owner or operator* can stop conducting the maintenance inspections. The *owner or operator* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. as soon as soil disturbance activities resume.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *owner or operator* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

(Part IV. C)

C. Qualified Inspector Inspection Requirements - The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- Licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- Registered Landscape Architect, or
- Someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

- a. the construction of a single family residential subdivision with 25% or less impervious cover at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
- b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
- c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and
- d. construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

- a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

(Part IV. C. 2)

- b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.C.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
- c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the Regional Office stormwater contact person (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity) in writing prior to reducing the frequency of inspections.
- d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the Regional Office stormwater contact person (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity). in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice” certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.A.1..

(Part IV. C. 3)

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.
4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:
 - a. Date and time of inspection;
 - b. Name and title of person(s) performing inspection;
 - c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
 - d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
 - e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;
 - f. Identification of all erosion and sediment control practices that need repair or maintenance;
 - g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
 - h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

(Part IV. C 4)

- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
 - j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and
 - k. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
 6. All inspection reports shall be signed by the *qualified inspector*. Pursuant to Part II.C.2., the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.A.1. The NOT form shall be one which is associated with this general permit, signed in accordance with Part VII.H.
2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

(Part V. A. 2)

- a. Total project completion - All construction activity identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;
 - b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;
 - c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.E.
3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice” certification statements on the NOT, certify that all disturbed areas have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP.
 4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall also have the MS4 sign the “MS4 Acceptance” statement on the NOT. The *owner or operator* shall have the principal executive officer, ranking elected official, or duly authorized representative from the *regulated, traditional land use control MS4*, sign the “MS4 Acceptance” statement. The MS4 official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The MS4 can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector’s* final site inspection certification(s) required in Part V.3.
 5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

(Part V. A. 5)

- a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,
- b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),
- c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has modified their deed of record to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan,
- d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION OF RECORDS

A. Record Retention - The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the site achieves *final stabilization*. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

B. Addresses - With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.A.1), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate Department Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply - The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied.

(Part VII. A)

The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

B. Continuation of the Expired General Permit - This permit expires five (5) years from the effective date. However, coverage may be obtained under the expired general permit, which will continue in force and effect, until a new general permit is issued. Unless otherwise notified by the Department in writing, an *owner or operator* seeking authorization under the new general permit must submit a new NOI in accordance with the terms of such new general permit.

C. Enforcement - Failure of the *owner or operator*, its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to \$37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense - It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate - The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to minimize or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information - The *owner or operator* shall make available to the Department for review and copying or furnish to the Department within five (5) business days of receipt of a Department request for such information, any information requested for the purpose of determining compliance with this permit. This can include, but is not limited to, the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form, executed maintenance agreement, and inspection reports. Failure to provide information requested by the Department within the request timeframe shall be a violation of this permit.

The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review the NOI, SWPPP or inspection reports. Copying of documents will be done at the requester's expense.

G. Other Information - When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any other report, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s)

(Part VII. G)

changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or impervious area), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

- a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - i. a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
 - ii. the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
- b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or
- c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
 - i. the chief executive officer of the agency, or

(Part VII. H. 1. c)

- ii. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described in Part VII.H.1.;
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,
 - c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.
3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.
4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person.

It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights - The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability - The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

(Part VII. K)

K. Denial of Coverage Under This Permit

1. At its sole discretion, the Department may require any *owner or operator* authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from *owner or operator* receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Regional Water Engineer, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.
2. Any *owner or operator* authorized by this permit may request to be excluded from the coverage under this permit by applying for an individual permit or another general permit. In such cases, the *owner or operator* shall submit an individual application or an alternative general permit application in accordance with the requirements of this general permit, 40 CFR 122.26(c)(1)(ii) and 6 NYCRR Part 621, with reasons supporting the request, to the Department at the address for the appropriate Department Office (see addresses in Appendix F). The request may be granted by issuance of an individual permit or another general permit at the discretion of the Department.
3. When an individual SPDES permit is issued to a discharger authorized to discharge under a general SPDES permit for the same discharge(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance - The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry - The *owner or operator* shall allow the Department or an authorized representative of EPA, the State, or, in the case of a construction site which discharges through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

(Part VII. M)

1. Enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

N. Permit Actions - At the Department's sole discretion, this permit may, at any time, be modified, suspended, revoked, or renewed. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions - Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with *construction activity* covered by this permit, the *owner or operator* of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.
2. Permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports – Article 17 of the ECL provides for a civil penalty of \$37,500 per day per violation of this permit. Articles 175 and 210 of the New York State Penal Law provide for a criminal penalty of a fine and/or imprisonment for falsifying forms and reports required by this permit.

R. Other Permits – Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A

Definitions

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both “sewage” and “stormwater”.

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for “Construction Activity(ies)” also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a construction site by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a construction site to a separate storm sewer system and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or point source.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 authorizing a category of discharges.

Groundwater - means waters in the saturated zone. The saturated zone is a subsurface zone in

which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct construction activities are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that construction activities may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- i. Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
- ii. Designed or used for collecting or conveying stormwater;
- iii. Which is not a *combined sewer*; and
- iv. Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department’s receipt and acceptance of a complete Notice of Intent. This letter documents the owner’s or operator’s authorization to discharge in accordance with the general permit for stormwater discharges from construction activity.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the construction activity is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in Parts 700 et seq of this Title.

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics in order to prepare a SWPPP that conforms to the Department's technical standard. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is required to gain coverage under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s).

Routine Maintenance Activity - means construction activity that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Stream bank restoration projects (does not include the placement of spoil material),
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that makes the transition between the road shoulder and the ditch or embankment,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or embankment,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for point source discharges, load allocations (LAs) for nonpoint sources, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* will be responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B

Required SWPPP Components by Project Type

**Table 1
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP
THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS**

| |
|--|
| <p>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</p> <ul style="list-style-type: none">• Single family home <u>not</u> located in one of the watersheds listed in Appendix C and <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E• Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E• Construction of a barn or other agricultural building, silo, stock yard or pen. |
| <p>The following construction activities that involve soil disturbances of one (1) or more acres of land:</p> <ul style="list-style-type: none">• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects• Bike paths and trails• Sidewalk construction projects that are not part of a road/ highway construction or reconstruction project• Slope stabilization projects• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics• Spoil areas that will be covered with vegetation• Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields), excluding projects that <i>alter hydrology from pre to post development</i> conditions• Athletic fields (natural grass) that do not include the construction or reconstruction of <i>impervious area</i> <u>and</u> do not <i>alter hydrology from pre to post development</i> conditions• Demolition project where vegetation will be established and no redevelopment is planned• Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with <i>impervious cover</i>• Structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State”, excluding projects that involve soil disturbances of less than five acres and construction activities that include the construction or reconstruction of impervious area |
| <p>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</p> <ul style="list-style-type: none">• All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land. |

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP
THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other agricultural building(e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional, includes hospitals, prisons, schools and colleges
- Industrial facilities, includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s and water treatment plants
- Office complexes
- Sports complexes
- Racetracks, includes racetracks with earthen (dirt) surface
- Road construction or reconstruction
- Parking lot construction or reconstruction
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover*, and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project or other linear utility project
- All other construction activities that include the construction or reconstruction of *impervious area* and alter the hydrology from pre to post development conditions, and are not listed in Table 1

APPENDIX C

Watersheds Where Enhanced Phosphorus Removal Standards Are Required

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual (“Design Manual”).

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4

Figure 1 - New York City Watershed East of the Hudson

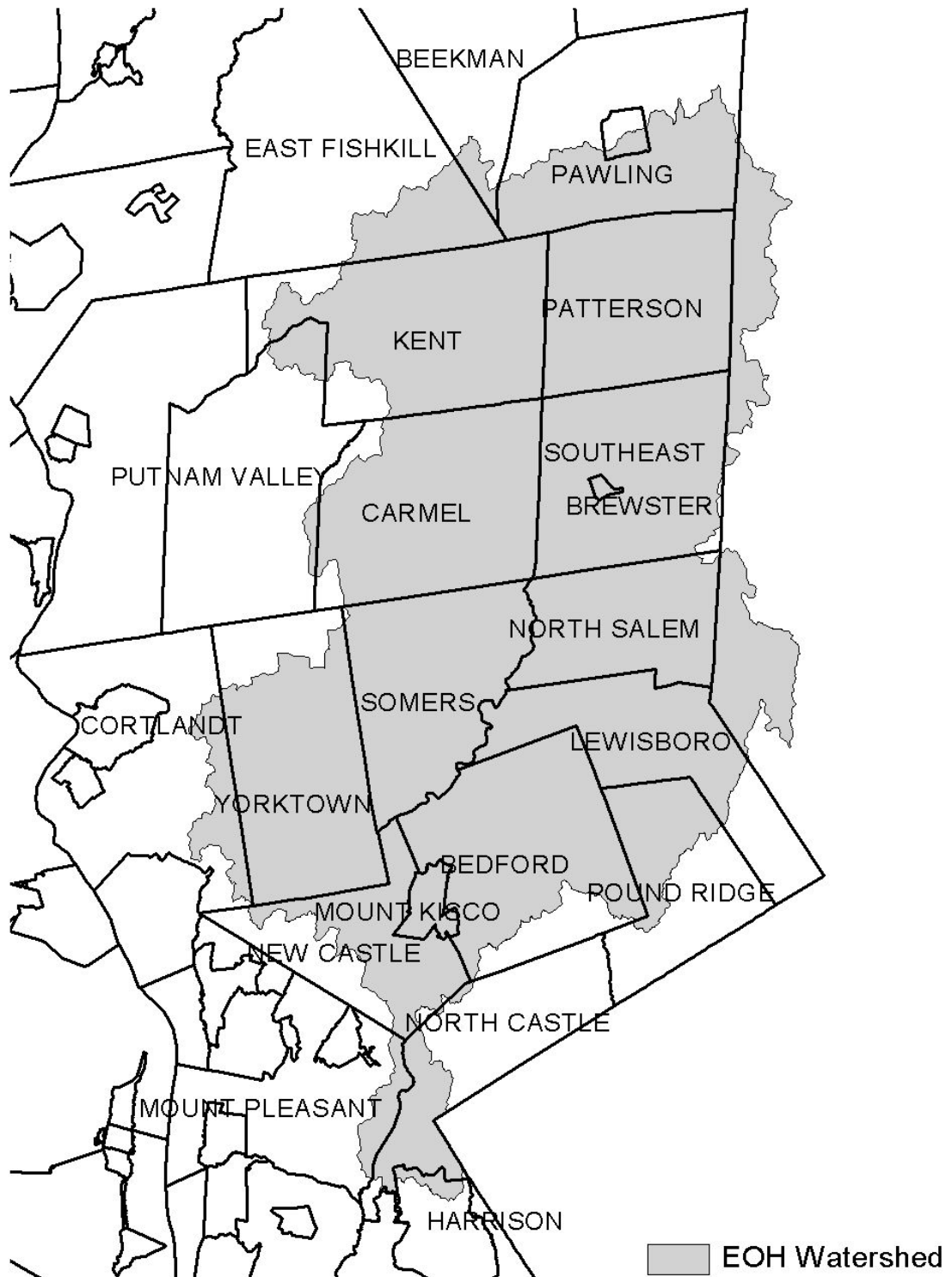


Figure 2 - Onondaga Lake Watershed



Figure 3 - Greenwood Lake Watershed

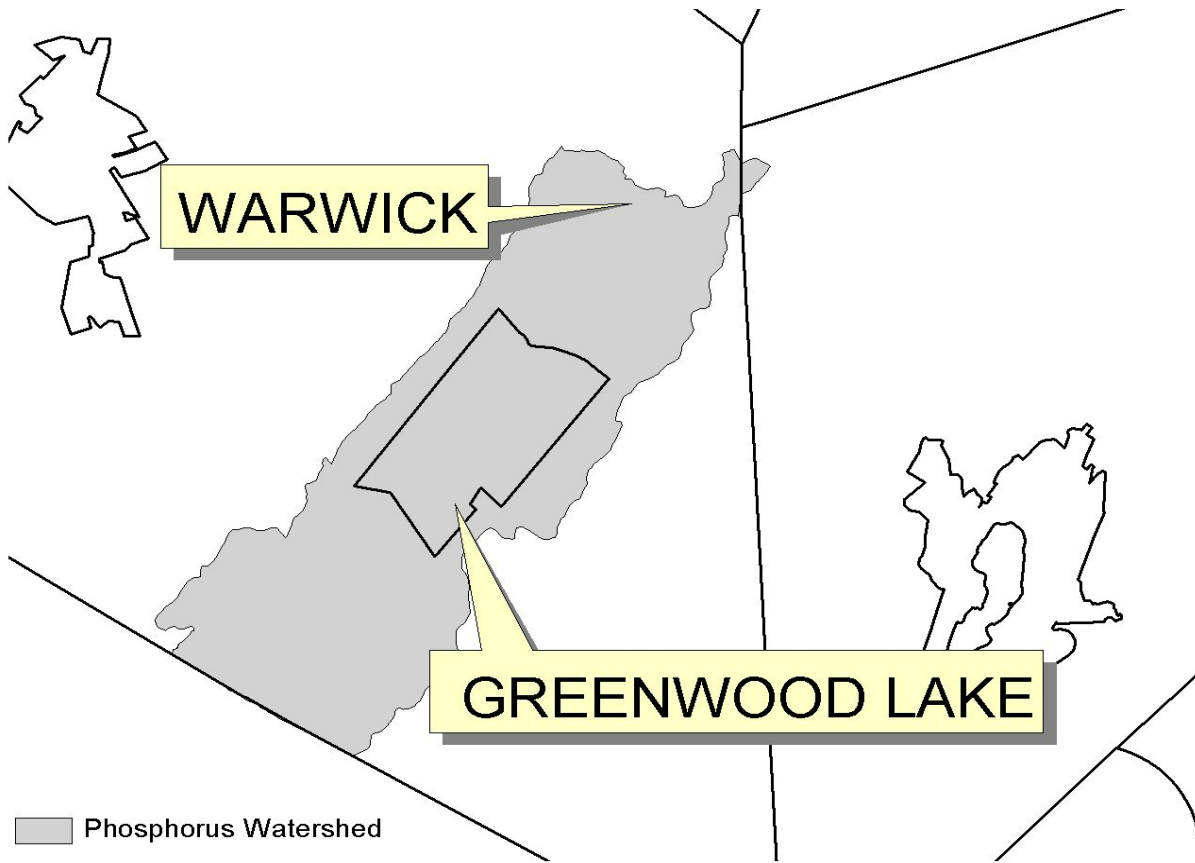
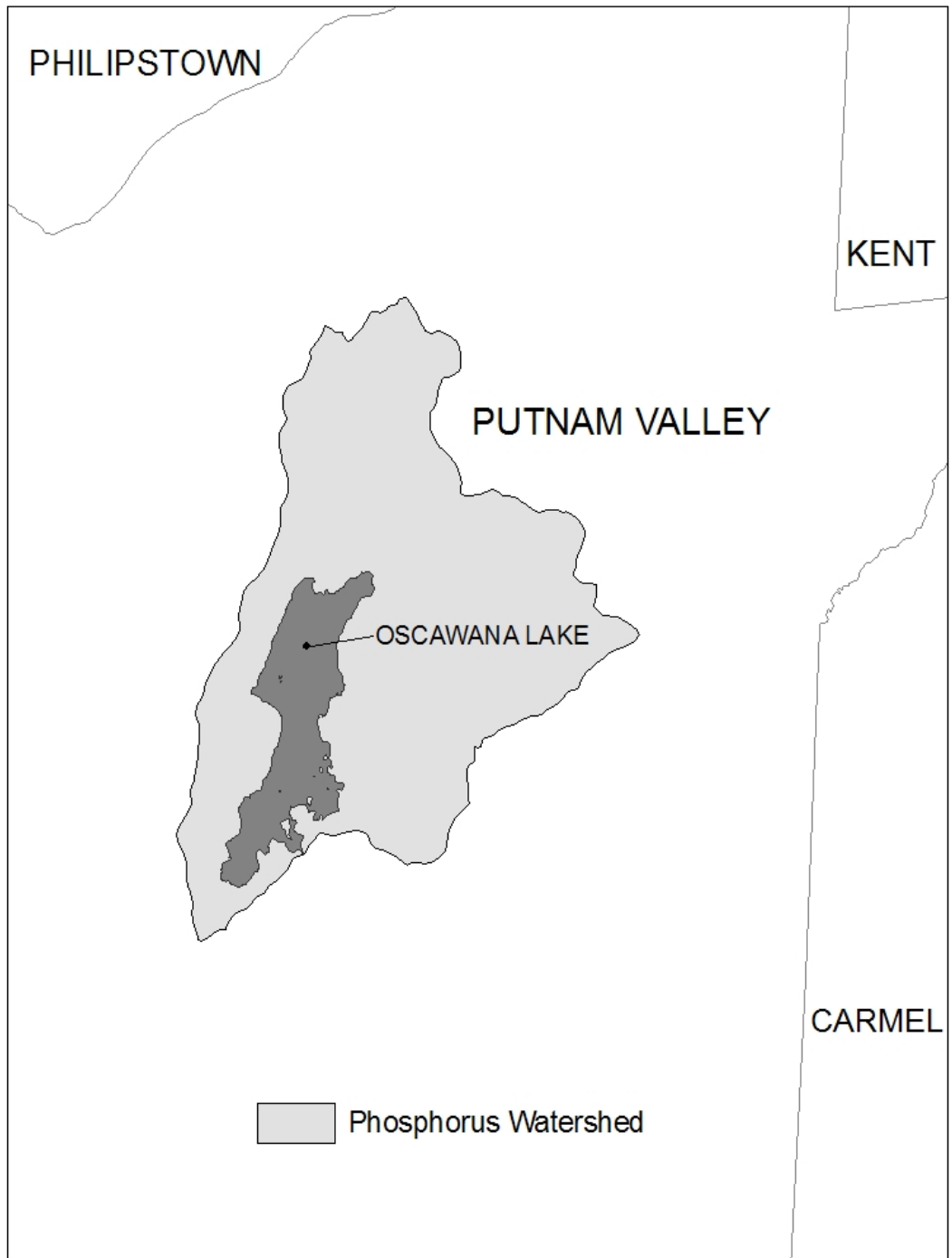


Figure 4 - Oscawana Lake Watershed



APPENDIX D

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

APPENDIX E

List of 303(d) segments impaired by pollutants related to construction activity (e.g. silt, sediment or nutrients). *Owners or operators* of single family home and single family residential subdivision construction activities that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the most current version of the technical standard, New York State Stormwater Management Design Manual (“Design Manual”).

| COUNTY | WATERBODY | COUNTY | WATERBODY |
|------------|---|-------------|--|
| Albany | Ann Lee (Shakers) Pond, Stump Pond | Monroe | Genesee River, Lower, Main Stem |
| Albany | Basic Creek Reservoir | Monroe | Genesee River, Middle, Main Stem |
| Bronx | Van Cortlandt Lake | Monroe | Black Creek, Lower, and minor tribs |
| Broome | Whitney Point Lake/Reservoir | Monroe | Buck Pond |
| Broome | Beaver Lake | Monroe | Long Pond |
| Broome | White Birch Lake | Monroe | Cranberry Pond |
| Chautauqua | Chautauqua Lake, North | Monroe | Mill Creek and tribs |
| Chautauqua | Chautauqua Lake, South | Monroe | Shipbuilders Creek and tribs |
| Chautauqua | Bear Lake | Monroe | Minor tribs to Irondequoit Bay |
| Chautauqua | Chadakoin River and tribs | Monroe | Thomas Creek/White Brook and tribs |
| Chautauqua | Lower Cassadaga Lake | Nassau | Glen Cove Creek, Lower, and tribs |
| Chautauqua | Middle Cassadaga Lake | Nassau | LI Tribs (fresh) to East Bay |
| Chautauqua | Findley Lake | Nassau | East Meadow Brook, Upper, and tribs |
| Clinton | Great Chazy River, Lower, Main Stem | Nassau | Hempstead Bay |
| Columbia | Kinderhook Lake | Nassau | Hempstead Lake |
| Columbia | Robinson Pond | Nassau | Grant Park Pond |
| Dutchess | Hillside Lake | Niagara | Bergholtz Creek and tribs |
| Dutchess | Wappinger Lakes | Oneida | Ballou, Nail Creeks |
| Dutchess | Fall Kill and tribs | Onondaga | Ley Creek and tribs |
| Dutchess | Rudd Pond | Onondaga | Onondaga Creek, Lower and tribs |
| Erie | Rush Creek and tribs | Onondaga | Onondaga creek, Middle and tribs |
| Erie | Ellicott Creek, Lower, and tribs | Onondaga | Onondaga Creek, Upper, and minor tribs |
| Erie | Beeman Creek and tribs | Onondaga | Harbor Brook, Lower, and tribs |
| Erie | Murder Creek, Lower, and tribs | Onondaga | Ninemile Creek, Lower, and tribs |
| Erie | South Branch Smoke Cr, Lower, and tribs | Onondaga | Minor tribs to Onondaga Lake |
| Erie | Little Sister Creek, Lower, and tribs | Ontario | Honeoye Lake |
| Essex | Lake George (primary county listed as Warren) | Ontario | Hemlock Lake Outlet and minor tribs |
| Genesee | Black Creek, Upper, and minor tribs | Ontario | Great Brook and minor tribs |
| Genesee | Tonawanda Creek, Middle, Main Stem | Oswego | Lake Neatahwanta |
| Genesee | Tonawanda Creek, Upper, and minor tribs | Putnam | Oscawana Lake |
| Genesee | Little Tonawanda Creek, Lower, and tribs | Putnam | Lake Carmel |
| Genesee | Oak Orchard Creek, Upper, and tribs | Queens | Jamaica Bay, Eastern, and tribs (Queens) |
| Genesee | Bowen Brook and tribs | Queens | Bergen Basin |
| Genesee | Bigelow Creek and tribs | Queens | Shellbank Basin |
| Greene | Schoharie Reservoir | Rensselaer | Snyders Lake |
| Greene | Sleepy Hollow Lake | Richmond | Grasmere, Arbutus and Wolfes Lakes |
| Herkimer | Steele Creek tribs | Saratoga | Dwaas Kill and tribs |
| Kings | Hendrix Creek | Saratoga | Tribs to Lake Lonely |
| Lewis | Mill Creek/South Branch and tribs | Saratoga | Lake Lonely |
| Livingston | Conesus Lake | Saratoga | Schuyler Creek and tribs |
| Livingston | Jaycox Creek and tribs | Schenectady | Collins Lake |
| Livingston | Mill Creek and minor tribs | | |

APPENDIX E

List of 303(d) segments impaired by pollutants related to construction activity, cont'd.

| COUNTY | WATERBODY | COUNTY | WATERBODY |
|--------------|--|--------|-----------|
| Schoharie | Engleville Pond | | |
| Schoharie | Summit Lake | | |
| St. Lawrence | Black Lake Outlet/Black Lake | | |
| Steuben | Lake Salubria | | |
| Steuben | Smith Pond | | |
| Suffolk | Millers Pond | | |
| Suffolk | Mattituck (Marratooka) Pond | | |
| Suffolk | Tidal tribs to West Moriches Bay | | |
| Suffolk | Canaan Lake | | |
| Suffolk | Lake Ronkonkoma | | |
| Tompkins | Cayuga Lake, Southern End | | |
| Tompkins | Owasco Inlet, Upper, and tribs | | |
| Ulster | Ashokan Reservoir | | |
| Ulster | Esopus Creek, Upper, and minor tribs | | |
| Warren | Lake George | | |
| Warren | Tribs to L.George, Village of L George | | |
| Warren | Huddle/Finkle Brooks and tribs | | |
| Warren | Indian Brook and tribs | | |
| Warren | Hague Brook and tribs | | |
| Washington | Tribs to L.George, East Shore of Lake George | | |
| Washington | Cossayuna Lake | | |
| Wayne | Port Bay | | |
| Wayne | Marbletown Creek and tribs | | |
| Westchester | Peach Lake | | |
| Westchester | Mamaroneck River, Lower | | |
| Westchester | Mamaroneck River, Upper, and minor tribs | | |
| Westchester | Sheldrake River and tribs | | |
| Westchester | Blind Brook, Lower | | |
| Westchester | Blind Brook, Upper, and tribs | | |
| Westchester | Lake Lincolndale | | |
| Westchester | Lake Meahaugh | | |
| Wyoming | Java Lake | | |
| Wyoming | Silver Lake | | |

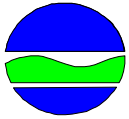
Note: The list above identifies those waters from the final New York State “2008 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy”, dated May 26, 2008, that are impaired by silt, sediment or nutrients.

APPENDIX F

LIST OF NYS DEC REGIONAL OFFICES

| <u>Region</u> | <u>COVERING THE FOLLOWING COUNTIES:</u> | <u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u> | <u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u> |
|---------------|--|--|--|
| 1 | NASSAU AND SUFFOLK | 50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365 | 50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405 |
| 2 | BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND | 1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997 | 1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933 |
| 3 | DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER | 21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059 | 100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505 |
| 4 | ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE | 1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069 | 1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045 |
| 5 | CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON | 1115 STATE ROUTE 86, PO BOX 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234 | 232 GOLF COURSE ROAD, PO BOX 220 WARRENSBURG, NY 12885-0220 TEL. (518) 623-1200 |
| 6 | HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE | STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245 | STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554 |
| 7 | BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS | 615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438 | 615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500 |
| 8 | CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES | 6274 EAST AVON-LIMA ROAD AVON, NY 14414-9519 TEL. (585) 226-2466 | 6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466 |
| 9 | ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING | 270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165 | 270 MICHIGAN AVE. BUFFALO, NY 14203-2999 TEL. (716) 851-7070 |

NOTICE OF INTENT



**New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505**

NYR
(For DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-10-001
All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

- IMPORTANT -
RETURN THIS FORM TO THE ADDRESS ABOVE
OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State Zip -

Phone (Owner/Operator) - - Fax (Owner/Operator) - -

Email (Owner/Operator)

FED TAX ID - (not required for individuals)

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

**Pre-Development
Existing Land Use**

- FOREST
- PASTURE/OPEN LAND
- CULTIVATED LAND
- SINGLE FAMILY HOME
- SINGLE FAMILY SUBDIVISION
- TOWN HOME RESIDENTIAL
- MULTIFAMILY RESIDENTIAL
- INSTITUTIONAL/SCHOOL
- INDUSTRIAL
- COMMERCIAL
- ROAD/HIGHWAY
- RECREATIONAL/SPORTS FIELD
- BIKE PATH/TRAIL
- LINEAR UTILITY
- PARKING LOT
- OTHER

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**Post-Development
Future Land Use**

- SINGLE FAMILY HOME
- SINGLE FAMILY SUBDIVISION
- TOWN HOME RESIDENTIAL
- MULTIFAMILY RESIDENTIAL
- INSTITUTIONAL/SCHOOL
- INDUSTRIAL
- COMMERCIAL
- MUNICIPAL
- ROAD/HIGHWAY
- RECREATIONAL/SPORTS FIELD
- BIKE PATH/TRAIL
- LINEAR UTILITY (water, sewer, gas, etc.)
- PARKING LOT
- CLEARING/GRADING ONLY
- DEMOLITION, NO REDEVELOPMENT
- WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- OTHER

Number of Lots

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*note: for gas well drilling, non-high volume hydraulic fractured wells only

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? Yes No

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? Yes No

6. Is this property owned by a state authority, state agency, federal government or local government? Yes No

7. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

| Total Site Acreage | Acreage To Be Disturbed | Existing Impervious Area Within Disturbed | Future Impervious Area Within Disturbed | | | | | | | | | | | | | | | | | | | | |
|---|----------------------------|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|
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8. Do you plan to disturb more than 5 acres of soil at any one time? Yes No

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

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16. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? **If Yes, what is the acreage to be disturbed?** Yes No

.

17. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? Yes No

18. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? Yes No Unknown

19. What is the name of the municipality/entity that owns the separate storm sewer system?

20. Does any runoff from the site enter a sewer classified as a Combined Sewer? Yes No Unknown

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ? Yes No

22. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) (If No, skip questions 23 and 27-35) Yes No

23. Have the Water Quality and Quantity Control components of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual ? Yes No

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- Professional Engineer (P.E.)
- Soil and Water Conservation District (SWCD)
- Registered Landscape Architect (R.L.A)
- Certified Professional in Erosion and Sediment Control (CPESC)
- Owner/Operator
- Other

[Empty grid for other details]

SWPPP Preparer

[Empty grid for SWPPP Preparer name]

Contact Name (Last, Space, First)

[Empty grid for Contact Name]

Mailing Address

[Empty grid for Mailing Address]

City

[Empty grid for City]

State

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Zip

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SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-10-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name

[Empty grid for First Name]

MI

[Empty box for MI]

Last Name

[Empty grid for Last Name]

Signature

[Empty box for Signature]

Date

[Empty box for Date]

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30. Provide the total water quality volume required and the total provided for the site.

WQv Required
 . acre-feet

WQv Provided
 . acre-feet

31. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required
 . acre-feet

CPv Provided
 . acre-feet

31a. The need to provide for channel protection has been waived because:

- Site discharges directly to fourth order stream or larger

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development
 . CFS

Post-development
 . CFS

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development
 . CFS

Post-development
 . CFS

31b. The need to provide for flood control has been waived because:

- Site discharges directly to fourth order stream or larger
- Downstream analysis reveals that flood control is not required

IMPORTANT: For questions 31 and 32, impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s). (Total Drainage Area = Project Site + Offsite areas)

32. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. %

33. Post-Construction Impervious Area - As a percent of the Total Drainage Area, enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. %

34. Indicate the total number of post-construction stormwater management practices to be installed/constructed.

35. Provide the total number of stormwater discharge points from the site. (include discharges to either surface waters or to separate storm sewer systems)

36. Identify other DEC permits that are required for this project.

DEC Permits

- Air Pollution Control Navigable Waters Protection / Article 15
- Coastal Erosion Water Quality Certificate
- Hazardous Waste Dam Safety
- Long Island Wells Water Supply
- Mined Land Reclamation Freshwater Wetlands/Article 24
- Other SPDES Tidal Wetlands
- Solid Waste Wild, Scenic and Recreational Rivers
- None Stream Bed or Bank Protection / Article 15
- Other

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37. Does this project require a US Army Corps of Engineers Wetland Permit? Yes No
 If Yes, Indicate Size of Impact.

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38. Is this project subject to the requirements of a regulated, traditional land use control MS4? Yes No
 (If No, skip question 39)

39. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? Yes No

40. If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.

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Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

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Owner/Operator Signature

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Date

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APPENDIX B-2

EROSION AND SEDIMENT CONTROLS



**New York State
DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

Division of Water

New York State Standards and Specifications for Erosion and Sediment Control

August 2005



**New York State
Department of Environmental Conservation**

George E. Pataki, Governor

STANDARD AND SPECIFICATIONS FOR TEMPORARY CRITICAL AREA PLANTINGS



Definition

Providing erosion control protection to a critical area for an interim period. A critical area is any disturbed, denuded slope subject to erosion.

Purpose

To provide temporary erosion and sediment control. Temporary control is achieved by covering all bare ground areas that exist as a result of construction or a natural event.

Conditions Where Practice Applies

Temporary seedings may be necessary on construction sites to protect an area, or section, where final grading is complete, when preparing for winter work shutdown, or to provide cover when permanent seedings are likely to fail due to mid-summer heat and drought. The intent is to provide temporary protective cover during temporary shutdown of construction and/or while waiting for optimal planting time.

Criteria

Water management practices must be installed as appropriate for site conditions. The area must be rough graded and slopes physically stable. Large debris and rocks are usually removed. Seedbed must be seeded within 24 hours of disturbance or scarification of the soil surface will be necessary prior to seeding.

Fertilizer or lime are not typically used for temporary seedings.

IF: Spring or summer or early fall, then seed the area with ryegrass (annual or perennial) at 30 lbs. per acre (Approximately 0.7 lb./1000 sq. ft. or use 1 lb./1000 sq. ft.).
IF: Late fall or early winter, then seed Certified 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2.5 lbs./1000 sq. ft.).

Any seeding method may be used that will provide uniform application of seed to the area and result in relatively good soil to seed contact.

Mulch the area with hay or straw at 2 tons/acre (approx. 90 lbs./1000 sq. ft. or 2 bales). Quality of hay or straw mulch allowable will be determined based on long term use and visual concerns. Mulch anchoring will be required where wind or areas of concentrated water are of concern. Wood fiber hydromulch or other sprayable products approved for erosion control (nylon web or mesh) may be used if applied according to manufacturers' specification. Caution is advised when using nylon or other synthetic products. They may be difficult to remove prior to final seeding.

STANDARD AND SPECIFICATIONS FOR MULCHING



Definition

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface.

Purpose

The primary purpose is to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch is also used alone for temporary stabilization in non-growing months.

Conditions Where Practice Applies

On soils subject to erosion and on new seedlings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

Criteria

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.

Table 3.7
Guide to Mulch Materials, Rates, and Uses

| Mulch Material | Quality Standards | per 1000 Sq. Ft. | per Acre | Depth of Application | Remarks |
|--|--|---|------------------------|-----------------------------|--|
| Wood chips or shavings | Air-dried. Free of objectionable coarse material | 500-900 lbs. | 10-20 tons | 2-7" | Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly. |
| Wood fiber cellulose (partly digested wood fibers) | Made from natural wood usually with green dye and dispersing agent | 50 lbs. | 2,000 lbs. | — | Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw. |
| Gravel, Crushed Stone or Slag | Washed; Size 2B or 3A—1 1/2" | 9 cu. yds. | 405 cu. yds. | 3" | Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control. |
| Hay or Straw | Air-dried; free of undesirable seeds & coarse materials | 90-100 lbs. 2-3 bales | 2 tons (100-120 bales) | cover about 90% surface | Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds. |
| Jute twisted yarn | Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/yd. 60-90 lbs./roll | 48" x 50 yds. or 48" x 75 yds. | — | — | Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow. |
| Excelsior wood fiber mats | Interlocking web of excelsior fibers with photodegradable plastic netting | 8" x 100" 2-sided plastic, 48" x 180" 1-sided plastic | — | — | Use without additional mulch. Excellent for seeding establishment. Tie down as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways. |
| Compost | Up to 3" pieces, moderately to highly stable | 3-9 cu. yds. | 134-402 cu. yds. | 1-3" | Coarser textured mulches may be more effective in reducing weed growth and wind erosion. |
| Straw or coconut fiber, or combination | Photodegradable plastic net on one or two sides | Most are 6.5 ft. x 3.5 ft. | 81 rolls | — | Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll. |

Table 3.8
Mulch Anchoring Guide

| Anchoring Method or Material | Kind of Mulch to be Anchored | How to Apply |
|---|---|---|
| 1. Peg and Twine | Hay or straw | After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine. |
| 2. Mulch netting | Hay or straw | Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic. |
| 3. Wood cellulose fiber | Hay or straw | Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous. |
| 4. Mulch anchoring tool | Hay or straw | Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3". |
| 5. Tackifier | Hay or straw | Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45 ⁰ Fahrenheit are required. |

STANDARD AND SPECIFICATIONS FOR TEMPORARY SWALE



| | <u>Swale A</u> | <u>Swale B</u> |
|---------------------------------|-----------------------|-----------------------|
| Drainage Area | <5 Ac | 5-10 Ac |
| Bottom Width of Flow Channel | 4 ft | 6 ft |
| Depth of Flow Channel | 1 ft | 1 ft |
| Side Slopes | 2:1 or flatter | 2:1 or flatter |
| Grade | 0.5% Min. 20% Max. | 0.5% Min. 20% Max. |

For drainage areas larger than 10 acres, refer to the Standard and Specification for Waterways on page 5B.11.

Stabilization

Stabilization of the swale shall be completed within 7 days of installation in accordance with the appropriate standard and specifications for vegetative stabilization or stabilization with mulch as determined by the time of year. The flow channel shall be stabilized as per the following criteria:

| Type of Treatment | Channel Grade ¹ | Flow Channel | |
|-------------------|----------------------------|--|---|
| | | A (<5 Ac.) | B (5-10 Ac) |
| 1 | 0.5-3.0% | Seed & Straw Mulch | Seed & Straw Mulch |
| 2 | 3.1-5.0% | Seed & Straw Mulch | Seed and cover with RECP, Sod, or lined with plastic or 2 in. stone |
| 3 | 5.1-8.0% | Seed and cover with RECP, Sod, or line with plastic or 2 in. stone | Line with 4-8 in. or stone or Recycled Concrete Equivalent ² or geotextile |
| 4 | 8.1-20% | Line with 4-8 in. stone or Recycled Concrete Equivalent ² or geotextile | Site Specific Engineering Design |

Definition

A temporary excavated drainage way.

Purpose

The purpose of a temporary swale is to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet or to intercept sediment laden water and divert it to a sediment trapping device.

Conditions Where Practice Applies

Temporary swales are constructed:

1. to divert flows from entering a disturbed area.
2. intermittently across disturbed areas to shorten overland flow distances.
3. to direct sediment laden water along the base of slopes to a trapping device.
4. to transport offsite flows across disturbed areas such as rights-of-way.

Swales collecting runoff from disturbed areas shall remain in place until the disturbed areas are permanently stabilized.

Design Criteria

See Figure 5A.2 on page 5A.5 for details.

¹ In highly erodible soils, as defined by the local approving agency, refer to the next higher slope grade for type of stabilization.
² Recycled Concrete Equivalent shall be concrete broken into the required size, and shall contain no steel reinforcement.

Outlet

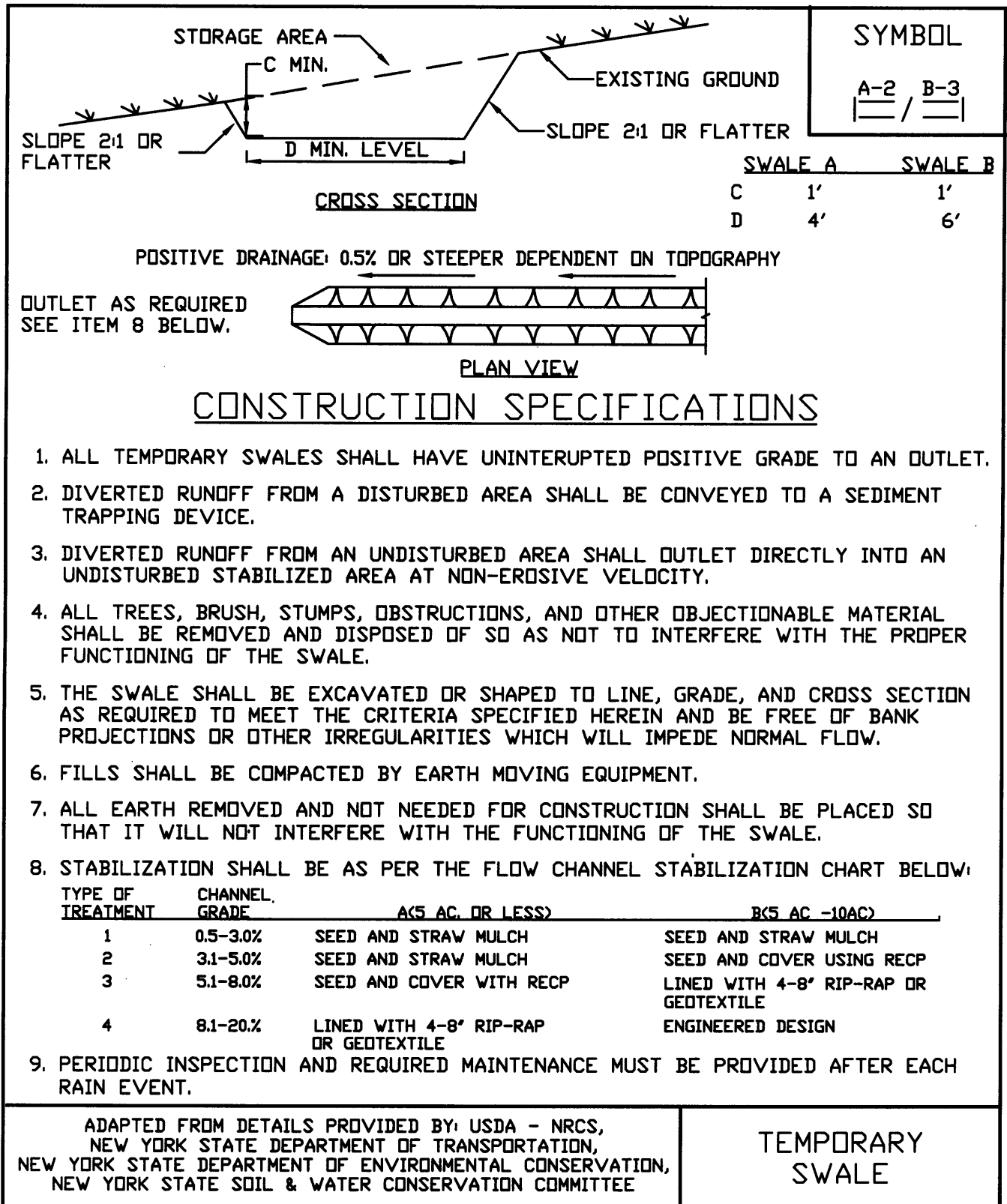
Swale shall have an outlet that functions with a minimum of erosion, and dissipates runoff velocity prior to discharge off the site.

Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin until the drainage area above the swale is adequately stabilized.

The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet condition.

If a swale is used to divert clean water flows from entering a disturbed area, a sediment trapping device may not be needed.

**Figure 5A.2
Temporary Swale**



STANDARD AND SPECIFICATIONS FOR PERIMETER DIKE/SWALE



Definition

A temporary ridge of soil excavated from an adjoining swale located along the perimeter of the site or disturbed area.

Purpose

The purpose of a perimeter dike/swale is to prevent off site storm runoff from entering a disturbed area and to prevent sediment laden storm runoff from leaving the construction site or disturbed area.

Conditions Where Practice Applies

Perimeter dike/swale is constructed to divert flows from entering a disturbed area, or along tops of slopes to prevent flows from eroding the slope, or along base of slopes to direct sediment laden flows to a trapping device.

The perimeter dike/swale shall remain in place until the disturbed areas are permanently stabilized.

Design Criteria

See Figure 5A.3 on page 5A.8 for details.

The perimeter dike/swale shall not be constructed outside the property lines without obtaining legal easements from affected adjacent property owners. A design is not required for perimeter dike/swale. The following criteria shall be used:

Drainage area – Less than 2 acres (for drainage areas larger than 2 acres but less than 10 acres, see earth dike or temporary swale; for drainage areas larger than 10 acres, see standard and specifications for diversion).

Height – 18 inches minimum from bottom of swale to top of dike evenly divided between dike height and swale depth.

Bottom width of dike – 2 feet minimum.

Width of swale – 2 feet minimum.

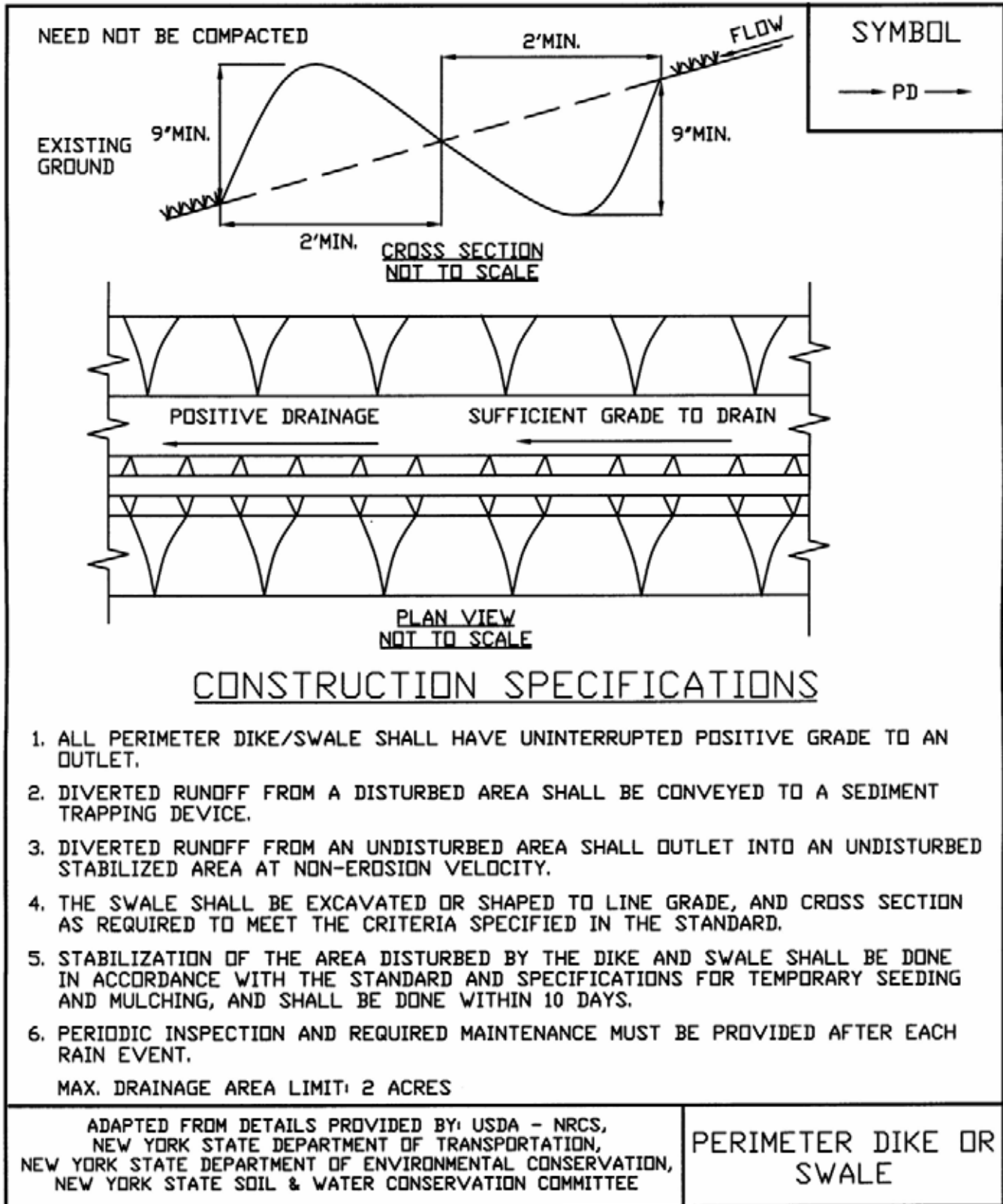
Grade – Dependent upon topography, but shall have positive drainage (sufficient grade to drain) to an adequate outlet. Maximum allowable grade not to exceed 8 percent.

Stabilization – The disturbed area of the dike and swale shall be stabilized within 7 days of installation, in accordance with the standard and specifications for temporary swales.

Outlet

1. Perimeter dike/swale shall have a stabilized outlet.
2. Diverted runoff from a protected or stabilized upland area shall outlet directly onto an undisturbed stabilized area.
3. Diverted runoff from a disturbed or exposed upland area shall be conveyed to a sediment trapping device such as a sediment trap, sediment basin, or to an area protected by any of these practices.
4. The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet.

Figure 5A.3
Perimeter Dike/Swale



STANDARD AND SPECIFICATIONS FOR STRAW BALE DIKE



Definition

A temporary barrier of straw, or similar material, used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose

The purpose of a bale dike is to reduce runoff velocity and effect deposition of the transported sediment load. Straw bale dikes have an estimated design life of three (3) months.

Conditions Where Practice Applies

The straw bale dike is used where:

1. No other practice is feasible.

2. There is no concentration of water in a channel or other drainage way above the barrier.
3. Erosion would occur in the form of sheet erosion.
4. Length of slope above the straw bale dike does not exceed these limits.

| Constructed Slope | Percent Slope | Slope Length (ft.) |
|-------------------|---------------|--------------------|
| 2:1 | 50 | 25 |
| 3:1 | 33 | 50 |
| 4:1 | 25 | 75 |

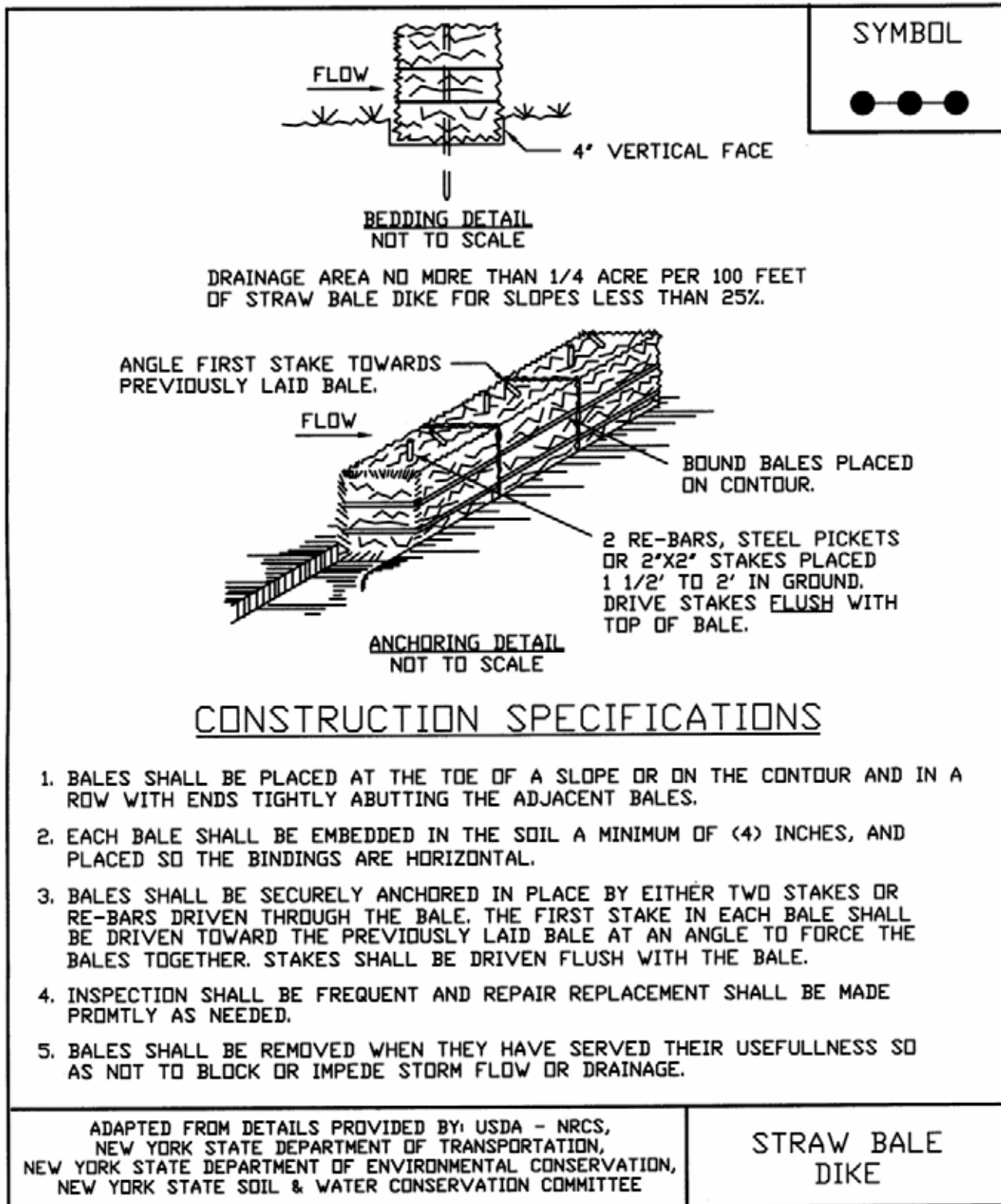
Where slope gradient changes through the drainage area, steepness refers to the steepest slope section contributing to the straw bale dike.

The practice may also be used for a single family lot if the slope is less than 15 percent. The contributing drainage areas in this instance shall be less than one quarter of an acre per 100 feet of fence and the length of slope above the dike shall be less than 200 feet.

Design Criteria

The above table is adequate, in general, for a one-inch rainfall event. Larger storms could cause failure of this practice. Use of this practice in sensitive areas for longer than one month should be specifically designed to store expected runoff. All bales shall be placed on the contour with cut edge of bale adhering to the ground. See Figure 5A.7 on page 5A.18 or details.

**Figure 5A.7
Straw Bale Dike**



STANDARD AND SPECIFICATIONS FOR SILT FENCE



Definition

A temporary barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose

The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment load. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence placed on a slope are:

| Slope Steepness | Maximum Length (ft.) |
|-----------------|----------------------|
| 2:1 | 25 |
| 3:1 | 50 |
| 4:1 | 75 |
| 5:1 or flatter | 100 |

2. Maximum drainage area for overland flow to a silt fence shall not exceed ¼ acre per 100 feet of fence, with maximum ponding depth of 1.5 feet behind the fence; and
3. Erosion would occur in the form of sheet erosion; and
4. There is no concentration of water flowing to the barrier.

Design Criteria

Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff. All silt fences shall be placed as close to the areas as possible, but at least 10 feet from the toe of a slope to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.

Sensitive areas to be protected by silt fence may need to be reinforced by using heavy wire fencing for added support to prevent collapse.

Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. A detail of the silt fence shall be shown on the plan. See Figure 5A.8 on page 5A.21 for details.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

| Fabric Properties | Minimum Acceptable Value | Test Method |
|-----------------------------|--------------------------|-------------|
| Grab Tensile Strength (lbs) | 90 | ASTM D1682 |
| Elongation at Failure (%) | 50 | ASTM D1682 |

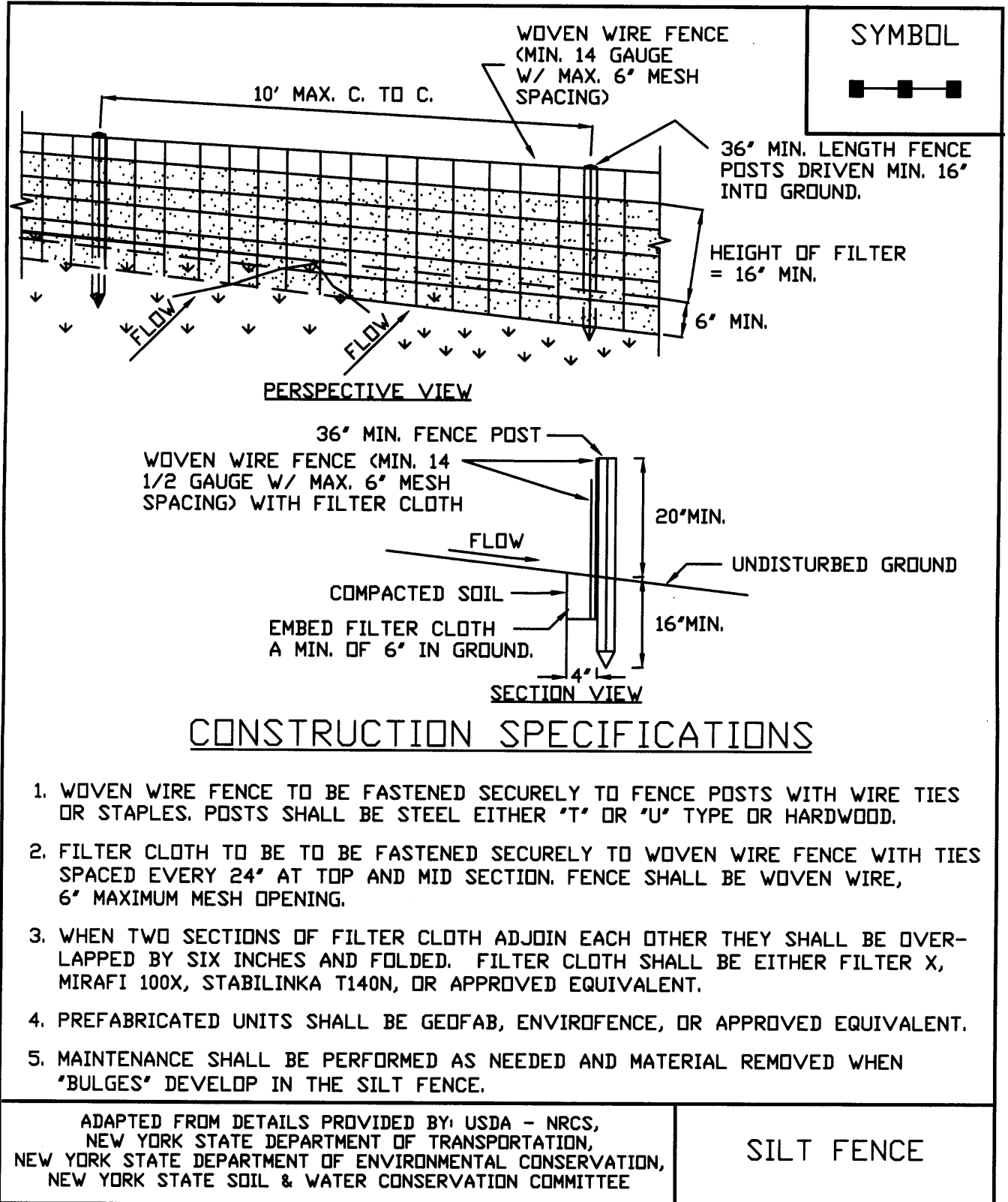
| | | |
|-------------------------------------|-------|-----------------------|
| Mullen Burst Strength (PSI) | 190 | ASTM D3786 |
| Puncture Strength (lbs) | 40 | ASTM D751 (modified) |
| Slurry Flow Rate (gal/min/sf) | 0.3 | |
| Equivalent Opening Size | 40-80 | US Std Sieve CW-02215 |
| Ultraviolet Radiation Stability (%) | 90 | ASTM G-26 |

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot.

3. Wire Fence (for fabricated units): Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated Units: Envirofence, Geofab, or approved equal, may be used in lieu of the above method providing the unit is installed per details shown in Figure 5A.8.

Figure 5A.8
Silt Fence



STANDARD AND SPECIFICATIONS FOR SEDIMENT TRAP



Definition

A temporary sediment control device formed by excavation and/or embankment to intercept sediment laden runoff and retain the sediment.

Purpose

The purpose of the structure is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties, and rights-of-way below the sediment trap from sedimentation.

Conditions Where Practice Applies

A sediment trap is usually installed in a drainage way, at a storm drain inlet, or other points of collection from a disturbed area.

Sediment traps should be used to artificially break up the natural drainage area into smaller sections where a larger device (sediment basin) would be less effective.

Design Criteria

If any of the design criteria presented here cannot be met, see Standard and Specification for Sediment Basin on page 5A.49.

Drainage Area

The drainage area for sediment traps shall be in accordance with the specific type of sediment trap used (Type I through V).

Location

Sediment traps shall be located so that they can be installed

prior to grading or filling in the drainage area they are to protect. Traps must not be located any closer than 20 feet from a proposed building foundation if the trap is to function during building construction. Locate traps to obtain maximum storage benefit from the terrain and for ease of cleanout and disposal of the trapped sediment.

Trap Size

The volume of a sediment trap as measured at the elevation of the crest of the outlet shall be at least 3,600 cubic feet per acre of drainage area. The volume of a constructed trap shall be calculated using standard mathematical procedures. The volume of a natural sediment trap may be approximated by the equation: Volume (cu.ft.) = 0.4 x surface area (sq.ft.) x maximum depth (ft.).

Trap Cleanout

Sediment shall be removed and the trap restored to the original dimensions when the sediment has accumulated to ½ of the design depth of the trap. Sediment removed from the trap shall be deposited in a protected area and in such a manner that it will not erode.

Embankment

All embankments for sediment traps shall not exceed five (5) feet in height as measured at the low point of the original ground along the centerline of the embankment. Embankments shall have a minimum four (4) foot wide top and side slopes of 2:1 or flatter. The embankment shall be compacted by traversing with equipment while it is being constructed. The embankment shall be stabilized with seed and mulch as soon as it is completed

The elevation of the top of any dike directing water to any sediment trap will equal or exceed the maximum height of the outlet structure along the entire length of the trap.

Excavation

All excavation operations shall be carried out in such a manner that erosion and water pollution shall be minimal. Excavated portions of sediment traps shall have 1:1 or flatter slopes.

Outlet

The outlet shall be designed, constructed, and maintained in such a manner that sediment does not leave the trap and that erosion at or below the outlet does not occur.

Sediment traps must outlet onto stabilized (preferable undisturbed) ground, into a watercourse, stabilized channel, or into a storm drain system. Distance between inlet and outlet should be maximized to the longest length practicable.

Trap Details Needed on Erosion and Sediment Control Plans

Each trap shall be delineated on the plans in such a manner that it will not be confused with any other features. Each trap on a plan shall indicate all the information necessary to properly construct and maintain the structure. If the drawings are such that this information cannot be delineated on the drawings, then a table shall be developed. If a table is developed, then each trap on a plan shall have a number and the numbers shall be consecutive.

The following information shall be shown for each trap in a summary table format on the plans.

1. Trap number
2. Type of trap
3. Drainage area
4. Storage required
5. Storage provided (if applicable)
6. Outlet length or pipe sizes
7. Storage depth below outlet or cleanout elevation
8. Embankment height and elevation (if applicable)

Type of Sediment Traps

There are five (5) specific types of sediment traps which vary according to their function, location, or drainage area.

- I. Pipe Outlet Sediment Trap
- II. Grass Outlet Sediment Trap
- III. Catch Basin Sediment Trap
- IV. Stone Outlet Sediment Trap
- V. Riprap Outlet Sediment Trap

I. Pipe Outlet Sediment Trap

A Pipe Outlet Sediment Trap consists of a trap formed by embankment or excavation. The outlet for the trap is through a perforated riser and a pipe through the embankment. The outlet pipe and riser shall be made of steel, corrugated metal or other suitable material. The top of the embankment shall be at least 1 ½ feet above the crest of the riser. The top 2/3 of the riser shall be perforated with one (1) inch nominal diameter holes or slits spaced six (6) inches vertically and horizontally placed in the concave portion of the corrugated pipe.

No holes or slits will be allowed within six (6) inches of the top of the horizontal barrel. All pipe connections shall be watertight. The riser shall be wrapped with ½ to ¼ inch hardware cloth wire then wrapped with filter cloth with a sieve size between #40-80 and secured with strapping or

connecting band at the top and bottom of the cloth. The cloth shall cover an area at least six (6) inches above the highest hole and six (6) inches below the lowest hole. The top of the riser pipe shall not be covered with filter cloth. The riser shall have a base with sufficient weight to prevent flotation of the riser. Two approved bases are:

1. A concrete base 12 in. thick with the riser embedded 9 in. into the concrete base, or
2. One quarter inch, minimum, thick steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2.5 feet of stone, gravel, or earth placed on it to prevent flotation. In either case, each side of the square base measurement shall be the riser diameter plus 24 inches.

Pipe outlet sediment traps shall be limited to a five (5) acre maximum drainage area. Pipe outlet sediment traps may be interchangeable in the field with stone outlet or riprap sediment traps provided that these sediment traps are constructed in accordance with the detail and specifications for that trap.

Select pipe diameter from the following table:

Minimum Sizes

| Barrel Diameter ¹ (in.) | Riser Diameter ¹ (in.) | Maximum Drainage Area (ac.) |
|---------------------------------------|--------------------------------------|--------------------------------|
| 12 | 15 | 1 |
| 15 | 18 | 2 |
| 18 | 21 | 3 |
| 21 | 24 | 4 |
| 21 | 27 | 5 |

¹ Barrel diameter may be same size as riser diameter.

See details for Pipe Outlet Sediment Trap ST-I in Figure 5A.16 (1) and 5A.16 (2) on pages 5A.38 and 5A.39.

II. Grass Outlet Sediment Trap

A Grass Outlet Sediment Trap consists of a trap formed by excavating the earth to create a holding area. The trap has a discharge point over natural existing grass. The outlet crest width (feet) shall be equal to four (4) times the drainage area (acres) with a minimum width of four (4) feet. The outlet shall be free of any restrictions to flow. The outlet lip must remain undisturbed and level. The volume of this trap shall be computed at the elevation of the crest of the outlet. Grass outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Grass Outlet Sediment Trap ST-II in Figure 5A.17 on page 5A.40.

III. Catch Basin Sediment Trap

A Catch Basin Sediment Trap consists of a basin formed by excavation on natural ground that discharges through an opening in a storm drain inlet structure. This opening can either be the inlet opening or a temporary opening made by omitting bricks or blocks in the inlet.

A yard drain inlet or an inlet in the median strip of a dual highway could use the inlet opening for the type outlet. The trap should be out of the roadway so as not to interfere with future compaction or construction. Placing the trap on the opposite side of the opening and diverting water from the roadway to the trap is one means of doing this. Catch basin sediment traps shall be limited to a three (3) acre maximum drainage area. The volume of this trap is measured at the elevation of the crest of the outlet (invert of the inlet opening).

See details for Catch Basin Sediment Trap ST-III in Figure 5A.18 on page 5A.41.

IV. Stone Outlet Sediment Trap

A Stone Outlet Sediment Trap consists of a trap formed by an embankment or excavation. The outlet of this trap is over a stone section placed on level ground. The minimum length (feet) of the outlet shall be equal to four (4) times the drainage area (acres).

Required storage shall be 3,600 cubic feet per acre of drainage area.

The outlet crest (top of stone in weir section) shall be level, at least one (1) foot below top of embankment and no more than one (1) foot above ground beneath the outlet. Stone used in the outlet shall be small riprap (4 in. x 8 in.). To provide more efficient trapping effect, a layer of filter cloth should be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.

Stone Outlet Sediment Traps may be interchangeable in the field with pipe or riprap outlet sediment traps provided they are constructed in accordance with the detail and specifications for those traps. Stone outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Stone Outlet Sediment Trap ST-IV in Figure 5A.19 on page 5A.42.

V. Riprap Outlet Sediment Trap

A Riprap Outlet Sediment Trap consists of a trap formed by an excavation and embankment. The outlet for this trap

shall be through a partially excavated channel lined with riprap. This outlet channel shall discharge onto a stabilized area or to a stable watercourse. The riprap outlet sediment trap may be used for drainage areas of up to a maximum of 15 acres.

Design Criteria for Riprap Outlet Sediment Trap

1. The total contributing drainage area (disturbed or undisturbed either on or off the developing property) shall not exceed 15 acres.
2. The storage needs for this trap shall be computed using 3600 cubic feet of required storage for each acre of drainage area. The storage volume provided can be figured by computing the volume of storage area available behind the outlet structure up to an elevation of one (1) foot below the level weir crest.
3. The maximum height of embankment shall not exceed five (5) feet.
4. The elevation of the top of any dike directing water to a riprap outlet sediment trap will equal or exceed the minimum elevation of the embankment along the entire length of this trap.

Riprap Outlet Sediment Trap ST-V (for Stone Lined Channel)

| Contributing Drainage Area (ac.) | Depth of Channel (a) (ft.) | Length of Weir (b) (ft.) |
|--|----------------------------------|--------------------------------|
| 1 | 1.5 | 4.0 |
| 2 | 1.5 | 5.0 |
| 3 | 1.5 | 6.0 |
| 4 | 1.5 | 10.0 |
| 5 | 1.5 | 12.0 |
| 6 | 1.5 | 14.0 |
| 7 | 1.5 | 16.0 |
| 8 | 2.0 | 10.0 |
| 9 | 2.0 | 10.0 |
| 10 | 2.0 | 12.0 |
| 11 | 2.0 | 14.0 |
| 12 | 2.0 | 14.0 |
| 13 | 2.0 | 16.0 |
| 14 | 2.0 | 16.0 |
| 15 | 2.0 | 18.0 |

See details for Riprap Outlet Sediment Trap ST-V on Figures 5A.20(1) and 5A.20(2) on pages 5A.43 and 5A.44.

Optional Dewatering Methods

Optional dewatering devices may be designed for use with sediment traps. Included are two methods, which may be used. See Figure 5A.21 on page 5A.45 for details.

Figure 5A.16(1)
Pipe Outlet Sediment Trap: ST-I

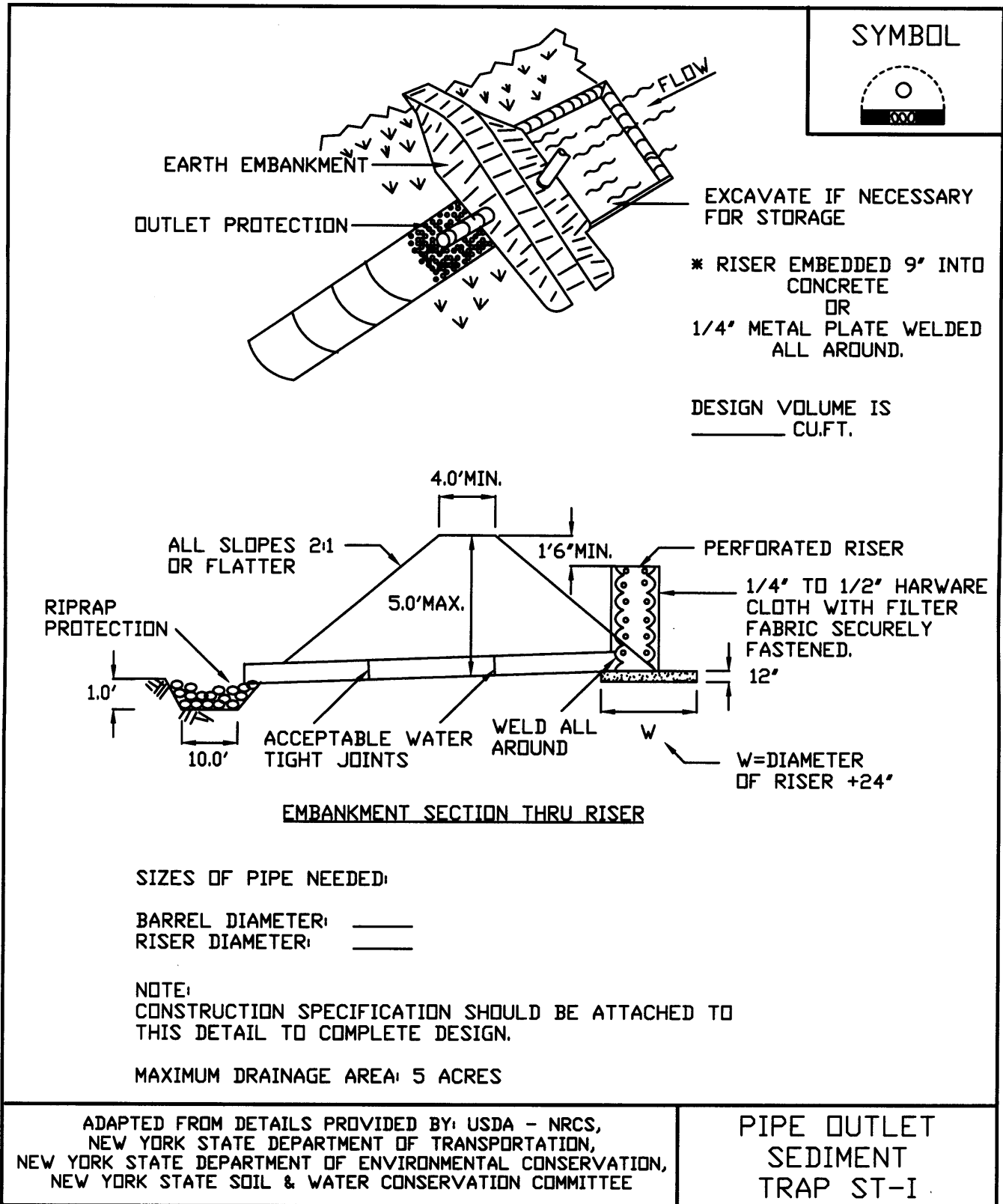


Figure 5A.16(2)
Pipe Outlet Sediment Trap: ST-I—Construction Specifications


| | |
|---|---|
| <p style="font-size: 1.2em; margin: 0;"><u>CONSTRUCTION SPECIFICATIONS</u></p> <ol style="list-style-type: none"> 1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED. 2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED. 3. VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE. 4. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED. 5. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. 6. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED. 7. THE STRUCTURE SHALL BE REMOVED AND AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED. 8. ALL FILL SLOPES SHALL BE 2:1 OR FLATTER; CUT SLOPES 1:1 OR FLATTER. 9. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT. 10. THE TOP 2/3 OF THE RISER SHALL BE PERFORATED WITH ONE (1) INCH DIAMETER HOLES OR SLITS SPACED SIX (6) INCHES VERTICALLY AND HORIZONTALLY AND PLACED IN THE CONCAVE PORTION OF PIPE. NO HOLES WILL BE ALLOWED WITHIN SIX (6) INCHES OF THE HORIZONTAL BARREL. 11. THE RISER SHALL BE WRAPPED WITH 1/4 TO 1/2 INCH HARDWARE CLOTH WIRE THEN WRAPPED WITH FILTER CLOTH (HAVING AN EQUIVALENT SIEVE SIZE OF 40-80). THE FILTER CLOTH SHALL EXTEND SIX (6) INCHES ABOVE THE HIGHEST HOLE AND SIX (6) INCHES BELOW THE LOWEST HOLE. WHERE ENDS OF THE FILTER CLOTH COME TOGETHER, THEY SHALL BE OVER-LAPPED, FOLDED AND STAPLED TO PREVENT BYPASS. 12. STRAPS OR CONNECTING BANDS SHALL BE USED TO HOLD THE FILTER CLOTH AND WIRE FABRIC IN PLACE. THEY SHALL BE PLACED AT THE TOP AND BOTTOM OF THE CLOTH. 13. FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE HAND COMPACTED IN FOUR (4) INCH LAYERS. A MINIMUM OF TWO (2) FEET OF HAND COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. 14. THE RISER SHALL BE ANCHORED WITH EITHER A CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. FOR CONCRETE BASED THE DEPTH SHALL BE TWELVE (12) INCHES WITH THE RISER EMBEDDED NINE (9) INCHES. A 1/4 INCH MINIMUM THICKNESS STEEL PLATE SHALL BE ATTACHED TO THE RISER BY A CONTINUOUS WELD AROUND THE BOTTOM TO FORM A WATERTIGHT CONNECTION AND THEN PLACE TWO (2) FEET OF STONE, GRAVEL, OR TAMPED EARTH ON THE PLATE. | <p style="font-weight: bold; margin: 0;">SYMBOL</p>  |
| <p style="font-size: 0.8em; margin: 0;">ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE</p> | <p style="font-weight: bold; margin: 0;">PIPE OUTLET SEDIMENT TRAP ST-I</p> |

Figure 5A.17
Grass Outlet Sediment Trap: ST-II

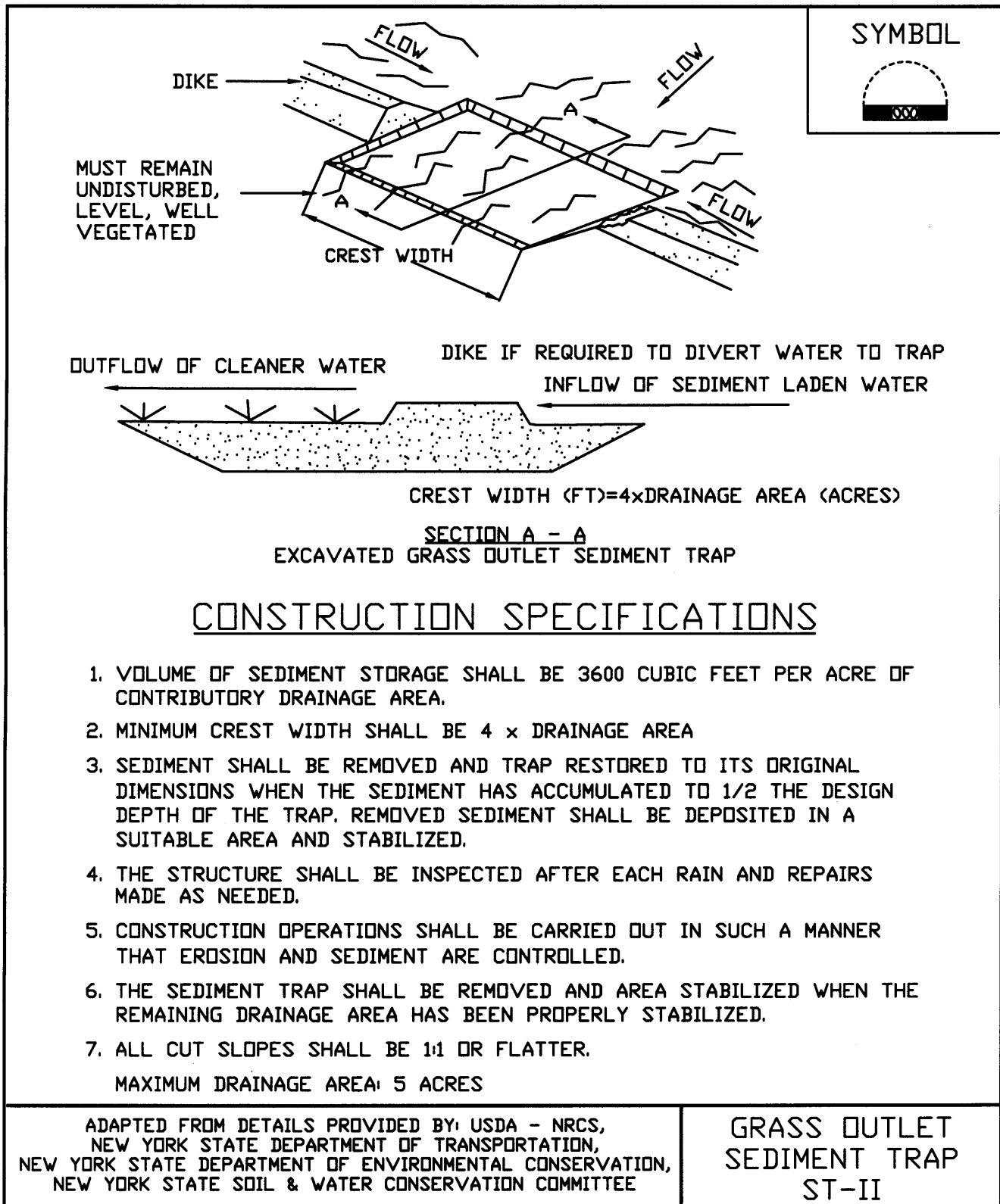


Figure 5A.18
Catch Basin Sediment Trap: ST-III

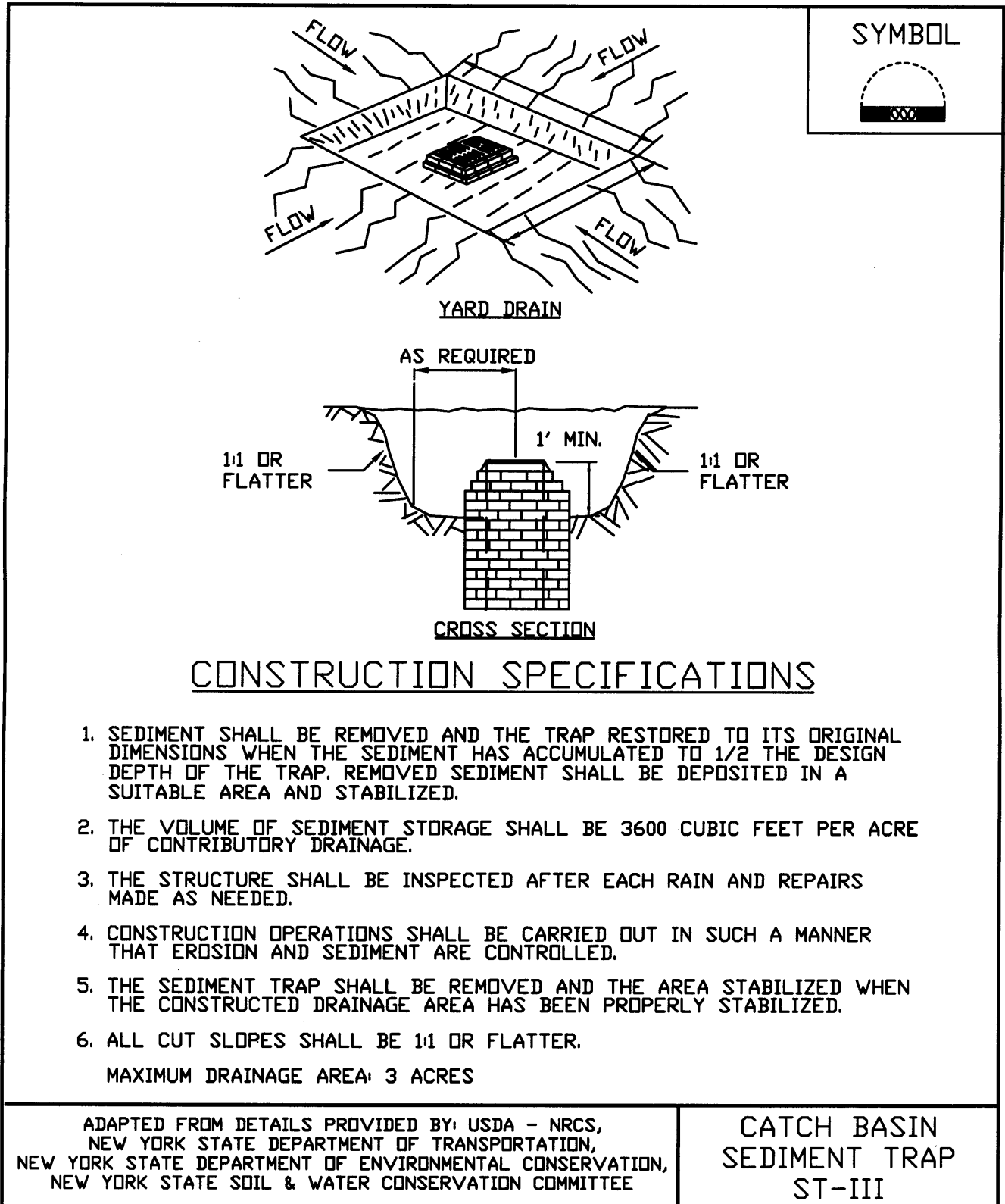
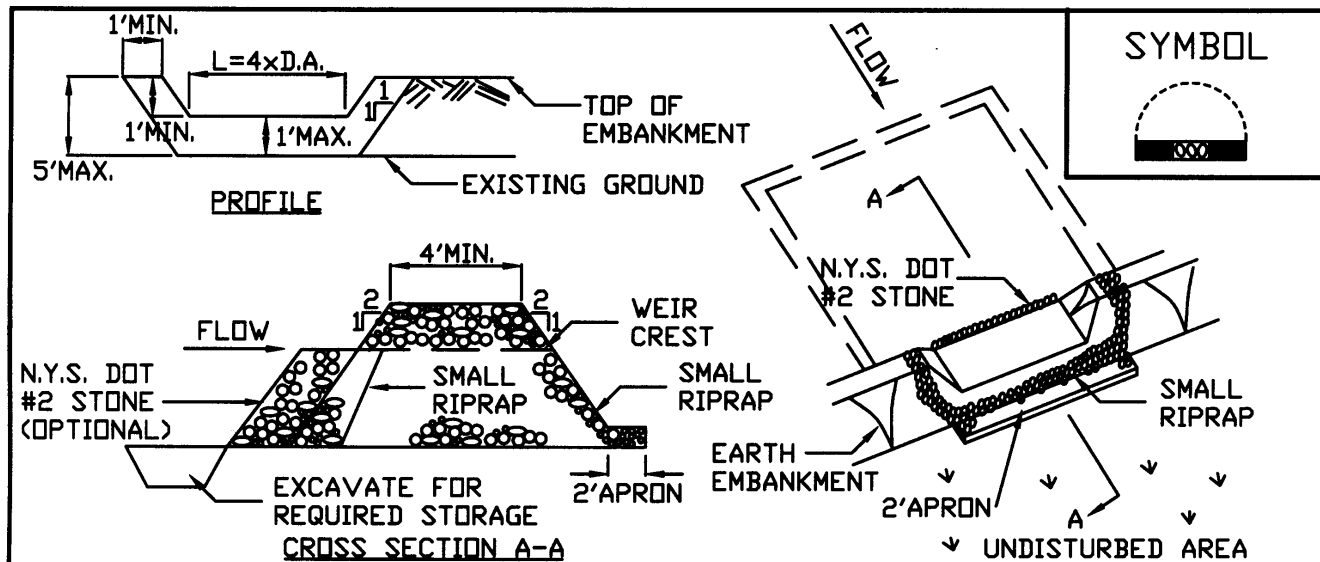


Figure 5A.19
Stone Outlet Sediment Trap: ST-IV



OPTION: A ONE FOOT LAYER OF N.Y.S. DOT #2 STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP IN PLACE OF THE EMBEDDED FILTER CLOTH.

CONSTRUCTION SPECIFICATIONS

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

MAXIMUM DRAINAGE AREA 5 ACRES

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE OUTLET
SEDIMENT TRAP
ST-IV

Figure 5A.20(1)
Riprap Outlet Sediment Trap: ST-V

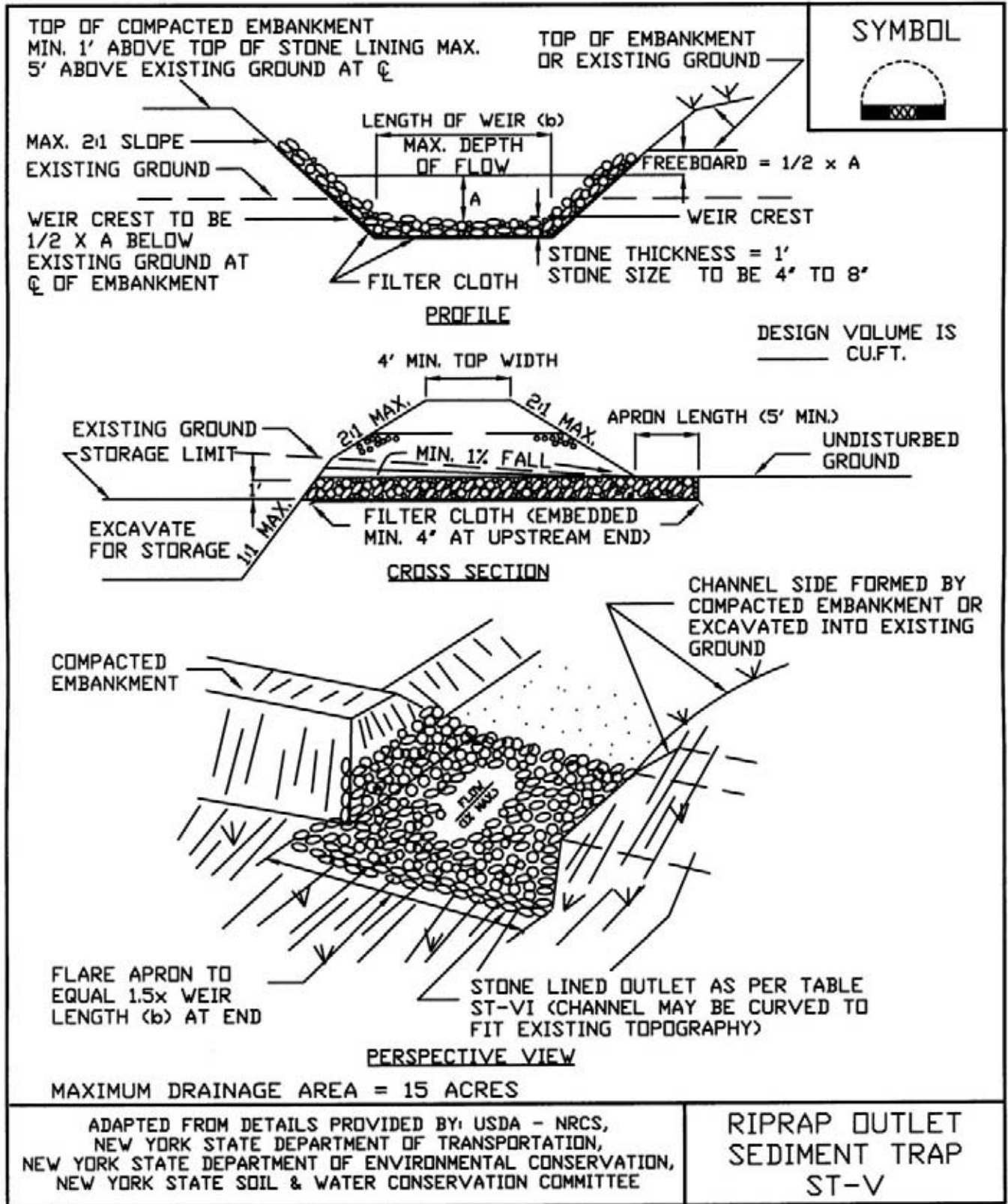


Figure 5A.202)

Riprap Outlet Sediment Trap: ST-V—Construction Specifications


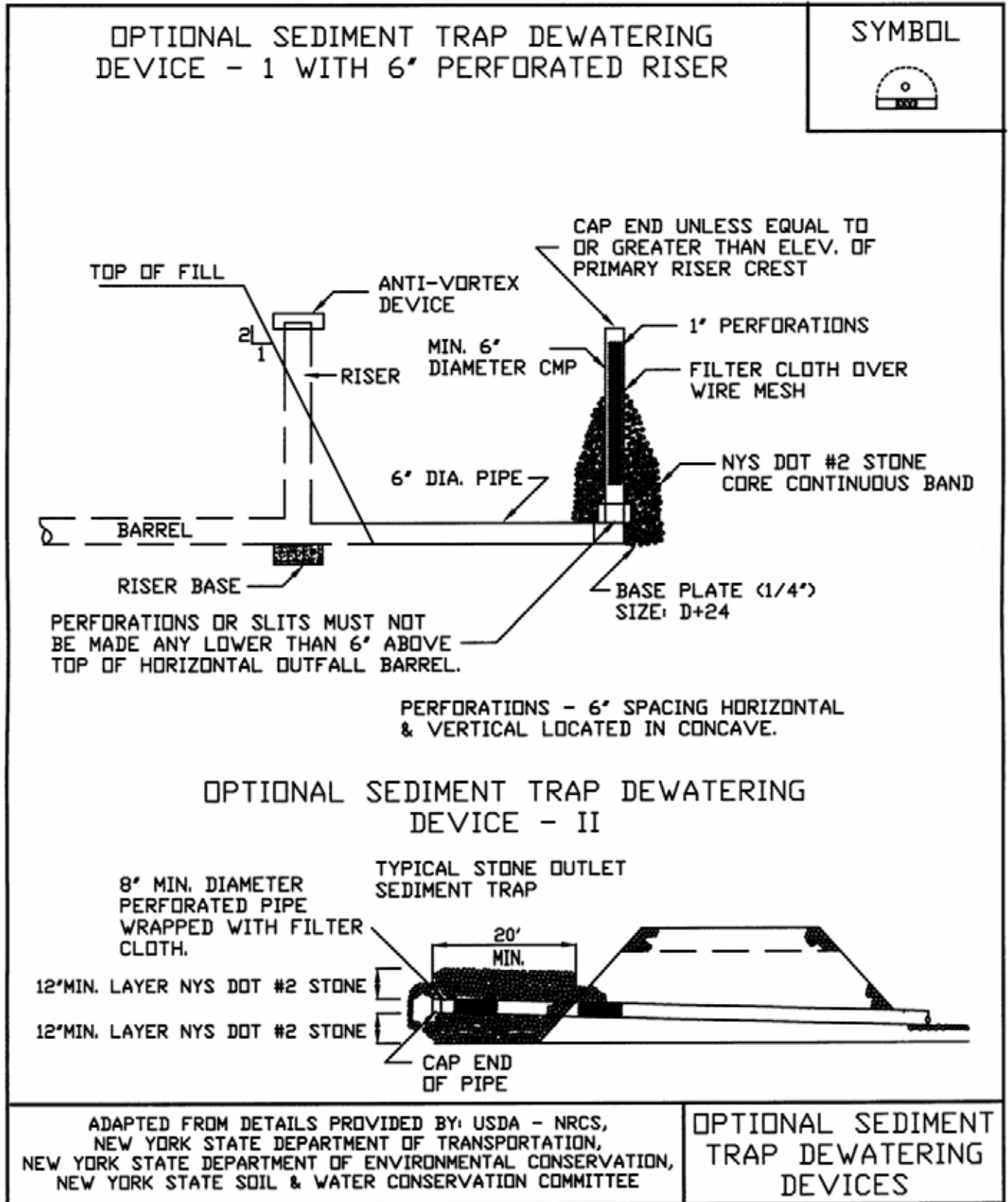
| | |
|---|---|
| <p>SYMBOL</p>  | |
| <h2><u>CONSTRUCTION SPECIFICATIONS</u></h2> | |
| <ol style="list-style-type: none">1. THE AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED. MAXIMUM HEIGHT OF OF EMBANKMENT SHALL BE FIVE (5) FEET, MEASURED AT CENTERLINE OF EMBANKMENT.3. ALL FILL SLOPES SHALL BE 2:1 OR FLATTER, CUT SLOPES 1:1 OR FLATTER.4. ELEVATION OF THE TOP OF ANY DIKE DIRECTING WATER INTO TRAP MUST EQUAL OR EXCEED THE HEIGHT OF EMBANKMENT.5. STORAGE AREA PROVIDED SHALL BE FIGURED BY COMPUTING THE VOLUME AVAILABLE BEHIND THE OUTLET CHANNEL UP TO AN ELEVATION OF ONE (1) FOOT BELOW THE LEVEL WEIR CREST.6. FILTER CLOTH SHALL BE PLACED OVER THE BOTTOM AND SIDES OF THE OUTLET CHANNEL PRIOR TO PLACEMENT OF STONE. SECTIONS OF FABRIC MUST OVERLAP AT LEAST ONE (1) FOOT WITH SECTION NEAREST THE ENTRANCE PLACED ON TOP. FABRIC SHALL BE EMBEDDED AT LEAST SIX (6) INCHES INTO EXISTING GROUND AT ENTRANCE OUTLET CHANNEL.7. STONE USED IN THE OUTLET CHANNEL SHALL BE FOUR (4) TO EIGHT (8) INCH RIPRAP. TO PROVIDE A FILTERING EFFECT, A LAYER OF FILTER CLOTH SHALL BE EMBEDDED ONE (1) FOOT WITH SECTION NEAREST ENTRANCE PLACED ON TOP. FABRIC SHALL BE EMBEDDED AT LEAST SIX (6) INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.8. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.9. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRED AS NEEDED.10. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.11. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.12. DRAINAGE AREA FOR THIS PRACTICE IS LIMITED TO 15 ACRES OR LESS. | |
| <p>ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE</p> | <h3>RIPRAP OUTLET SEDIMENT TRAP ST-V</h3> |

Figure 5A.21
Optional Sediment Trap Dewatering Devices



APPENDIX B-3

NYSDOH'S GENERIC COMMUNITY AIR MONITORING PLAN FUGITIVE DUST AND PARTICULATE MONITORING

Appendix 1A

New York State Department of Health Generic Community Air Monitoring Plan

Overview

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

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

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

Community Air Monitoring Plan

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

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

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

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

VOC Monitoring, Response Levels, and Actions

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

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

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

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

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

Particulate Monitoring, Response Levels, and Actions

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

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

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

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

December 2009

Appendix 1B

Fugitive Dust and Particulate Monitoring

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

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.
2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.
3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM₁₀) with the following minimum performance standards:
 - (a) Objects to be measured: Dust, mists or aerosols;
 - (b) Measurement Ranges: 0.001 to 400 mg/m³ (1 to 400,000 :ug/m³);
 - (c) Precision (2-sigma) at constant temperature: +/- 10 :g/m³ for one second averaging; and +/- 1.5 g/m³ for sixty second averaging;
 - (d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
 - (e) Resolution: 0.1% of reading or 1g/m³, whichever is larger;
 - (f) Particle Size Range of Maximum Response: 0.1-10;
 - (g) Total Number of Data Points in Memory: 10,000;
 - (h) Logged Data: Each data point with average concentration, time/date and data point number
 - (i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
 - (j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
 - (k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
 - (l) Operating Temperature: -10 to 50° C (14 to 122° F);
 - (m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.
4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.
5. The action level will be established at 150 ug/m³ (15 minutes average). While conservative,

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

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

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

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

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

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

APPENDIX C

EXAMPLE
HEALTH & SAFETY PLAN (HASP)
&
COMMUNITY AIR MONITORING PLAN (CAMP)

Site-Wide Health and Safety Plan (HASP)

*Tecumseh Redevelopment BCP Sites
Lackawanna, New York*

April 2010
Revised July 2013

0071-012-322

Prepared By:



**TECUMSEH REDEVELOPMENT SITE
SITE-WIDE HEALTH AND SAFETY PLAN**

ACKNOWLEDGEMENT

Plan Reviewed by (initial):

Corporate Health and Safety Director: _____

Project Manager: _____

Designated Site Safety and Health Officer: _____

Acknowledgement:

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

| NAME (PRINT) | SIGNATURE | DATE |
|--------------|-----------|-------|
| _____ | _____ | _____ |
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SITE-WIDE HEALTH AND SAFETY PLAN**

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SITE-WIDE HEALTH AND SAFETY PLAN**

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1.0 INTRODUCTION

1.1 General

In accordance with OSHA requirements contained in 29 CFR 1910.120, this Health and Safety Plan (HASP) describes the specific health and safety practices and procedures to be employed by TurnKey Environmental Restoration, LLC and Benchmark Environmental Engineering & Science, PLLC employees (referred to jointly hereafter as “TurnKey-Benchmark”) during Brownfield Cleanup Program (BCP) activities on the Tecumseh Redevelopment Site (former Bethlehem Steel Lackawanna Works), located in the City of Lackawanna, New York. This HASP presents procedures for TurnKey-Benchmark employees who will be involved with investigation and remedial field activities; it does not cover the activities of other contractors, subcontractors, or other individuals on the Site. These firms will be required to develop and enforce their own HASPs as discussed in Section 2.0. TurnKey-Benchmark accepts no responsibility for the health and safety of contractor, subcontractor, or other personnel.

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

1.2 Background

Tecumseh Redevelopment Inc. (Tecumseh) owns approximately 1,100 acres of land at 1951 Hamburg Turnpike, approximately 2 miles south of the City of Buffalo (see Figure 1). The majority of Tecumseh’s property is located in the City of Lackawanna (the City), with portions of the property extending into the Town of Hamburg. Tecumseh’s property is bordered by: NY State Route 5 (Hamburg Turnpike) on the east; Lake Erie to the west and northwest; and other industrial properties to the south and the northeast. Figure 2 provides an overview of the Tecumseh Property, including major leased or licensed parcels, and adjacent parcels owned by others.

The Tecumseh property is located on a portion of the Site of the former Bethlehem Steel Corporation (BSC) Lackawanna Works in a primarily industrial area. The property was

formerly used for the production of steel, coke, and related products by Bethlehem Steel Corporation (BSC). According to the Real Estate Records, in 1937, Bethlehem Steel Company owned the subject Site. In 1964, Bethlehem Steel Company merged into Bethlehem Steel Corporation. Steel production on the property was discontinued in 1983 and the coke ovens ceased activity in 2000. Tecumseh acquired the property, along with other BSC assets, out of bankruptcy in 2003.

A Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) of the entire former Bethlehem Steel Lackawanna Works was initiated by BSC under an Administrative Order issued by the United States Environmental Protection Agency (USEPA) in 1990. Tecumseh completed the RFI in January 2005. In September 2006, USEPA approved the RFI and terminated Bethlehem Steel's (and in turn Tecumseh's) obligation under the 1990 Administrative Order. Tecumseh has entered into an Order on Consent with the New York State Department of Environmental Conservation (NYSDEC) to undertake a corrective measures study (CMS) at certain solid waste management units (SWMUs) primarily on the western slag fill and coke manufacturing portion of the property.

Outside of the CMS Area, Tecumseh designated five parcels for redevelopment under the New York State Brownfield Cleanup Program (BCP). These include: The Phase I, IA, II, and III Business Park, which are at various points of investigation and cleanup under the BCP and are slated for commercial/industrial redevelopment, and the Steel Winds Site, which was remediated under the BCP and redeveloped as a commercial wind farm.

This Site-Wide Health and Safety Plan (HASP) applies to the Business Park Sites under the BCP.

1.3 Known and Suspected Environmental Conditions

The Phase I, IA, II, and III Business Parks were formerly used to house portions of BSC's steelmaking operations. The slag and other industrial fill materials contain highly variable and sometimes elevated concentrations of metals, as well as semi-volatile and volatile organic compounds (SVOCs and VOCs). In addition, groundwater in contact with the soil/fill materials described above may exhibit elevated concentrations of corresponding soluble COPCs (e.g., BTEX) in groundwater.

1.4 Parameters of Interest

Constituents of potential concern (COPCs) at the BCP Sites include:

- **Volatile Organic Compounds (VOCs)** – VOCs present at elevated concentration may include benzene, toluene, ethylbenzene, and xylene (i.e., BTEX). These VOCs are typically associated with storage and handling of petroleum products such as gasoline.
- **Semi-Volatile Organic Compounds (SVOCs)** – SVOCs present at elevated concentrations may include base-neutral semi-volatile organic compounds (SVOCs) from oils, greases, and fuels associated with the operation of locomotive engines, steel mills, petroleum bulk storage, and other historic steel manufacturing operations. Specifically, polycyclic aromatic hydrocarbons (PAHs), which are byproducts of incomplete combustion and impurities in petroleum products. Although PAHs are commonly found in urban soil environments, they may be present at the Site at concentrations that are elevated compared to typical “background” levels. Naphthalene is a natural component of fossil fuels such as petroleum and coal; it is also formed when natural products such as wood or tobacco are burned.
- **Polychlorinated Biphenyls (PCBs)** – The potential impact of surface and subsurface soils by PCBs in discrete areas associated with former substations, rail yards, and hydraulic pump houses.
- **Inorganic Compounds** – Inorganic COPCs potentially present at elevated concentrations due to steel making activities may include arsenic, cadmium, chromium, lead, and mercury. Several of these parameters are components of coke and slag which are prevalent in the planned work area.

In addition, groundwater in contact with the soil/fill materials described above may exhibit elevated concentrations of corresponding soluble COPCs (e.g., BTEX).

1.5 Overview of BCP Activities

TurnKey-Benchmark personnel will be on-site to observe BCP investigation and remedial activities. General field activities to be completed are described below. Detailed BCP activities are more fully described in the individual work plans for each property.

1. **Soil/Fill Excavation:** TurnKey-Benchmark will monitor all soil/fill excavations (e.g., wind turbine foundation excavation, test pit investigations) and related activities to visually inspect soil/fill for evidence of contamination.

2. **Soil/Fill Documentation Sampling:** TurnKey-Benchmark will collect surface and subsurface soil/fill documentation samples following excavation.
3. **Surface Water Management:** During excavation, surface water and/or perched groundwater infiltration may occur. TurnKey-Benchmark will direct the contractor to collect and characterize the surface water for proper disposal.
4. **Subgrade Work:** Significant grading may be required before implementation of remedial measures (e.g., cover system placement).
5. **Cover Soil Placement:** A soil cover system will be placed over select portions of the Site to reduce potential contact with impacted soil/fill. TurnKey-Benchmark will oversee installation of the cover system.
6. **Groundwater Monitoring Well Installation and Sampling:** TurnKey-Benchmark will install groundwater monitoring wells and collect samples for the long-term groundwater monitoring program.
7. **Groundwater Remediation:** TurnKey-Benchmark personnel will oversee the potential groundwater remediation at the Site, which may include installation of treatment (ORC/HRC) filter socks in groundwater monitoring wells.

2.0 ORGANIZATIONAL STRUCTURE

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

2.1 Roles and Responsibilities

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

2.1.1 Corporate Health and Safety Director

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

2.1.2 Project Manager

The Project Manager for these Sites is ***Thomas H. Forbes, P.E.*** The Project Manager has the responsibility and authority to direct all TurnKey-Benchmark work operations at the site. The Project Manager coordinates safety and health functions with the

Site Safety and Health Officer, and bears ultimate responsibility for proper implementation of this HASP. He may delegate authority to expedite and facilitate any application of the program, including modifications to the overall project approach as necessary to circumvent unsafe work conditions. Specific duties of the Project Manager include:

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

2.1.3 Site Safety and Health Officer

The Site Safety and Health Officer (SSHO) for this site is **Mr. Richard L. Dubisz**. The qualified alternate SSHO is **Mr. Thomas Behrendt**. The SSHO reports to the Project Manager. The SSHO is on-site or readily accessible to the site during all work operations and has the authority to halt site work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

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

2.1.4 Site Workers

Site workers are responsible for: complying with this HASP or a more stringent HASP, if appropriate (i.e., Contractor and Subcontractor's HASP); using proper PPE; reporting unsafe acts and conditions to the SSHO; and following the safety and health instructions of the Project Manager and SSHO.

2.1.5 Other Site Personnel

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

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

3.0 HAZARD EVALUATION

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

3.1 Chemical Hazards

As discussed in Section 1.3, historic activities related to the former steel-manufacturing operations and facilities have resulted in elevated concentrations of VOCs, SVOCs, PCBs, and inorganic compounds in soil/fill and groundwater. Table 1 identifies maximum concentrations of COPCs detected throughout the Tecumseh property. Table 2 lists exposure limits for airborne concentrations of the COPCs identified in Section 1.4 of this HASP. Brief descriptions of the toxicology of the prevalent constituents of potential concern and related health and safety guidance and criteria are provided below.

- **Arsenic (CAS #7440-38-2)** is a naturally occurring element and is usually found combined with one or more elements, such as oxygen or sulfur. Inhalation is a more important exposure route than ingestion. First phase exposure symptoms include nausea, vomiting, diarrhea and pain in the stomach. Prolonged contact is corrosive to the skin and mucus membranes. Arsenic is considered a Group A human carcinogen by the USEPA. Exposure via inhalation is associated with an increased risk of lung cancer. Exposure via the oral route is associated with an increased risk of skin cancer.
- **Benzene (CAS #71-43-2)** poisoning occurs most commonly through inhalation of the vapor; however, benzene can also penetrate the skin and poison in that way. Locally, benzene has a comparatively strong irritating effect, producing

erythema and burning and, in more severe cases, edema and blistering. Exposure to high concentrations of the vapor (i.e., 3,000 ppm or higher) may result in acute poisoning characterized by the narcotic action of benzene on the central nervous system. In acute poisoning, symptoms include confusion, dizziness, tightening of the leg muscles, and pressure over the forehead. Chronic exposure to benzene (i.e., long-term exposure to concentrations of 100 ppm or less) may lead to damage of the blood-forming system. Benzene is very flammable when exposed to heat or flame and can react vigorously with oxidizing materials.

- **Cadmium** is a natural element and is usually combined with one or more elements, such as oxygen, chloride, or sulfur. Breathing high levels of cadmium severely damages the lungs and can cause death. Ingestion of high levels of cadmium severely irritates the stomach, leading to vomiting and diarrhea. Long term exposure to lower levels of cadmium leads to a buildup of this substance in the kidneys and possible kidney disease. Other potential long term effects are lung damage and fragile bones. Cadmium is suspected to be a human carcinogen.
- **Chromium (CAS #7440-47-3)** is used in the production of stainless steel, chrome plated metals, and batteries. Two forms of chromium, hexavalent (CR+6) and trivalent (CR+3) are toxic. Hexavalent chromium is an irritant and corrosive to the skin and mucus membranes. Chromium is a potential occupational carcinogen. Acute exposures to dust may cause coughing, wheezing, headaches, pain and fever.
- **Ethylbenzene (CAS #100-41-4)** is a component of automobile gasoline. Over-exposure may cause kidney, skin liver and/or respiratory disease. Signs of exposure may include dermatitis, irritation of the eyes and mucus membranes, headache. Narcosis and coma may result in more severe cases.
- **Lead (CAS #7439-92-1)** can affect almost every organ and system in our bodies. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect memory. Lead may cause anemia.
- **Mercury (CAS #7439-97-6)** is used in industrial applications for the production of caustic and chlorine, and in electrical control equipment and apparatus. Over-exposure to mercury may cause coughing, chest pains, bronchitis, pneumonia, indecision, headaches, fatigue, and salivation. Mercury is a skin and eye irritant.
- **Naphthalene (CAS #91-20-3)** is a white solid with a strong smell; is also called mothballs, moth flakes, white tar, and tar camphor. Naphthalene is a natural component of fossil fuels such as petroleum and coal; it is also formed when natural products such as wood or tobacco are burned. Acute exposure to naphthalene can cause systemic reactions, including nausea, headache,

diaphoresis, hematuria, fever, anemia, liver damage, vomiting, convulsions, and coma. Acute exposure can also cause eye irritation, confusion, excitement, malaise, abdominal pain, irritation to the bladder, profuse sweating, jaundice, hematopoietic, hemoglobinuria, renal shutdown, and dermatitis. Exposure to a large amount of naphthalene can cause red blood cells to be damaged or destroyed, a condition called hemolytic anemia, which leads to fatigue, lack of appetite, restlessness, and a pale appearance. Poisoning may occur by ingestion of large doses, skin and/or eye contact, inhalation, or skin absorption.

- **Polycyclic Aromatic Hydrocarbons (PAHs)** are formed as a result of the pyrolysis and incomplete combustion of organic matter such as fossil fuel. PAH aerosols formed during the combustion process disperse throughout the atmosphere, resulting in the deposition of PAH condensate in soil, water and on vegetation. In addition, several products formed from petroleum processing operations (e.g., roofing materials and asphalt) also contain elevated levels of PAHs. Hence, these compounds are widely dispersed in the environment. PAHs are characterized by a molecular structure containing three or more fused, unsaturated carbon rings. Seven of the PAHs are classified by USEPA as probable human carcinogens (USEPA Class B2). These are: benzo(a)pyrene; benzo(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene. The primary route of exposure to PAHs is through incidental ingestion and inhalation of contaminated particulates. PAHs are characterized by an organic odor, and exist as oily liquids in pure form. Acute exposure symptoms may include acne-type blemishes in areas of the skin exposed to sunlight.
- **Polychlorinated Biphenyls (PCBs)** are associated with former substations, rail yards, and hydraulic pump houses on the Site. PCBs can be absorbed into the body by inhalation of its aerosol, through the skin, and by ingestion. Repeated or prolonged contact with skin may cause dermatitis. PCBs may have effects on the liver. Animal tests show that PCBs possibly cause toxic effects in human reproduction. In the food chain, bioaccumulation takes place, specifically in aquatic organisms. A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.
- **Toluene (CAS #108-88-3)** is a common component of paint thinners and automobile fuel. Acute exposure predominantly results in central nervous system depression. Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness, and coordination loss. Repeated exposures may cause removal of lipids from the skin, resulting in dry, fissured dermatitis.
- **Xylenes (o, m, and p) (CAS #95-47-6, 108-38-3, and 106-42-3)** are colorless, flammable liquids present in paint thinners and fuels. Acute exposure may cause central nervous system depression, resulting in headache, dizziness, fatigue,

muscular weakness, drowsiness, and coordination loss. Repeated exposures may also cause removal of lipids from the skin, producing dry, fissured dermatitis. Exposure of high concentrations of vapor may cause eye irritation and damage, as well as irritation of the mucus membranes.

With respect to the anticipated BCP activities discussed in Section 1.5, possible routes of exposure to the above-mentioned contaminants are presented in Table 3. The use of proper respiratory equipment, as outlined in Section 7.0 of this HASP, will minimize the potential for exposure to airborne contamination. Exposure to contaminants through dermal and other routes will also be minimized through the use of protective clothing (Section 7.0), safe work practices (Section 6.0), and proper decontamination procedures (Section 12.0).

3.2 Physical Hazards

BCP investigation and remedial activities at the Tecumseh site may present the following physical hazards:

- The potential for physical injury during heavy construction equipment use, such as grading equipment, excavators, and tandem trucks.
- The potential for heat/cold stress to employees during the summer/winter months (see Section 10.0).
- The potential for slip and fall injuries due to rough, uneven terrain and/or open excavations.

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

4.0 TRAINING

4.1 Site Workers

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

4.1.1 Initial and Refresher Training

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

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

- Confined space entry procedures.
- Heat and cold stress monitoring.
- Elements of a Health and Safety Plan.
- Spill containment.

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

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

4.1.2 Site Training

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

- Names of personnel and alternates responsible for site safety and health.
- Safety, health and other hazards present on the Site.
- The Site lay-out including work zones and places of refuge.
- The emergency communications system and emergency evacuation procedures.
- Use of PPE.
- Work practices by which the employee can minimize risks from hazards.
- Safe use of engineering controls and equipment on the site.
- Medical surveillance, including recognition of symptoms and signs of over-exposure as described in Chapter 5 of this HASP.
- Decontamination procedures as detailed in Chapter 12 of this HASP.
- The emergency response plan as detailed in Chapter 15 of this HASP.
- Confined space entry procedures, if required, as detailed in Chapter 13 of this HASP.

- The spill containment program as detailed in Chapter 9 of this HASP.
- Site control as detailed in Chapter 11 of this HASP.

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

4.2 Supervisor Training

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

4.3 Emergency Response Training

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

4.4 Site Visitors

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

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

5.0 MEDICAL MONITORING

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

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

Medical evaluations are conducted according to the TurnKey-Benchmark Medical Monitoring Program and include an evaluation of the workers' ability to use respiratory protective equipment. The purpose of the medical evaluation is to determine an employee's fitness for duty on hazardous waste sites; and to establish baseline medical data. The examinations include:

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

In conformance with OSHA regulations, TurnKey-Benchmark will maintain and

**SITE-WIDE HEALTH AND SAFETY PLAN
TECUMSEH REDEVELOPMENT SITE**

preserve medical records for a period of 30 years following termination of employment. Employees are provided a copy of the physician's post-exam report, and have access to their medical records and analyses.

6.0 SAFE WORK PRACTICES

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

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth contact is strictly prohibited.
- The hands and face must be thoroughly washed upon leaving the work area and prior to engaging in any activity indicated above.
- Respiratory protective equipment and clothing must be worn by all personnel entering the site as required by the HASP or as modified by the site safety officer. Excessive facial hair (i.e., beards, long mustaches, or sideburns) that interferes with the satisfactory respirator-to-face seal is prohibited.
- Contact with surfaces/materials either suspected or known to be contaminated will be avoided to minimize the potential for transfer to personnel, cross contamination and need for decontamination.
- Medicine and alcohol can synergize the effects of exposure to toxic chemicals. Due to possible contraindications, use of prescribed drugs should be reviewed with the TurnKey-Benchmark occupational physician. Alcoholic beverage and illegal drug intake are strictly forbidden during the workday.
- All personnel shall be familiar with standard operating safety procedures and additional instructions contained in this Health and Safety Plan.
- On-site personnel shall use the “buddy” system. No one may work alone (i.e., out of earshot or visual contact with other workers) in the exclusion zone.
- Personnel and equipment in the contaminated area shall be minimized, consistent with effective site operations.
- All employees have the obligation to immediately report and if possible, correct unsafe work conditions.
- Use of contact lenses on-site will not be permitted. Spectacle kits for insertion into full-face respirators will be provided for TurnKey-Benchmark employees, as requested and required.

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

- Although the Contractor and subcontractors are responsible for their equipment and safe operation of the site, TurnKey-Benchmark personnel are also

- responsible for their own safety.
- Subsurface work will not be initiated without first clearing underground utility services.
 - Heavy equipment should not be operated within 20 feet of overhead wires. This distance may be increased if windy conditions are anticipated or if lines carry high voltage. The site should also be sufficiently clear to ensure the project staff can move around the heavy machinery safely.
 - Care should be taken to avoid overhead wires when moving heavy-equipment from location to location.
 - Hard hats, safety boots, and safety glasses should be worn at all times in the vicinity of heavy equipment. Hearing protection is also recommended.
 - The work site should be kept neat. This will prevent personnel from tripping and will allow for fast emergency exit from the site.
 - Proper lighting must be provided when working at night.
 - Construction activities should be discontinued during an electrical storm or severe weather conditions.
 - The presence of combustible gases should be checked before igniting any open flame.
 - Personnel shall stand upwind of any construction operation when not immediately involved in sampling/logging/observing activities.
 - Personnel will not approach the edge of an unsecured trench/excavation closer than 2 feet.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 Equipment Selection

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

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

- **Level A:** Should be selected when the highest level of respiratory, skin and eye protection is needed.
- **Level B:** Should be selected when the highest level of respiratory protection is needed, but a lesser level of skin protection is required. Level B protection is the minimum level recommended on initial site entries until the hazards have been further defined by on-site studies. Level B (or Level A) is also necessary for oxygen-deficient atmospheres.
- **Level C:** Should be selected when the types of airborne substances are known, the concentrations have been measured, and the criteria for using air-purifying respirators are met. In atmospheres where no airborne contaminants are present, Level C provides dermal protection only.
- **Level D:** Should not be worn on any site with elevated respiratory or skin hazards. This is generally a work uniform providing minimal protection.

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

conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate serious illness, injury or death, or impair the ability to escape.

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

7.2 Protection Ensembles

7.2.1 Level A/B Protection Ensemble

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

The recommended PPE for level A/B is:

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

7.2.2 Level C Protection Ensemble

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

Recommended PPE for Level C conditions includes:

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

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

7.2.3 Level D Protection Ensemble

As indicated above, Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, where there are no inhalable toxic substances and where the atmospheric contains at least 19.5% oxygen.

Recommended PPE for Level D includes:

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

7.2.4 Recommended Level of Protection for Site Tasks

Based on current information regarding both the contaminants suspected to be present at the Site and the various tasks that are included in the investigation and remedial activities, the minimum required Levels of Protection for these tasks shall be as identified in Table 4.

8.0 EXPOSURE MONITORING

8.1 General

Based on the results of historic sample analysis and the nature of the proposed work activities at the Site, the possibility exists that organic vapors and/or particulates may be released to the air during intrusive construction activities. Ambient breathing zone concentrations may at times, exceed the permissible exposure limits (PELs) established by OSHA for the individual compounds (see Table 2), in which case respiratory protection will be required. Respiratory and dermal protection may be modified (upgraded or downgraded) by the SSHO based upon real-time field monitoring data.

8.1.1 On-Site Work Zone Monitoring

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

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

8.1.2 Off-Site Community Air Monitoring

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

Ground intrusive activities are defined by NYSDOH Appendix 1A Generic Community Air Monitoring Plan (Reference 4) and attached as Appendix C. Ground intrusive activities include soil/waste excavation and handling, test pitting or trenching, and

the installation of soil borings or monitoring wells. Non-intrusive activities include the collection of soil and sediment samples or the collection of groundwater samples from existing wells. Continuous monitoring is required for ground intrusive activities and periodic monitoring is required for non-intrusive activities. Periodic monitoring consists of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring while bailing a well, and taking a reading prior to leaving a sampling location. This may be upgraded to continuous if the sampling location is in close proximity to individuals not involved in the site activity (i.e., on a curb of a busy street). The action levels below will be used during periodic monitoring. This will provide a real-time method for determination of substantial vapor and/or particulate releases to the surrounding community because of site investigation work.

8.2 Monitoring Action Levels

8.2.1 On-Site Work Zone Action Levels

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

- Total atmospheric concentrations of unidentified vapors or gases ranging from 0 to 1 ppm above background on the PID) - Continue operations under Level D (see Appendix A).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings from >1 ppm to 5 ppm above background on the PID (vapors not suspected of containing high levels of chemicals toxic to the skin) - Continue operations under Level C (see Appendix A).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings of >5 ppm to 50 ppm above background on the PID - Continue operations under Level B (see Attachment 1), re-evaluate and alter (if possible) construction methods to achieve lower vapor concentrations.

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

The explosimeter will be used to monitor levels of both combustible gases and oxygen during RD activities involving deep excavation, if required. Action levels based on the instrument readings shall be as follows:

- Less than 10% LEL - Continue engineering operations with caution.
- 10-25% LEL - Continuous monitoring with extreme caution, determine source/cause of elevated reading.
- Greater than 25% LEL - Explosion hazard, evaluate source and leave the Work Zone.
- 19.5-21% oxygen - Proceed with extreme caution; attempt to determine potential source of oxygen displacement.
- Less than 19.5% oxygen - Leave work zone immediately.
- 21-25% oxygen - Continue engineering operations with caution.
- Greater than 25% oxygen - Fire hazard potential, leave Work Zone immediately.

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

- Less than 50 $\mu\text{g}/\text{m}^3$ - Continue field operations.
- 50-150 $\mu\text{g}/\text{m}^3$ - Don dust/particulate mask or equivalent
- Greater than 150 $\mu\text{g}/\text{m}^3$ - Don dust/particulate mask or equivalent. Initiate engineering controls to reduce respirable dust concentration (i.e., wetting of excavated soils or tools at discretion of SSHO).

Readings with the organic vapor analyzer, combustible gas meter, and particulate monitor will be recorded and documented on the appropriate Project Field Forms. All instruments will be calibrated before use on a daily basis and the procedure will be documented on the appropriate Project Field Forms.

8.2.2 Community Air Monitoring Action Levels

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

- o **ORGANIC VAPOR PERIMETER MONITORING:**
 - If the sustained ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds 5 ppm above background, work activities will be halted and monitoring continued. If the sustained organic vapor decreases below 5 ppm over background, work activities can resume but more frequent intervals of monitoring, as directed by the SSHO, must be conducted.
 - If the sustained ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone are greater than 5 ppm over background but less than 25 ppm, activities can resume provided that: the organic vapor level 200 feet downwind of the working site or half the distance to the nearest off-site residential or commercial structure, whichever is less, is below 5 ppm over background; and more frequent intervals of monitoring, as directed by the SSHO, are conducted.
 - If the sustained organic vapor level is above 25 ppm at the perimeter of the exclusion zone, the SSHO must be notified and work activities shut down. The SSHO will determine when re-entry of the exclusion zone is possible and will implement downwind air monitoring to ensure vapor emissions do not impact the nearest off-site residential or commercial structure at levels exceeding those specified in the ***Organic Vapor Contingency Monitoring Plan*** below. All readings will be recorded and will be available for New York State Department of Environmental Conservation (NYSDEC) and Department of Health (NYSDOH) personnel to review.
- o **ORGANIC VAPOR CONTINGENCY MONITORING PLAN:**
 - If the sustained organic vapor level is greater than 5 ppm over background 200 feet downwind from the work area or half the distance to the nearest off-site residential or commercial property, whichever is less, all work activities must be halted.
 - If, following the cessation of the work activities or as the result of an emergency, sustained organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest off-site residential or commercial property from the work area, then the air quality must be

monitored within 20 feet of the perimeter of the nearest off-site residential or commercial structure (20-foot zone).

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

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in this Health and Safety Plan and the Emergency Response Plan (Appendix A) will be advised.
2. The local police authorities will immediately be contacted by the SSHO and advised of the situation.
3. Frequent air monitoring will be conducted at 30-minute intervals within the 20-foot zone. If two sustained successive readings below action levels are measured, air monitoring may be halted or modified by the SSHO.

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

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

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

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

○ **Airborne Particulate Community Air Monitoring**

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

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) greater than the background (upwind perimeter) reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed 150 $\mu\text{g}/\text{m}^3$ above the upwind level and that visible dust is not migrating from the work area.
- If, after implementation of dust suppression techniques downwind PM-10 levels are greater than 150 $\mu\text{g}/\text{m}^3$ above the upwind level, work activities must be stopped and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu\text{g}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

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

9.0 SPILL RELEASE/RESPONSE

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

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

9.1 Potential Spills and Available Controls

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

- CERCLA Hazardous Substances as identified in 40 CFR Part 302, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Extremely Hazardous Substances as identified in 40 CFR Part 355, Appendix A, where such materials pose the potential for release in excess of their corresponding RQ.
- Hazardous Chemicals as defined under Section 311(e) of the Emergency Planning and Community Right-To-Know Act of 1986, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Toxic Chemicals as defined in 40 CFR Part 372, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Chemicals regulated under 6NYCRR Part 597, where such materials pose the potential for release in excess of their corresponding RQ.

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

- The potential for a “harmful quantity” of oil (including petroleum and non-petroleum-based fuels and lubricants) to reach navigable waters of the U.S. exists (40 CFR Part 112.4). Harmful quantities are considered by USEPA to be volumes

that could form a visible sheen on the water or violate applicable water quality standards.

- The potential for any amount of petroleum to reach any waters of NY State, including groundwater, exists. Petroleum, as defined by NY State in 6NYCRR Part 612, is a petroleum-based heat source, energy source, or engine lubricant/maintenance fluid.
- The potential for any release, to soil or water, of petroleum from a bulk storage facility regulated under 6NYCRR Part 612. A regulated petroleum storage facility is defined by NY State as a site having stationary tank(s) and intra-facility piping, fixtures and related equipment with an aggregate storage volume of 1,100 gallons or greater.

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

9.2 Initial Spill Notification and Evaluation

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

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

9.3 Spill Response

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

- Only those personnel involved in overseeing or performing containment operations will be allowed within the spill area. If necessary, the area will be

- roped, ribboned, or otherwise blocked off to prevent unauthorized access.
- Appropriate PPE, as specified by the SSHO, will be donned before entering the spill area.
 - Ignition points will be extinguished/removed if fire or explosion hazards exist.
 - Surrounding reactive materials will be removed.
 - Drains or drainage in the spill area will be blocked to prevent inflow of spilled materials or applied materials.

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

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

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

9.4 Post-Spill Evaluation

If a reportable quantity of hazardous material or oil/petroleum is spilled as determined by the Project Manager, a written report will be prepared as indicated in Section 9.2. The report will identify the root cause of the spill, type and amount of material released, date/time of release, response actions, agencies notified and/or involved in cleanup, and

procedures to be implemented to avoid repeat incidents. In addition, all re-useable spill cleanup and containment materials will be decontaminated, and spill kit supplies/disposable items will be replenished.

10.0 HEAT/COLD STRESS MONITORING

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

10.1 Heat Stress Monitoring

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

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

- Adjust work schedules.
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat (i.e., eight fluid ounces must be ingested for approximately every 1 lb of weight lost). The normal thirst mechanism is not sensitive enough to ensure that enough water will be consumed to replace lost perspiration. When heavy sweating occurs, workers should be encouraged to drink more.
- Train workers to recognize the symptoms of heat related illness.

Heat-Related Illness - Symptoms:

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include: muscle spasms; pain in the hands, feet, and abdomen.
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include: pale, cool, moist skin; heavy sweating; dizziness; nausea; fainting.
- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are: red, hot, usually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

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

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 100 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest periods stay the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be further shortened by 33%.
- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period remains the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the work cycle may be further shortened by 33%. Oral temperature should be measured at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No TurnKey-Benchmark employee will be permitted to continue wearing semi-permeable or impermeable garments when his/her oral temperature exceeds 100.6 degrees Fahrenheit.

10.2 Cold Stress Monitoring

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

- **Frostbite** occurs when body tissue (usually on the extremities) begins to freeze. The three states of frostbite are:
 - 1) **Frost nip** - This is the first stage of the freezing process. It is characterized by a whitened area of skin, along with a slight burning or painful sensation. Treatment consists of removing the victim from the cold conditions; removal of boots and gloves; soaking the injured part in warm water (102 to 108 degrees Fahrenheit); and drinking a warm beverage. Do not rub skin to generate friction/ heat.
 - 2) **Superficial Frostbite** - This is the second stage of the freezing process. It is characterized by a whitish gray area of tissue, which will be firm to the touch but will yield little pain. The treatment is identical for Frost nip.
 - 3) **Deep Frostbite** - In this final stage of the freezing process the affected tissue will be cold, numb and hard and will yield little to no pain. Treatment is identical to that for Frost nip.

- **Hypothermia** is a serious cold stress condition occurring when the body loses heat at a rate faster than it is produced. If untreated, hypothermia may be fatal. The stages of hypothermia may not be clearly defined or visible at first, but generally include:
 - 1) Shivering
 - 2) Apathy (i.e., a change to an indifferent or uncaring mood)
 - 3) Unconsciousness
 - 4) Bodily freezing

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

- 1) Remove the victim from the cold environment and remove wet or frozen clothing. (Do this carefully as frostbite may have started.)
- 2) Perform active re-warming with hot liquids for drinking (Note: do not give the victim any liquid containing alcohol or caffeine) and a warm water bath (102 to 108 degrees Fahrenheit).
- 3) Perform passive re-warming with a blanket or jacket wrapped around

the victim.

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

- Education of workers to recognize the symptoms of frostbite and hypothermia.
- Workers should dress warmly, with more layers of thin clothing as opposed to one thick layer.
- Personnel should remain active and keep moving.
- Personnel should be allowed to take shelter in a heated area, as necessary.
- Personnel should drink warm liquids (no caffeine or alcohol if hypothermia has set in).
- For monitoring the body's recuperation from excess cold, oral temperature recordings should occur:
 - At the Site Safety Technicians discretion when suspicion is based on changes in a worker's performance or mental status.
 - At a workers request.
 - As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind chill less than 20 degrees Fahrenheit or wind chill less than 30 degrees Fahrenheit with precipitation).
 - As a screening measure whenever anyone worker on site develops hypothermia.

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

11.0 WORK ZONES AND SITE CONTROL

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

- **Exclusion Zone ("Hot Zone"):** The area where contaminated materials may be exposed, excavated, or handled and all areas where contaminated equipment or personnel may travel. The zone will be delineated by flagging tape. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment identified in Section 7.
- **Contamination Reduction Zone:** The zone where decontamination of personnel and equipment takes place. Any potentially contaminated clothing, equipment, and samples must remain in the Contamination Reduction Zone until decontaminated.
- **Support Zone:** The part of the site that is considered non-contaminated or "clean." Support equipment will be located in this zone, and personnel may wear normal work clothes within this zone.

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

- **Exclusion Zone:** 50 foot radius from the outer limit of the sampling/construction activity.
- **Contaminant Reduction Zone:** 100 foot radius from the outer limit of the sampling/construction activity.
- **Support Zone:** Areas outside the Contaminant Reduction Zone.

Access of non-essential personnel to the Exclusion and Contamination Reduction Zones will be strictly controlled by the SSHO. Only personnel who are essential to the completion of the task will be allowed access to these areas if they are wearing the prescribed level of protection. Entrance of all personnel must be approved by the SSHO.

The SSHO will maintain a Health and Safety Logbook containing the names of TurnKey-Benchmark workers and their level of protection. The zone boundaries may be

changed by the SSHO as environmental conditions warrant, and to respond to the necessary changes in work locations on-site.

12.0 DECONTAMINATION

12.1 Decontamination for TurnKey-Benchmark Employees

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

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

Station 2 - Boots and Gloves Wash and Rinse: Scrub outer boots and outer gloves.

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

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

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

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

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

12.2 Decontamination for Medical Emergencies

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

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

12.3 Decontamination of Field Equipment

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

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

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

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

13.0 CONFINED SPACE ENTRY

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

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

14.0 FIRE PREVENTION AND PROTECTION

14.1 General Approach

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

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

14.2 Equipment and Requirements

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

14.3 Flammable and Combustible Substances

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

14.4 Hot Work

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

15.0 EMERGENCY INFORMATION

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

16.0 REFERENCES

1. New York State Department of Health. 2002. *Generic Community Air Monitoring Plan, Appendix 1A, DER-10 Technical Guidance for Site Investigation and Remediation*. May 2010.

TABLES

TABLE 1

CONSTITUENTS OF POTENTIAL CONCERN

Site-Wide Health and Safety Plan
Tecumseh Redevelopment BCP Sites
Lackawanna, New York

| Parameter ¹ | CAS No. | Maximum Detected Concentration ² | | | |
|---|------------|---|------------------------------|-------------------------------------|------------------|
| | | Groundwater ³ (mg/L) | Surface Soil/Fill (mg/kg) | Sub-Surface Soil/Fill (mg/kg) | LNAPL (mg/kg) |
| Volatile Organic Compounds (VOCs): | | | | | |
| Benzene | 71-43-2 | 570 | 0.0047 | 2800 | 14,000 |
| Ethylbenzene | 100-41-4 | 25 | Note 4 | 170 | 4,600 |
| Toluene | 108-88-3 | 77 | 0.001 | 1700 | 5,700 |
| Xylene, Total | 1330-20-7 | 390 | 0.0017 | 1100 | 31,000 |
| Polycyclic Aromatic Hydrocarbons (PAHs): | | | | | |
| Acenaphthene | 83-32-9 | 0.36 | Note 4 | Note 4 | 400 |
| Acenaphthylene | 208-96-8 | 0.09 | Note 4 | Note 4 | 570 |
| Anthracene | 120-12-7 | 0.27 | 0.23 | Note 4 | 240 |
| Benz(a)anthracene | 56-55-3 | 0.28 | 0.7 | Note 4 | 27 |
| Benzo(a)pyrene | 50-32-8 | 0.23 | 0.56 | Note 4 | ND |
| Benzo(b)fluoranthene | 205-99-2 | 0.069 | 0.86 | Note 4 | 12 |
| Benzo(ghi)perylene | 191-24-2 | 0.033 | 0.35 | Note 4 | ND |
| Benzo(k)fluoranthene | 207-08-9 | 0.071 | 0.38 | Note 4 | ND |
| Chrysene | 218-01-9 | 0.26 | 0.67 | Note 4 | 17 |
| Dibenz(ah)anthracene | 53-70-3 | 0.022 | 0.08 | Note 4 | ND |
| Fluoranthene | 206-44-0 | 0.76 | 1.3 | Note 4 | 200 |
| Fluorene | 86-73-7 | 1.7 | Note 4 | Note 4 | 9,600 |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | 0.04 | 0.36 | Note 4 | ND |
| Naphthalene | 91-20-3 | 280 | 0.29 | 1100 | 49,000 |
| Phenanthrene | 85-01-8 | 0.94 | 0.87 | Note 4 | 800 |
| Pyrene | 129-00-0 | 0.41 | 0.87 | Note 4 | 220 |
| Inorganic Compounds: | | | | | |
| Arsenic | 7440-38-2 | 70.6 | 30.5 | 17.7 | 28.2 |
| Cadmium | 7440-43-9 | 20.6 | 9.7 | 3.7 | 0.03 |
| Chromium | 7440-47-3 | 306 | 1190 | 508 | 1.7 |
| Lead | 7439-92-1 | 26.3 | 160 | 224 | 0.34 |
| Mercury | 7439-97-6 | 0.22 | 4.2 | 0.99 | ND |
| Polychlorinated Biphenyls (PCBs): | | | | | |
| Aroclor 1242 | 53469-21-9 | Note 4 | Note 4 | Note 4 | 2 |
| Aroclor 1260 | 11096-82-5 | Note 4 | Note 4 | Note 4 | 3.3 |

Notes:

1. Constituents were identified as parameters of interest during the RFI for the Benzol Plant Tank Storage Area (SWMU P-11).
2. Maximum detected concentrations as presented in the Final RFI Report for the Benzol Plant Tank Storage Area (SWMU P-11).
3. Groundwater analytical data collected from the Coke Oven Area of the Former Bethlehem Steel Lackawanna Coke Division Site.
4. Compounds with a detection frequency greater than 5% and a maximum concentration greater than the screening criteria were retained as potential parameters of interest during the RFI (Reference 1).

Acronyms:

- NA = Not analyzed.
ND = Parameter not detected above method detection limits.

TABLE 2

TOXICITY DATA FOR CONSTITUENTS OF POTENTIAL CONCERN

Site-Wide Health and Safety Plan
Tecumseh Redevelopment BCP Sites
Lackawanna, New York

| Parameter | Synonyms | CAS No. | Code | Concentration Limits ¹ | | |
|---|------------------------------------|------------|-------|-----------------------------------|------|------|
| | | | | PEL | TLV | IDLH |
| Volatile Organic Compounds (VOCs): ppm | | | | | | |
| Benzene | Benzol, Phenyl hydride | 71-43-2 | Ca | 1 | 0.5 | 500 |
| Ethylbenzene | Ethylbenzol, Phenylethane | 100-41-4 | none | 100 | 100 | 800 |
| Toluene | Methyl benzene, Methyl benzol | 108-88-3 | C-300 | 200 | 50 | 500 |
| Xylene, Total | o-, m-, p-isomers | 1330-20-7 | none | 100 | 100 | 900 |
| Polycyclic Aromatic Hydrocarbons (PAHs)²: ppm | | | | | | |
| Acenaphthene | none | 83-32-9 | none | -- | -- | -- |
| Acenaphthylene | none | 208-96-8 | none | -- | -- | -- |
| Anthracene | none | 120-12-7 | none | -- | -- | -- |
| Benz(a)anthracene | none | 56-55-3 | none | -- | -- | -- |
| Benzo(a)pyrene | none | 50-32-8 | none | -- | -- | -- |
| Benzo(b)fluoranthene | none | 205-99-2 | none | -- | -- | -- |
| Benzo(ghi)perylene | none | 191-24-2 | none | -- | -- | -- |
| Benzo(k)fluoranthene | none | 207-08-9 | none | -- | -- | -- |
| Chrysene | none | 218-01-9 | none | -- | -- | -- |
| Dibenz(ah)anthracene | none | 53-70-3 | none | -- | -- | -- |
| Fluoranthene | none | 206-44-0 | none | -- | -- | -- |
| Fluorene | none | 86-73-7 | none | -- | -- | -- |
| Indeno(1,2,3-cd)pyrene | none | 193-39-5 | none | -- | -- | -- |
| Naphthalene | Naphthalin, Tar camphor, White tar | 91-20-3 | none | 10 | 10 | 250 |
| Phenanthrene | none | 85-01-8 | none | -- | -- | -- |
| Pyrene | none | 129-00-0 | none | -- | -- | -- |
| Polychlorinated Inorganic Compounds: mg/m³ | | | | | | |
| Aroclor 1242 | Chlorodiphenyl, 42% chlorine | 53469-21-9 | Ca | -- | -- | -- |
| Aroclor 1260 | Chlorodiphenyl, 60% chlorine | 11096-82-5 | none | -- | -- | -- |
| Inorganic Compounds: mg/m³ | | | | | | |
| Arsenic | none | 7440-38-2 | Ca | 0.01 | 0.01 | 5 |
| Cadmium | none | 7440-43-9 | Ca | 0.005 | 0.01 | 9 |
| Chromium | none | 7440-47-3 | none | 1 | 0.5 | 250 |
| Lead | none | 7439-92-1 | none | 0.05 | 0.15 | 100 |
| Mercury | none | 7439-97-6 | C-0.1 | 0.1 | 0.05 | 10 |

Notes:

1. Concentration limits as reported by NIOSH Pocket Guide to Chemical Hazards, February 2004 (NIOSH Publication No. 97-140, fourth printing with changes and updates).
2. Individual parameters listed are those most commonly detected at steel/coke manufacturing sites.
3. "--" = concentration limit not available; exposure should be minimized to the extent feasible through appropriate engineering controls & PPE.

Explanation:

Ca = NIOSH considers constituent to be a potential occupational carcinogen.

C-## = Ceiling Level equals the maximum exposure concentration allowable during the work day.

IDLH = Immediately Dangerous to Life or Health.

ND indicates that an IDLH has not as yet been determined.

TLV = Threshold Limit Value, established by American Conference of Industrial Hygienists (ACGIH), equals the maximum exposure concentration allowable for 8 hours/day @ 40 hours/week.

TLVs are the amounts of chemicals in the air that almost all healthy adult workers are predicted to be able to tolerate without adverse effects. There are three types.

TLV-TWA (TLV-Time-Weighted Average) which is averaged over the normal eight-hour day/fourty-hour work week. (Most TLVs.)

TLV-STEL or Short Term Exposure Limits are 15 minute exposures that should not be exceeded for even an instant. It is not a stand alone value but is accompanied by the TLV-TWA.

It indicates a higher exposure that can be tolerated for a short time without adverse effect as long as the total time weighted average is not exceeded.

TLV-C or Ceiling limits are the concentration that should not be exceeded during any part of the working exposure.

Unless the initials "STEL" or "C" appear in the Code column, the TLV value should be considered to be the eight-hour TLV-TWA.

PEL = Permissible Exposure Limit, established by OSHA, equals the maximum exposure concentration allowable for 8 hours per day @ 40 hours per week

TABLE 3

**POTENTIAL ROUTES OF EXPOSURE TO
CONSTITUENTS OF POTENTIAL CONCERN**

**Site-Wide Health and Safety Plan
Tecumseh Redevelopment BCP Sites
Lackawanna, New York**

| Activity ¹ | Direct Contact with Soil/Fill | Inhalation of Vapors or Dust | Direct Contact with Groundwater |
|--|-------------------------------|------------------------------|---------------------------------|
| 1. Soil/Fill Excavation | x | x | |
| 2. Soil/Fill Documentation Sampling | x | x | |
| 3. Surface Water Management | | | x |
| 4. Slag/Fill Subgrade Preparation | x | x | |
| 5. Cover Soil Placement | x | x | |
| 6. Groundwater Monitoring Well Installation/Sampling | x | x | x |
| 7. Groundwater Remediation | x | x | x |

Notes:

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

TABLE 4
REQUIRED LEVELS OF PROTECTION
FOR BCP INVESTIGATION AND REMEDIAL ACTIVITIES

Site-Wide Health and Safety Plan
Tecumseh Redevelopment BCP Sites
Lackawanna, New York

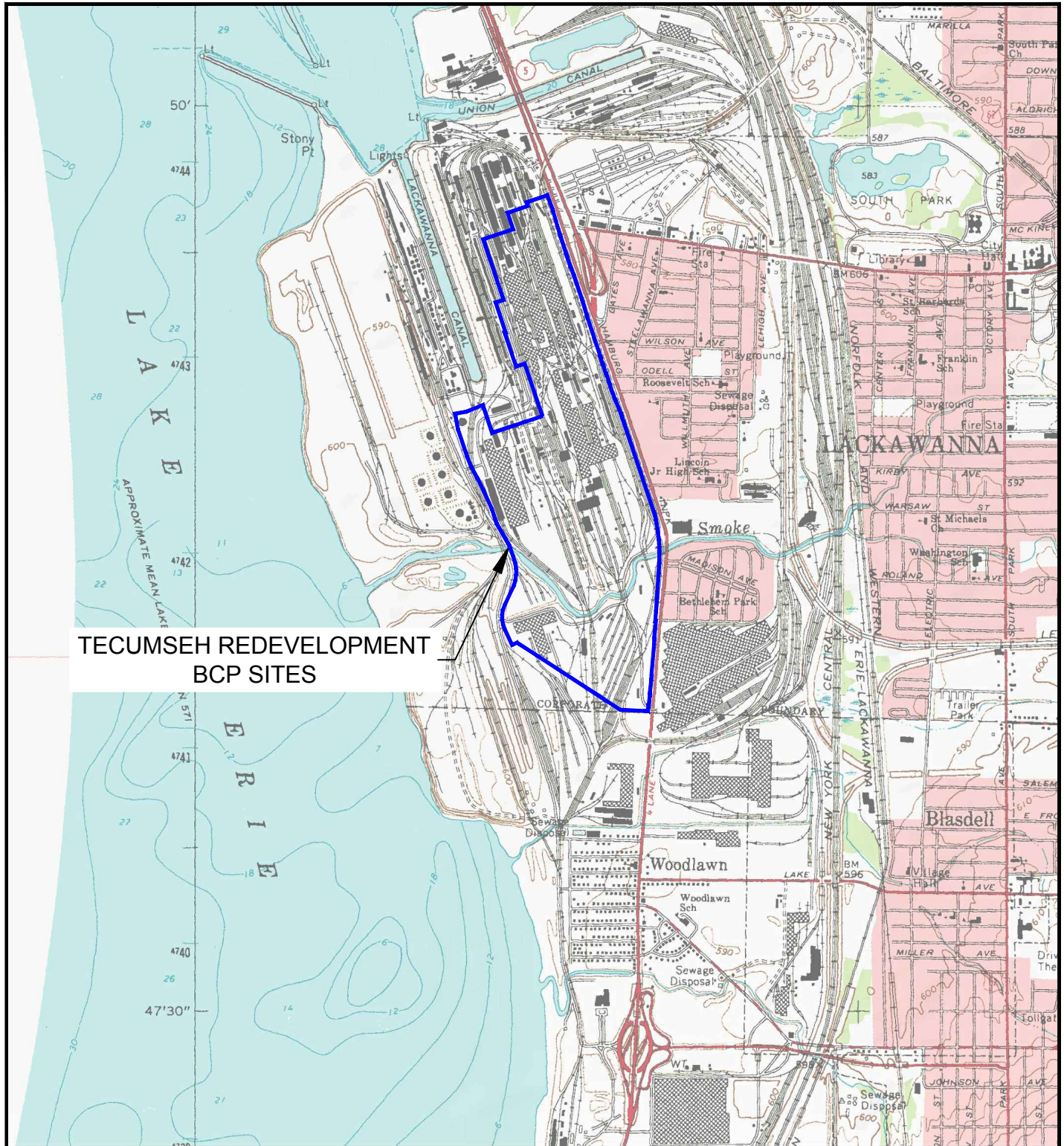
| Activity | Respiratory Protection¹ | Clothing | Gloves² | Boots^{2,3} | Other Required PPE/Modifications^{2,4} |
|--|--|-----------------------|---------------------------|----------------------------|---|
| 1. Soil/Fill Excavation | Level D (upgrade to Level C if necessary) | Work Uniform or Tyvek | L | outer: L inner: STSS | HH SGSS |
| 2. Soil/Fill Documentation Sampling | Level D (upgrade to Level C if necessary) | Work Uniform or Tyvek | L | outer: L inner: STSS | HH SGSS |
| 3. Surface Water Management | Level D (upgrade to Level C if necessary) | Work Uniform or Tyvek | L/N | outer: L inner: STSS | HH SGSS |
| 4. Slag/Fill Subgrade Preparation | Level D (upgrade to Level C if necessary) | Work Uniform or Tyvek | L | outer: L inner: STSS | HH SGSS |
| 5. Cover Soil Placement | Level D (upgrade to Level C if necessary) | Work Uniform or Tyvek | L | outer: L inner: STSS | HH SGSS |
| 6. Groundwater Monitoring Well Installation/Sampling | Level D (upgrade to Level C if necessary) | Work Uniform or Tyvek | L/N | outer: L inner: STSS | HH SGSS |
| 7. Groundwater Remediation | Level D (upgrade to Level C if necessary) | Work Uniform or Tyvek | L | outer: L inner: STSS | HH SGSS |

Notes:

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

FIGURES

FIGURE 1



TECUMSEH REDEVELOPMENT
BCP SITES



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www.delorme.com



2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 858-0835

SITE LOCATION & VICINITY MAP
SITE-WIDE HEALTH AND SAFETY PLAN
TECUMSEH REDEVELOPMENT BCP SITES
LACKAWANNA, NEW YORK

PROJECT NO.: 0071-012-322
DATE: JULY 2013
DRAFTED BY: BLR

F:\CAD\T.R.Ke...Rede...e.opme.t.Br...le.d.Cea...p.Pro.ram (BCP)_Site-Wide HASP Figure 1_Site Lo...a...d.Vi...t...Map.d...

APPENDIX A

EMERGENCY RESPONSE PLAN



EMERGENCY RESPONSE PLAN
for
BROWNFIELD CLEANUP PROGRAM

TECUMSEH REDEVELOPMENT BCP SITES
LACKAWANNA, NEW YORK

April 2010
Revised July 2013

0071-012-322

**TECUMSEH REDEVELOPMENT BCP SITES
SITE-WIDE HEALTH AND SAFETY PLAN
APPENDIX A: EMERGENCY RESPONSE PLAN**

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Figure A-1 Hospital Route Map



1.0 GENERAL

This report presents the site-specific Emergency Response Plan (ERP) referenced in the Site-Wide Health and Safety Plan (HASP) prepared for BCP investigation and remedial activities conducted at the Tecumseh Redevelopment BCP Sites (former Bethlehem Steel Lackawanna Works), Lackawanna, New York. This appendix of the Site-Wide HASP describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This ERP also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

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

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

2.0 PRE-EMERGENCY PLANNING

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

Type of Emergency:

1. Medical, due to physical injury
2. Fire

Source of Emergency:

1. Slip/trip/fall
2. Fire

Location of Source:

1. Non-specific

3.0 ON-SITE EMERGENCY RESPONSE EQUIPMENT

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

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

| Emergency Equipment | Quantity | Location |
|----------------------------|-------------|---|
| Spill Response Kit | 2 | Benzol Yard ICM Treatment Building; Wastewater Treatment Plant Garage (Phase III parcel) |
| First Aid Kit | 3 | Site Vehicle; Benzol Yard ICM Treatment Building; Field Office in Coke Oven Office Building |
| Chemical Fire Extinguisher | 2 (minimum) | All heavy equipment and Site Vehicle |

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

4.0 EMERGENCY PLANNING MAPS

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

5.0 EMERGENCY CONTACTS

The following identifies the emergency contacts for this ERP.

Emergency Telephone Numbers:

Project Manager: *Thomas H. Forbes, P.E.*

Work: (716) 856-0599

Mobile: (716) 864-1730

Corporate Health and Safety Director: *Michael M. Yount, CESCO*

Work: (716) 856-0599

Mobile: (716) 983-3143

Site Safety and Health Officer (SSHO): *Richard L. Dubisz*

Work: (716) 856-0635

Mobile: (716) 998-4334

Alternate SSHO: *Thomas A. Behrendt*

Work: (716) 856-0635

Mobile: (716) 818-8358

| | |
|--|----------------|
| MERCY HOSPITAL (ER): | (716) 826-7000 |
| FIRE: | 911 |
| AMBULANCE: | 911 |
| BUFFALO POLICE: | 911 |
| STATE EMERGENCY RESPONSE HOTLINE: | (800) 457-7362 |
| NATIONAL RESPONSE HOTLINE: | (800) 424-8802 |
| NYSDOH: | (716) 847-4385 |
| NYSDEC: | (716) 851-7220 |
| NYSDEC 24-HOUR SPILL HOTLINE: | (800) 457-7252 |

The Site location is:

Tecumseh Redevelopment Inc.

1951 Hamburg Turnpike

Lackawanna, New York 14218

Site Phone Number: (Insert Cell Phone or Field Trailer): _____

6.0 EMERGENCY ALERTING & EVACUATION

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

- 1) Emergency signals by portable air horn, siren, or whistle: two short blasts, personal injury; continuous blast, emergency requiring site evacuation.
- 2) Visual signals: hand gripping throat, out of air/cannot breathe; hands on top of head, need assistance; thumbs up, affirmative/everything is OK; thumbs down, no/negative; grip partner's wrist or waist, leave area immediately.

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

Personnel exiting the site will gather at a designated assembly point. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to the SSHO (***Thomas Behrendt*** or ***Richard Dubisz***) so that appropriate action can be initiated. Contractors and subcontractors on this Site have coordinated their emergency response plans to ensure that

**SITE-WIDE HEALTH AND SAFETY PLAN
TECUMSEH REDEVELOPMENT BPC SITES**

APPENDIX A: EMERGENCY RESPONSE PLAN

these plans are compatible and that source(s) of potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

7.0 EXTREME WEATHER CONDITIONS

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

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

8.0 EMERGENCY MEDICAL TREATMENT & FIRST AID

Personnel Exposure:

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

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

Personal Injury:

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

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

Directions to Mercy Hospital (see Figure A-1):

The following directions describe the best route to Mercy Hospital:

- From Gate 2, proceed onto the Hamburg Turnpike (SR 5).
- Proceed east on Hamburg Turnpike (SR 5) to the Tifft Street Exit and turn right onto Tifft Street.
- Take Tifft Street east crossing South Park Avenue and McKinley Parkway. Bear left on Edgewood Avenue.
- Turn right on Abbott Road and Mercy Hospital will be on right hand side. Follow signs to emergency room (ER).

9.0 EMERGENCY RESPONSE CRITIQUE & RECORD KEEPING

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

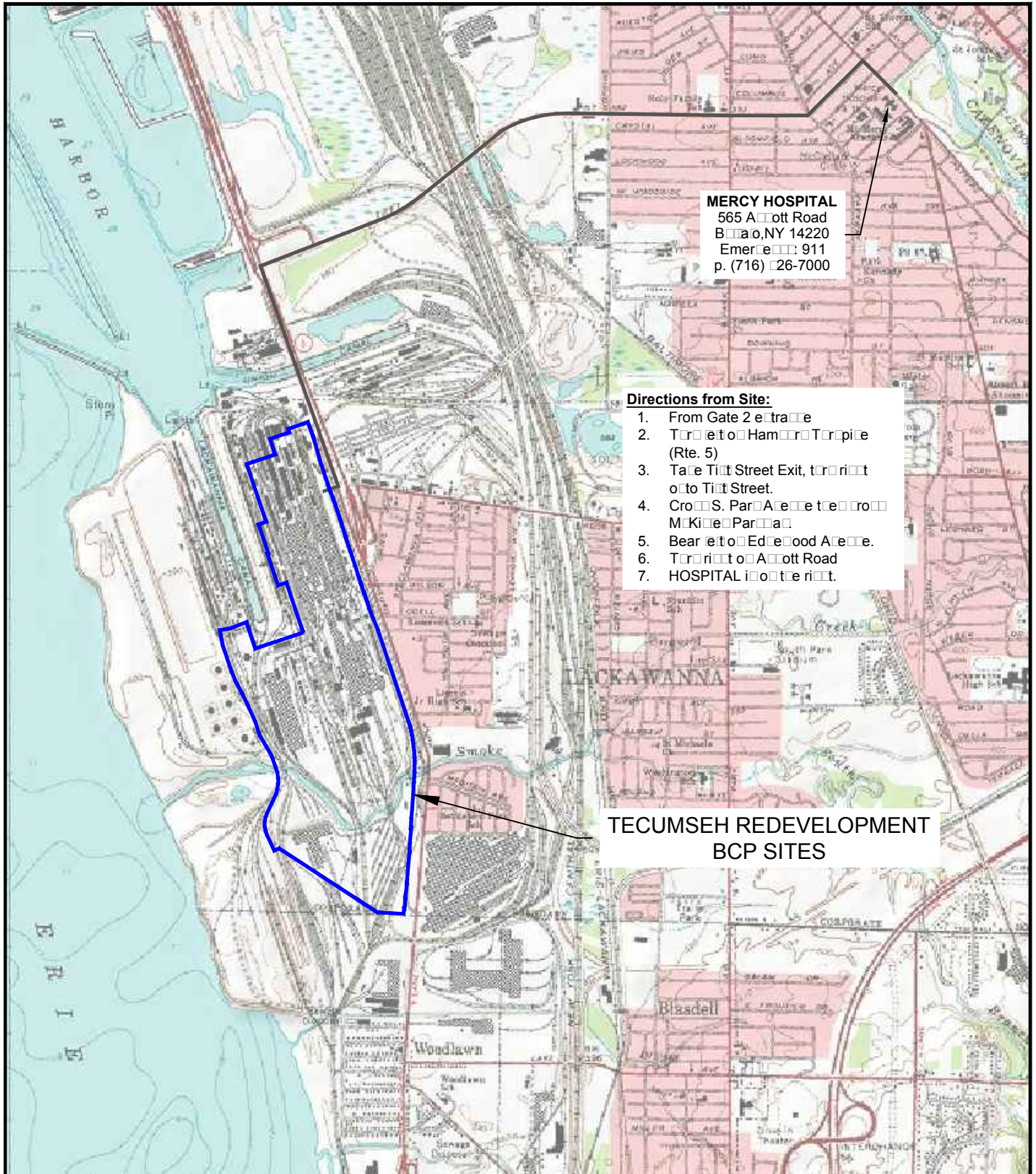
- Occupational injuries and illnesses.
- Accident investigations.
- Reports to insurance carrier or State compensation agencies.
- Reports required by the client.
- Records and reports required by local, state, federal, and/or international agencies.
- Property or equipment damage.
- Third party injury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

10.0 EMERGENCY RESPONSE TRAINING

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

FIGURES

FIGURE A-1



MERCY HOSPITAL
 565 Abbott Road
 Buffalo, NY 14220
 Emergency: 911
 Phone: (716) 26-7000

Directions from Site:

1. From Gate 2 entrance
2. Turn left on Hammon Turnpike (Rte. 5)
3. Take Tilt Street Exit, turn right onto Tilt Street.
4. Cross S. Park Avenue through McKie Park
5. Bear left on Edgewood Avenue.
6. Turn right on Abbott Road
7. HOSPITAL is on the right.

**TECUMSEH REDEVELOPMENT
 BCP SITES**



2558 HAMBURG TURNPIKE
 SUITE 300
 BUFFALO, NY 14218
 (716) 856-0635

HOSPITAL ROUTE MAP
 SITE-WIDE HEALTH AND SAFETY PLAN
 TECUMSEH REDEVELOPMENT BCP SITES
 LACKAWANNA, NEW YORK

PROJECT NO.: 0071-012-322

DATE: JULY 2013

DRAFTED BY: BLR

APPENDIX B

HOT WORK PERMIT FORM





HOT WORK PERMIT

| | |
|--|-------------------------------------|
| PART 1 - INFORMATION | |
| Issue Date: | |
| Date Work to be Performed: Start: | Finish (permit terminated): |
| Performed By: | |
| Work Area: | |
| Object to be Worked On: | |
| PART 2 - APPROVAL | |
| (for 1, 2 or 3: mark Yes, No or NA)* | |
| Will working be on or in: | Finish (permit terminated): |
| 1. Metal partition, wall, ceiling covered by combustible material? | yes no |
| 2. Pipes, in contact with combustible material? | yes no |
| 3. Explosive area? | yes no |
| * = If any of these conditions exist (marked "yes"), a permit will not be issued without being reviewed and approved by Thomas H. Forbes (Corporate Health and Safety Director). Required Signature below. | |
| PART 3 - REQUIRED CONDITIONS** | |
| (Check all conditions that must be met) | |
| PROTECTIVE ACTION | PROTECTIVE EQUIPMENT |
| Specific Risk Assessment Required | Goggles/visor/welding screen |
| Fire or spark barrier | Apron/fireproof clothing |
| Cover hot surfaces | Welding gloves/gauntlets/other: |
| Move movable fire hazards, specifically | Wellintons/Knee pads |
| Erect screen on barrier | Ear protection: Ear muffs/Ear plugs |
| Restrict Access | B.A.: SCBA/Long Breather |
| Wet the ground | Respirator: Type: |
| Ensure adequate ventilation | Cartridge: |
| Provide adequate supports | Local Exhaust Ventilation |
| Cover exposed drain/floor or wall cracks | Extinguisher/Fire blanket |
| Fire watch (must remain on duty during duration of permit) | Personal flammable gas monitor |
| Issue additional permit(s): | |
| Other precautions: | |
| | |
| | |
| | |
| ** Permit will not be issued until these conditions are met. | |
| SIGNATURES | |
| Originating Employee: | Date: |
| Project Manager: | Date: |
| Part 2 Approval: | Date: |

APPENDIX C

NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN



Appendix 1A

New York State Department of Health Generic Community Air Monitoring Plan

Overview

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

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

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

Community Air Monitoring Plan

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

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

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

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

VOC Monitoring, Response Levels, and Actions

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

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

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

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

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

Particulate Monitoring, Response Levels, and Actions

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

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

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

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

December 2009

Appendix 1B

Fugitive Dust and Particulate Monitoring

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

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.
2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.
3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:
 - (a) Objects to be measured: Dust, mists or aerosols;
 - (b) Measurement Ranges: 0.001 to 400 mg/m³ (1 to 400,000 :ug/m³);
 - (c) Precision (2-sigma) at constant temperature: +/- 10 :g/m³ for one second averaging; and +/- 1.5 g/m³ for sixty second averaging;
 - (d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
 - (e) Resolution: 0.1% of reading or 1g/m³, whichever is larger;
 - (f) Particle Size Range of Maximum Response: 0.1-10;
 - (g) Total Number of Data Points in Memory: 10,000;
 - (h) Logged Data: Each data point with average concentration, time/date and data point number
 - (i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
 - (j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
 - (k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
 - (l) Operating Temperature: -10 to 50° C (14 to 122° F);
 - (m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.
4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.
5. The action level will be established at 150 ug/m³ (15 minutes average). While conservative,

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

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

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

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

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

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

APPENDIX D

INSPECTION FORM FOR THE CONTROLLED PROPERTY



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



| Site Details | Box 1 | |
|--|--------------------------|--------------------------|
| Site Nos.: C915197 through C915197K | | |
| Site Name: Phase I Business Park (“Controlled Property”) | | |
| Site Address: 2303 Hamburg Turnpike | Zip Code: 14218 | |
| City/Town: Lackawanna | | |
| County: Erie | | |
| Current Use: Industrial | | |
| Intended Use: Industrial/Commercial Business Park | | |
| Verification of Site Details | Box 2 | |
| | YES | NO |
| 1. Are the Site Details above, correct? | <input type="checkbox"/> | <input type="checkbox"/> |
| If NO, are changes handwritten above or included on a separate sheet? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Has a change-of-use occurred since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE NOs. C915197 through C915197K

Description of Institutional Control Certification

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Groundwater monitoring as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |

Description of Engineering Control Certification

Box 4

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Maintenance of the cover systems over the Site: | <input type="checkbox"/> | <input type="checkbox"/> |

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

- (a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
- (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
- (c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
- (d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.
- (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

**IC/EC CERTIFICATIONS
SITE NOs. C915197 through C915197K**

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering
Certification

Stamp (if Required)

Date

Enclosure 2

Certification of Institutional Controls/ Engineering Controls (ICs/ECs) Step-by-Step Instructions, Certification Requirements and Definitions

The Owner, or Remedial Party, and when necessary, a Professional Engineer (P.E.), or the Qualified Environmental Professional (QEP), must review and complete the IC/EC Certification Form, sign the IC/EC Certifications Signature Page, and return it, along with the Periodic Review Report (PRR), within 45 days of the date of this notice.

Please use the following instructions to complete the IC/EC Certification.

I. Verification of Site Details (Box 1 and Box 2):

Answer the six questions in the Verification of Site Details Section. Questions 5 and 6 refer to only sites in the Brownfield Cleanup Program. ECL Section 27-1415-7(c) is included in

IV. IC/EC Certification Requirements. The Owner and/or your P.E. or QEP may include handwritten changes and/or other supporting documentation, as necessary.

II. Verification of Institutional / Engineering Controls (Box 3 and Box 4)

Review the listed Institutional / Engineering Controls, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party is to petition the Department requesting approval to remove the control.

2. Select "YES" or "NO" for **Control Certification** for each IC/EC, based on Sections (a)-(e) of the **Control Certification Statement**.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. If the Department has any questions or concerns regarding the completion of the certification, the Project Manager will contact you.

3. If you cannot certify "Yes" for each Control, please continue to complete the remainder of this **Control Certification** form. Attach supporting documentation that explains why the **Control Certification** cannot be rendered, as well as a statement of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Control Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is conducted.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. Once the corrective measures are complete a new Periodic Review Report (with IC/EC Certification) is to be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 5 and Box 6):

1. If you certified "Yes" for each Control, please complete and sign the IC/EC Certifications page. To determine WHO signs the **IC/EC Certification**, please use Table 1. Signature Requirements for the IC/EC Certification, which follows.

| Table 1. Signature Requirements for Control Certification Page | | |
|---|---|--|
| Type of Control | Example of IC/EC | Required Signatures |
| IC only | Environmental Easement Deed Restriction. | A site or property owner or remedial party. |
| IC with an EC which does not include a treatment system or engineered caps. | Fence, Clean Soil Cover, Individual House Water Treatment System, Vapor Mitigation System | A site or property owner or remedial party, and a QEP. (P.E. license not required) |
| IC with an EC that includes treatment system or an engineered cap. | Pump & Treat System providing hydraulic control of a plume, Part 360 Cap. | A site or property owner or remedial party, and a QEP with a P.E. license. |

IV. IC/EC Certification Requirements:

Division of Environmental Remediation Program Policy requires periodic certification of IC(s) and EC(s) as follows:

For Environmental Restoration Projects: N.Y. Env'tl Conserv.Law Section 56-0503 (Environmental restoration projects; state assistance)

For State Superfund Projects: Env'tl Conserv.Law Section 27-1318. (Institutional and engineering controls)

For Brownfields Cleanup Program Projects: Env'tl Conserv.Law Section 27-1415. (Remedial program requirements)

Env'tl Conserv.Law Section 27-1415-7(c) states:

- (c) At non-significant threat sites where contaminants in groundwater at the site boundary contravene drinking water standards, such certification shall also certify that no new information has come to the owner's attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid. Every five years the owner at such sites shall certify that the assumptions made in the qualitative exposure assessment remain valid. The requirement to provide such certifications may be terminated by a written determination by the Commissioner in consultation with the Commissioner of Health, after notice to the parties on the brownfield site contact list and a public comment period of thirty days.

Voluntary Cleanup Program: Applicable program guidance.

Petroleum Remediation Program: Applicable program guidance.

Federal Brownfields: Applicable program guidance.

Manufactured Gas Plant Projects: Applicable program guidance (including non-registry listed MGPs).

WHERE to mail the signed Certification Form by March 1st of each year (or within 45 days of the date of the Department notice letter):

New York State Department of Environmental Conservation
Division of Environmental Remediation

Attn: Division of Environmental Remediation – North Section
NYSDEC
270 Michigan Avenue
Buffalo, NY 14203-2999

Please note that extra postage may be required.

V. Definitions

“Engineering Control” (EC), means any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

“Institutional Control” (IC), means any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a remedial site.

“Professional Engineer” (P.E.) means an individual or firm licensed or otherwise authorized under article 145 of the Education Law of the State of New York to practice engineering.

“Property Owner” means, for purposes of an IC/EC certification, the actual owner of a property. If the site has multiple properties with different owners, the Department requires that the owners be represented by a single representative to sign the certification.

“Oversight Document” means any document the Department issues pursuant to each Remedial Program (see below) to define the role of a person participating in the investigation and/or remediation of a site or area(s) of concern. Examples for the various programs are as follows:

BCP (after approval of the BCP application by DEC) - Brownfield Site Cleanup Agreement.

ERP (after approval of the ERP application by DEC) - State Assistance Contract.

Federal Superfund Sites - Federal Consent Decrees, Administrative Orders on Consent or Unilateral Orders issued pursuant to CERCLA.

Oil Spill Program - Order on Consent, or Stipulation pursuant to Article 12 of the Navigation Law (and the New York Environmental Conservation Law).

State Superfund Program - Administrative Consent Order, Record of Decision.

VCP (after approval of the VCP application by DEC) - Voluntary Cleanup Agreement.

RCRA Corrective Action Sites- Federal Consent Decrees, Administrative Orders on Consent or permit conditions issued pursuant to RCRA.

“Qualified Environmental Professional” (QEP), means a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases to the surface or subsurface of a property or off-site areas, sufficient to meet the objectives and performance factors for the areas of practice identified by this Part. Such a person must:

(1) hold a current professional engineer’s or a professional geologist’s license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience in site investigation and remediation of the type detailed in this Part; or

(2) be a site remediation professional licensed or certified by the federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with Department guidance, and have the equivalent of three years of full-time relevant experience.

“Qualitative Exposure Assessment” means a qualitative assessment to determine the route, intensity, frequency, and duration of actual or potential exposures of humans and/or fish and wildlife to contaminants.

“Remedial Party” means a person implementing a remedial program at a remedial site pursuant to an order, agreement or State assistance contract with the Department.

“Site Management” (SM) means the activities undertaken as the last phase of the remedial program at a site, which continue after a Certificate of Completion is issued. Site management is conducted in accordance with a site management plan, which identifies and implements the institutional and engineering controls required for a site, as well as any necessary monitoring and/or operation and maintenance of the remedy.

“Site Management Plan” (SMP) means a document which details the steps necessary to assure that the institutional and engineering controls required for a site are in-place, and any physical components of the remedy are operated, maintained and monitored to assure their continued effectiveness, developed pursuant to Section 6 (DER10 Technical Guide).

“Site Owner” means the actual owner of a site. If the site has multiple owners of multiple properties with ICs and/or ECs, the Department requires that the owners designate a single representative for IC/EC Certification activities.

APPENDIX E

SITE-SPECIFIC SMP REQUIREMENTS

APPENDIX E-1

SITE I-1 (C915197)

As the remedial actions are completed on Site I-1 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-1 as an addendum.

BROWNFIELD CLEANUP PROGRAM

APPENDIX E-1/E-3 SITE MANAGEMENT PLAN

TECUMSEH PHASE I BUSINESS PARK
NYSDEC SITE NOS. C915197 (I-1) & C915197C (I-3)
LACKAWANNA, NEW YORK

November 2017

0071-017-327

Prepared for:

Tecumseh Redevelopment Inc.
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In Association With:



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Revisions to Addenda of Final Approved Site Management Plan:

| Revision # | Submitted Date | Summary of Revision | DEC Approval Date |
|------------|----------------|---------------------|-------------------|
| | | | |
| | | | |

**PHASE I BUSINESS PARK
SITE MANAGEMENT PLAN: APPENDIX E-1/E-3
NYSDEC SITE NOS. C915197 (I-1) & C915197C (I-3)**

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**PHASE I BUSINESS PARK
SITE MANAGEMENT PLAN: APPENDIX E-1/E-3
NYSDEC SITE NOS. C915197 (I-1) & C915197C (I-3)**

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1.0 INTRODUCTION

The Site Management Plan (SMP) is a required element of the remedial program at the Tecumseh Redevelopment Inc. (Tecumseh) Phase I Business Park (herein referred to as the Controlled Property; see Figure 1) under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The purpose of an SMP is to manage the contamination on a site remaining after remedial action.

The January 2014 SMP (Ref. 1) for the Controlled Property was prepared by TurnKey Environmental Restoration, LLC (TurnKey), on behalf of Tecumseh, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 2) and the guidelines provided by NYSDEC. Since the Controlled Property was divided into 11 BCP Sites designated as Sites I-1 through I-11 (BCP Site Nos. C915197 through C915199K), the main body of the SMP includes the site management components common to all 11 Sites. Site-specific requirements are included as Appendix E to the SMP.

1.1 Site Location and Description

As shown on Figure 2, Sites I-1 (approx. 5.57 acres) and I-3 (approx. 7.63 acres) is bounded by Business Park IA to the west; BCP Site I-5 to the north; BCP Sites I-2/I-4 and Fuhrmann Blvd. to the east; and Business Park II to the south.

The NYSDEC issued the Decision Document for Business Park I in January 2012 (Ref. 3). The Decision Document specifies, among other requirements, placement of acceptable cover material in areas not otherwise covered by rail lines, etc. Engineering controls (ECs) have been incorporated into the remedy to control exposure to remaining contamination during use of the Sites to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC by Tecumseh for the entire Business Park I has been recorded with the Erie County Clerk and requires compliance with this SMP and all ECs and institutional controls (ICs) placed on the Site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring, and reporting measures for all ECs and ICs.

This Appendix addresses the means for implementing the ICs and ECs that are required by the Environmental Easement for Sites I-1 and I-3 of the Controlled Property.

This Appendix is not to be used as stand-alone documents but as a component document of the January 2014 SMP for the Controlled Property.

1.2 Remedial Investigation

The August 2005 Remedial Investigation (RI) Work Plan (Ref. 4) identified Site characterization requirements to be completed pursuant to the BCP and NYSDEC DER-10 guidance across all 11 Sites within the Controlled Property. The RI was designed to provide defensible data to identify areas of the Controlled Property potentially requiring remediation, define chemical constituent migration pathways, and qualitatively assess human health and ecological risks to allow for performance of a remedial alternatives evaluation.

Investigative activities on Business Park I were performed January-February 2006. Specific to Sites I-1 and I-3, test pits were completed (three on Site I-1 and seven on Site I-3) as well as surface soil sampling (two on Site I-1 and one on Site I-3). In April 2008, a supplemental test pit program was performed to further delineate petroleum-impacted soil/fill in support of interim remedial measures. Monitoring well MW-17A and temporary piezometer P-50S were installed on Site I-3 as part of the RI. Attachment A includes the monitoring well construction log. Soil and groundwater samples were collected as detailed in the Work Plan.

Groundwater samples were collected from monitoring well MW-7A during the RI (March 2006) and again in February 2016 during a site-wide groundwater sampling event. No parameters exceeded the groundwater quality standards/guidance values (GWQS/GVs). Site groundwater is not used and is restricted from use for either potable or non-potable purposes without treatment by an Environmental Easement.

The RI Report was submitted to NYSDEC in October 2006, revised, and finalized in June 2007 (Ref. 5). Based on the RI findings, remediation of soil/fill was warranted.

1.3 Interim Remedial Measures

A pre-Interim Remedial Measures (IRM) investigation was proposed (Ref. 6) and performed in April 2008 since the extent of impacts at several test pit locations were not fully defined during the RI. The IRM completed on Business Park I involved petroleum-, tar-, and metals-impacted soil/fill removal in accordance with the NYSDEC-approved August 2008 IRM Work Plan (Ref. 7). A Construction Closeout Report (CCR) was not

prepared for these IRM activities; however, a summary of the IRM was presented in NYSDEC-approved May 2010 Alternatives Analysis (AA) Report for Business Park I (Ref. 8). The AA Report recommended deferred soil cover system placement during redevelopment as well as ECs and ICs to limit future use of the Controlled Property to restricted (commercial or industrial) applications and prevent groundwater use for potable purposes (see Section 2.0).

The following remedial work was performed between April and June 2009 on Sites I-1 and I-3 (see Figure 3):

- Construction of temporary on-site biotreatment pads on paved areas in the northern portion of Business Park I.
- Excavation of petroleum-impacted soil/fill on Site I-3; approximately 668 cubic yards in the vicinity of test pit TP-1-6 and 300 cubic yards in the vicinity of test pit grid composite 7/8. The impacted soil/fill was placed in the bioremediation area for on-site treatment (tilling). The treated soils were stockpiled for use as on-site, subgrade fill during future backfill and site grading work.
- Backfill of excavations with BUD #555-9-15 material; bioremediated slag/fill; and non-impacted crushed asphalt. Backfill material was placed into the excavation and compacted/tracked with the excavator/backhoe bucket in 2-foot lifts.

1.4 Summary of Remedial Actions

The final remedial measures for these Sites involved placement of the cover system in accordance with the NYSDEC-approved June 2017 Remedial Action Work Plan (RAWP) (Ref. 9). Details of cover system placement are provided in the November 2017 Final Engineering Report (Ref. 10).

1.5 Remaining Contamination

1.5.1 Soil

The IRM conducted on Sites I-1 and I-3 has removed all known “source area” (i.e., petroleum-impacted) slag/fill. The remaining soil/fill is generally characterized by widespread exceedance of the Part 375 unrestricted-use SCOs (USCOs) for several ubiquitous constituents. Specifically, nearly all samples collected during the RI exhibited exceedance of the USCOs for carcinogenic polyaromatic hydrocarbons (PAHs), as well as

arsenic, cadmium, chromium, lead, mercury and, at one sample location, cyanide. Tables 1 and 2 summarize the results of all soil samples remaining on Sites I-1 and I-3 that exceed USCOs following completion of the remedial actions. It is not possible to quantify with any certainty areas that do not exceed one or more of the USCO criteria; therefore, it is assumed that the entire 5.57 acres constituting Site I-1 and 7.63 acres constituting I-3 are impacted above the USCOs to the approximate native soil depth of 8 fbgs.

Following grading of these Sites, demarcation was constructed and placed so as to easily identify the existing sub-grade from the cover system material, and prevent the potential for inadvertent removal of sub-grade material during future intrusive work. The demarcation layer is comprised of an orange $\frac{3}{4}$ -inch plastic industrial netting material was rolled across the sub-grade and overlapped by approximately one foot at the seams.

1.5.2 Groundwater

The groundwater quality on Site I-3 has been assessed by sampling monitoring well MW-17A in March 2006 during the RI and again in February 2016 during a site-wide groundwater sampling event. The groundwater was analyzed for VOCs, SVOCs, and inorganic parameters. As indicated on Table 3, groundwater concentrations were non-detect or below NYSDEC Class GA GWQS/GVs. Groundwater monitoring well MW-17A will be retained for future monitoring in the event NYSDEC requests groundwater quality monitoring on the larger Business Park I.

2.0 ENGINEERING & INSTITUTIONAL CONTROL PLAN

2.1 Introduction

Since contaminated soil/fill remains beneath the Sites, Engineering Controls and Institutional Controls (EC/ICs) are required to protect public health and the environment. The EC/IC Plan in the Phase I BP SMP describes the procedures for the implementation and management of site-wide EC/ICs. The EC/IC Plan is one component of the SMP and subject to revision by NYSDEC. EC/ICs specific to Sites I-1 and I-3 are described below.

2.2 Engineering Control Systems

The cover system for Sites I-1 and I-3 is described in the Final Engineering Report (Ref. 10). Figure 4 shows the approximate locations and types of cover system materials placed on the Sites. In the event this cover system is breached, penetrated, or temporarily removed, the cover system shall be repaired in accordance with Section 2.2 of the SMP and Section 4.0 of the Excavation Work Plan (SMP Appendix B).

2.3 Institutional Controls

The Institutional Controls described in Section 2.3 of the SMP (i.e., Environmental Easement and Excavation Work Plan) must be implemented. There are no site-specific Institutional Control requirements for Sites I-1 and I-3.

2.4 Inspections and Notifications

The Inspections and Notifications described in Section 2.4 of the SMP must be implemented for Sites I-1 and I-3. There are no site-specific inspection and notification requirements.

2.5 Contingency Plan

Emergencies conditions are addressed in the Emergency Response Plan (ERP), which is an attachment to the HASP (SMP Appendix C). The following emergency contact numbers are specific to Sites I-1 and I-3:

Table 4: Emergency Contact Numbers

| | |
|--|--|
| Name: John Cappellino Title: Executive Vice President, Buffalo and Erie County Industrial Land Development Corporation | Work: (716) 856-6525 Mobile: (716) 472-6667 |
| Name: Thomas Forbes Title: Principal Engineer, Benchmark Environmental | Work: (716) 856-0599 Mobile: (716) 864-1730 |

Note: Contact numbers subject to change and should be updated as necessary

3.0 SITE MONITORING PLAN

The Site Monitoring Plan describes the measures for evaluating the performance and effectiveness of:

- The remedy to reduce or mitigate contamination at the Site;
- The cover system; and
- All affected Site media.

Monitoring of the cover system is described in the SMP. No site-specific monitoring is required.

4.0 OPERATION & MAINTENANCE PLAN

The remedy for Sites I-1 and I-3 does not rely on any mechanical systems, such as sub-slab depressurization or soil vapor extraction, to protect public health and the environment. Therefore, a site-specific Operation and Maintenance Plan is not required.

5.0 INSPECTIONS, REPORTING & CERTIFICATIONS

All inspection, reporting, and certification requirements are described in Section 3.0 of the SMP. Attachment B includes sample EC/IC Certification Forms to be completed for Sites I-1 and I-3.

6.0 REFERENCES

1. TurnKey Environmental Restoration, LLC. *Site Management Plan for BCP Tecumseh Phase I Business Park, NYSDEC Site No. C915197 through C915197K, Lackawanna, New York*. January 2014.
2. New York State Department of Environmental Conservation. *DER-10/Technical Guidance for Site Investigation and Remediation*. May 3, 2010.
3. New York State Department of Environmental Conservations. *Decision Document, Tecumseh Phase I Business Park, Brownfield Cleanup Program, Lackawanna, Erie County, Site No. C915197*. January 2012.
4. TurnKey Environmental Restoration, LLC. *Remedial Investigation Work Plan, Phase I Business Park Area, Lackawanna, New York*. August 2005.
5. TurnKey Environmental Restoration, LLC. *Remedial Investigation Report, Phase I Business Park, Tecumseh Redevelopment Inc., Lackawanna, New York*. June 2007.
6. TurnKey Environmental Restoration, LLC. *Correspondence to Mr. Maurice Moore of the NYSDEC Re: Phase I Business Park Area, Supplemental Remedial Investigation*. March 27, 2008.
7. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Interim Remedial Measures Work Plan, Phase I Business Park Area, Lackawanna, New York, BCP Site No. C915197*. August 2008.
8. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Alternatives Analysis Report (AAR) Phase I Business Park, ArcelorMittal Tecumseh Redevelopment, Inc., Lackawanna, New York, BCP Site No. C915197*. May 2010.
9. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Remedial Action Work Plan, Tecumseh Business Parks I and II, Lackawanna, New York*. June 2017.
10. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Final Engineering Report, Tecumseh Business Park I, Sub-Parcels I-1 and I-3, Lackawanna, New York*. November 2017.

TABLES

**TABLE 1
SUMMARY OF SOIL/FILL CONTAMINATION ABOVE USCOS**

SITE MANAGEMENT PLAN

**Phase I Business Park, Site I-1
Tecumseh Redevelopment Inc., Lackawanna, New York**

| Parameter ¹ | USCOs (mg/kg) ² | Sample Location, Depth Interval (fbgs), and Type | | | |
|---|-------------------------------|--|------------------------|-------------------|-------------------|
| | | TP-2-(1-3) | TP-2-(1-3) | SS-23 | SS-24 |
| | | 0.0 - 2.0 composite | 2.0 - 5.5 composite | 0.0 - 1.0 grab | 0.0 - 1.0 grab |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | |
| Acenaphthene | 20 | 0.44 J | 0.67 J | ND | 1.1 J |
| Acenaphthylene | 100 | 0.59 J | 20 | ND | 0.89 J |
| Anthracene | 100 | 1 J | 17 J | 0.4 J | 3.9 J |
| Benzo(a)anthracene | 1 | 6.7 J | 50 | 1.6 J | 14 |
| Benzo(b)fluoranthene | 1 | 11 J | 86 J | 2.6 J | 15 J |
| Benzo(k)fluoranthene | 0.8 | 3.7 J | 25 J | 0.53 J | 6 J |
| Benzo(g,h,i)perylene | 100 | 3.3 J | 34 | 1.3 J | 7 J |
| Benzo(a)pyrene | 1 | 6.8 J | 62 | 1.5 J | 12 |
| Chrysene | 1 | 8 | 52 | 1.5 J | 11 |
| Dibenz(a,h)anthracene | 0.33 | 1 J | 8.6 | ND | 2.3 J |
| Dibenzofuran | 7 | ND | 3.8 J | ND | 1 J |
| Fluoranthene | 100 | 14 | 95 J | 3.5 J | 28 |
| Fluorene | 30 | 0.38 J | 4.2 J | ND | 1.5 J |
| Indeno(1,2,3-cd)pyrene | 0.5 | 3 J | 30 | 1.1 J | 6.9 J |
| 2-Methylnaphthalene | -- | ND | 1.6 J | ND | ND |
| Naphthalene | 12 | ND | 4.2 J | ND | ND |
| Phenanthrene | 100 | 6.5 J | 52 J | 1.4 J | 16 |
| Pyrene | 100 | 11 | 94 | 3.3 J | 20 |
| TOTAL SVOCs (mg/kg) | -- | 77.41 | 640.1 | 18.73 | 146.6 |
| Inorganic Compounds - mg/kg | | | | | |
| Arsenic, Total | 13 | 10 | 7.4 | 7.8 | -- |
| Cadmium, Total | 2.5 | 2.8 | 1.4 | 2.9 | -- |
| Chromium, Total | 30 | 136 J | 15.9 J | 95.6 | -- |
| Lead, Total | 63 | 267 J | 103 J | 198 | -- |
| Mercury, Total | 0.18 | 2.9 J | 1.8 J | 1.9 | -- |
| Cyanide, Total | 27 | 11.5 | ND | 14.7 J | -- |

Notes:

- Only those parameters detected at a min. of one sample location presented; all other compounds reported as non-detect.
- USCO = Unrestricted-Use Soil Cleanup Objective per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.

Definitions:

- J = estimated value; result is less than the sample quantitation limit but greater than zero.
- ND = parameter not detected above laboratory detection limit.
- "--" = not analyzed for this parameter or no individual SCO.
- "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|--|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Part 375 Unrestricted Soil Cleanup Objectives. |

**TABLE 2
SUMMARY OF SOIL/FILL CONTAMINATION ABOVE USCOS**

SITE MANAGEMENT PLAN

**Phase I Business Park, Site I-3
Tecumseh Redevelopment Inc., Lackawanna, New York**

| Parameter ¹ | USCOs (mg/kg) ² | Sample Location, Depth Interval (fbgs), and Type | | | | | |
|---|-------------------------------|--|------------|-------------|---------------|-----------|-----------|
| | | TP-1-(1-5) | TP-1-(1-5) | TP-1-(6-10) | TP-1-(678910) | TP-1-9 | SS-25 |
| | | 0.0 - 2.0 | 2.0 - 5.0 | 0.0 - 2.0 | 2.0 - 5.0 | 1.0 - 4.8 | 0.0 - 1.0 |
| | | composite | composite | composite | composite | grab | grab |
| STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg | | | | | | | |
| Benzene | 0.06 | -- | -- | -- | -- | 0.0013 | -- |
| Naphthalene | 12 | -- | -- | -- | -- | 0.076 J | 0.065 J |
| TOTAL VOCs (mg/kg) | -- | 0 | 0 | 0 | 0 | 0.077 | 0.065 |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | |
| Acenaphthene | 20 | 0.98 J | 0.31 J | 0.28 J | ND | 0.22 J | 0.16 J |
| Acenaphthylene | 100 | 2.2 | 1.5 J | 1.4 J | 0.17 J | 0.44 J | 0.27 J |
| Anthracene | 100 | 2.9 | 1.7 J | 1.2 J | 0.096 J | 0.41 J | 0.78 |
| Benzo(a)anthracene | 1 | 7.8 | 5.5 | 2.9 | 0.45 J | 1.2 J | 1.6 |
| Benzo(b)fluoranthene | 1 | 16 J | 8.4 J | 4.5 J | 0.73 J | 1.9 J | 2.2 J |
| Benzo(k)fluoranthene | 0.8 | 5 J | 2.3 J | 1.8 J | 0.25 J | 0.61 J | 0.61 J |
| Benzo(g,h,i)perylene | 100 | 6.5 | 2.7 | 2.5 | 0.28 J | 0.42 J | 0.81 |
| Benzo(a)pyrene | 1 | 8 | 5.5 | 3.1 | 0.47 J | 1.2 J | 1.6 |
| Chrysene | 1 | 8.8 | 6.1 | 3.2 | 0.44 J | 1 J | 1.6 |
| Dibenz(a,h)anthracene | 0.33 | 1.9 | 0.8 J | 0.55 J | ND | 0.2 J | 0.23 J |
| Dibenzofuran | 7 | 0.68 J | 0.72 J | 0.35 J | ND | 0.24 J | 0.24 J |
| Fluoranthene | 100 | 19 | 12 | 5.9 | 0.66 J | 2.0 | 4 |
| Fluorene | 30 | 1.1 J | 0.84 J | 0.53 J | ND | ND | 0.42 |
| Indeno(1,2,3-cd)pyrene | 0.5 | 6.3 | 2.5 | 1.8 | 0.28 J | 0.49 J | 0.78 |
| 2-Methylnaphthalene | -- | 0.34 J | 0.43 J | 0.18 J | ND | 0.23 J | 0.068 J |
| Phenanthrene | 100 | 12 | 7.7 | 4.1 | 0.3 J | 1.4 J | 3.2 |
| Pyrene | 100 | 13 | 7.7 | 3.9 | 0.47 J | 1.4 J | 2.8 |
| TOTAL SVOCs (mg/kg) | -- | 113 | 66.7 | 38.2 | 4.60 | 13.4 | 21.4 |
| Inorganic Compounds - mg/kg | | | | | | | |
| Arsenic, Total | 13 | 121 | 34.6 | 13.1 | 10.2 | 12.1 | 7.6 |
| Cadmium, Total | 2.5 | ND | ND | ND | ND | ND | 1.4 |
| Chromium, Total | 30 | 123 J | 40.3 J | 70.1 J | 79.9 J | 13.2 J | 67.8 |
| Lead, Total | 63 | 257 J | 126 J | 210 J | 108 J | 59.2 J | 166 |
| Mercury, Total | 0.18 | 12 | 0.206 | 0.075 | 0.051 | 0.041 | 0.148 |
| Cyanide, Total | 27 | 123 | 14.2 | ND | 9.2 | ND | 3.5 J |

Notes:

1. Only those parameters detected at a min. of one sample location presented; all other compounds reported as non-detect.
2. USCO = Unrestricted-Use Soil Cleanup Objective per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.

Definitions:

J = estimated value; result is less than the sample quantitation limit but greater than zero.

ND = parameter not detected above laboratory detection limit.

"--" = not analyzed for this parameter or no individual SCO.

"RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|-------------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Unrestricted SCO. |
| | = TP-1-6 Soil Removed through 2009 IRM activities |



**TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL DATA**

SITE MANAGEMENT PLAN

**Phase I Business Park, Site I-3
Tecumseh Redevelopment Inc., Lackawanna, New York**

| Parameter ¹ | Well ID, Location, & Sampling Date | | | | GWQS/GV ³ |
|---|------------------------------------|---------------|---------|-----------|------------------------|
| | MW-17A | | MW-17A | | |
| | Site 1-3 | | | | |
| | 3/7/06 ² | | 2/23/16 | | |
| Field Measurements (units as indicated) | | | | | |
| pH (units) | 7.47 | 7.72 | 7.56 | 7.60 | 6.5 - 8.5 |
| Temperature (°C) | 7.1 | 6.5 | 6.9 | 6.6 | NA |
| Specific Conductance (uS) | 851.0 | 846.3 | 835.8 | 836.4 | NA |
| Turbidity | 14.9 | 4.52 | 4.28 | 1.32 | 50** |
| Dissolved Oxygen (mg/L) | -- | -- | 6.58 | 8.35 | NA |
| ORP (mV) | -18 | 14 | -2 | 5 | NA |
| Volatile Organic Compounds (VOCs) - ug/L | | | | | |
| Acetone | -- | | ND | | 50* |
| n-Butylbenzene | ND | | ND | | 5 |
| 1,2,4-Trichlorobenzene | -- | | ND | | 5* ⁴ |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - ug/L ⁵ | | | | | |
| TOTAL SVOCs (ug/L) | | ND | | ND | NA |
| Polychlorinated Biphenyls (PCBs) - ug/L | | | | | |
| TOTAL PCBs (ug/L) | | ND | | -- | NA |
| Total Inorganic Compounds - mg/L ⁶ | | | | | |
| Barium, Total | | -- | | 0.046 J | 1 |
| Cadmium, Total | | ND | | ND | 0.005 |
| Chromium, Total | | ND | | 0.0032 J | 0.05 |
| Copper, Total | | -- | | 0.0035 J | 0.2 |
| Cyanide, Total | | 0.16 J | | 0.12 F1 | 0.2 |
| Manganese, Total | | -- | | 0.0063 B | 0.3 |
| Nickel, Total | | -- | | ND | 0.1 |
| Zinc, Total | | 0.16 J | | 0.0016 JB | 0.2 |

Notes:

1. Only those parameters detected at a min. of 1 sample location are presented; all other compounds were reported as N
2. Groundwater collected from March 2006 event were only analyzed for parameters listed in August 2005 RIWP.
3. NYSDEC Class "GA" Groundwater Quality Standards/Guidance Values (GWQS/GV) as per 6 NYCRR Part 703.
4. A Guidance Value limit of 10 ug/L applies to the sum of 1,2,3-, 1,2,4-, and 1,3,5-Trichlorobenzene.
5. Groundwater collected from wells were only analyzed for BN SVOCs.
6. Groundwater collected from wells were only analyzed for arsenic, cadmium, chromium, cyanide, lead, and mercury.

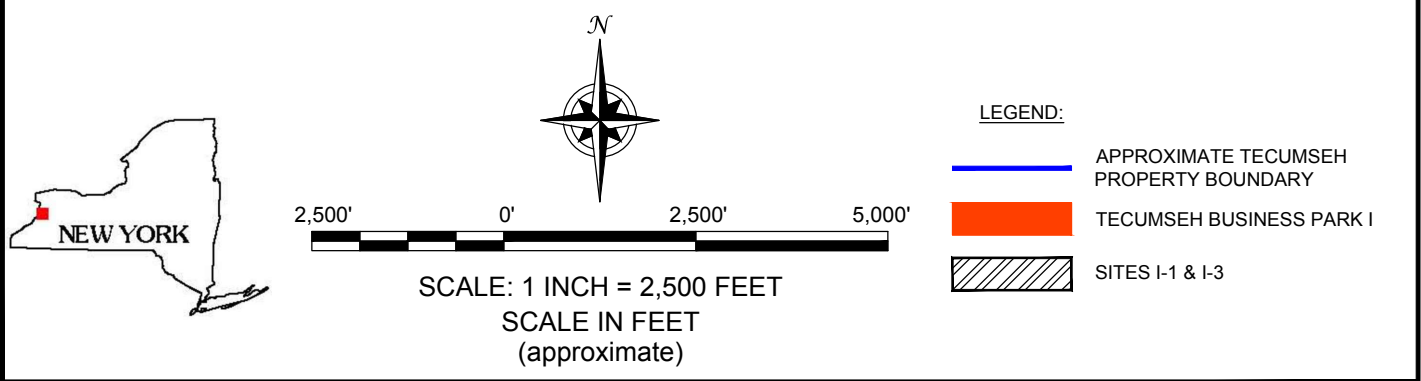
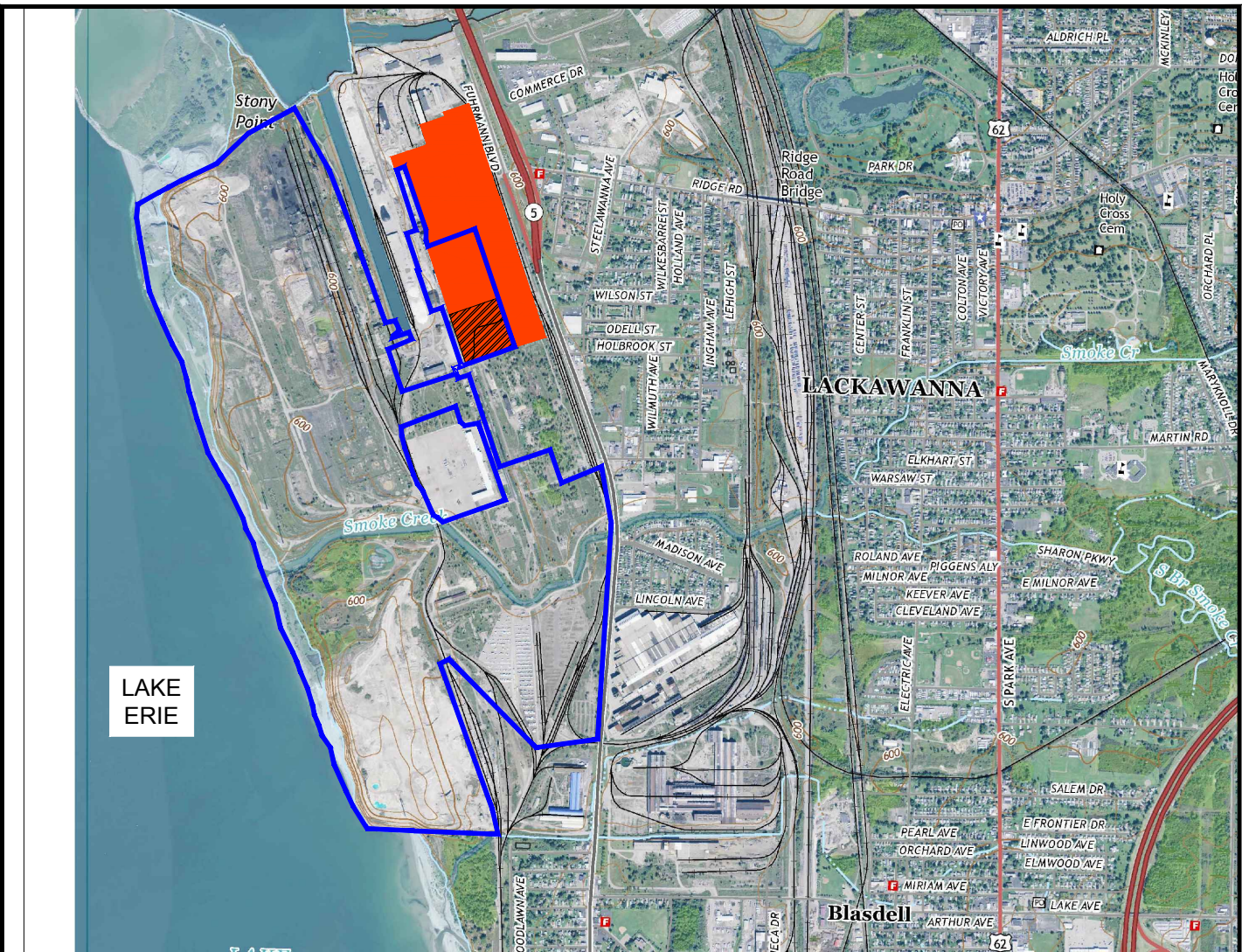
Definitions:

- J = Estimated value; result is less than the sample quantitation limit but greater than zero.
- ND = parameter not detected above laboratory detection limit.
- = not analyzed for this parameter
- ** = Groundwater Quality Guidance Value
- *** = field threshold value; when exceeded, field filtered metals sample is collected (i.e., dissolved metals).
- NA = No groundwater quality standard or guidance value is available at this time.
- "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

BOLD = Result is above the GWQS/GV.

FIGURES

FIGURE 1




**2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635**

PROJECT NO.: 0071-017-327

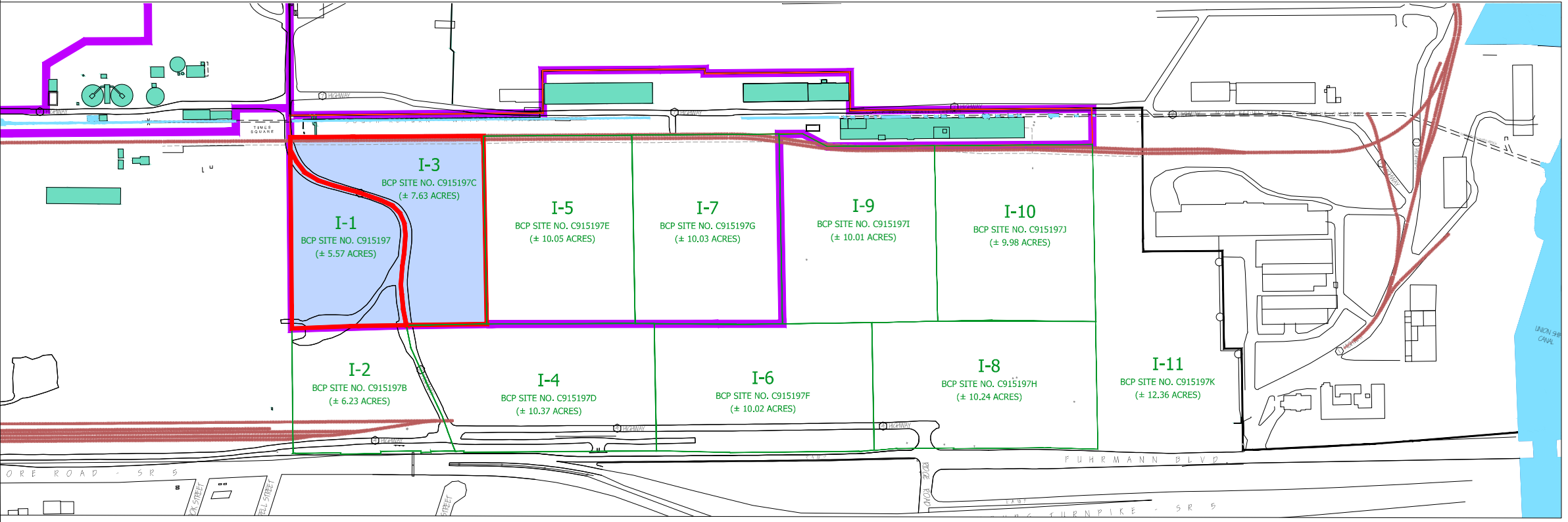
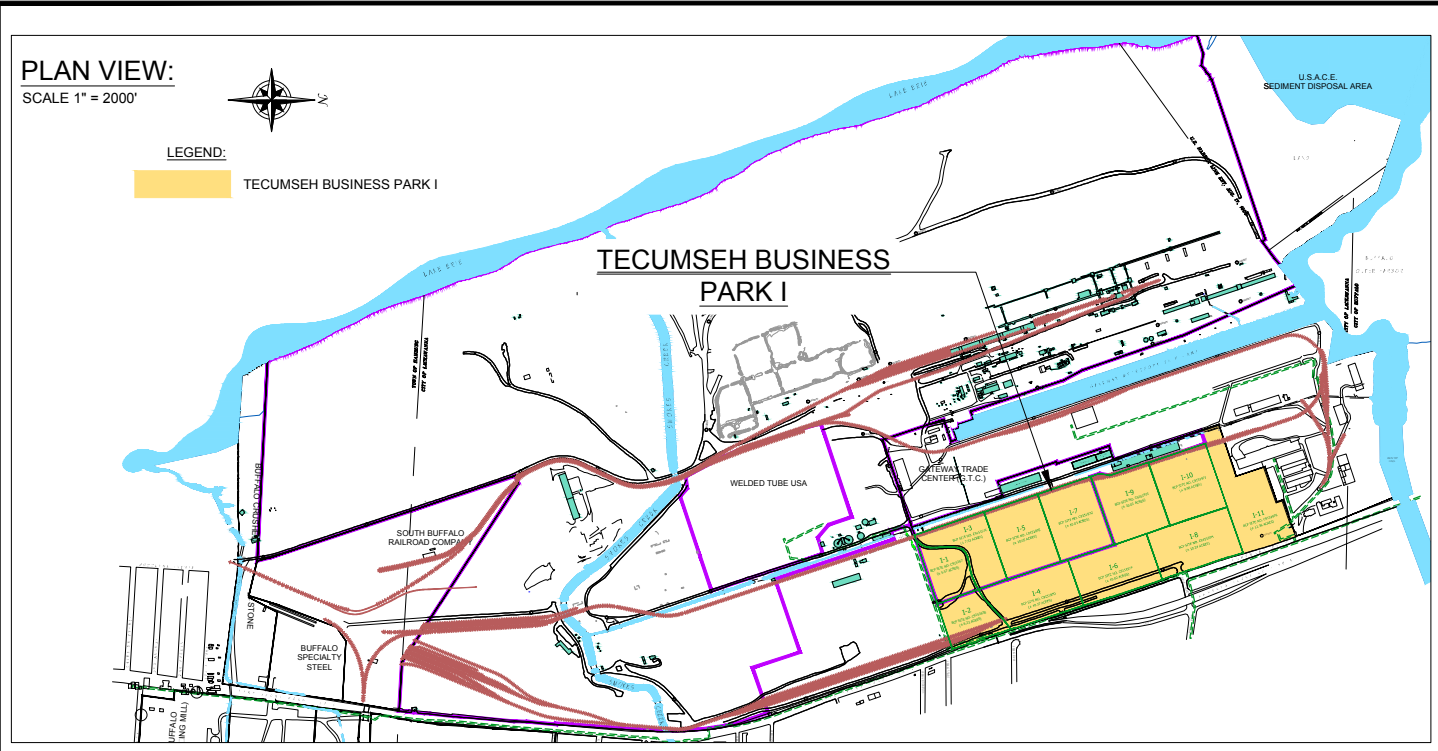
DATE: NOVEMBER 2017

DRAFTED BY: RFL

SITE LOCATION AND VICINITY MAP

SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NOS. C915197 (I-1) & C91519C (I-3)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.

DISCLAIMER:
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SCALE: 1 INCH = 1,000 FEET
SCALE IN FEET
(approximate)

SITE DELINEATION MAP

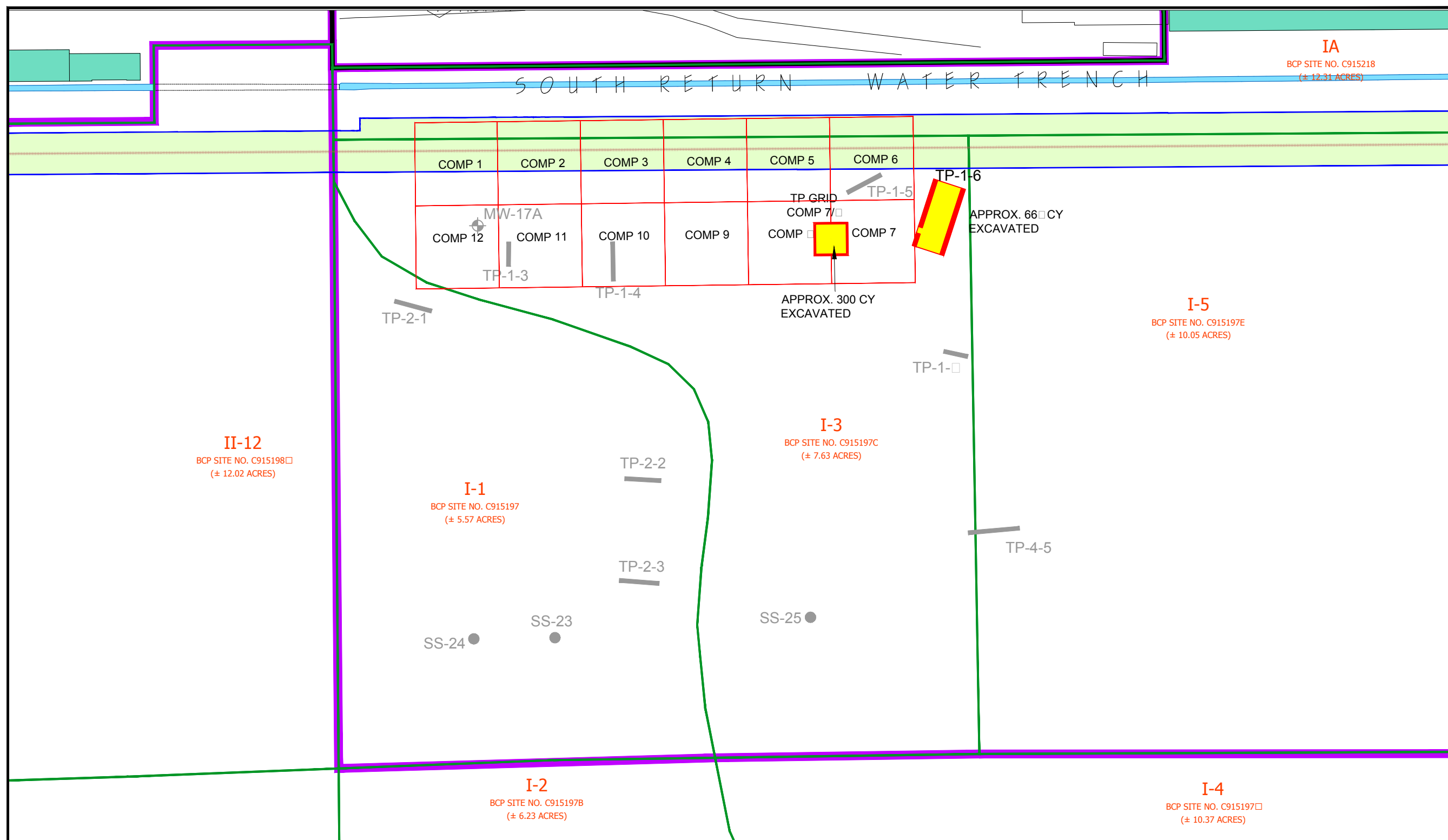
SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NOS. C915197 (I-1) & C915197C (I-3)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.



JOB NO.: 0071-017-327

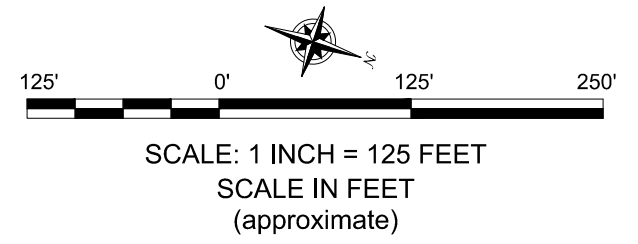
FIGURE 2

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.



LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- TECUMSEH BUSINESS PARK I SITE BOUNDARIES
- IMPACTED SOIL/FILL EXCAVATED
- ◆ MW-15A MONITORING WELL
- TP-7-7 TEST PIT
- P-54S PIZOMETER
- SS-15 SURFACE SOIL



COMPLETED REMEDIAL MEASURES

SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NOS. C915197 (I-1) & C915197C (I-3)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.








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

JOB NO.: 0071-017-327

FIGURE 3

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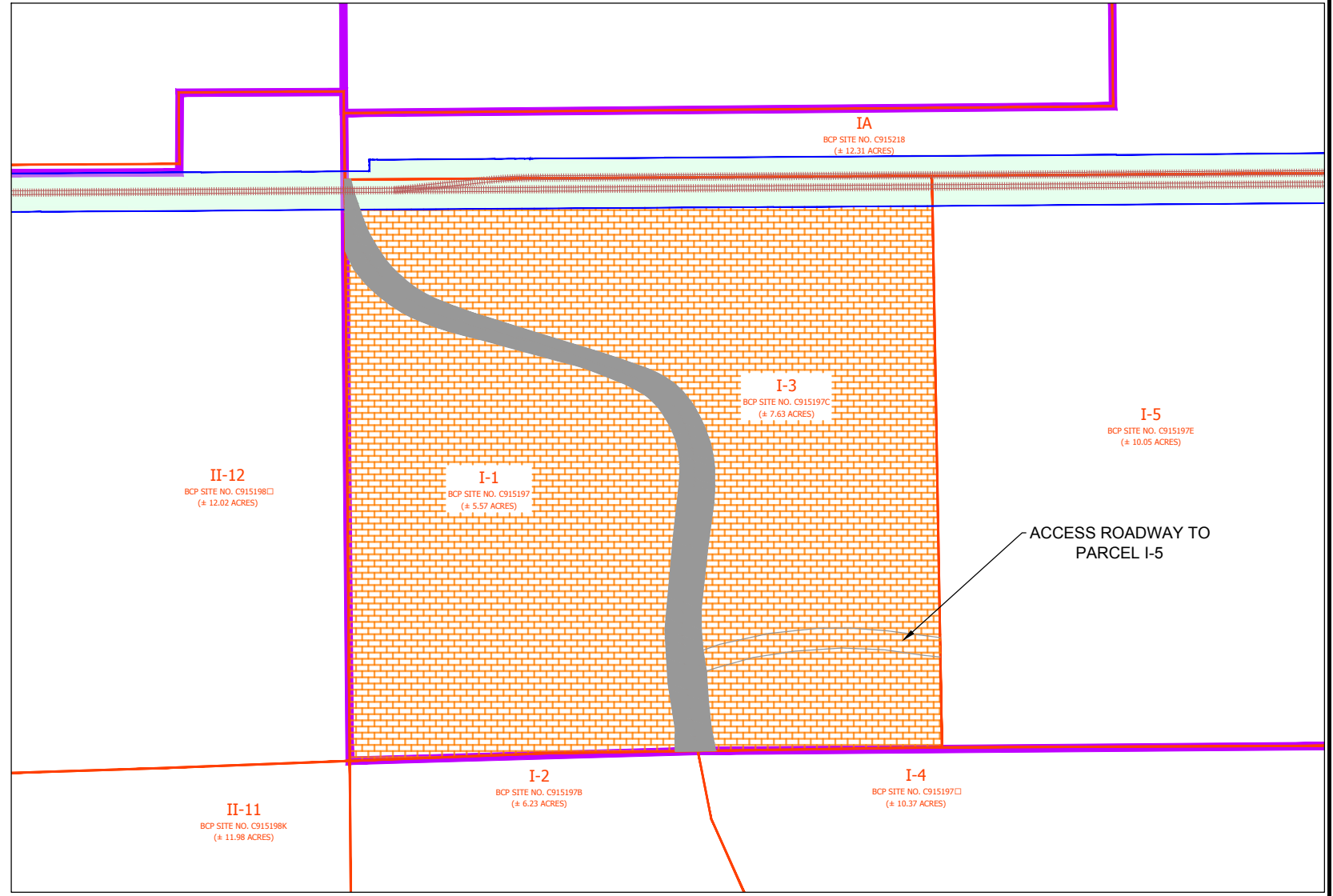
LEGEND:

-  TECUMSEH PROPERTY BOUNDARY
-  SITE BOUNDARIES
-  BUD 555-9-15 COVER MATERIAL
-  EXISTING ASPHALT ROADWAY COVER SYSTEM
-  EXISTING EAST HARBOR LEAD RAILROAD TRACK AND ROW

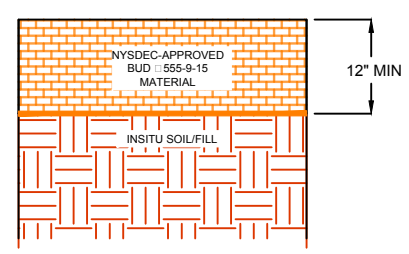
- NOTES:**
1. HORIZONTAL DATUM NAD 83 VERTICAL DATUM NAVD 83
 2. ALL MEASUREMENTS IN FEET.



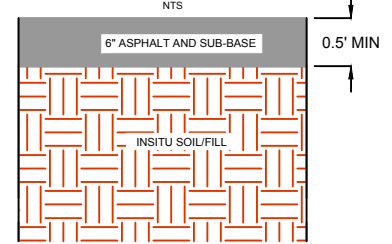
SCALE: 1 INCH = 200 FEET
SCALE IN FEET (approximate)



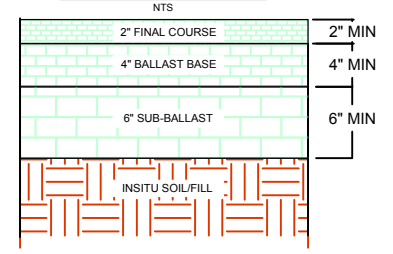
COVER SYSTEM DETAIL



EXISTING ASPHALT COVER SYSTEM DETAIL

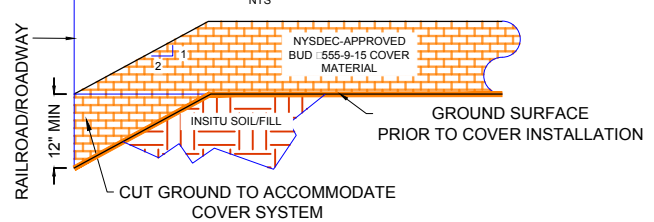


COVER SYSTEM BENEATH TRACKS



BASED ON DESIGN BY OTHERS.

TIE-IN DETAIL



APPROXIMATE LOCATION AND TYPES OF COVER SYSTEM MATERIALS

SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NOS. C915197 (I-1) & C915197C (I-3)
LACKAWANNA, NEW YORK

PREPARED FOR
TECUMSEH REDEVELOPMENT INC.



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

JOB NO.: B0071-017-327

FIGURE 4

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.

ATTACHMENT A

MONITORING WELL BORING AND CONSTRUCTION LOG



FIELD BOREHOLE/MONITORING INSTALLATION LOG

| | |
|---|--|
| Project Name: Phase 1 BPA | BORING NUMBER: MW-17A |
| Project Number: 0071-006-102 | Location: Phase I BPA |
| Client: Tecumseh Redevelopment, Inc. | Start Date/Time: 01/29/06 08:00 AM |
| Drilling Company: Earth Dimensions, Inc. | End Date/Time: 01/29/06 10:20 AM |
| Driller: Brian Bartran | Logged By: TAB |
| Helper: Harold | Drilling Method: 4.25 HSA |
| Rig Type: CME 85 | Weather: overcast, cool, sl. breeze, Low 40's F |

| Elevation (fmsl) | Depth (fbgs) | Sample No. | Blows (per 6") | SPT N-Value | Recovery | SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, Percentage of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other | USCS Code | PID Scan (ppm) | PID HDSP (ppm) | Soil Unit | Well Construction Details | | |
|------------------|--------------|------------|----------------|-------------|----------|---|---|-----------------------|----------------|-----------|---|--------------|------|
| 582.48 | 0 | S1 | 17 | 57 | | 1.0 | FILL | 0.0 | - | FILL | concrete Bentonite Chips 2" Sch. 40 PVC riser sand pack - #00N (14.0 - 3.0 fbgs) 2" Sch. 40 PVC screen, 0.010" slot | | |
| 580.48 | 2 | | 28 | | | 0 | 1.5 | Same as S1 above, wet | FILL | 0.0 | | - | FILL |
| | | | 29 | | | -- | | | | | | | |
| | | 12 | -- | | | | | | | | | | |
| 578.48 | 4 | S3 | 7 | 0 | | 0.4 | FILL: Medium grey, wet, 90% Concrete, 10% FS, SA, LWD | FILL | 0.0 | -- | | FILL | |
| | | | 100-5 | | | -- | | | | | | | |
| | | | -- | | | -- | | | | | | | |
| 576.48 | 6 | S4 | 2 | 6 | | 1.2 | (0.0 - 0.7) SANDY LEAN CLAY: Medium grey, stiff, wet, 60% MPF, 40% Fine Sand, slow dilatancy (0.7 - 1.2) ORGANIC SOIL: Dark brown, wet, 60% LPF, 40% FS, LWD, slow dilatancy, w/ rootlets and wood chips | CL OL/OH | 0.0 | -- | | CLAY PEAT | |
| | | | 2 | | | -- | | | | | | | |
| | | | 4 | | -- | | | | | | | | |
| 574.48 | 8 | S5 | 4 | 10 | 1.3 | Same as S4 (0.0 - 0.7) w/ lenses of Peat | CL | 0.0 | -- | CLAY | | | |
| | | | 5 | | -- | | | | | | | | |
| | | | 5 | | -- | | | | | | | | |
| 572.48 | 10 | S6 | 7 | 15 | 1.5 | Same as S4 (0.0 - 0.7); clay is softer from 0.0 - 0.8 w/ rapid dilatancy. Clay stiffens from 0.5 - 1.5 | CI | 0.0 | -- | CLAY | | | |
| | | | 4 | | -- | | | | | | | | |
| | | | 7 | | -- | | | | | | | | |
| 570.48 | 12 | S7 | 3 | 6 | 2.0 | SANDY ORGANIC SOIL: Dark brown to brownish grey, wet, firm, 60% LPF, 40% FS w/ rootlets and wood fibers, LWD | OL/OH | 0.0 | -- | PEAT | | | |
| | | | 3 | | -- | | | | | | | | |
| | | | 3 | | -- | | | | | | | | |
| 568.48 | 14 | S8 | 7 | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 566.48 | 16 | S9 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 564.48 | 18 | | | | | | | | | | | | |

| | | | |
|-----------------------|----------------------------------|----------------------------|-------------------------|
| ABBREVIATIONS: | | | MS = medium sand |
| C = coarse | fbgs = feet below ground surface | HSA = hollow stem auger | NA = not applicable |
| CG = coarse gravel | FG = fine gravel | LP = low plasticity | NPF = not plastic fines |
| CS = coarse sand | fmsl = feet above mean sea level | LWD = loose when disturbed | SA = sub-angular |
| EOB = end of boring | FS = fine sand | M = medium | SR = sub-rounded |
| F = fines or fine | HP = high plasticity | MP = medium plasticity | SS = split spoon |

ATTACHMENT B

SAMPLE EC/IC CERTIFICATION FORMS



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



| Site Details | Box 1 | |
|--|--------------------------|--------------------------|
| Site No. C915197 | | |
| Site Name: Site I-1 Tecumseh Phase I Business Park | | |
| Site Address: 2303 Hamburg Turnpike | Zip Code: 14218 | |
| City/Town: Lackawanna | | |
| County: Erie | | |
| Current Use: Commercial | | |
| Intended Use: Commercial | | |
| Verification of Site Details | Box 2 | |
| | YES | NO |
| 1. Are the Site Details above, correct? | <input type="checkbox"/> | <input type="checkbox"/> |
| If NO, are changes handwritten above or included on a separate sheet? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Has a change-of-use occurred since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE NO. C915197

Box 3

Description of Institutional Control Certification

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Groundwater monitoring as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |

Description of Engineering Control Certification

Box 4

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Maintenance of the cover systems over the Site: | <input type="checkbox"/> | <input type="checkbox"/> |

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

- (a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
- (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
- (c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
- (d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.
- (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

**IC/EC CERTIFICATIONS
SITE NO. C915197**

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering
Certification

Stamp (if Required)

Date



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



| Site Details | Box 1 | |
|--|--------------------------|--------------------------|
| Site No. C915197C | | |
| Site Name: Site I-3 Tecumseh Phase I Business Park | | |
| Site Address: 2303 Hamburg Turnpike | Zip Code: 14218 | |
| City/Town: Lackawanna | | |
| County: Erie | | |
| Current Use: Commercial | | |
| Intended Use: Commercial | | |
| Verification of Site Details | Box 2 | |
| | YES | NO |
| 1. Are the Site Details above, correct? | <input type="checkbox"/> | <input type="checkbox"/> |
| If NO, are changes handwritten above or included on a separate sheet? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Has a change-of-use occurred since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE NO. C915197C

Box 3

Description of Institutional Control Certification

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Groundwater monitoring as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |

Description of Engineering Control Certification

Box 4

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Maintenance of the cover systems over the Site: | <input type="checkbox"/> | <input type="checkbox"/> |

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

- (a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
- (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
- (c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
- (d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.
- (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

**IC/EC CERTIFICATIONS
SITE NO. C915197C**

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering
Certification

Stamp (if Required)

Date

Enclosure 2

Certification of Institutional Controls/ Engineering Controls (ICs/ECs) Step-by-Step Instructions, Certification Requirements and Definitions

The Owner, or Remedial Party, and when necessary, a Professional Engineer (P.E.), or the Qualified Environmental Professional (QEP), must review and complete the IC/EC Certification Form, sign the IC/EC Certifications Signature Page, and return it, along with the Periodic Review Report (PRR), within 45 days of the date of this notice.

Please use the following instructions to complete the IC/EC Certification.

I. Verification of Site Details (Box 1 and Box 2):

Answer the six questions in the Verification of Site Details Section. Questions 5 and 6 refer to only sites in the Brownfield Cleanup Program. ECL Section 27-1415-7(c) is included in

IV. IC/EC Certification Requirements. The Owner and/or your P.E. or QEP may include handwritten changes and/or other supporting documentation, as necessary.

II. Verification of Institutional / Engineering Controls (Box 3 and Box 4)

Review the listed Institutional / Engineering Controls, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party is to petition the Department requesting approval to remove the control.

2. Select "YES" or "NO" for **Control Certification** for each IC/EC, based on Sections (a)-(e) of the **Control Certification Statement**.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. If the Department has any questions or concerns regarding the completion of the certification, the Project Manager will contact you.

3. If you cannot certify "Yes" for each Control, please continue to complete the remainder of this **Control Certification** form. Attach supporting documentation that explains why the **Control Certification** cannot be rendered, as well as a statement of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Control Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is conducted.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. Once the corrective measures are complete a new Periodic Review Report (with IC/EC Certification) is to be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 5 and Box 6):

1. If you certified "Yes" for each Control, please complete and sign the IC/EC Certifications page. To determine WHO signs the **IC/EC Certification**, please use Table 1. Signature Requirements for the IC/EC Certification, which follows.

| Table 1. Signature Requirements for Control Certification Page | | |
|---|---|--|
| Type of Control | Example of IC/EC | Required Signatures |
| IC only | Environmental Easement Deed Restriction. | A site or property owner or remedial party. |
| IC with an EC which does not include a treatment system or engineered caps. | Fence, Clean Soil Cover, Individual House Water Treatment System, Vapor Mitigation System | A site or property owner or remedial party, and a QEP. (P.E. license not required) |
| IC with an EC that includes treatment system or an engineered cap. | Pump & Treat System providing hydraulic control of a plume, Part 360 Cap. | A site or property owner or remedial party, and a QEP with a P.E. license. |

IV. IC/EC Certification Requirements:

Division of Environmental Remediation Program Policy requires periodic certification of IC(s) and EC(s) as follows:

For Environmental Restoration Projects: N.Y. Env'tl Conserv.Law Section 56-0503 (Environmental restoration projects; state assistance)

For State Superfund Projects: Env'tl Conserv.Law Section 27-1318. (Institutional and engineering controls)

For Brownfields Cleanup Program Projects: Env'tl Conserv.Law Section 27-1415. (Remedial program requirements)

Env'tl Conserv.Law Section 27-1415-7(c) states:

- (c) At non-significant threat sites where contaminants in groundwater at the site boundary contravene drinking water standards, such certification shall also certify that no new information has come to the owner's attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid. Every five years the owner at such sites shall certify that the assumptions made in the qualitative exposure assessment remain valid. The requirement to provide such certifications may be terminated by a written determination by the Commissioner in consultation with the Commissioner of Health, after notice to the parties on the brownfield site contact list and a public comment period of thirty days.

Voluntary Cleanup Program: Applicable program guidance.

Petroleum Remediation Program: Applicable program guidance.

Federal Brownfields: Applicable program guidance.

Manufactured Gas Plant Projects: Applicable program guidance (including non-registry listed MGPs).

WHERE to mail the signed Certification Form by March 1st of each year (or within 45 days of the date of the Department notice letter):

New York State Department of Environmental Conservation
Division of Environmental Remediation

Attn: Division of Environmental Remediation – North Section
NYSDEC
270 Michigan Avenue
Buffalo, NY 14203-2999

Please note that extra postage may be required.

V. Definitions

“Engineering Control” (EC), means any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

“Institutional Control” (IC), means any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a remedial site.

“Professional Engineer” (P.E.) means an individual or firm licensed or otherwise authorized under article 145 of the Education Law of the State of New York to practice engineering.

“Property Owner” means, for purposes of an IC/EC certification, the actual owner of a property. If the site has multiple properties with different owners, the Department requires that the owners be represented by a single representative to sign the certification.

“Oversight Document” means any document the Department issues pursuant to each Remedial Program (see below) to define the role of a person participating in the investigation and/or remediation of a site or area(s) of concern. Examples for the various programs are as follows:

BCP (after approval of the BCP application by DEC) - Brownfield Site Cleanup Agreement.

ERP (after approval of the ERP application by DEC) - State Assistance Contract.

Federal Superfund Sites - Federal Consent Decrees, Administrative Orders on Consent or Unilateral Orders issued pursuant to CERCLA.

Oil Spill Program - Order on Consent, or Stipulation pursuant to Article 12 of the Navigation Law (and the New York Environmental Conservation Law).

State Superfund Program - Administrative Consent Order, Record of Decision.

VCP (after approval of the VCP application by DEC) - Voluntary Cleanup Agreement.

RCRA Corrective Action Sites- Federal Consent Decrees, Administrative Orders on Consent or permit conditions issued pursuant to RCRA.

“Qualified Environmental Professional” (QEP), means a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases to the surface or subsurface of a property or off-site areas, sufficient to meet the objectives and performance factors for the areas of practice identified by this Part. Such a person must:

(1) hold a current professional engineer’s or a professional geologist’s license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience in site investigation and remediation of the type detailed in this Part; or

(2) be a site remediation professional licensed or certified by the federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with Department guidance, and have the equivalent of three years of full-time relevant experience.

“Qualitative Exposure Assessment” means a qualitative assessment to determine the route, intensity, frequency, and duration of actual or potential exposures of humans and/or fish and wildlife to contaminants.

“Remedial Party” means a person implementing a remedial program at a remedial site pursuant to an order, agreement or State assistance contract with the Department.

“Site Management” (SM) means the activities undertaken as the last phase of the remedial program at a site, which continue after a Certificate of Completion is issued. Site management is conducted in accordance with a site management plan, which identifies and implements the institutional and engineering controls required for a site, as well as any necessary monitoring and/or operation and maintenance of the remedy.

“Site Management Plan” (SMP) means a document which details the steps necessary to assure that the institutional and engineering controls required for a site are in-place, and any physical components of the remedy are operated, maintained and monitored to assure their continued effectiveness, developed pursuant to Section 6 (DER10 Technical Guide).

“Site Owner” means the actual owner of a site. If the site has multiple owners of multiple properties with ICs and/or ECs, the Department requires that the owners designate a single representative for IC/EC Certification activities.

APPENDIX E-2

SITE I-2 (C915197B)

As the remedial actions are completed on Site I-2 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-2 as an addendum.

APPENDIX E-3

SITE I-3 (C915197C)

As the remedial actions are completed on Site I-3 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-3 as an addendum.

See Appendix E-1

APPENDIX E-4

SITE I-4 (C915197D)

As the remedial actions are completed on Site I-4 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-4 as an addendum.

APPENDIX E-5

SITE I-5 (C915197E)

As the remedial actions are completed on Site I-5 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-5 as an addendum.

BROWNFIELD CLEANUP PROGRAM

APPENDIX E-5 SITE MANAGEMENT PLAN

TECUMSEH PHASE I BUSINESS PARK
NYSDEC SITE NO. C915197E (I-5)
LACKAWANNA, NEW YORK

November 2017

0071-017-327

Prepared for:

Tecumseh Redevelopment Inc.
4020 Kinross Lakes Parkway
Richfield, OH, 44286

Prepared By:



TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

In Association With:



Benchmark Environmental Engineering &
Science, PLLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0599

Revisions to Addenda of Final Approved Site Management Plan:

| Revision # | Submitted Date | Summary of Revision | DEC Approval Date |
|------------|----------------|---------------------|-------------------|
| | | | |
| | | | |

**PHASE I BUSINESS PARK
SITE MANAGEMENT PLAN: APPENDIX E-5
NYSDEC SITE NO. C915197E (I-5)**

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**PHASE I BUSINESS PARK
SITE MANAGEMENT PLAN: APPENDIX E-5
NYSDEC SITE NO. C915197E (I-5)**

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1.0 INTRODUCTION

The Site Management Plan (SMP) is a required element of the remedial program at the Tecumseh Redevelopment Inc. (Tecumseh) Phase I Business Park (herein referred to as the Controlled Property; see Figure 1) under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The purpose of an SMP is to manage the contamination on a site remaining after remedial action.

The January 2014 SMP (Ref. 1) for the Controlled Property was prepared by TurnKey Environmental Restoration, LLC (TurnKey), on behalf of Tecumseh, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 2) and the guidelines provided by NYSDEC. Since the Controlled Property was divided into 11 BCP Sites designated as Sites I-1 through I-11 (BCP Site Nos. C915197 through C915199K), the main body of the SMP includes the site management components common to all 11 Sites. Site-specific requirements are included as Appendix E to the SMP.

1.1 Site Location and Description

As shown on Figure 2, Site I-5 (approx. 10.05 acres) is bounded by Business Park IA and Gateway Trade Center property to the west; BCP Site I-3 to the south; BCP Site I-4 and Fuhrmann Blvd. to the east; and BCP Site I-7 to the north.

The NYSDEC issued the Decision Document for Business Park I in January 2012 (Ref. 3). The Decision Document specifies, among other requirements, placement of acceptable cover material in areas not otherwise covered by rail lines, etc. Engineering controls (ECs) have been incorporated into the remedy to control exposure to remaining contamination during use of the Site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC by Tecumseh for the entire Business Park I has been recorded with the Erie County Clerk and requires compliance with this SMP and all ECs and institutional controls (ICs) placed on the Site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring, and reporting measures for all ECs and ICs.

This Appendix addresses the means for implementing the ICs and ECs that are required by the Environmental Easement for Site I-5 of the Controlled Property. This

Appendix is not to be used as stand-alone documents but as a component document of the January 2014 SMP for the Controlled Property.

1.2 Remedial Investigation

The August 2005 Remedial Investigation (RI) Work Plan (Ref. 4) identified Site characterization requirements to be completed pursuant to the BCP and NYSDEC DER-10 guidance across all 11 Sites within the Controlled Property. The RI was designed to provide defensible data to identify areas of the Controlled Property potentially requiring remediation, define chemical constituent migration pathways, and qualitatively assess human health and ecological risks to allow for performance of a remedial alternatives evaluation.

Investigative activities on Business Park I were performed January-February 2006. Specific to Site I-5, approximately 12 test pits were completed as well as surface soil sampling. In April 2008, a supplemental test pit program was performed to further delineate petroleum-impacted soil/fill in support of interim remedial measures. Piezometer P-55S was installed on Site I-5 as a temporary piezometer in open test pit excavation TP-4-5 during the RI to assess groundwater flow direction and hydraulic gradient; no groundwater samples were collected for laboratory analysis. No groundwater monitoring wells were installed on Site I-5. Site groundwater is not used and is restricted from use for either potable or non-potable purposes without treatment by an Environmental Easement.

The RI Report was submitted to NYSDEC in October 2006, revised, and finalized in June 2007 (Ref. 5). Based on the RI findings, remediation of soil/fill was warranted.

1.3 Interim Remedial Measures

A pre-Interim Remedial Measures (IRM) investigation was proposed (Ref. 6) and performed in April 2008 since the extent of impacts at several test pit locations were not fully defined during the RI. The IRM completed on Business Park I involved petroleum-, tar-, and metals-impacted soil/fill removal in accordance with the NYSDEC-approved August 2008 IRM Work Plan (Ref. 7). A Construction Closeout Report (CCR) was not prepared for these IRM activities; however, a summary of the IRM was presented in NYSDEC-approved May 2010 Alternatives Analysis Report (AAR) for Business Park I (Ref. 8). The AA Report recommended deferred soil cover system placement during redevelopment as well as ECs and ICs to limit future use of the Controlled Property to

restricted (commercial or industrial) applications and prevent groundwater use for potable purposes (see Section 2.0).

The following remedial work was performed between April and June 2009 on Site I-5 (see Figure 3):

- Construction of temporary on-site biotreatment pads on paved areas in the northern portion of Business Park I.
- Excavation of approximately 250 cubic yards of petroleum-impacted soil/fill in the vicinity of test pit TP-1-13 (Site I-5). The impacted soil/fill was placed in the bioremediation area for on-site treatment (tilling). The treated soils were stockpiled for use as on-site, subgrade fill during future backfill and site grading work.
- Backfill of excavations with steel slag under BUD #555-9-15; bioremediated slag/fill; and non-impacted crushed asphalt. Backfill material was placed into the excavation and compacted/tracked with the excavator/backhoe bucket in 2-foot lifts.

1.4 Summary of Remedial Actions

The final remedial measures for this Site involved placement of the cover system in accordance with the NYSDEC-approved June 2017 Remedial Action Work Plan (RAWP) (Ref. 9). Details of cover system placement are provided in the November 2017 Final Engineering Report (Ref. 10).

1.5 Remaining Contamination

1.5.1 Soil

The IRM conducted on Site I-5 has removed all known “source area” (i.e., petroleum-impacted) slag/fill. The remaining soil/fill is generally characterized by widespread exceedance of the Part 375 unrestricted-use SCOs (USCOs) for several ubiquitous constituents. Specifically, nearly all samples collected during the RI exhibited exceedance of the USCOs for carcinogenic polyaromatic hydrocarbons (PAHs), as well as arsenic, cadmium, chromium, lead, and mercury. PCB Aroclors 1254 and 1260 remain at concentrations above USCOs at two locations. Table 1 summarizes the results of all soil samples remaining on Site I-5 that exceed USCOs following completion of the remedial

actions. It is not possible to quantify with any certainty areas that do not exceed one or more of the USCO criteria; therefore, it is assumed that the entire 10.05 acres constituting Site I-5 are impacted above the USCOs to the approximate native soil depth of 8 fbgs.

Following grading of this Site, demarcation was constructed and placed so as to easily identify the existing sub-grade from the cover system material, and prevent the potential for inadvertent removal of sub-grade material during future intrusive work. The demarcation layer is comprised of an orange ¾-inch plastic industrial netting material was rolled across the sub-grade and overlapped by approximately one foot at the seams.

1.5.2 Groundwater

Piezometer P-55S was installed on Site I-5 as a temporary piezometer in open test pit excavation TP-4-5 during the RI to assess groundwater flow direction and hydraulic gradient; no groundwater samples were collected for laboratory analysis. No groundwater monitoring wells were installed on Site I-5.

2.0 ENGINEERING & INSTITUTIONAL CONTROL PLAN

2.1 Introduction

Since contaminated soil/fill remains beneath the Site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect public health and the environment. The EC/IC Plan in the Phase I BP SMP describes the procedures for the implementation and management of site-wide EC/ICs. The EC/IC Plan is one component of the SMP and subject to revision by NYSDEC. EC/ICs specific to Site I-5 are described below.

2.2 Engineering Control Systems

The cover system for Site I-5 is described in the Final Engineering Report (Ref. 10). Figure 4 shows the approximate locations and types of cover system materials placed on the Site. In the event this cover system is breached, penetrated, or temporarily removed, the cover system shall be repaired in accordance with Section 2.2 of the SMP and Section 4.0 of the Excavation Work Plan (SMP Appendix B).

2.3 Institutional Controls

The Institutional Controls described in Section 2.3 of the SMP (i.e., Environmental Easement and Excavation Work Plan) must be implemented. There are no site-specific Institutional Control requirements for Site I-5.

2.4 Inspections and Notifications

The Inspections and Notifications described in Section 2.4 of the SMP must be implemented for Site I-5. There are no site-specific inspection and notification requirements.

2.5 Contingency Plan

Emergencies conditions are addressed in the Emergency Response Plan (ERP), which is an attachment to the HASP (SMP Appendix C). The following emergency contact numbers are specific to Site I-5:

Table 2: Emergency Contact Numbers

| | |
|--|--|
| Name: John Cappellino Title: Executive Vice President, Buffalo and Erie County Industrial Land Development Corporation | Work: (716) 856-6525 Mobile: (716) 472-6667 |
| Name: Thomas Forbes Title: Principal Engineer, Benchmark Environmental | Work: (716) 856-0599 Mobile: (716) 864-1730 |

Note: Contact numbers subject to change and should be updated as necessary

3.0 SITE MONITORING PLAN

The Site Monitoring Plan describes the measures for evaluating the performance and effectiveness of:

- The remedy to reduce or mitigate contamination at the Site;
- The soil cover system; and
- All affected Site media.

Monitoring of the cover system is described in the SMP. No site-specific monitoring is required.

4.0 OPERATION & MAINTENANCE PLAN

The remedy for Site I-5 does not rely on any mechanical systems, such as sub-slab depressurization or soil vapor extraction, to protect public health and the environment. Therefore, a site-specific Operation and Maintenance Plan is not required.

5.0 INSPECTIONS, REPORTING & CERTIFICATIONS

All inspection, reporting, and certification requirements are described in Section 3.0 of the SMP. Attachment A includes sample EC/IC Certification Form to be completed for Site I-5.

6.0 REFERENCES

1. TurnKey Environmental Restoration, LLC. *Site Management Plan for BCP Tecumseh Phase I Business Park, NYSDEC Site No. C915197 through C915197K, Lackawanna, New York*. January 2014.
2. New York State Department of Environmental Conservation. *DER-10/Technical Guidance for Site Investigation and Remediation*. May 3, 2010.
3. New York State Department of Environmental Conservations. *Decision Document, Tecumseh Phase I Business Park, Brownfield Cleanup Program, Lackawanna, Erie County, Site No. C915197*. January 2012.
4. TurnKey Environmental Restoration, LLC. *Remedial Investigation Work Plan, Phase I Business Park Area, Lackawanna, New York*. August 2005.
5. TurnKey Environmental Restoration, LLC. *Remedial Investigation Report, Phase I Business Park, Tecumseh Redevelopment Inc., Lackawanna, New York*. June 2007.
6. TurnKey Environmental Restoration, LLC. *Correspondence to Mr. Maurice Moore of the NYSDEC Re: Phase I Business Park Area, Supplemental Remedial Investigation*. March 27, 2008.
7. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Interim Remedial Measures Work Plan, Phase I Business Park Area, Lackawanna, New York, BCP Site No. C915197*. August 2008.
8. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Alternatives Analysis Report (AAR) Phase I Business Park, ArcelorMittal Tecumseh Redevelopment, Inc., Lackawanna, New York, BCP Site No. C915197*. May 2010.
9. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Remedial Action Work Plan, Tecumseh Business Parks I and II, Lackawanna, New York*. June 2017.
10. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Final Engineering Report, Tecumseh Business Park I, Sub-Parcel I-5, Lackawanna, New York*. November 2017.

TABLES



TABLE 1
SUMMARY OF SOIL/FILL CONTAMINATION ABOVE USCOS
SITE MANAGEMENT PLAN

Phase I Business Park, Site I-5
 Tecumseh Redevelopment Inc., Lackawanna, New York

| Parameter ¹ | USCOs ² (mg/kg) | Sample Location, Depth Interval (fbgs), and Type | | | | | | | | | | | |
|---|-------------------------------|--|------------------------|-------------------|------------------------|------------------------|------------------------|------------------------|-------------------|-------------------|------------------------|------------------------|--|
| | | TP-1-(678910) | TP-1-(678910) | TP-1-9 | TP-1-(11-12) | TP-1-(11-12) | TP-1-(13-17) | TP-1-(13-17) | SS-06 | SS-22 | TP-4 (1-5) | TP-4 (1-5) | |
| | | 0.0 - 2.0 composite | 2.0 - 5.0 composite | 1.0 - 4.8 grab | 0.0 - 2.0 composite | 2.0 - 4.5 composite | 0.0 - 2.0 composite | 2.0 - 5.0 composite | 0.0 - 1.0 grab | 0.0 - 1.0 grab | 0.0 - 1.0 composite | 1.0 - 3.0 composite | |
| Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only] | | | | | | | | | | | | | |
| Total VOCs | -- | -- | 2.8 (max) | 1.4 | -- | 0.8 (max) | -- | 2.3 (max) | -- | -- | -- | 0.0 (max) | |
| PID Field Scans (ppm) - 10.6 eV Lamp | | | | | | | | | | | | | |
| Total VOCs | -- | 2.4 (max) | 5.7 (max) | 0.2 | 2.1 (max) | 4.3 (max) | 0.0 (max) | 0.0 (max) | -- | -- | * | * | |
| STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg | | | | | | | | | | | | | |
| Benzene | 0.06 | -- | -- | 0.0013 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Naphthalene | 12 | -- | -- | 0.076 J | -- | -- | -- | -- | -- | -- | ND | 0.11 J | |
| TOTAL VOCs (mg/kg) | -- | 0 | 0 | 0.077 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.11 | |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | | | | | | | |
| Acenaphthene | 20 | 0.28 J | ND | 0.22 J | 0.26 J | 0.11 J | 0.2 J | ND | -- | -- | ND | ND | |
| Acenaphthylene | 100 | 1.4 J | 0.17 J | 0.44 J | 2.9 | 1.9 | 0.55 J | 1.1 J | -- | -- | ND | 0.68 J | |
| Anthracene | 100 | 1.2 J | 0.096 J | 0.41 J | 2.2 | 1.9 | 0.8 J | 0.66 J | -- | -- | 1.2 J | 0.61 J | |
| Benzo(a)anthracene | 1 | 2.9 | 0.45 J | 1.2 J | 8.3 | 5.6 | 2.4 | 2.2 | -- | -- | 4.4 J | 1.9 | |
| Benzo(b)fluoranthene | 1 | 4.5 J | 0.73 J | 1.9 J | 11 J | 7.7 J | 3.3 J | 3.2 J | -- | -- | 5.5 J | 3.1 J | |
| Benzo(k)fluoranthene | 0.8 | 1.8 J | 0.25 J | 0.61 J | 3 J | 2.4 J | 1.3 J | 1.1 J | -- | -- | 1.8 J | 0.99 J | |
| Benzo(g,h,i)perylene | 100 | 2.5 | 0.28 J | 0.42 J | 3.9 | 2.7 | 1.4 J | 1.4 J | -- | -- | 2.4 J | 1.6 J | |
| Benzo(a)pyrene | 1 | 3.1 | 0.47 J | 1.2 J | 7.7 | 4.9 | 2.5 | 2.3 | -- | -- | 4.2 J | 2.2 | |
| Chrysene | 1 | 3.2 | 0.44 J | 1 J | 7.5 | 5.2 | 2.3 | 2.2 | -- | -- | 4.4 J | 2 | |
| Dibenz(a,h)anthracene | 0.33 | 0.55 J | ND | 0.2 J | 1.1 J | 0.79 J | 0.39 J | 0.38 J | -- | -- | 0.72 J | 0.5 J | |
| Dibenzofuran | 7 | 0.35 J | ND | 0.24 J | 0.6 J | 0.69 J | 0.21 J | ND | -- | -- | ND | 0.13 J | |
| Fluoranthene | 100 | 5.9 | 0.66 J | 2.0 | 17 | 11 | 4.8 | 3.8 | -- | -- | 9 | 3.3 | |
| Fluorene | 30 | 0.53 J | ND | ND | 1 J | 1 J | 0.27 J | 0.2 J | -- | -- | ND | 0.2 J | |
| Indeno(1,2,3-cd)pyrene | 0.5 | 1.8 | 0.28 J | 0.49 J | 3.5 | 2.4 | 1.2 J | 1.1 J | -- | -- | 2.1 J | 1.4 J | |
| 2-Methylnaphthalene | -- | 0.18 J | ND | 0.23 J | 0.31 J | 0.32 J | 0.21 J | ND | -- | -- | ND | ND | |
| Phenanthrene | 100 | 4.1 | 0.3 J | 1.4 J | 8.2 | 7.3 | 2.9 | 1.5 J | -- | -- | 3.3 J | 2 | |
| Pyrene | 100 | 3.9 | 0.47 J | 1.4 J | 11 | 7.3 | 3.5 | 2.7 | -- | -- | 8.1 J | 2.8 | |
| TOTAL SVOCs (mg/kg) | -- | 38 | 4.6 | 13 | 89 | 63 | 28 | 24 | 0 | 0 | 47 | 23 | |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | | | | | | | |
| Aroclor 1248 | 0.1 | -- | -- | -- | -- | -- | -- | -- | ND | 0.067 | -- | -- | |
| Aroclor 1254 | 0.1 | -- | -- | -- | -- | -- | -- | -- | 0.47 | ND | -- | -- | |
| Aroclor 1260 | 0.1 | -- | -- | -- | -- | -- | -- | -- | ND | 0.19 | -- | -- | |
| Inorganic Compounds - mg/kg | | | | | | | | | | | | | |
| Arsenic, Total | 13 | 13.1 | 10.2 | 12.1 | 25.4 | 21.8 | 21.2 | 15.7 | -- | -- | 9.3 J | 7 | |
| Cadmium, Total | 2.5 | ND | ND | ND | ND | ND | 1.7 J | ND | -- | -- | 3.2 J | 2.1 | |
| Chromium, Total | 30 | 70.1 J | 79.9 J | 13.2 J | 152 J | 128 J | 104 J | 46.8 J | -- | -- | 114 J | 82.3 J | |
| Lead, Total | 63 | 210 J | 108 J | 59.2 J | 240 J | 176 J | 437 J | 231 J | -- | -- | 642 J | 800 J | |
| Mercury, Total | 0.18 | 0.075 | 0.051 | 0.041 | 0.131 | 0.082 | 0.146 | 0.112 | -- | -- | 1.5 J | 0.559 J | |
| Cyanide, Total | 27 | ND | 9.2 | ND | 1.6 | ND | 1.3 | 1.2 | -- | -- | ND | ND | |

Notes:
 1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
 2. USCO = Unrestricted-Use Soil Cleanup Objective per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.

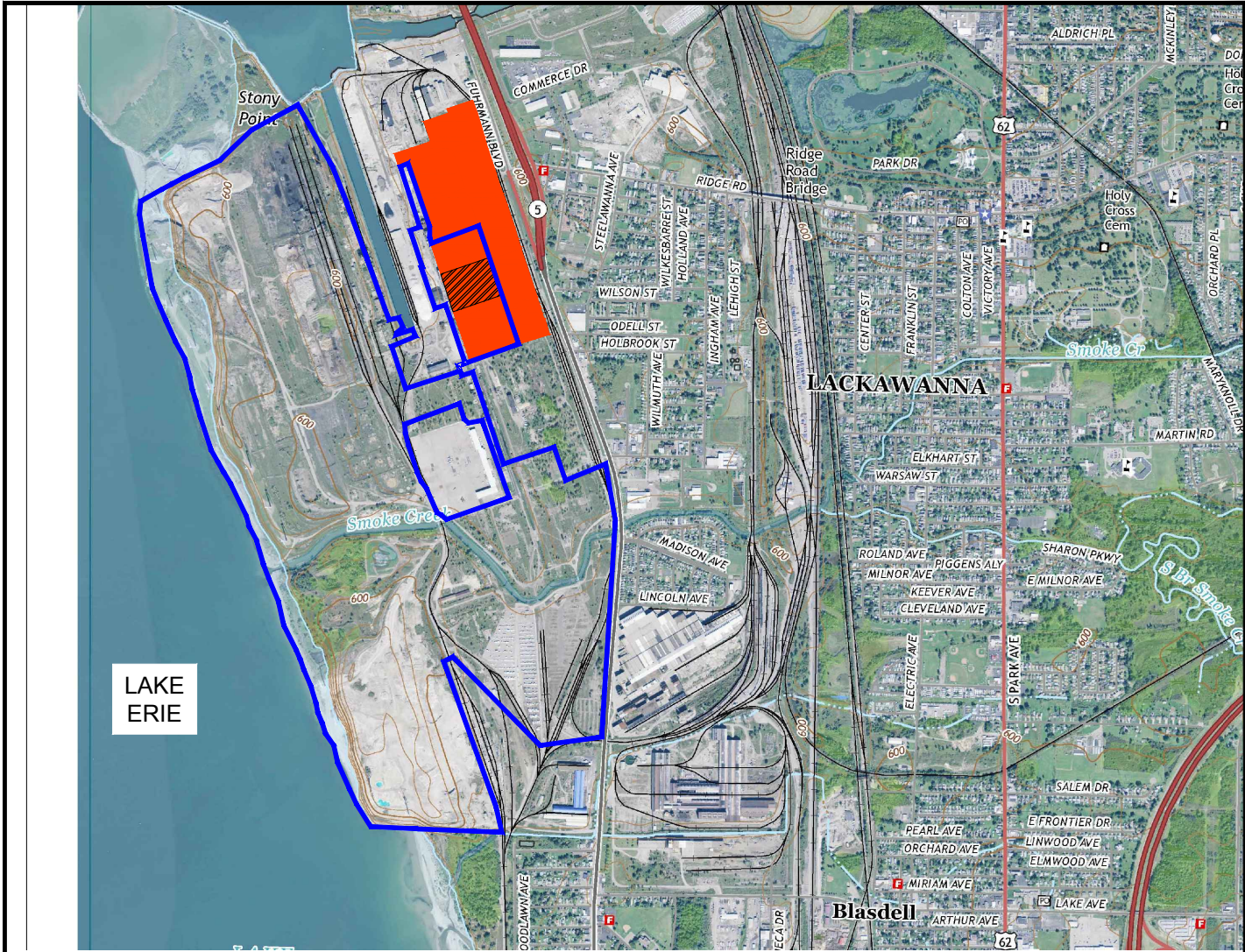
Definitions:
 J = estimated value; result is less than the sample quantitation limit but greater than zero.
 ND = parameter not detected above laboratory detection limit.
 "--" = not analyzed for this parameter or no individual SCO.
 "*" = Field scan was not obtained due to inclement weather conditions.
 "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

| | |
|----------|---|
| compound | = Polycyclic Aromatic Hydrocarbon (PAH) |
| BOLD | = Value exceeds Unrestricted SCO |

FIGURES

FIGURE 1



F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase I Parcel\Site Management Plan\Site I-5\Figure 1: Site Location and Vicinity Map5.dwg, DWG To PDF.pc



2,500' 0' 2,500' 5,000'

SCALE: 1 INCH = 2,500 FEET
SCALE IN FEET
(approximate)

LEGEND:

- APPROXIMATE TECUMSEH PROPERTY BOUNDARY
- TECUMSEH BUSINESS PARK I
- SITE I-5

SITE LOCATION AND VICINITY MAP

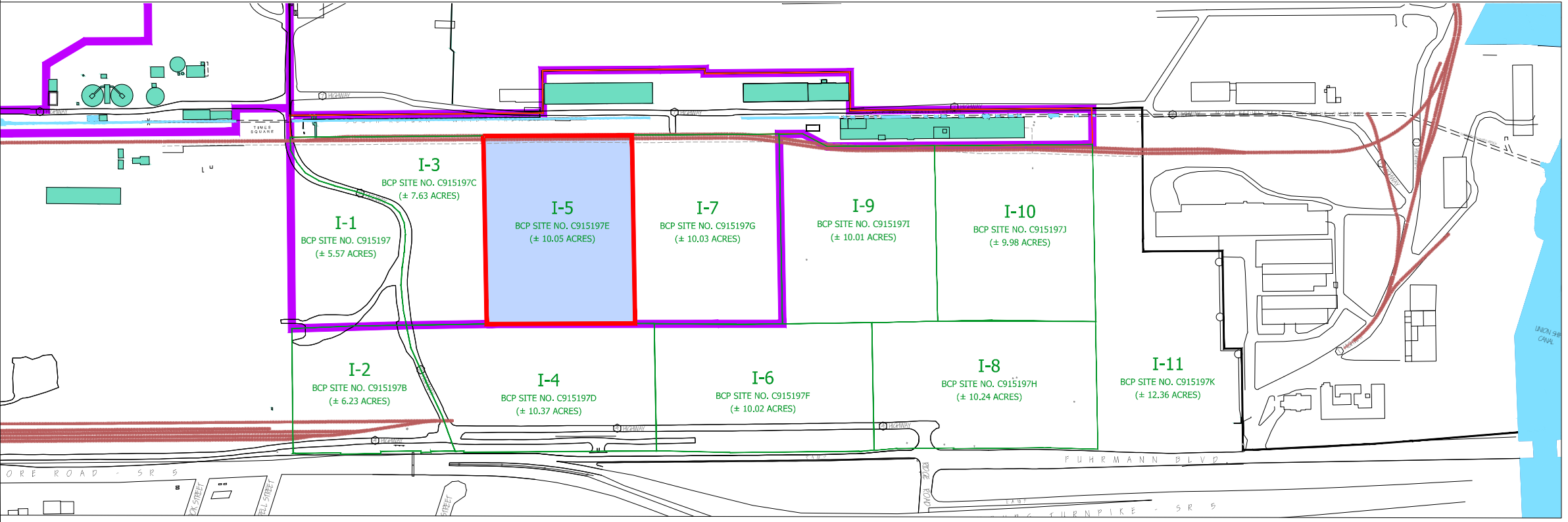
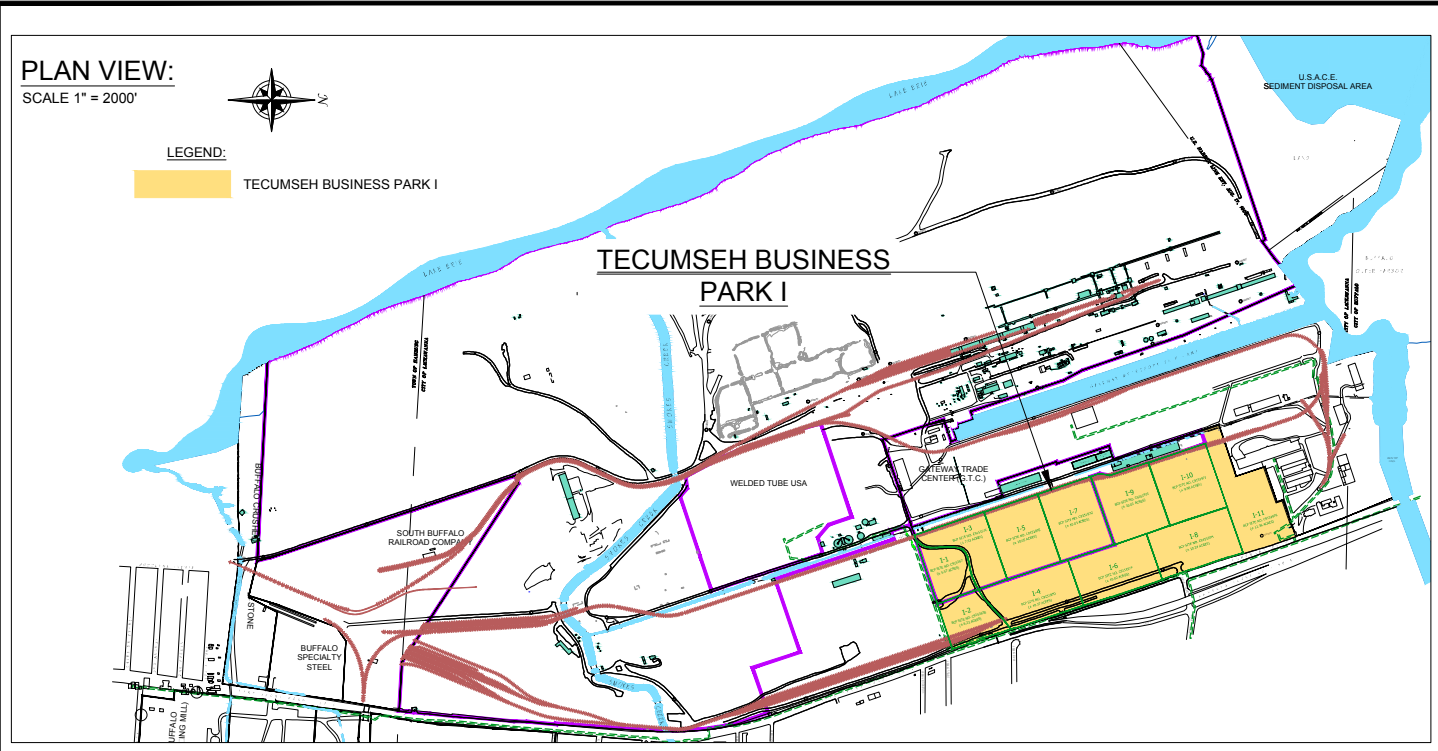
SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NO. C915197E (I-5)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.



2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0071-017-327
DATE: NOVEMBER 2017
DRAFTED BY: RFL

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SITE DELINEATION MAP

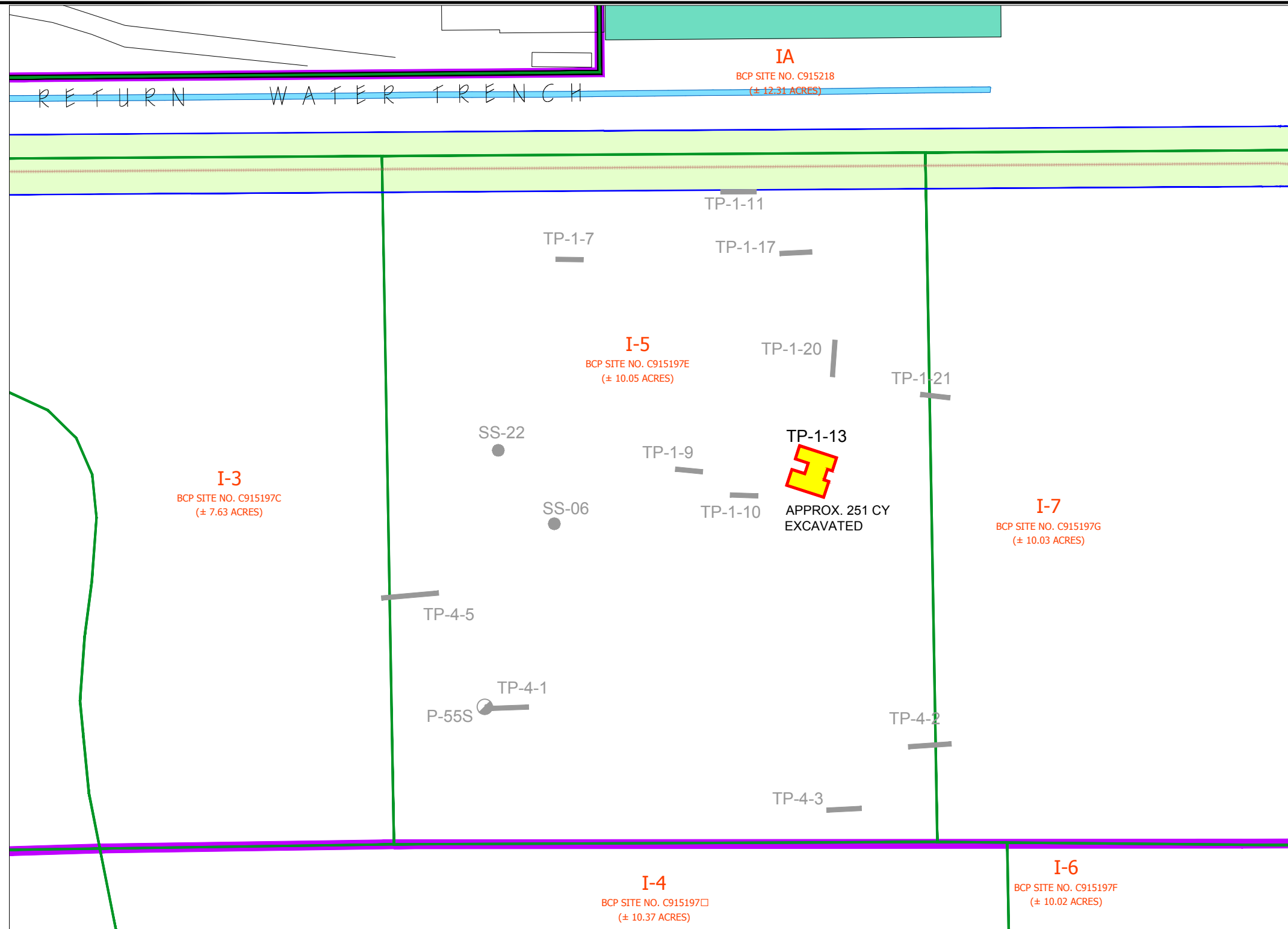
SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NO. C915197E (I-5)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.










JOB NO.: 0071-017-327

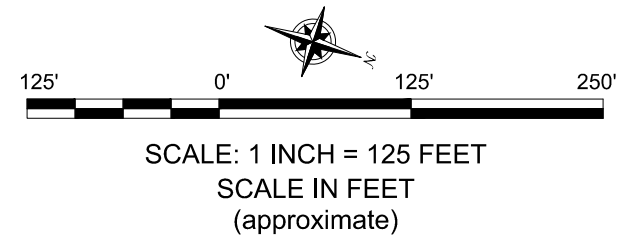
FIGURE 2

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.



LEGEND:

| | | | |
|---|--|---|--------------|
|  | TECUMSEH PROPERTY BOUNDARY |  | TEST PIT |
|  | TECUMSEH BUSINESS PARK I SITE BOUNDARIES |  | PIE LOMETER |
|  | IMPACTED SOIL/FILL EXCAVATED |  | SURFACE SOIL |
|  | MONITORING WELL | | |



COMPLETED REMEDIAL MEASURES

SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NO. C915197E (I-5)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.







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

JOB NO.: 0071-017-327

FIGURE 3

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.

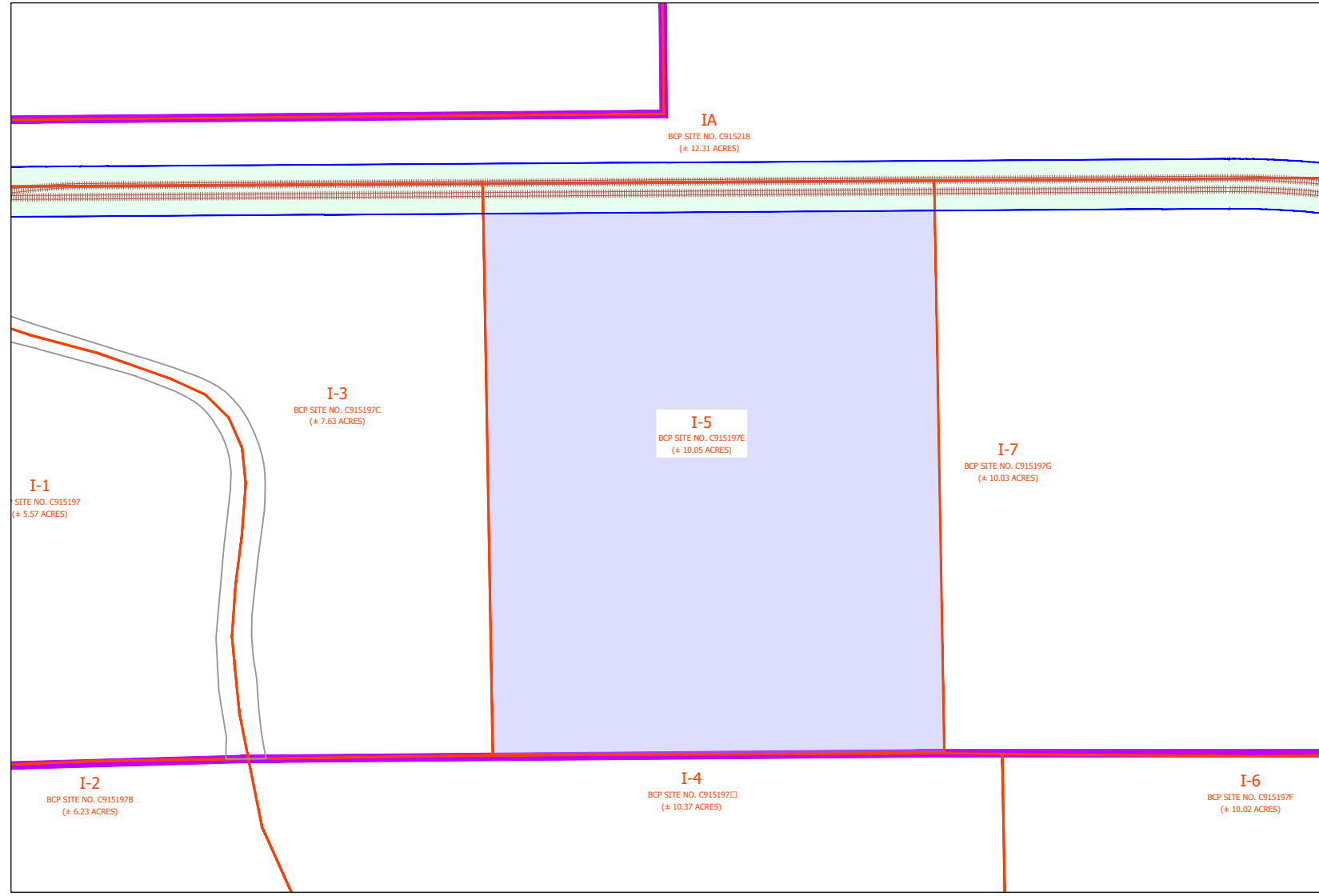
LEGEND:

-  TECUMSEH PROPERTY BOUNDARY
-  SITE BOUNDARIES
-  DEC-APPROVED SOIL COVER SYSTEM
-  EXISTING EAST HARBOR LEAD RAILROAD TRACK AND ROW

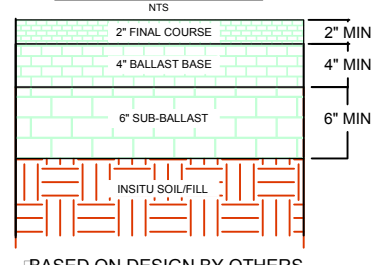
- NOTES:**
1. HORIZONTAL DATUM NAD 83 VERTICAL DATUM NAVD 83
 2. ALL MEASUREMENTS IN FEET.



SCALE: 1 INCH = 200 FEET
SCALE IN FEET (approximate)

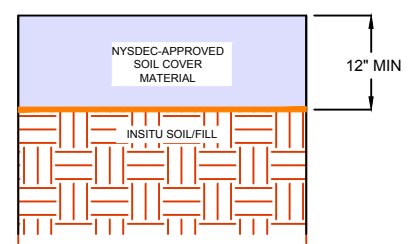


COVER SYSTEM BENEATH TRACKS
COVER SYSTEM DETAIL

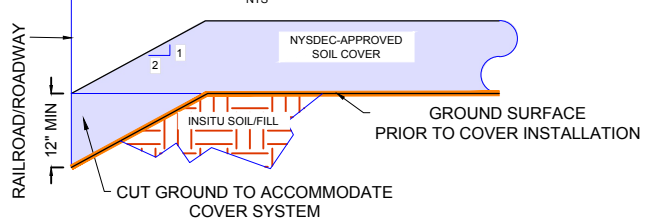


BASED ON DESIGN BY OTHERS.

SOIL COVER SYSTEM DETAIL



TIE-IN DETAIL



APPROXIMATE LOCATION AND TYPES OF COVER SYSTEM MATERIALS
SITE MANAGEMENT PLAN

TECUMSEH PHASE I BUSINESS PARK
BCP SITE NO. C915197E (I-5)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.



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JOB NO.: B0071-017-327

FIGURE 4

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.

ATTACHMENT A

SAMPLE EC/IC CERTIFICATION FORM



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



| Site Details | Box 1 | |
|--|--------------------------|--------------------------|
| Site No. C915197E | | |
| Site Name: Site I-5 Tecumseh Phase I Business Park | | |
| Site Address: 2303 Hamburg Turnpike | Zip Code: 14218 | |
| City/Town: Lackawanna | | |
| County: Erie | | |
| Current Use: Commercial | | |
| Intended Use: Commercial | | |
| Verification of Site Details | Box 2 | |
| | YES | NO |
| 1. Are the Site Details above, correct? | <input type="checkbox"/> | <input type="checkbox"/> |
| If NO, are changes handwritten above or included on a separate sheet? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Has a change-of-use occurred since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE NO. C915197E

Box 3

Description of Institutional Control Certification

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Groundwater monitoring as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |

Description of Engineering Control Certification

Box 4

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Maintenance of the cover systems over the Site: | <input type="checkbox"/> | <input type="checkbox"/> |

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

- (a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
- (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
- (c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
- (d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.
- (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

**IC/EC CERTIFICATIONS
SITE NO. C915197E**

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering
Certification

Stamp (if Required)

Date

Enclosure 2

Certification of Institutional Controls/ Engineering Controls (ICs/ECs) Step-by-Step Instructions, Certification Requirements and Definitions

The Owner, or Remedial Party, and when necessary, a Professional Engineer (P.E.), or the Qualified Environmental Professional (QEP), must review and complete the IC/EC Certification Form, sign the IC/EC Certifications Signature Page, and return it, along with the Periodic Review Report (PRR), within 45 days of the date of this notice.

Please use the following instructions to complete the IC/EC Certification.

I. Verification of Site Details (Box 1 and Box 2):

Answer the six questions in the Verification of Site Details Section. Questions 5 and 6 refer to only sites in the Brownfield Cleanup Program. ECL Section 27-1415-7(c) is included in

IV. IC/EC Certification Requirements. The Owner and/or your P.E. or QEP may include handwritten changes and/or other supporting documentation, as necessary.

II. Verification of Institutional / Engineering Controls (Box 3 and Box 4)

Review the listed Institutional / Engineering Controls, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party is to petition the Department requesting approval to remove the control.

2. Select "YES" or "NO" for **Control Certification** for each IC/EC, based on Sections (a)-(e) of the **Control Certification Statement**.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. If the Department has any questions or concerns regarding the completion of the certification, the Project Manager will contact you.

3. If you cannot certify "Yes" for each Control, please continue to complete the remainder of this **Control Certification** form. Attach supporting documentation that explains why the **Control Certification** cannot be rendered, as well as a statement of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Control Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is conducted.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. Once the corrective measures are complete a new Periodic Review Report (with IC/EC Certification) is to be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 5 and Box 6):

1. If you certified "Yes" for each Control, please complete and sign the IC/EC Certifications page. To determine WHO signs the **IC/EC Certification**, please use Table 1. Signature Requirements for the IC/EC Certification, which follows.

| Table 1. Signature Requirements for Control Certification Page | | |
|---|---|--|
| Type of Control | Example of IC/EC | Required Signatures |
| IC only | Environmental Easement Deed Restriction. | A site or property owner or remedial party. |
| IC with an EC which does not include a treatment system or engineered caps. | Fence, Clean Soil Cover, Individual House Water Treatment System, Vapor Mitigation System | A site or property owner or remedial party, and a QEP. (P.E. license not required) |
| IC with an EC that includes treatment system or an engineered cap. | Pump & Treat System providing hydraulic control of a plume, Part 360 Cap. | A site or property owner or remedial party, and a QEP with a P.E. license. |

IV. IC/EC Certification Requirements:

Division of Environmental Remediation Program Policy requires periodic certification of IC(s) and EC(s) as follows:

For Environmental Restoration Projects: N.Y. Env'tl Conserv.Law Section 56-0503 (Environmental restoration projects; state assistance)

For State Superfund Projects: Env'tl Conserv.Law Section 27-1318. (Institutional and engineering controls)

For Brownfields Cleanup Program Projects: Env'tl Conserv.Law Section 27-1415. (Remedial program requirements)

Env'tl Conserv.Law Section 27-1415-7(c) states:

- (c) At non-significant threat sites where contaminants in groundwater at the site boundary contravene drinking water standards, such certification shall also certify that no new information has come to the owner's attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid. Every five years the owner at such sites shall certify that the assumptions made in the qualitative exposure assessment remain valid. The requirement to provide such certifications may be terminated by a written determination by the Commissioner in consultation with the Commissioner of Health, after notice to the parties on the brownfield site contact list and a public comment period of thirty days.

Voluntary Cleanup Program: Applicable program guidance.

Petroleum Remediation Program: Applicable program guidance.

Federal Brownfields: Applicable program guidance.

Manufactured Gas Plant Projects: Applicable program guidance (including non-registry listed MGPs).

WHERE to mail the signed Certification Form by March 1st of each year (or within 45 days of the date of the Department notice letter):

New York State Department of Environmental Conservation
Division of Environmental Remediation

Attn: Division of Environmental Remediation – North Section
NYSDEC
270 Michigan Avenue
Buffalo, NY 14203-2999

Please note that extra postage may be required.

V. Definitions

“Engineering Control” (EC), means any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

“Institutional Control” (IC), means any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a remedial site.

“Professional Engineer” (P.E.) means an individual or firm licensed or otherwise authorized under article 145 of the Education Law of the State of New York to practice engineering.

“Property Owner” means, for purposes of an IC/EC certification, the actual owner of a property. If the site has multiple properties with different owners, the Department requires that the owners be represented by a single representative to sign the certification.

“Oversight Document” means any document the Department issues pursuant to each Remedial Program (see below) to define the role of a person participating in the investigation and/or remediation of a site or area(s) of concern. Examples for the various programs are as follows:

BCP (after approval of the BCP application by DEC) - Brownfield Site Cleanup Agreement.

ERP (after approval of the ERP application by DEC) - State Assistance Contract.

Federal Superfund Sites - Federal Consent Decrees, Administrative Orders on Consent or Unilateral Orders issued pursuant to CERCLA.

Oil Spill Program - Order on Consent, or Stipulation pursuant to Article 12 of the Navigation Law (and the New York Environmental Conservation Law).

State Superfund Program - Administrative Consent Order, Record of Decision.

VCP (after approval of the VCP application by DEC) - Voluntary Cleanup Agreement.

RCRA Corrective Action Sites- Federal Consent Decrees, Administrative Orders on Consent or permit conditions issued pursuant to RCRA.

“Qualified Environmental Professional” (QEP), means a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases to the surface or subsurface of a property or off-site areas, sufficient to meet the objectives and performance factors for the areas of practice identified by this Part. Such a person must:

(1) hold a current professional engineer’s or a professional geologist’s license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience in site investigation and remediation of the type detailed in this Part; or

(2) be a site remediation professional licensed or certified by the federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with Department guidance, and have the equivalent of three years of full-time relevant experience.

“Qualitative Exposure Assessment” means a qualitative assessment to determine the route, intensity, frequency, and duration of actual or potential exposures of humans and/or fish and wildlife to contaminants.

“Remedial Party” means a person implementing a remedial program at a remedial site pursuant to an order, agreement or State assistance contract with the Department.

“Site Management” (SM) means the activities undertaken as the last phase of the remedial program at a site, which continue after a Certificate of Completion is issued. Site management is conducted in accordance with a site management plan, which identifies and implements the institutional and engineering controls required for a site, as well as any necessary monitoring and/or operation and maintenance of the remedy.

“Site Management Plan” (SMP) means a document which details the steps necessary to assure that the institutional and engineering controls required for a site are in-place, and any physical components of the remedy are operated, maintained and monitored to assure their continued effectiveness, developed pursuant to Section 6 (DER10 Technical Guide).

“Site Owner” means the actual owner of a site. If the site has multiple owners of multiple properties with ICs and/or ECs, the Department requires that the owners designate a single representative for IC/EC Certification activities.

APPENDIX E-6

SITE I-6 (C915197F)

As the remedial actions are completed on Site I-6 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-6 as an addendum.

APPENDIX E-7

SITE I-7 (C915197G)

As the remedial actions are completed on Site I-7 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-7 as an addendum.

BROWNFIELD CLEANUP PROGRAM

APPENDIX E-7 SITE MANAGEMENT PLAN

TECUMSEH PHASE I BUSINESS PARK
NYSDEC SITE NO. C915197G (I-7)
LACKAWANNA, NEW YORK

November 2017

0071-017-327

Prepared for:

Tecumseh Redevelopment Inc.
4020 Kinross Lakes Parkway
Richfield, OH, 44286

Prepared By:



TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

In Association With:



Benchmark Environmental Engineering &
Science, PLLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0599

Revisions to Addenda of Final Approved Site Management Plan:

| Revision # | Submitted Date | Summary of Revision | DEC Approval Date |
|------------|----------------|---------------------|-------------------|
| | | | |
| | | | |

**PHASE I BUSINESS PARK
SITE MANAGEMENT PLAN: APPENDIX E-7
NYSDEC SITE NO. C915197G (I-7)**

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**PHASE I BUSINESS PARK
SITE MANAGEMENT PLAN: APPENDIX E-7
NYSDEC SITE NO. C915197G (I-7)**

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1.0 INTRODUCTION

The Site Management Plan (SMP) is a required element of the remedial program at the Tecumseh Redevelopment Inc. (Tecumseh) Phase I Business Park (herein referred to as the Controlled Property; see Figure 1) under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The purpose of an SMP is to manage the contamination on a site remaining after remedial action.

The January 2014 SMP (Ref. 1) for the Controlled Property was prepared by TurnKey Environmental Restoration, LLC (TurnKey), on behalf of Tecumseh, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 2) and the guidelines provided by NYSDEC. Since the Controlled Property was divided into 11 BCP Sites designated as Sites I-1 through I-11 (BCP Site Nos. C915197 through C915199K), the main body of the SMP includes the site management components common to all 11 Sites. Site-specific requirements are included as Appendix E to the SMP.

1.1 Site Location and Description

As shown on Figure 2, Site I-7 (approx. 10.03 acres) is bounded by Business Park IA to the west; BCP Site I-5 to the south; BCP Sites I-4/I-6 and Fuhrmann Blvd. to the east; and BCP Site I-9 to the north.

The NYSDEC issued the Decision Document for Business Park I in January 2012 (Ref. 3). The Decision Document specifies, among other requirements, placement of acceptable cover material in areas not otherwise covered by rail lines, etc. Engineering controls (ECs) have been incorporated into the remedy to control exposure to remaining contamination during use of the Site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC by Tecumseh for the entire Business Park I has been recorded with the Erie County Clerk and requires compliance with this SMP and all ECs and institutional controls (ICs) placed on the Site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring, and reporting measures for all ECs and ICs.

This Appendix addresses the means for implementing the ICs and ECs that are required by the Environmental Easement for Site I-7 of the Controlled Property. This

Appendix is not to be used as stand-alone documents but as a component document of the January 2014 SMP for the Controlled Property.

1.2 Remedial Investigation

The August 2005 Remedial Investigation (RI) Work Plan (Ref. 4) identified Site characterization requirements to be completed pursuant to the BCP and NYSDEC DER-10 guidance across all 11 Sites within the Controlled Property. The RI was designed to provide defensible data to identify areas of the Controlled Property potentially requiring remediation, define chemical constituent migration pathways, and qualitatively assess human health and ecological risks to allow for performance of a remedial alternatives evaluation.

Investigative activities on Business Park I were performed January-February 2006. Specific to Site I-7, approximately 16 test pits were completed as well as surface soil sampling. In April 2008, a supplemental test pit program was performed to further delineate petroleum-impacted soil/fill in support of interim remedial measures. Monitoring well MW-16A was installed as part of the RI; monitoring well B-2 was installed in 1991 by others. Attachment A includes the monitoring well construction logs. Soil and groundwater samples were collected as detailed in the Work Plan.

Groundwater samples were collected from monitoring well MW-16A during the RI (March 2006) and again in June 2016 during a site-wide groundwater sampling event. No parameters exceeded the groundwater quality standards/guidance values (GWQS/GVs). Site groundwater is not used and is restricted from use for either potable or non-potable purposes without treatment by an Environmental Easement.

The RI Report was submitted to NYSDEC in October 2006, revised, and finalized in June 2007 (Ref. 5). Based on the RI findings, remediation of soil/fill was warranted.

1.3 Interim Remedial Measures

A pre-Interim Remedial Measures (IRM) investigation was proposed (Ref. 6) and performed in April 2008 since the extent of impacts at several test pit locations were not fully defined during the RI. The IRM completed on Business Park I involved petroleum-, tar-, and metals-impacted soil/fill removal in accordance with the NYSDEC-approved August 2008 IRM Work Plan (Ref. 7). A Construction Closeout Report (CCR) was not prepared for these IRM activities; however, a summary of the IRM was presented in

NYSDEC-approved May 2010 Alternatives Analysis Report (AAR) for Business Park I (Ref. 8). The AA Report recommended deferred soil cover system placement during redevelopment as well as ECs and ICs to limit future use of the Controlled Property to restricted (commercial or industrial) applications and prevent groundwater use for potable purposes (see Section 2.0).

The following remedial work was performed between April and June 2009 on Site I-7 (see Figure 3):

- Construction of temporary on-site biotreatment pads on paved areas in the northern portion of Business Park I.
- Excavation of approximately 250 cubic yards of petroleum-impacted soil/fill in the vicinity of test pit TP-6-7 (Site I-7). The impacted soil/fill was placed in the bioremediation area for on-site treatment (tilling). The treated soils were stockpiled for use as on-site, subgrade fill during future backfill and site grading work.
- Backfill of excavations with steel slag under BUD #555-9-15; bioremediated slag/fill; and non-impacted crushed asphalt. Backfill material was placed into the excavation and compacted/tracked with the excavator/backhoe bucket in 2-foot lifts.

1.4 Summary of Remedial Actions

The final remedial measures for this Site involved placement of the cover system in accordance with the NYSDEC-approved June 2017 Remedial Action Work Plan (RAWP) (Ref. 9). Details of cover system placement are provided in the November 2017 Final Engineering Report (Ref. 10).

1.5 Remaining Contamination

1.5.1 Soil

The IRM conducted on Site I-7 has removed all known “source area” (i.e., petroleum-impacted) slag/fill. The remaining soil/fill is generally characterized by widespread exceedance of the Part 375 unrestricted-use SCOs (USCOs) for several ubiquitous constituents. Specifically, nearly all samples collected during the RI exhibited exceedance of the USCOs for carcinogenic polyaromatic hydrocarbons (PAHs), as well as

arsenic, cadmium, chromium, lead, and mercury. PCB Aroclors 1248 and 1254 remain at concentrations above USCOs. Table 1 summarizes the results of all soil samples remaining on Site I-7 that exceed USCOs following completion of the remedial actions. It is not possible to quantify with any certainty areas that do not exceed one or more of the USCO criteria; therefore, it is assumed that the entire 10.03 acres constituting Site I-7 are impacted above the USCOs to the approximate native soil depth of 8 fbgs.

Following grading of this Site, demarcation was constructed and placed so as to easily identify the existing sub-grade from the cover system material, and prevent the potential for inadvertent removal of sub-grade material during future intrusive work. The demarcation layer is comprised of an orange $\frac{3}{4}$ -inch plastic industrial netting material was rolled across the sub-grade and overlapped by approximately one foot at the seams.

1.5.2 Groundwater

The groundwater quality on Site I-7 has been assessed by sampling monitoring well MW-16A in March 2006 and June 2010 during the RI. The groundwater was analyzed for VOCs, SVOCs, and inorganic parameters. As indicated on Table 2, groundwater concentrations were non-detect or below NYSDEC Class GA GWQS/GVs. Well MW-16A was decommissioned in September 2012 during the railroad realignment.

2.0 ENGINEERING & INSTITUTIONAL CONTROL PLAN

2.1 Introduction

Since contaminated soil/fill remains beneath the Site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect public health and the environment. The EC/IC Plan in the Phase I BP SMP describes the procedures for the implementation and management of site-wide EC/ICs. The EC/IC Plan is one component of the SMP and subject to revision by NYSDEC. EC/ICs specific to Site I-7 are described below.

2.2 Engineering Control Systems

The cover system for Site I-7 is described in the Final Engineering Report (Ref. 10). Figure 4 shows the approximate locations and types of cover system materials placed on the Site. In the event this cover system is breached, penetrated, or temporarily removed, the cover system shall be repaired in accordance with Section 2.2 of the SMP and Section 4.0 of the Excavation Work Plan (SMP Appendix B).

2.3 Institutional Controls

The Institutional Controls described in Section 2.3 of the SMP (i.e., Environmental Easement and Excavation Work Plan) must be implemented. There are no site-specific Institutional Control requirements for Site I-7.

2.4 Inspections and Notifications

The Inspections and Notifications described in Section 2.4 of the SMP must be implemented for Site I-7. There are no site-specific inspection and notification requirements.

2.5 Contingency Plan

Emergencies conditions are addressed in the Emergency Response Plan (ERP), which is an attachment to the HASP (SMP Appendix C). The following emergency contact numbers are specific to Site I-7:

Table 3: Emergency Contact Numbers

| | |
|--|--|
| Name: John Cappellino Title: Executive Vice President, Buffalo and Erie County Industrial Land Development Corporation | Work: (716) 856-6525 Mobile: (716) 472-6667 |
| Name: Thomas Forbes Title: Principal Engineer, Benchmark Environmental | Work: (716) 856-0599 Mobile: (716) 864-1730 |

Note: Contact numbers subject to change and should be updated as necessary

3.0 SITE MONITORING PLAN

The Site Monitoring Plan describes the measures for evaluating the performance and effectiveness of:

- The remedy to reduce or mitigate contamination at the Site;
- The soil cover system; and
- All affected Site media.

Monitoring of the cover system is described in the SMP. No site-specific monitoring is required.

4.0 OPERATION & MAINTENANCE PLAN

The remedy for Site I-7 does not rely on any mechanical systems, such as sub-slab depressurization or soil vapor extraction, to protect public health and the environment. Therefore, a site-specific Operation and Maintenance Plan is not required.

5.0 INSPECTIONS, REPORTING & CERTIFICATIONS

All inspection, reporting, and certification requirement are described in Section 3.0 of the SMP. Attachment B includes sample EC/IC Certification Form to be completed for Site I-7.

6.0 REFERENCES

1. TurnKey Environmental Restoration, LLC. *Site Management Plan for BCP Tecumseh Phase I Business Park, NYSDEC Site No. C915197 through C915197K, Lackawanna, New York*. January 2014.
2. New York State Department of Environmental Conservation. *DER-10/Technical Guidance for Site Investigation and Remediation*. May 3, 2010.
3. New York State Department of Environmental Conservations. *Decision Document, Tecumseh Phase I Business Park, Brownfield Cleanup Program, Lackawanna, Erie County, Site No. C915197*. January 2012.
4. TurnKey Environmental Restoration, LLC. *Remedial Investigation Work Plan, Phase I Business Park Area, Lackawanna, New York*. August 2005.
5. TurnKey Environmental Restoration, LLC. *Remedial Investigation Report, Phase I Business Park, Tecumseh Redevelopment Inc., Lackawanna, New York*. June 2007.
6. TurnKey Environmental Restoration, LLC. *Correspondence to Mr. Maurice Moore of the NYSDEC Re: Phase I Business Park Area, Supplemental Remedial Investigation*. March 27, 2008.
7. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Interim Remedial Measures Work Plan, Phase I Business Park Area, Lackawanna, New York, BCP Site No. C915197*. August 2008.
8. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Alternatives Analysis Report (AAR) Phase I Business Park, ArcelorMittal Tecumseh Redevelopment, Inc., Lackawanna, New York, BCP Site No. C915197*. May 2010.
9. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Remedial Action Work Plan, Tecumseh Business Parks I and II, Lackawanna, New York*. June 2017.
10. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Final Engineering Report, Tecumseh Business Park I, Sub-Parcel I-7, Lackawanna, New York*. November 2017.

TABLES



**TABLE 1
SUMMARY OF REMAINING SOIL/FILL CONTAMINATION ABOVE USCOS**

SITE MANAGEMENT PLAN

**Phase I Business Park, Site I-7
Tecumseh Redevelopment Inc., Lackawanna, New York**

| Parameter ¹ | USCOs (mg/kg) ² | SS-04 | SS-05 | SS-08 | SS-26 | SS-28 | SS-29 | TP-1-(13-17) | TP-1-(13-17) | TP-1-18 | TP-1-19 | TP-1-22 ^{3,4} | TP-4-(1-5) | TP-4-(1-5) | TP-6-(1-5) | TP-6-(1-5) | TP-6-7 | TP-6-10 | |
|---|----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|--------------|-----------|-----------|------------------------|------------|------------|------------|------------|-----------|-----------|-----------|
| | | 0.0 - 1.0 | 0.0 - 1.0 | 0.0 - 1.0 | 0.0 - 1.0 | 0.0 - 1.0 | 0.0 - 1.0 | 0.0 - 2.0 | 2.0 - 5.0 | 2.0 - 5.0 | 2.0 - 5.0 | 2.0 - 5.0 | 2.0 - 6.5 | 0.0 - 1.0 | 1.0 - 3.0 | 0.0 - 2.0 | 2.0 - 6.0 | 2.0 - 4.0 | 2.0 - 6.0 |
| | | grab | grab | grab | grab | grab | grab | composite | composite | grab | grab | grab | composite | composite | composite | composite | composite | grab | grab |
| Wet Chemistry - units shown parenthetically | | | | | | | | | | | | | | | | | | | |
| pH (S.U.) | | -- | -- | -- | 8.4 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg | | | | | | | | | | | | | | | | | | | |
| Methylene Chloride | 0.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.012 | -- | -- | -- | -- | -- | -- | |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg | | | | | | | | | | | | | | | | | | | |
| Acenaphthene | 20 | -- | -- | -- | -- | -- | 0.31 J | 0.2 J | ND | ND | 0.89 J | ND | ND | ND | 5.4 J | 6.8 J | -- | -- | |
| Acenaphthylene | 100 | -- | -- | -- | -- | -- | 0.23 J | 0.55 J | 1.1 J | 0.41 J | 5.2 | 1.6 J | ND | 0.68 J | ND | ND | -- | -- | |
| Anthracene | 100 | -- | -- | -- | -- | -- | 0.94 J | 0.8 J | 0.66 J | 0.44 J | 5.3 | 0.89 J | 1.2 J | 0.61 J | 14 J | 14 J | -- | -- | |
| Benzo(a)anthracene | 1 | -- | -- | -- | -- | -- | 2.4 J | 2.4 | 2.2 | 1.6 J | 16 | 5.9 J | 4.4 J | 1.9 | 30 J | 28 J | -- | -- | |
| Benzo(b)fluoranthene | 1 | -- | -- | -- | -- | -- | 3.2 J | 3.3 J | 3.2 J | 2.1 J | 21 J | 7.1 J | 5.5 J | 3.1 J | 36 J | 27 J | -- | -- | |
| Benzo(k)fluoranthene | 0.8 | -- | -- | -- | -- | -- | 1.1 J | 1.3 J | 1.1 J | 0.65 J | 7 J | 2.4 J | 1.8 J | 0.99 J | 41 J | 6.8 J | -- | -- | |
| Benzo(g,h,i)perylene | 100 | -- | -- | -- | -- | -- | 1.7 J | 1.4 J | 1.4 J | 0.85 J | 6 | 3.9 J | 2.4 J | 1.6 J | 15 J | 14 J | -- | -- | |
| Benzo(a)pyrene | 1 | -- | -- | -- | -- | -- | 2.5 J | 2.5 | 2.3 | 1.6 J | 14 | 5.3 J | 4.2 J | 2.2 | 22 J | 22 J | -- | -- | |
| Chrysene | 1 | -- | -- | -- | -- | -- | 2.5 J | 2.3 | 2.2 | 1.4 J | 15 | 5.7 J | 4.4 J | 2 | 28 J | 25 J | -- | -- | |
| Dibenz(a,h)anthracene | 0.33 | -- | -- | -- | -- | -- | 0.4 J | 0.39 J | 0.38 J | 0.25 J | 2.1 | 1.3 J | 0.72 J | 0.5 J | 4.5 J | 4.1 J | -- | -- | |
| Dibenzofuran | 7 | -- | -- | -- | -- | -- | 0.32 J | 0.21 J | ND | 0.1 J | 1.2 J | ND | ND | 0.13 J | 3.1 J | 3.6 J | -- | -- | |
| Fluoranthene | 100 | -- | -- | -- | -- | -- | 5.6 | 4.8 | 3.8 | 2.3 | 36 J | 9.4 | 9 | 3.3 | 71 | 65 | -- | -- | |
| Fluorene | 30 | -- | -- | -- | -- | -- | 0.45 J | 0.27 J | 0.2 J | ND | 1.7 J | ND | ND | 0.2 J | 5.8 J | 6.4 J | -- | -- | |
| Indeno(1,2,3-cd)pyrene | 0.5 | -- | -- | -- | -- | -- | 1.4 J | 1.2 J | 1.1 J | 0.76 J | 6.1 | 3.7 J | 2.1 J | 1.4 J | 13 J | 12 J | -- | -- | |
| 2-Methylnaphthalene | 12 | -- | -- | -- | -- | -- | ND | 0.21 J | ND | ND | 0.3 J | ND | ND | ND | ND | ND | -- | -- | |
| Naphthalene | 12 | -- | -- | -- | -- | -- | 0.57 J | ND | ND | ND | ND | ND | ND | 0.11 J | ND | 2.2 J | -- | -- | |
| Phenanthrene | 100 | -- | -- | -- | -- | -- | 4.1 | 2.9 | 1.5 J | 1.4 J | 24 | 2.7 J | 3.3 J | 2 | 52 | 51 | -- | -- | |
| Pyrene | 100 | -- | -- | -- | -- | -- | 4.6 | 3.5 | 2.7 | 1.8 J | 23 | 9.8 | 8.1 J | 2.8 | 55 | 51 | -- | -- | |
| TOTAL SVOCs (mg/kg) | | 0 | 0 | 0 | 0 | 0 | 32 | 28 | 24 | 16 | 185 | 60 | 47 | 24 | 396 | 339 | 0 | 0 | |
| Polychlorinated Biphenyls (PCBs) - mg/kg | | | | | | | | | | | | | | | | | | | |
| Aroclor 1248 | 0.1 | 1.2 | 0.54 | -- | -- | ND | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | |
| Aroclor 1254 | 0.1 | 3.0 | ND | 0.88 | -- | ND | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.58 | |
| Aroclor 1260 | 0.1 | ND | 0.38 | ND | -- | 0.35 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | |
| TOTAL PCBs (mg/kg) | 0.1 | 4.2 | 0.92 | 0.88 | -- | 0.35 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.58 | |
| Inorganic Compounds - mg/kg | | | | | | | | | | | | | | | | | | | |
| Arsenic, Total | 13 | -- | -- | -- | 12.6 | -- | 17.7 | 21.2 | 15.7 | -- | -- | -- | 9.3 J | 7 | 14.7 J | 22.6 J | 39.2 J | -- | |
| Cadmium, Total | 2.5 | -- | -- | -- | 5.8 | -- | 8 | 1.7 J | ND | -- | -- | -- | 3.2 J | 2.1 | 5.3 J | 5.1 J | 3 J | -- | |
| Chromium, Total | 30 | -- | -- | -- | 245 | -- | 171 | 104 J | 46.8 J | -- | -- | -- | 114 J | 82.3 J | 123 | 99.1 | 52.8 | -- | |
| Lead, Total | 63 | -- | -- | -- | 355 | -- | 440 | 437 J | 231 J | -- | -- | -- | 642 J | 800 J | 454 | 474 | 1660 | -- | |
| Mercury, Total | 0.18 | -- | -- | -- | 3.8 | -- | 0.389 | 0.146 | 0.112 | -- | -- | -- | 1.5 J | 0.559 J | 1.2 | 1.1 | 0.362 | -- | |
| Cyanide, Total | 27 | -- | -- | -- | 8.2 J | -- | ND | 1.3 | 1.2 | -- | -- | -- | ND | ND | ND | ND | 2 | -- | |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.
3. Soil/fill sample TP-1-22 (2.0 - 6.5) was analyzed for TCL VOCs plus STARS, all other samples were analyzed for STARS VOCs, only.
4. Soil/fill sample TP-1-22 (2.0 - 6.5) was analyzed for TCL SVOCs (BNAs), all other samples were analyzed for BN SVOC only.

Definitions:

J = estimated value; result is less than the sample quantitation limit but greater than zero.
 ND = parameter not detected above laboratory detection limit.
 "--" = not analyzed for this parameter or no individual SCO.
 "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Color Code:

BOLD = Value exceeds Part 375 Unrestricted Soil Cleanup Objectives.

Grey = Slag/fill removed from Test Pit Locations during IRM excavations



**TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SITE MANAGEMENT PLAN**

**Phase I Business Park, Site I-7
Tecumseh Redevelopment Inc., Lackawanna, New York**

| Parameter ¹ | Well ID, Location, & Sampling Date | | | | GWQS/GV ³ |
|---|------------------------------------|--------|----------|-------|------------------------|
| | MW-16A | MW-16A | Site 1-7 | | |
| | 3/7/06 ² | | 6/30/10 | | |
| | | | | | |
| Field Measurements (units as indicated) | | | | | |
| pH (units) | 7.14 | 7.27 | 7.54 | 7.41 | 6.5 - 8.5 |
| Temperature (°C) | 6.9 | 4.7 | 14.3 | 14.6 | NA |
| Specific Conductance (uS) | 793.9 | 791.5 | 776.5 | 759.2 | NA |
| Turbidity | 12.3 | 8.3 | 15.6 | 4.5 | 50** |
| Dissolved Oxygen (mg/L) | -- | -- | 1.23 | 1.12 | NA |
| ORP (mV) | -4 | 8 | -120 | -105 | NA |
| Volatile Organic Compounds (VOCs) - ug/L | | | | | |
| Acetone | -- | -- | -- | -- | 50* |
| n-Butylbenzene | ND | ND | ND | ND | 5 |
| 1,2,4-Trichlorobenzene | -- | -- | -- | -- | 5* ⁴ |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - ug/L ⁵ | | | | | |
| TOTAL SVOCs (ug/L) | ND | ND | ND | ND | NA |
| Polychlorinated Biphenyls (PCBs) - ug/L | | | | | |
| TOTAL PCBs (ug/L) | ND | ND | ND | ND | NA |
| Total Inorganic Compounds - mg/L ⁶ | | | | | |
| Barium, Total | -- | -- | -- | -- | 1 |
| Cadmium, Total | ND | ND | ND | ND | 0.005 |
| Chromium, Total | ND | ND | ND | ND | 0.05 |
| Copper, Total | -- | -- | -- | -- | 0.2 |
| Cyanide, Total | 0.024 J | -- | -- | -- | 0.2 |
| Manganese, Total | -- | -- | -- | -- | 0.3 |
| Nickel, Total | -- | -- | -- | -- | 0.1 |
| Zinc, Total | 0.024 J | -- | -- | -- | 0.2 |

Notes:

1. Only those parameters detected at a min. of 1 sample location are presented; all other compounds were reported as N
2. Groundwater collected from March 2006 event were only analyzed for parameters listed in August 2005 RIWP.
3. NYSDEC Class "GA" Groundwater Quality Standards/Guidance Values (GWQS/GV) as per 6 NYCRR Part 703.
4. A Guidance Value limit of 10 ug/L applies to the sum of 1,2,3-, 1,2,4-, and 1,3,5-Trichlorobenzene.
5. Groundwater collected from wells were only analyzed for BN SVOCs.
6. Groundwater collected from wells were only analyzed for arsenic, cadmium, chromium, cyanide, lead, and mercury.

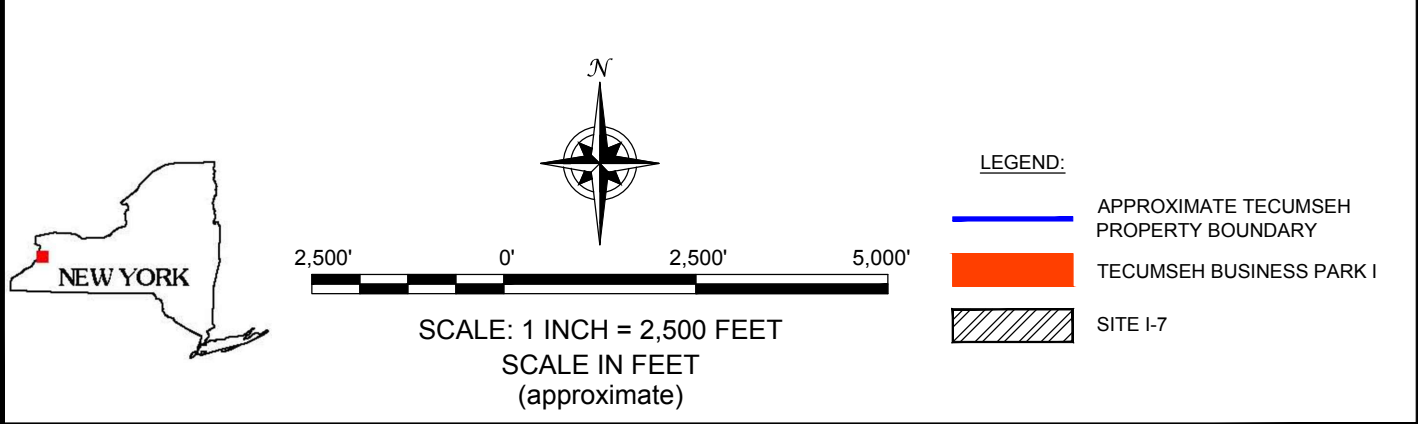
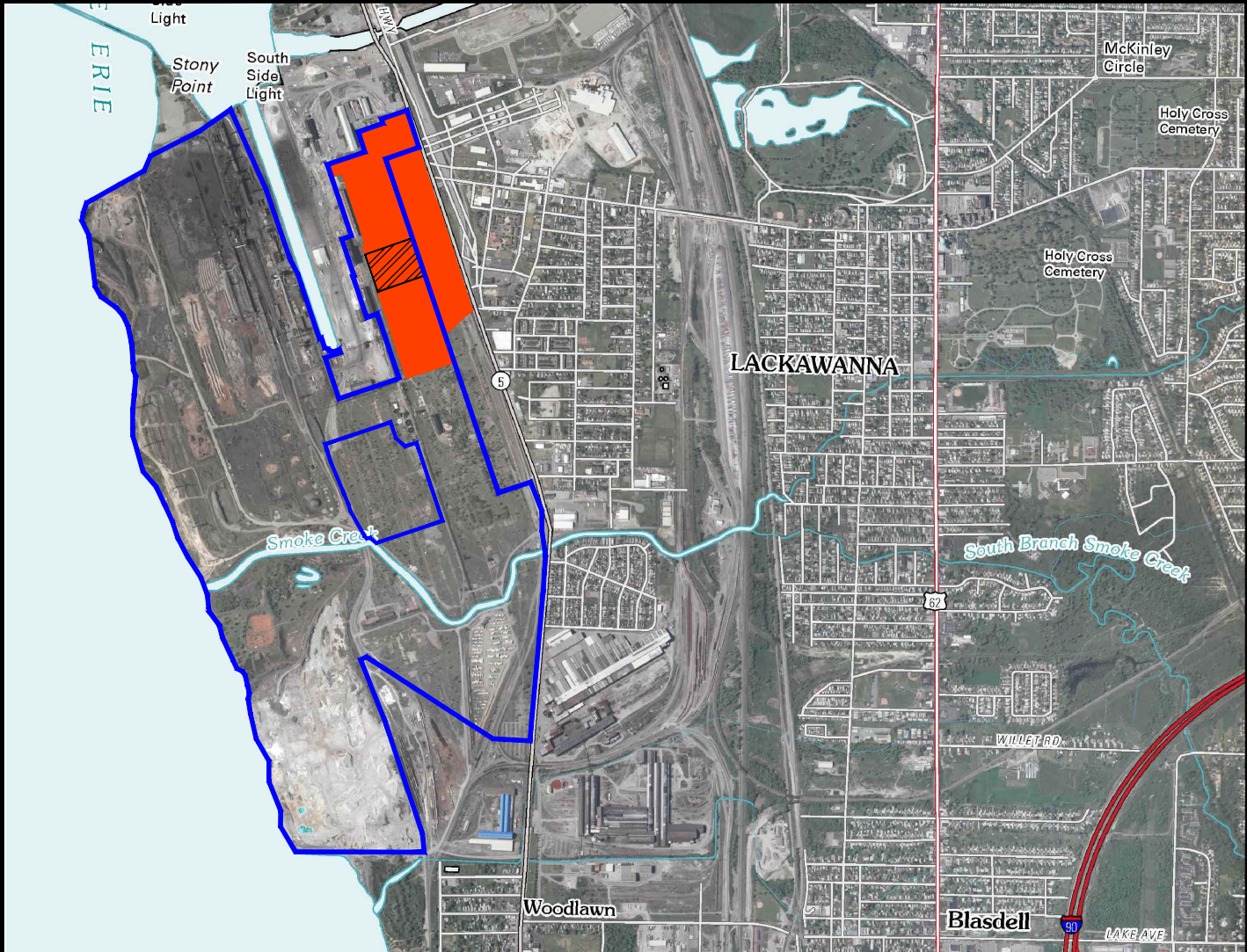
Definitions:

J = Estimated value; result is less than the sample quantitation limit but greater than zero.
 ND = parameter not detected above laboratory detection limit.
 "--" = not analyzed for this parameter
 "*" = Groundwater Quality Guidance Value
 "**" = field threshold value; when exceeded, field filtered metals sample is collected (i.e., dissolved metals).
 NA = No groundwater quality standard or guidance value is available at this time.
 "RED TEXT" = Data was qualified per the third party Data Usability Summary Report (DUSR).

Result is above the GWQS/GV.

FIGURES

FIGURE 1





2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0071-017-327

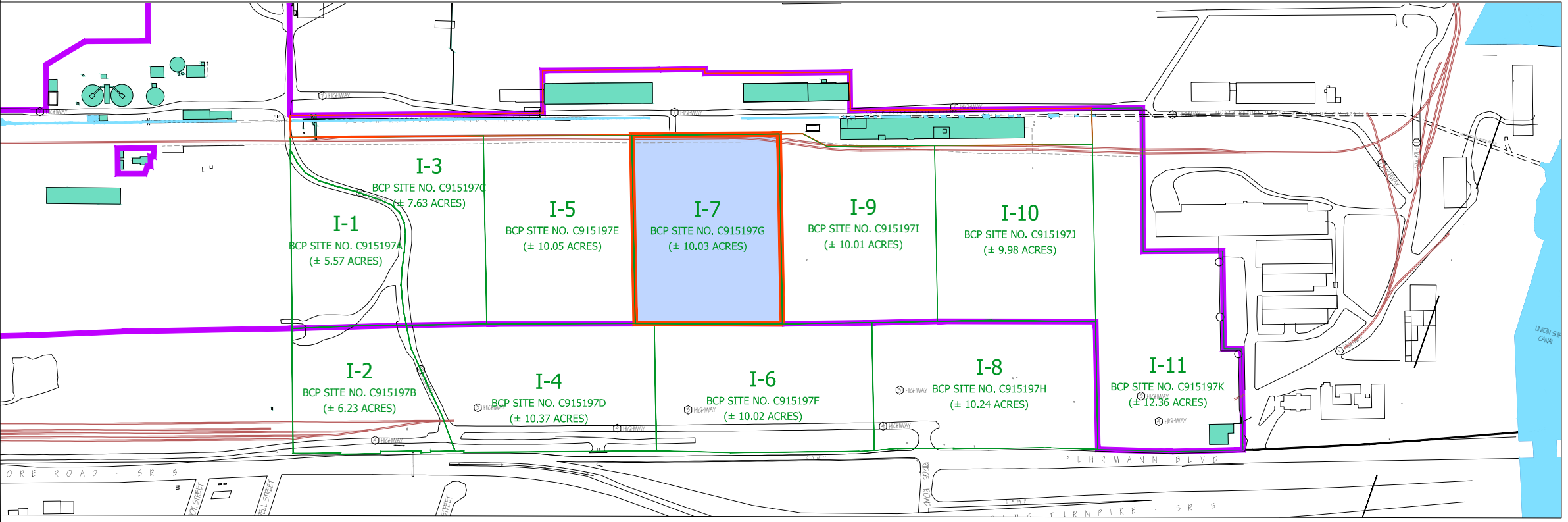
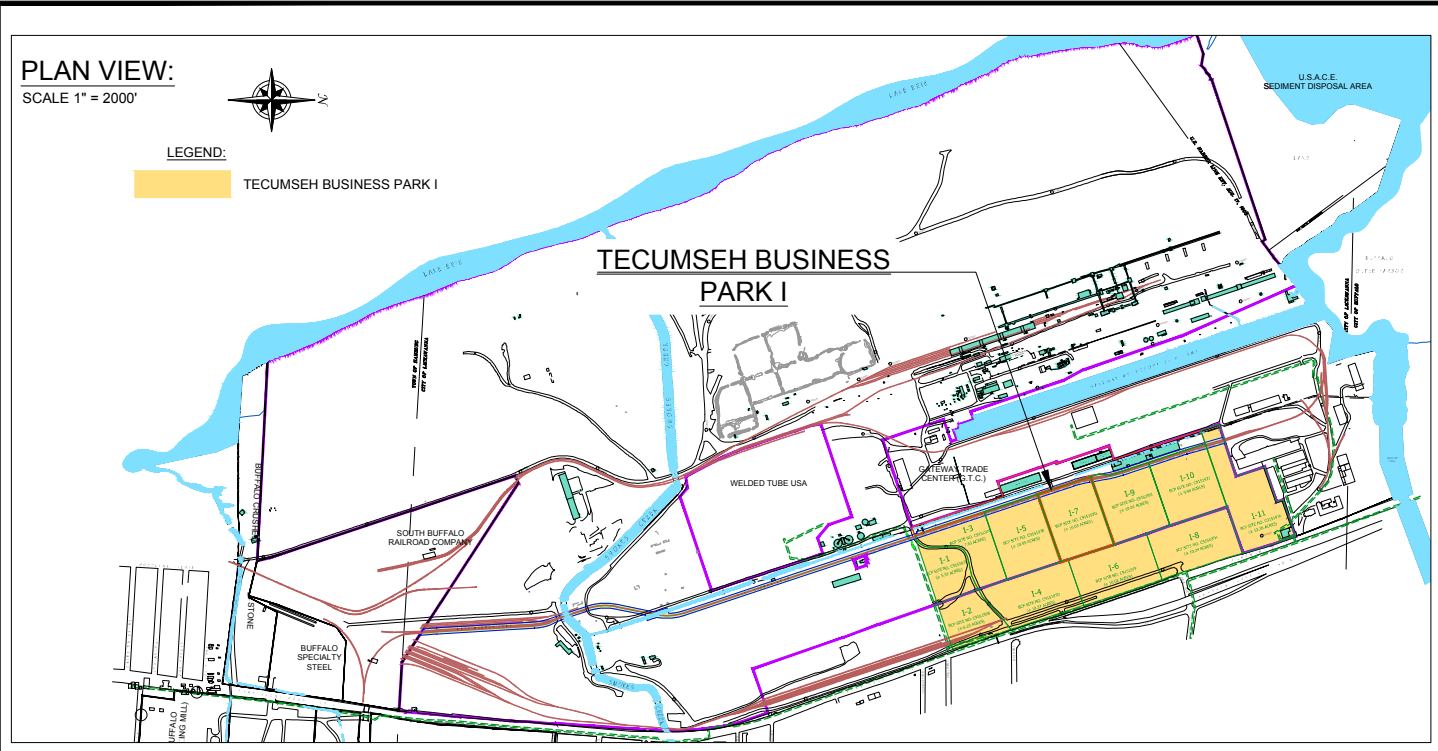
DATE: SEPTEMBER 2017

DRAFTED BY: CMC

SITE LOCATION AND VICINITY MAP

SITE MANAGEMENT PLAN
 TECUMSEH PHASE I BUSINESS PARK
 BCP SITE NO. C915197G (I-7)
 LACKAWANNA, NEW YORK
 PREPARED FOR
 TECUMSEH REDEVELOPMENT INC.

DISCLAIMER:
 PROPERTY OF TURNKEY ENVIRONMENTAL RESTORATION, LLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF TURNKEY ENVIRONMENTAL RESTORATION, LLC.



SCALE: 1 INCH = 1,000 FEET
SCALE IN FEET
(approximate)

SITE DELINEATION MAP

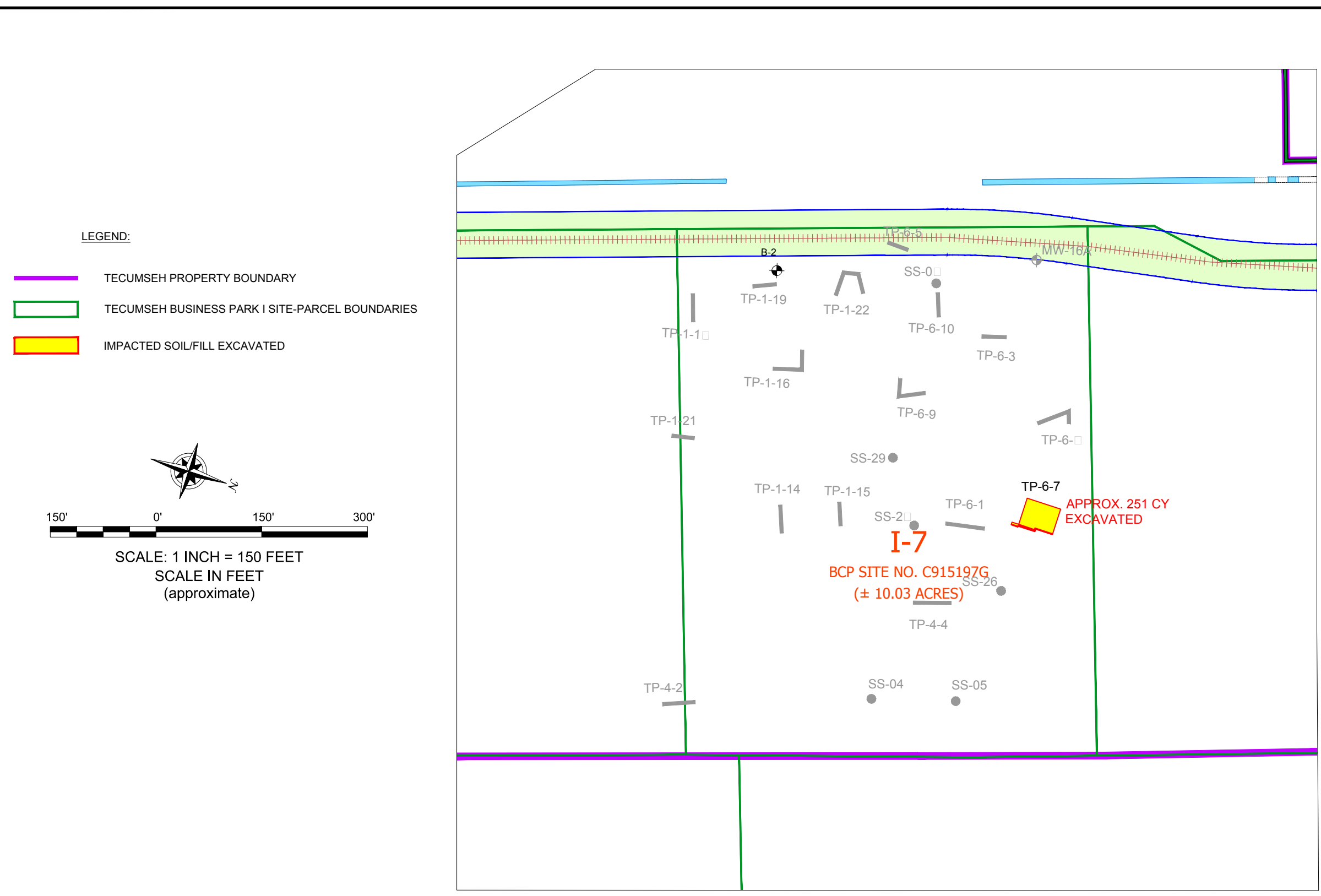
SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NO. C915197G (I-7)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.



JOB NO.: 0071-017-327

FIGURE 2

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COMPLETED REMEDIAL MEASURES

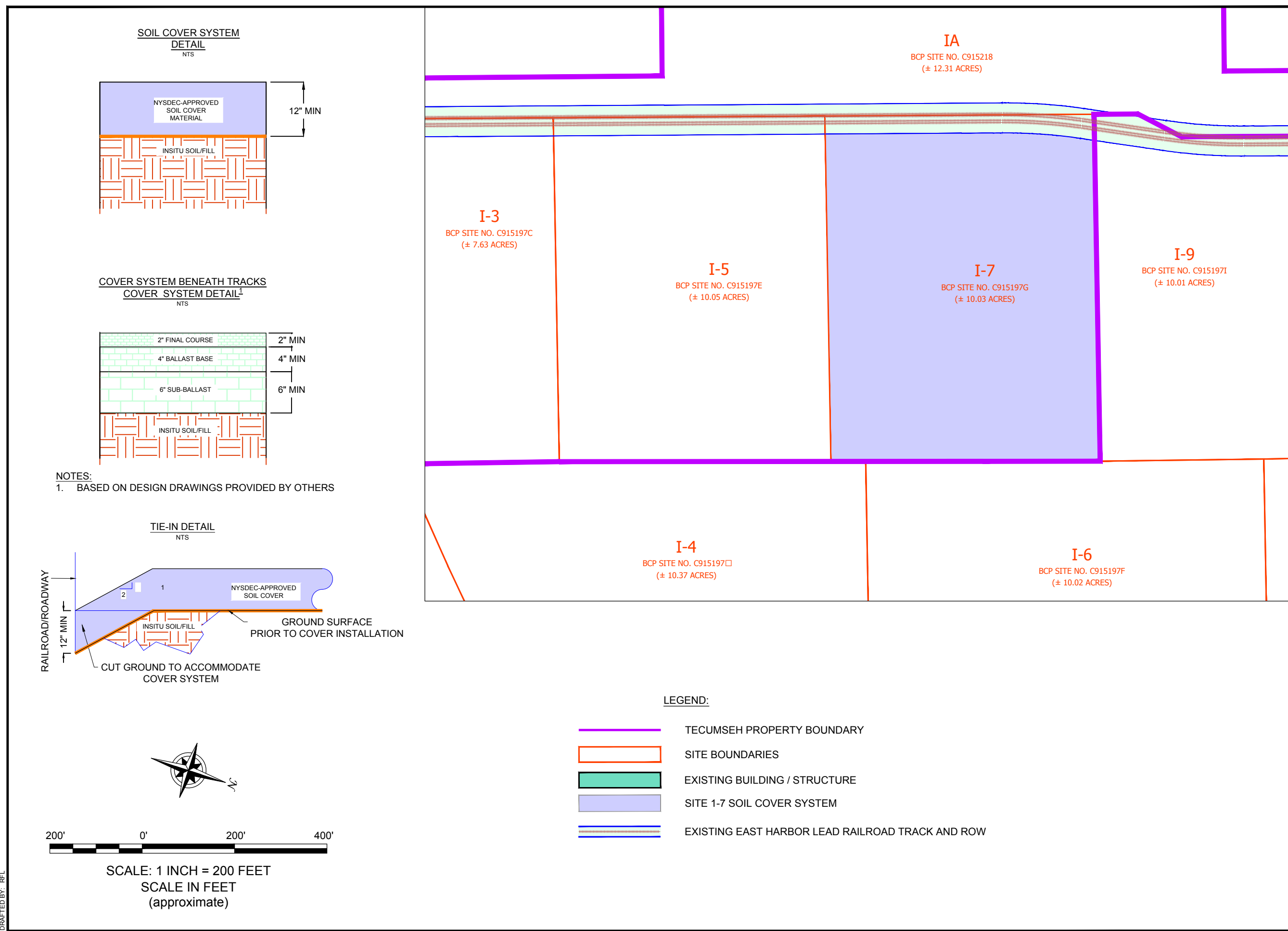
SITE MANAGEMENT PLAN
 TECUMSEH PHASE I BUSINESS PARK
 BCP SITE NO. C915197G (I-7)
 LACKAWANNA, NEW YORK
 PREPARED FOR
 TECUMSEH REDEVELOPMENT INC.



JOB NO.: 0071-017-327

FIGURE 3

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APPROXIMATE LOCATION AND TYPES OF COVER SYSTEM MATERIALS



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

JOB NO.: 0071-017-327

SITE MANAGEMENT PLAN
TECUMSEH PHASE 1 BUSINESS PARK
BCP SITE NO. C915197G (I-7)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.

FIGURE 4

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.

ATTACHMENT A

MONITORING WELL BORING AND CONSTRUCTION LOG



FIELD BOREHOLE/MONITORING INSTALLATION LOG

| | |
|---|---|
| Project Name: Phase 1 BPA | BORING NUMBER: MW-16A |
| Project Number: 0071-006-102 | Location: Phase I BPA |
| Client: Tecumseh Redevelopment, Inc. | Start Date/Time: 01/29/06 10:30 AM |
| Drilling Company: Earth Dimensions, Inc. | End Date/Time: 01/29/06 12:15 PM |
| Driller: Brian Bartran | Logged By: TAB |
| Helper: Harold | Drilling Method: 4.25 HSA |
| Rig Type: CME 85 | Weather: Partly Cloudy, cool, sl. breeze, Low 40's F |

| Elevation (fmsl) | Depth (fbgs) | Sample No. | Blows (per 6") | SPT N-Value | Recovery | SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, Percentage of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other | USCS Code | PID Scan (ppm) | PID HDSP (ppm) | Soil Unit | Well Construction Details |
|------------------|--------------|------------|----------------|-------------|----------|---|------------|----------------|----------------|--------------|---|
| 583.42 | 0 | | -- | 0 | NA | Augered to 4.0 fbgs (description from soil cuttings) SOIL/FILL: Black/Dark Brown, moist, NPF | FILL | 0.0 | - | FILL | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;"> concrete Bentonite Chips 2" Sch. 40 PVC riser </div> <div style="width: 100%; text-align: center; font-size: 8px;"> sand pack - #00N (14.0 - 3.0 fbgs) 2" Sch. 40 PVC screen, 0.010" slot </div> </div> |
| 581.42 | 2 | | -- | 0 | NA | Same as above | FILL | 0.0 | - | FILL | |
| 579.42 | 4 | | -- | 4 | | (0.0 - 0.4) SOIL/FILL: Black, wet, 90% NPF, 10% FS, LWD (0.4 - 1.1) yellow refractory brick: wet (1.1 - 1.2) orange brick: wet | FILL | 0.0 | -- | FILL | |
| 577.42 | 6 | S1 | 6 10 8 | 16 | | (0.0 - 0.2) Same as S1 (0.0 - 0.4) (0.2 - 0.7) SANDY LEAN CLAY: Medium grey, wet, stiff, 60% MPF, 40% FS, slow dilatancy | FILL CL | 0.0 | - | FILL CLAY | |
| 575.42 | 8 | | 4 3 2 | 4 | | Same as S2 (0.2 - 0.7) w/ lenses of peat | CL | 0.0 | - | CLAY | |
| 573.42 | 10 | S4 | 4 6 11 | 10 | | Same as S2 (0.2 - 0.7) w/ lenses of peat & iron-stained mottling | CL | 0.0 | - | CLAY | |
| 571.42 | 12 | S5 | 7 5 7 | 12 | | Same as S2 (0.2 - 0.7) w/ lenses of peat & iron-stained mottling | CL | 0.0 | - | CLAY | |
| 569.42 | 14 | | | | | EOB @ 14.0 fbgs | | | | | |
| 567.42 | 16 | | | | | | | | | | |
| 565.42 | 18 | | | | | | | | | | |

| | | | |
|-----------------------|----------------------------------|----------------------------|-------------------------|
| ABBREVIATIONS: | | | MS = medium sand |
| C = coarse | fbgs = feet below ground surface | HSA = hollow stem auger | NA = not applicable |
| CG = coarse gravel | FG = fine gravel | LP = low plasticity | NPF = not plastic fines |
| CS = coarse sand | fmsl = feet above mean sea level | LWD = loose when disturbed | SA = sub-angular |
| EOB = end of boring | FS = fine sand | M = medium | SR = sub-rounded |
| F = fines or fine | HP = high plasticity | MP = medium plasticity | SS = split spoon |

ATTACHMENT B

SAMPLE EC/IC CERTIFICATION FORM



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



| Site Details | Box 1 | |
|--|--------------------------|--------------------------|
| Site No. C915197G | | |
| Site Name: Site I-7 Tecumseh Phase I Business Park | | |
| Site Address: 2303 Hamburg Turnpike | Zip Code: 14218 | |
| City/Town: Lackawanna | | |
| County: Erie | | |
| Current Use: Commercial | | |
| Intended Use: Commercial | | |
| Verification of Site Details | Box 2 | |
| | YES | NO |
| 1. Are the Site Details above, correct? | <input type="checkbox"/> | <input type="checkbox"/> |
| If NO, are changes handwritten above or included on a separate sheet? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Has a change-of-use occurred since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE NO. C915197G

Box 3

Description of Institutional Control Certification

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Groundwater monitoring as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |

Description of Engineering Control Certification

Box 4

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Maintenance of the cover systems over the Site: | <input type="checkbox"/> | <input type="checkbox"/> |

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

- (a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
- (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
- (c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
- (d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.
- (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

**IC/EC CERTIFICATIONS
SITE NO. C915197G**

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering
Certification

Stamp (if Required)

Date

Enclosure 2

Certification of Institutional Controls/ Engineering Controls (ICs/ECs) Step-by-Step Instructions, Certification Requirements and Definitions

The Owner, or Remedial Party, and when necessary, a Professional Engineer (P.E.), or the Qualified Environmental Professional (QEP), must review and complete the IC/EC Certification Form, sign the IC/EC Certifications Signature Page, and return it, along with the Periodic Review Report (PRR), within 45 days of the date of this notice.

Please use the following instructions to complete the IC/EC Certification.

I. Verification of Site Details (Box 1 and Box 2):

Answer the six questions in the Verification of Site Details Section. Questions 5 and 6 refer to only sites in the Brownfield Cleanup Program. ECL Section 27-1415-7(c) is included in

IV. IC/EC Certification Requirements. The Owner and/or your P.E. or QEP may include handwritten changes and/or other supporting documentation, as necessary.

II. Verification of Institutional / Engineering Controls (Box 3 and Box 4)

Review the listed Institutional / Engineering Controls, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party is to petition the Department requesting approval to remove the control.

2. Select "YES" or "NO" for **Control Certification** for each IC/EC, based on Sections (a)-(e) of the **Control Certification Statement**.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. If the Department has any questions or concerns regarding the completion of the certification, the Project Manager will contact you.

3. If you cannot certify "Yes" for each Control, please continue to complete the remainder of this **Control Certification** form. Attach supporting documentation that explains why the **Control Certification** cannot be rendered, as well as a statement of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Control Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is conducted.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. Once the corrective measures are complete a new Periodic Review Report (with IC/EC Certification) is to be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 5 and Box 6):

1. If you certified "Yes" for each Control, please complete and sign the IC/EC Certifications page. To determine WHO signs the **IC/EC Certification**, please use Table 1. Signature Requirements for the IC/EC Certification, which follows.

| Table 1. Signature Requirements for Control Certification Page | | |
|---|---|--|
| Type of Control | Example of IC/EC | Required Signatures |
| IC only | Environmental Easement Deed Restriction. | A site or property owner or remedial party. |
| IC with an EC which does not include a treatment system or engineered caps. | Fence, Clean Soil Cover, Individual House Water Treatment System, Vapor Mitigation System | A site or property owner or remedial party, and a QEP. (P.E. license not required) |
| IC with an EC that includes treatment system or an engineered cap. | Pump & Treat System providing hydraulic control of a plume, Part 360 Cap. | A site or property owner or remedial party, and a QEP with a P.E. license. |

IV. IC/EC Certification Requirements:

Division of Environmental Remediation Program Policy requires periodic certification of IC(s) and EC(s) as follows:

For Environmental Restoration Projects: N.Y. Env'tl Conserv.Law Section 56-0503 (Environmental restoration projects; state assistance)

For State Superfund Projects: Env'tl Conserv.Law Section 27-1318. (Institutional and engineering controls)

For Brownfields Cleanup Program Projects: Env'tl Conserv.Law Section 27-1415. (Remedial program requirements)

Env'tl Conserv.Law Section 27-1415-7(c) states:

- (c) At non-significant threat sites where contaminants in groundwater at the site boundary contravene drinking water standards, such certification shall also certify that no new information has come to the owner's attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid. Every five years the owner at such sites shall certify that the assumptions made in the qualitative exposure assessment remain valid. The requirement to provide such certifications may be terminated by a written determination by the Commissioner in consultation with the Commissioner of Health, after notice to the parties on the brownfield site contact list and a public comment period of thirty days.

Voluntary Cleanup Program: Applicable program guidance.

Petroleum Remediation Program: Applicable program guidance.

Federal Brownfields: Applicable program guidance.

Manufactured Gas Plant Projects: Applicable program guidance (including non-registry listed MGPs).

WHERE to mail the signed Certification Form by March 1st of each year (or within 45 days of the date of the Department notice letter):

New York State Department of Environmental Conservation
Division of Environmental Remediation

Attn: Division of Environmental Remediation – North Section
NYSDEC
270 Michigan Avenue
Buffalo, NY 14203-2999

Please note that extra postage may be required.

V. Definitions

“Engineering Control” (EC), means any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

“Institutional Control” (IC), means any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a remedial site.

“Professional Engineer” (P.E.) means an individual or firm licensed or otherwise authorized under article 145 of the Education Law of the State of New York to practice engineering.

“Property Owner” means, for purposes of an IC/EC certification, the actual owner of a property. If the site has multiple properties with different owners, the Department requires that the owners be represented by a single representative to sign the certification.

“Oversight Document” means any document the Department issues pursuant to each Remedial Program (see below) to define the role of a person participating in the investigation and/or remediation of a site or area(s) of concern. Examples for the various programs are as follows:

BCP (after approval of the BCP application by DEC) - Brownfield Site Cleanup Agreement.

ERP (after approval of the ERP application by DEC) - State Assistance Contract.

Federal Superfund Sites - Federal Consent Decrees, Administrative Orders on Consent or Unilateral Orders issued pursuant to CERCLA.

Oil Spill Program - Order on Consent, or Stipulation pursuant to Article 12 of the Navigation Law (and the New York Environmental Conservation Law).

State Superfund Program - Administrative Consent Order, Record of Decision.

VCP (after approval of the VCP application by DEC) - Voluntary Cleanup Agreement.

RCRA Corrective Action Sites- Federal Consent Decrees, Administrative Orders on Consent or permit conditions issued pursuant to RCRA.

“Qualified Environmental Professional” (QEP), means a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases to the surface or subsurface of a property or off-site areas, sufficient to meet the objectives and performance factors for the areas of practice identified by this Part. Such a person must:

(1) hold a current professional engineer’s or a professional geologist’s license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience in site investigation and remediation of the type detailed in this Part; or

(2) be a site remediation professional licensed or certified by the federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with Department guidance, and have the equivalent of three years of full-time relevant experience.

“Qualitative Exposure Assessment” means a qualitative assessment to determine the route, intensity, frequency, and duration of actual or potential exposures of humans and/or fish and wildlife to contaminants.

“Remedial Party” means a person implementing a remedial program at a remedial site pursuant to an order, agreement or State assistance contract with the Department.

“Site Management” (SM) means the activities undertaken as the last phase of the remedial program at a site, which continue after a Certificate of Completion is issued. Site management is conducted in accordance with a site management plan, which identifies and implements the institutional and engineering controls required for a site, as well as any necessary monitoring and/or operation and maintenance of the remedy.

“Site Management Plan” (SMP) means a document which details the steps necessary to assure that the institutional and engineering controls required for a site are in-place, and any physical components of the remedy are operated, maintained and monitored to assure their continued effectiveness, developed pursuant to Section 6 (DER10 Technical Guide).

“Site Owner” means the actual owner of a site. If the site has multiple owners of multiple properties with ICs and/or ECs, the Department requires that the owners designate a single representative for IC/EC Certification activities.

APPENDIX E-8

SITE I-8 (C915197H)

As the remedial actions are completed on Site I-8 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-8 as an addendum.

APPENDIX E-9

SITE I-9 (C915197I)

As the remedial actions are completed on Site I-9 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-9 as an addendum.

BROWNFIELD CLEANUP PROGRAM

APPENDIX E-9/E-10/E-11 SITE MANAGEMENT PLAN

TECUMSEH PHASE I BUSINESS PARK
NYSDEC SITE NO. C915197I (I-9) through C915197K (I-11)
LACKAWANNA, NEW YORK

October 2017

0071-017-327

Prepared for:

Tecumseh Redevelopment Inc.
4020 Kinross Lakes Parkway
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Prepared By:



TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
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(716) 856-0635

In Association With:



Benchmark Environmental Engineering &
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Revisions to Addenda of Final Approved Site Management Plan:

| Revision # | Submitted Date | Summary of Revision | DEC Approval Date |
|------------|----------------|---------------------|-------------------|
| | | | |
| | | | |

**PHASE I BUSINESS PARK
SITE MANAGEMENT PLAN: APPENDIX E-9/E-10/E-11
SITES I-9, I-10 AND I-11**

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**PHASE I BUSINESS PARK
SITE MANAGEMENT PLAN: APPENDIX E-9/E-10/E-11
SITES I-9, I-10 AND I-11**

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1.0 INTRODUCTION

The Site Management Plan (SMP) is a required element of the remedial program at the Tecumseh Redevelopment Inc. (Tecumseh) Phase I Business Park (herein referred to as the Controlled Property; see Figure 1) under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The purpose of an SMP is to manage the contamination on a site remaining after remedial action.

The January 2014 SMP (Ref. 1) for the Controlled Property was prepared by TurnKey Environmental Restoration, LLC (TurnKey), on behalf of Tecumseh, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 2) and the guidelines provided by NYSDEC. Since the Controlled Property was divided into 11 BCP Sites designated as Sites I-1 through I-11 (BCP Site Nos. C915197 through C915199K), the main body of the SMP includes the site management components common to all 11 Sites. Site-specific requirements are included as Appendix E to the SMP.

1.1 Site Location and Description

As shown on Figure 2, Sites I-9 (approx. 10.01 acres), I-10 (approx. 9.98 acres) and I-11 (approx. 12.36 acres) are bounded by Business Park IA and Gateway Trade Center property to the west; Business Park I sites to the south; BCP Sites I-6/I-8 and Fuhrmann Blvd. to the east; and Gateway Trade Center property to the north.

The NYSDEC issued the Decision Document for Business Park I in January 2012 (Ref. 3). The Decision Document specifies, among other requirements, placement of acceptable cover material in areas not otherwise covered by rail lines, etc. Engineering controls (ECs) have been incorporated into the remedy to control exposure to remaining contamination during use of the Site to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC by Tecumseh for the entire Business Park I has been recorded with the Erie County Clerk and requires compliance with this SMP and all ECs and institutional controls (ICs) placed on the Site. The ICs place restrictions on site use, and mandate operation, maintenance, monitoring, and reporting measures for all ECs and ICs.

This Appendix addresses the means for implementing the ICs and ECs that are required by the Environmental Easement for Sites I-9, I-10 and I-11 of the Controlled Property. This Appendix is not to be used as stand-alone documents but as a component document of the January 2014 SMP for the Controlled Property.

1.2 Remedial Investigation

The August 2005 Remedial Investigation (RI) Work Plan (Ref. 4) identified Site characterization requirements to be completed pursuant to the BCP and NYSDEC DER-10 guidance across all 11 Sites within the Controlled Property. The RI was designed to provide defensible data to identify areas of the Controlled Property potentially requiring remediation, define chemical constituent migration pathways, and qualitatively assess human health and ecological risks to allow for performance of a remedial alternatives evaluation.

Investigative activities on Business Park I were performed January-February 2006. Specific to Sites I-9, I-10 and I-11, approximately 29 test pits were completed. In April 2008, a supplemental test pit program was performed to further delineate petroleum- and metal-impacted soil/fill in support of interim remedial measures. Monitoring wells MW-14A (Site I-10), MW-15A (Site I-11) and MW-18A (Site I-11), and piezometer P-54S (Site I-11) were installed as part of the RI; piezometer P-45S (Site I-9) was installed in 2001 by others. Attachment A includes the monitoring well construction logs. Soil and groundwater samples were collected as detailed in the Work Plan.

The nature and extent of contamination at the Site is consistent with the former site use as a steel manufacturing facility. Lead concentrations exceeded commercial soil cleanup objectives (CSCOs), and field evidence of gross petroleum impact was observed in five additional areas.

Groundwater samples were collected from the on-site monitoring wells during the RI (March 2006) and again in February 2016 during a site-wide groundwater sampling event. The groundwater sampling in 2016 indicated a slight exceedance of the groundwater quality standard (GWQS) for manganese in well MW-14A (Site I-10) and MW-15A (Site I-11); manganese is a naturally occurring metal. In 2006, the turbidity of the sample collected from MW-15A (Site I-11) exceeded the GWQS. Site groundwater is not used and is restricted from use for either potable or non-potable purposes without treatment by an Environmental Easement.

The RI Report was submitted to NYSDEC in October 2006, revised, and finalized in June 2007 (Ref. 5). Based on the RI findings, remediation of soil/fill was warranted.

1.3 Interim Remedial Measures

A pre-Interim Remedial Measures (IRM) investigation was proposed (Ref. 6) and performed in April 2008 since the extent of impacts at several test pit locations were not fully defined during the RI. The IRM completed on Business Park I involved petroleum-, tar-, and metals-impacted soil/fill removal in accordance with the NYSDEC-approved August 2008 IRM Work Plan (Ref. 7). A Construction Closeout Report (CCR) was not prepared for these IRM activities; however, a summary of the IRM was presented in NYSDEC-approved May 2010 Alternatives Analysis Report (AAR) for Business Park I (Ref. 8). The AA Report recommended deferred soil cover system placement during redevelopment as well as ECs and ICs to limit future use of the Controlled Property to restricted (commercial or industrial) applications and prevent groundwater use for potable purposes (see Section 2.0).

The following remedial work was conducted on Business Park I Sites I-9, I-10 and I-11 between April and August 2009 (see Figure 3):

- Construction of temporary on-site biotreatment pads on paved areas in the northern portion of Business Park I (see Figure 3 for biotreatment pad locations).
- Excavation of approximately 10,200 cubic yards of petroleum-impacted soil/fill. The impacted soil/fill was placed in the bioremediation area for on-site treatment (tilling). The treated soils were stockpiled for use as on-site, subgrade fill during future backfill and site grading work.
- Excavation and disposal of approximately 55 cubic yards of lead-impacted slag/fill within the vicinity of test pit TP-6-6 (Site I-9). The material was placed on poly sheeting pending characterization and off-site disposal.
- Excavation of approximately 15 cubic yards coal tar-impacted slag/fill from test pit TP-7-2 (Site I-11). The material was placed on poly sheeting, characterized, and disposed off-site.
- Removal of two USTs: one along the west and north sides of the Former Fire Department building.
- Backfill of excavations with steel slag under BUD #555-9-15; bioremediated slag/fill; and non-impacted crushed asphalt. Backfill material was placed into the

excavation and compacted/ tracked with the excavator/backhoe bucket in 2-foot lifts.

1.4 Summary of Remedial Actions

The final remedial measures for these Sites involved demolition of the former Fire Department building and placement of the cover system in accordance with the NYSDEC-approved June 2017 Remedial Action Work Plan (RAWP) (Ref. 9). Details of cover system placement are provided in the October 2017 Final Engineering Report (Ref. 10).

1.5 Remaining Contamination

1.5.1 Soil/Fill

The IRM conducted on Sites I-9, I-10 and I-11 has removed all known “source area” (i.e., lead- and petroleum-impacted) slag/fill. Underground storage tanks and associated impacted soil/fill encountered during the RI were also removed during the IRM.

The remaining soil/fill is generally characterized by widespread exceedance of the Part 375 unrestricted-use SCOs (USCOs) for several ubiquitous constituents. Specifically, nearly all samples collected during the RI exhibited exceedance of the USCOs for carcinogenic polyaromatic hydrocarbons (PAHs), as well as arsenic, cadmium, chromium, lead, and mercury. The USCO for total PCBs was exceeded at two surface locations (specifically, PCB Aroclor 1260). Table 1 summarizes the results of all soil samples remaining on Sites I-9, I-10 and I-11 that exceed USCOs following completion of the remedial actions. It is not possible to quantify with any certainty areas that do not exceed one or more of the USCO criteria; therefore, it is assumed that the entire 32.35 acres constituting Sites I-9, I-10 and I-11 are impacted above the USCOs to the approximate native soil depth of 8 fbs.

Following grading of these Sites, demarcation was constructed and placed so as to easily identify the existing sub-grade from the cover system material, and prevent the potential for inadvertent removal of sub-grade material during future intrusive work. The demarcation layer is comprised of an orange ³/₄-inch plastic industrial netting material that was rolled across the sub-grade and overlapped by approximately one foot at the seams.

1.5.2 Groundwater

The following monitoring wells and piezometers were installed on Sub-Parcels I-9, I-10 and I-11:

- Sub-Parcel I-9: P-45S and P-52S
- Sub-Parcel I-10: MW-14A
- Sub-Parcel I-11: MW-15A, MW-18A and P-54S

Piezometers P-45S was decommissioned in September 2012 during the railroad realignment. Piezometers P-52S (TP-7-6) and P-54S (TP-10-4) were installed as temporary piezometers in open test pit excavations during the RI to assess groundwater flow direction and hydraulic gradient.

Monitoring wells MW-14A, MW-15A, and MW-18A were sampled in April 2010 during the RI and again in February 2016 during a site-wide groundwater sampling event. The groundwater was analyzed for VOCs, SVOCs, and inorganic parameters. Table 2 presents the groundwater data with a comparison to NYSDEC Class GA groundwater quality standards (GWQS). As indicated, analytical results from these monitoring wells indicate concentration levels as non-detect or below GWQS. These groundwater monitoring wells will be retained for future monitoring in the event NYSDEC requests groundwater quality monitoring on the larger Business Park I.

2.0 ENGINEERING & INSTITUTIONAL CONTROL PLAN

2.1 Introduction

Since contaminated soil/fill remains beneath the Sites, Engineering Controls and Institutional Controls (EC/ICs) are required to protect public health and the environment. The EC/IC Plan in the Phase I BP SMP describes the procedures for the implementation and management of site-wide EC/ICs. The EC/IC Plan is one component of the SMP and subject to revision by NYSDEC. EC/ICs specific to Sites I-9, I-10 and I-11 are described below.

2.2 Engineering Control Systems

The cover system for Sites I-9, I-10 and I-11 is described in the Final Engineering Report (Ref. 10). Figure 4 shows the approximate locations and types of cover system materials placed on the Sites. In the event these cover systems are breached, penetrated, or temporarily removed, the cover system shall be repaired in accordance with Section 2.2 of the SMP and Section 4.0 of the Excavation Work Plan (SMP Appendix B).

2.3 Institutional Controls

The Institutional Controls described in Section 2.3 of the SMP (i.e., Environmental Easement and Excavation Work Plan) must be implemented. There are no site-specific Institutional Control requirements for Sites I-9, I-10 and I-11.

2.4 Inspections and Notifications

The Inspections and Notifications described in Section 2.4 of the SMP must be implemented for Sites I-9, I-10 and I-11. There are no site-specific inspection and notification requirements.

2.5 Contingency Plan

Emergencies conditions are addressed in the Emergency Response Plan (ERP), which is an attachment to the HASP (SMP Appendix C). The following emergency contact numbers are specific to Sites I-9, I-10 and I-11:

Table 3: Emergency Contact Numbers

| | |
|--|--|
| Name: John Cappellino Title: Executive Vice President, Buffalo and Erie County Industrial Land Development Corporation | Work: (716) 856-6525 Mobile: (716) 472-6667 |
| Name: Thomas Forbes Title: Principal Engineer, Benchmark Environmental | Work: (716) 856-0599 Mobile: (716) 864-1730 |

Note: Contact numbers subject to change and should be updated as necessary

3.0 SITE MONITORING PLAN

The Site Monitoring Plan describes the measures for evaluating the performance and effectiveness of:

- The remedy to reduce or mitigate contamination at the Site;
- The soil cover system; and
- All affected Site media.

Monitoring of the cover system is described in the SMP. No site-specific monitoring is required.

4.0 OPERATION & MAINTENANCE PLAN

The remedy for Sites I-9, I-10 and I-11 does not rely on any mechanical systems, such as sub-slab depressurization or soil vapor extraction, to protect public health and the environment. Therefore, a site-specific Operation and Maintenance Plan is not required.

5.0 INSPECTIONS, REPORTING & CERTIFICATIONS

All inspection, reporting, and certification requirements are described in Section 3.0 of the SMP. Attachment B includes sample EC/IC Certification Forms to be completed for Sites I-9, I-10 and I-11.

6.0 REFERENCES

1. TurnKey Environmental Restoration, LLC. *Site Management Plan for BCP Tecumseh Phase I Business Park, NYSDEC Site No. C915197 through C915197K, Lackawanna, New York*. January 2014.
2. New York State Department of Environmental Conservation. *DER-10/Technical Guidance for Site Investigation and Remediation*. May 3, 2010.
3. New York State Department of Environmental Conservations. *Decision Document, Tecumseh Phase I Business Park, Brownfield Cleanup Program, Lackawanna, Erie County, Site No. C915197*. January 2012.
4. TurnKey Environmental Restoration, LLC. *Remedial Investigation Work Plan, Phase I Business Park Area, Lackawanna, New York*. August 2005.
5. TurnKey Environmental Restoration, LLC. *Remedial Investigation Report, Phase I Business Park, Tecumseh Redevelopment Inc., Lackawanna, New York*. June 2007.
6. TurnKey Environmental Restoration, LLC. *Correspondence to Mr. Maurice Moore of the NYSDEC Re: Phase I Business Park Area, Supplemental Remedial Investigation*. March 27, 2008.
7. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Interim Remedial Measures Work Plan, Phase I Business Park Area, Lackawanna, New York, BCP Site No. C915197*. August 2008.
8. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Alternatives Analysis Report (AAR) Phase I Business Park, ArcelorMittal Tecumseh Redevelopment, Inc., Lackawanna, New York, BCP Site No. C915197*. May 2010.
9. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Remedial Action Work Plan, Tecumseh Business Parks I and II, Lackawanna, New York*. June 2017.
10. TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. *Final Engineering Report, Tecumseh Business Park I, Sub-Parcels I-9, I-10 and I-11, Lackawanna, New York*. October 2017.

TABLES

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SITE MANAGEMENT PLAN

Phase I Business Park, Sites I-9, I-10 and I-11
Tecumseh Redevelopment Inc., Lackawanna, New York

| Parameter ¹ | Monitoring Well ID, Location, and Sampling Date | | | | | | | | | | | | GWQS/GV ³ |
|---|---|---------------|---------------------|---------------|-------------|----------|-----------|----------|------|-------------|----------|----------|------------------------|
| | MW-14A | MW-14A | MW-15A ² | MW-15A | MW-18A | MW-18A | | | | | | | |
| | Site 1-10 | | | | | | Site 1-11 | | | | | | |
| | 3/6/06 | 2/23/16 | 3/7/06 | 2/23/16 | 3/6/06 | 2/23/16 | | | | | | | |
| Field Measurements (units as indicated) | | | | | | | | | | | | | |
| pH (units) | 7.81 | 7.80 | 7.27 | 7.29 | 7.51 | 7.91 | 7.62 | 7.61 | 7.64 | 7.81 | 8.33 | 8.32 | 6.5 - 8.5 |
| Temperature (°C) | 6.9 | 6.2 | 8.0 | 7.9 | 7.2 | 6.2 | 6.0 | 6.6 | 7.4 | 8.8 | 7.4 | 7.5 | NA |
| Specific Conductance (uS) | 783.2 | 782.8 | 956.1 | 922.3 | 1331 | 1251 | 699.3 | 578.0 | 1129 | 1209 | 1195 | 1172 | NA |
| Turbidity | 19 | 12.3 | 37.5 | 15.3 | 82.1 | 40.3 | 45.5 | 18.9 | 37 | 58.3 | 29.7 | 21.3 | 50** |
| Dissolved Oxygen (mg/L) | -- | -- | 2.52 | 2.76 | -- | -- | 3.82 | 4.00 | -- | -- | 6.33 | 4.92 | NA |
| ORP (mV) | -51 | -67 | -61 | -60 | -107 | -87 | 50 | 39 | 67 | 86 | 41 | 40 | NA |
| Volatile Organic Compounds (VOCs) - ug/L ⁴ | | | | | | | | | | | | | |
| Acetone | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | 50* |
| n-Butylbenzene | ND | ND | 0.97 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 5 |
| 1,2,4-Trichlorobenzene | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | 5* ⁷ |
| Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - ug/L ⁵ | | | | | | | | | | | | | |
| TOTAL SVOCs (ug/L) | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | NA |
| Polychlorinated Biphenyls (PCBs) - ug/L | | | | | | | | | | | | | |
| TOTAL PCBs (ug/L) | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | ND | -- | NA |
| Total Inorganic Compounds - mg/L ⁶ | | | | | | | | | | | | | |
| Barium, Total | -- | 0.047 | -- | 0.045 | -- | 0.027 | -- | 0.027 | -- | 0.027 | -- | 0.027 | 1 |
| Cadmium, Total | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0011 J | 0.0011 J | 0.0011 J | 0.005 |
| Chromium, Total | ND | ND | ND | 0.0013 J | ND | 0.0013 J | ND | 0.0013 J | ND | ND | ND | ND | 0.05 |
| Copper, Total | -- | 0.0022 J | -- | 0.01 | -- | 0.01 | -- | 0.01 | -- | ND | ND | ND | 0.2 |
| Cyanide, Total | ND | ND | 0.013 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.2 |
| Manganese, Total | -- | 0.69 B | -- | 0.37 B | -- | 0.2 B | -- | 0.2 B | -- | 0.2 B | 0.2 B | 0.2 B | 0.3 |
| Nickel, Total | -- | ND | -- | 0.0035 J | -- | 0.0035 J | -- | 0.0035 J | -- | 0.0027 J | 0.0027 J | 0.0027 J | 0.1 |
| Zinc, Total | ND | 0.0062 JB | 0.013 J | 0.012 B | ND | 0.012 B | ND | 0.012 B | ND | 0.0097 | 0.0097 | 0.0097 | 0.2 |

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Due to turbidity greater than 50 NTU, a filtered sample was submitted for soluble metal analysis at this location
3. NYSDEC Class "GA" Groundwater Quality Standards/Guidance Values (GWQS/GV) as per 6 NYCRR Part 703.
4. Groundwater collected from the wells for the March 2006 event were only analyzed for STARS VOCs via method 8021.
5. Groundwater collected from wells were only analyzed for BN SVOCs.
6. Groundwater collected from wells were only analyzed for arsenic, cadmium, chromium, cyanide, lead, and mercury.
7. A Guidance Value limit of 10 ug/L applies to the sum of 1,2,3-, 1,2,4-, and 1,3,5-Trichlorobenzene.

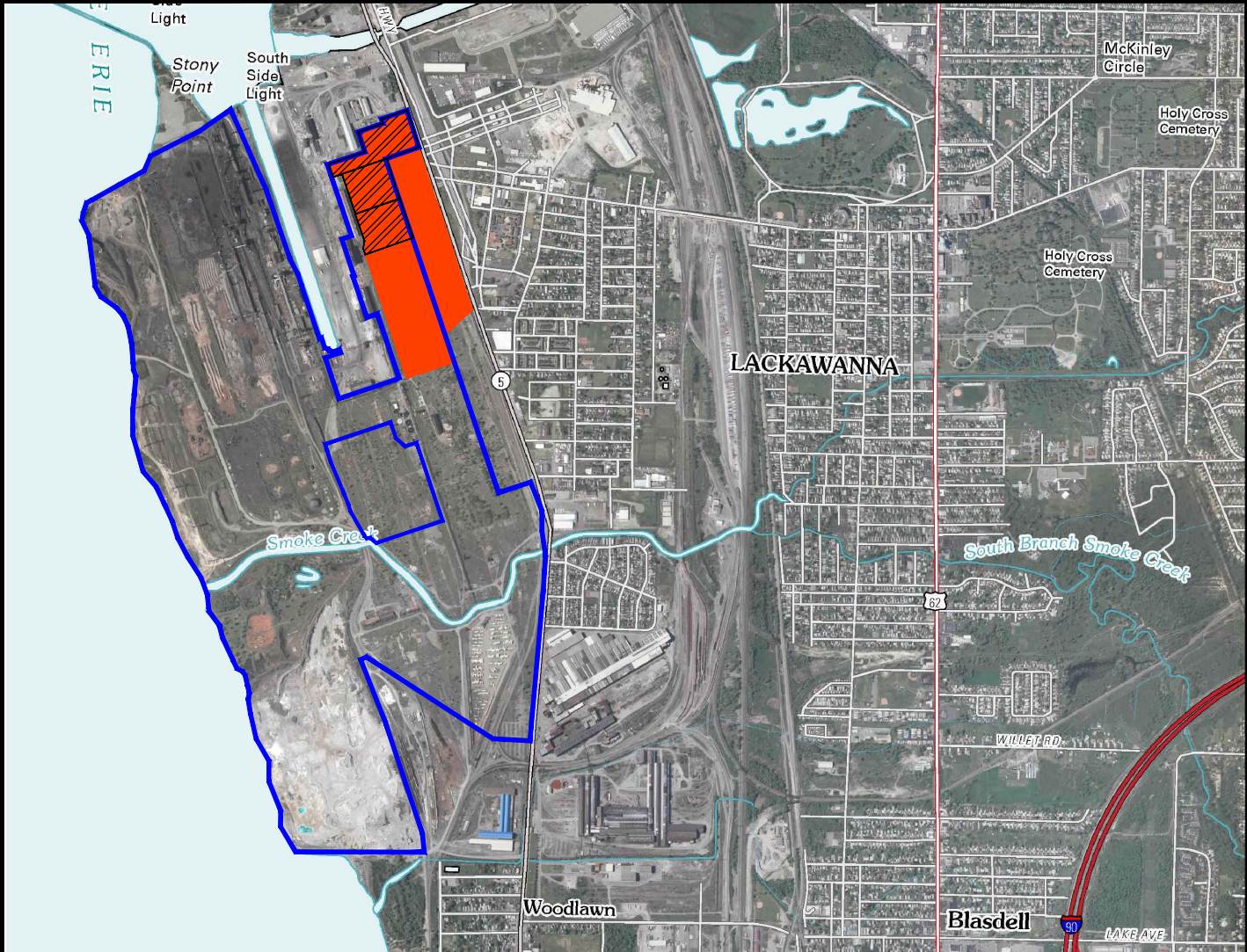
Definitions:

- J = Estimated value; result is less than the sample quantitation limit but greater than zero.
- ND = Parameter not detected above laboratory method detection limit.
- B = Parameter was found in method blank.
- = Not analyzed for this parameter
- ** = Groundwater Quality Guidance Value
- *** = Field threshold value; when exceeded, field filtered metals sample is collected (i.e., dissolved metals).
- NA = No groundwater quality standard or guidance value is available at this time.
- RED TEXT** = Data was qualified per the third party Data Usability Summary Report (DUSR).

BOLD = Result exceeds GWQS/GV

FIGURES

FIGURE 1



2,500' 0' 2,500' 5,000'

SCALE: 1 INCH = 2,500 FEET
SCALE IN FEET
(approximate)

- LEGEND:**
- APPROXIMATE TECUMSEH PROPERTY BOUNDARY
 - TECUMSEH BUSINESS PARK I
 - SITES I-9, I-10, & I-11



2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0071-017-327

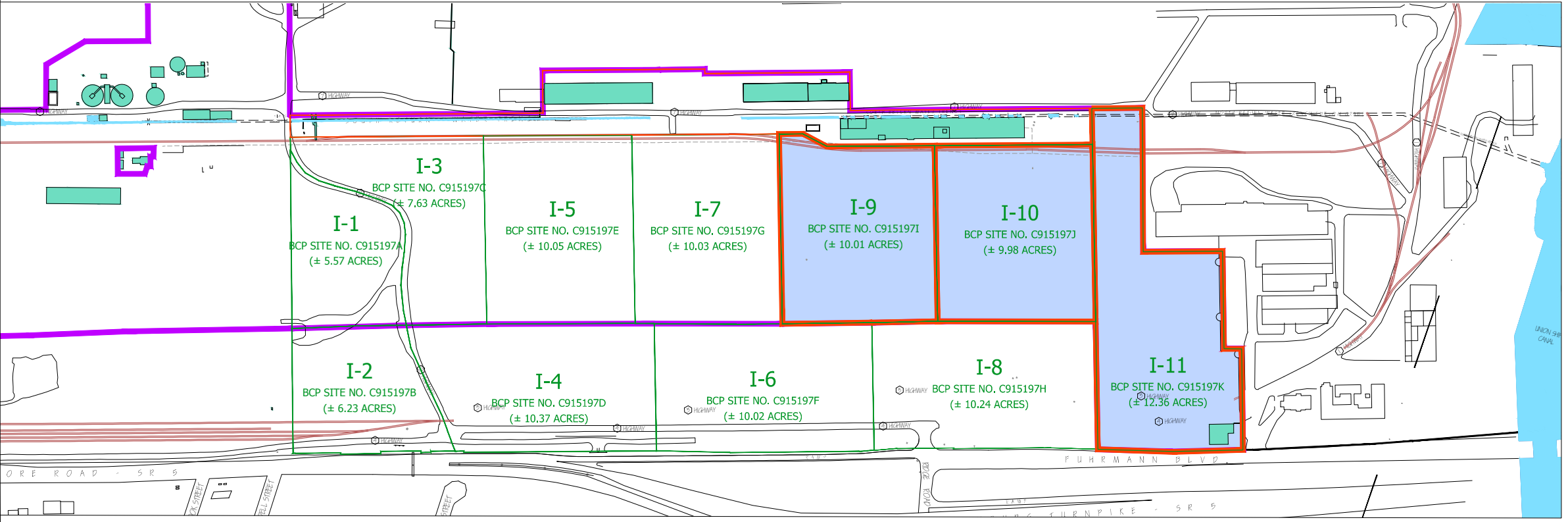
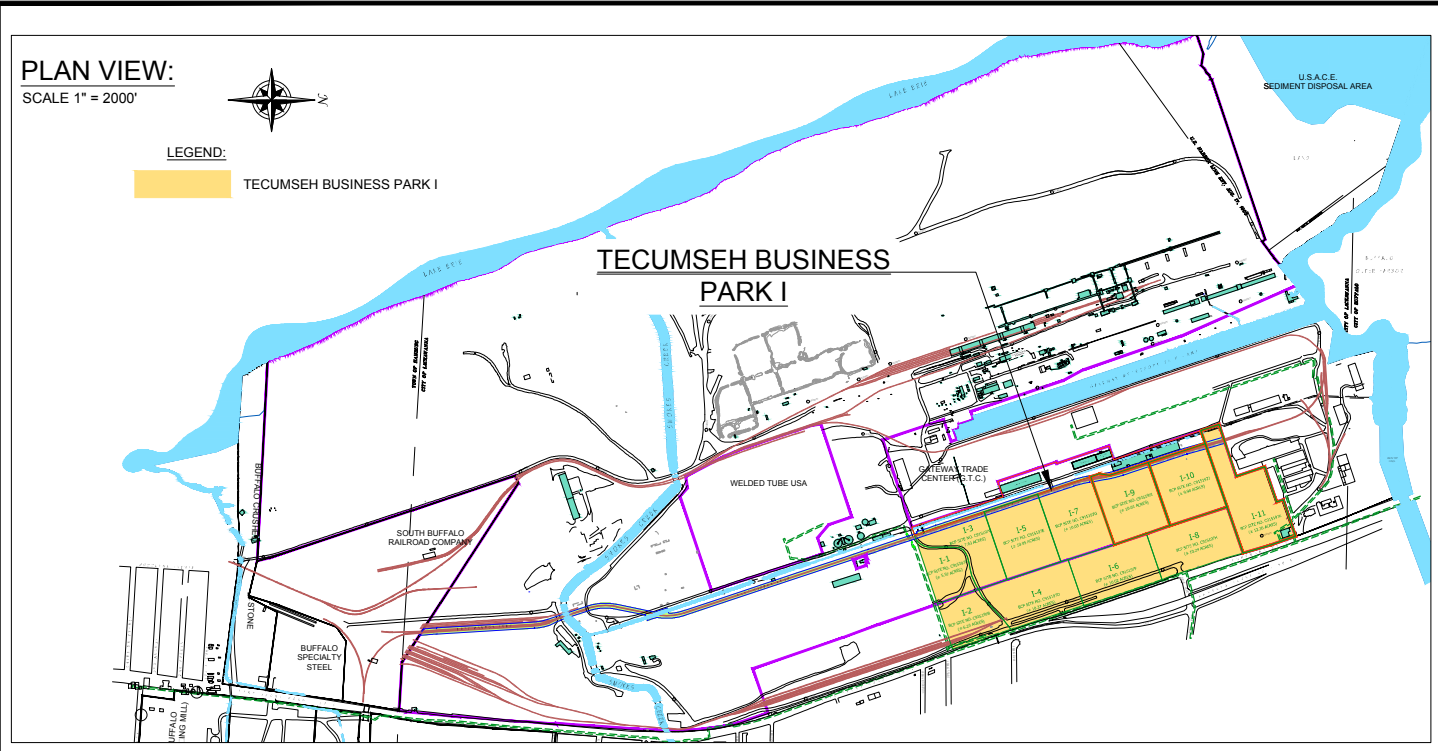
DATE: SEPTEMBER 2017

DRAFTED BY: CMC

SITE LOCATION AND VICINITY MAP

SITE MANAGEMENT PLAN
 TECUMSEH PHASE I BUSINESS PARK
 BCP SITE NOS. C915197I (I-9), C91519J (I-10), & C915197K (I-11)
 LACKAWANNA, NEW YORK
 PREPARED FOR
 TECUMSEH REDEVELOPMENT INC.

DISCLAIMER:
 PROPERTY OF TURNKEY ENVIRONMENTAL RESTORATION, LLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF TURNKEY ENVIRONMENTAL RESTORATION, LLC.



SITE DELINEATION MAP

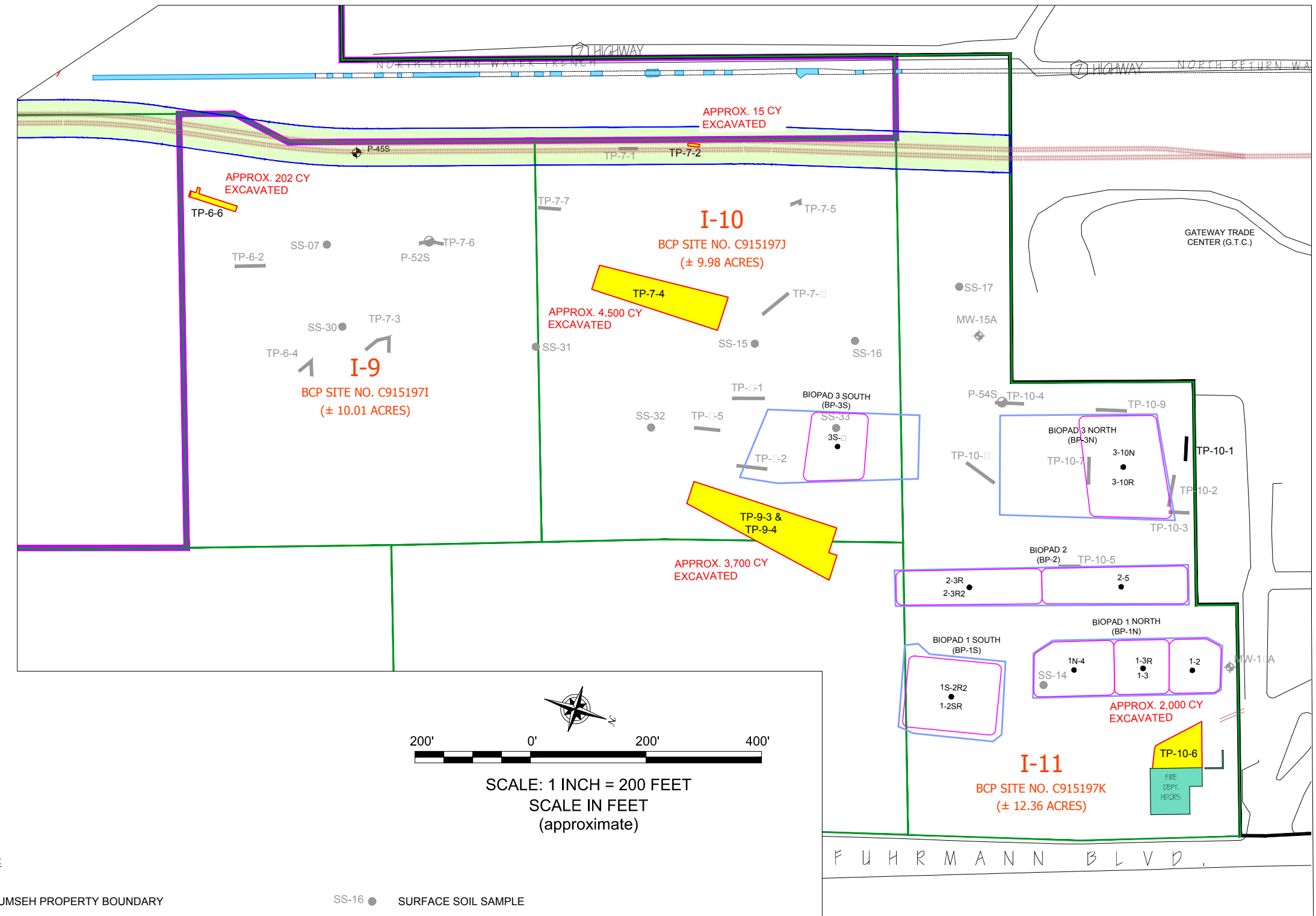
SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NOS. C915197I (I-9), C915197J (I-10) & C915197K (I-11)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.














JOB NO.: 0071-017-327

FIGURE 2

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.



LEGEND:

- | | | | |
|---|---|---|--|
|  | TECUMSEH PROPERTY BOUNDARY |  | SS-16 ● SURFACE SOIL SAMPLE |
|  | TECUMSEH BUSINESS PARK I SITE-PARCEL BOUNDARIES |  | MW-15A ⚡ MONITORING WELL |
|  | IMPACTED SOIL/FILL EXCAVATED |  | P-54S ● PIEZOMETER |
|  | BIOPAD |  | TP-8-1 — TEST PIT |
|  | BIOPAD SAMPLE AREA |  | EXISTING EAST HARBOR LEAD RAILROAD TRACK AND ROW |
|  | ● 1N-4 BIOPAD COMPOSITE SAMPLE | | |

COMPLETED REMEDIAL MEASURES

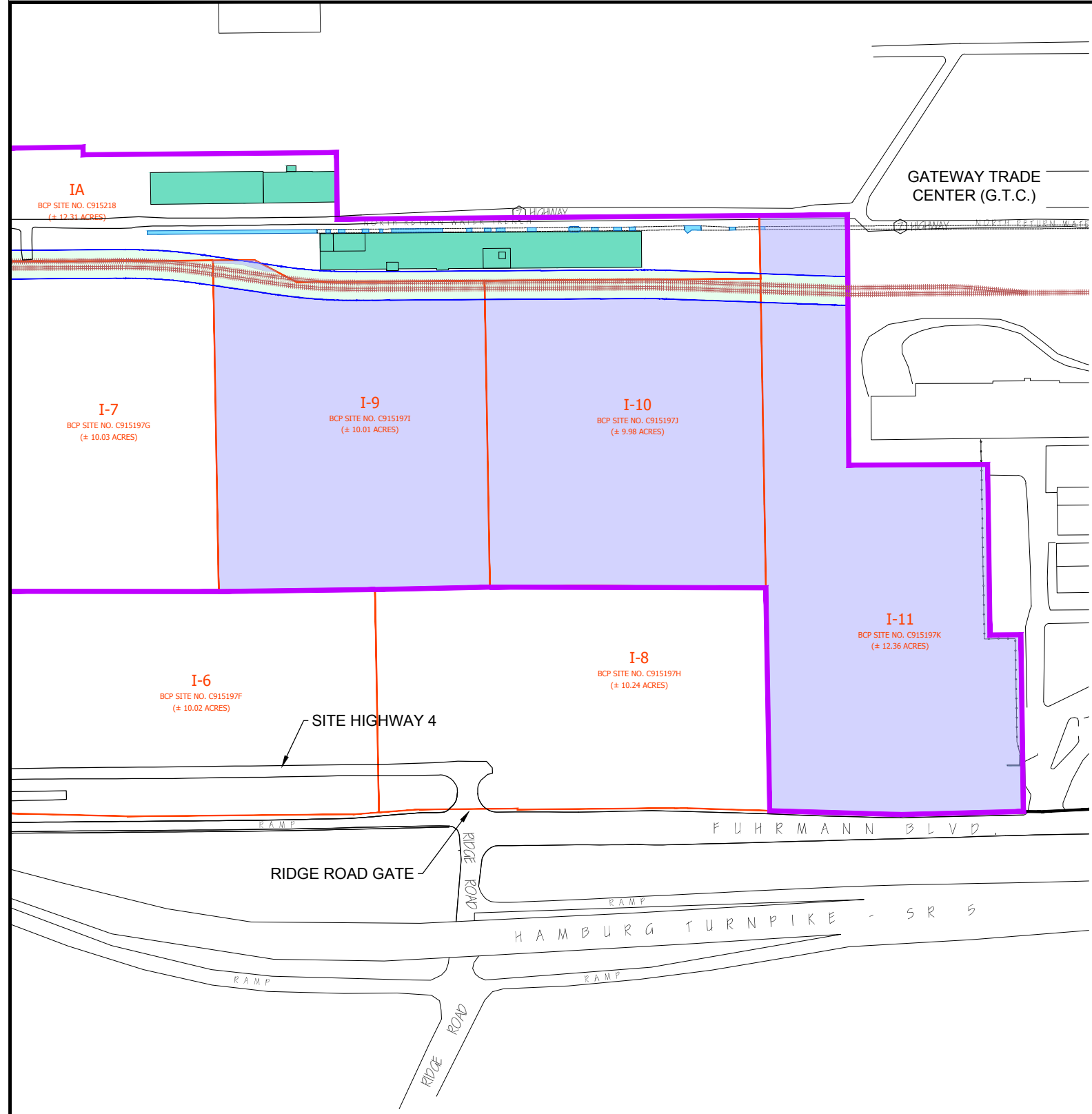
SITE MANAGEMENT PLAN
TECUMSEH PHASE I BUSINESS PARK
BCP SITE NOS. C915197I (I-9), C915197J (I-10) & C915197K (I-11)
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.



JOB NO.: 0071-017-327

FIGURE 3

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.

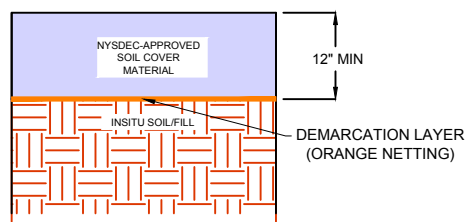


SCALE: 1 INCH = 300 FEET
SCALE IN FEET
(approximate)

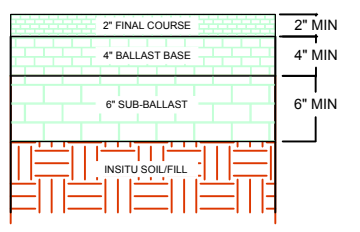
LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- SITE BOUNDARIES
- EXISTING BUILDING / STRUCTURE
- SITES I-9, I-10 AND I-11 SOIL COVER SYSTEM
- EXISTING EAST HARBOR LEAD RAILROAD TRACK AND ROW

SOIL COVER SYSTEM
DETAIL
NTS

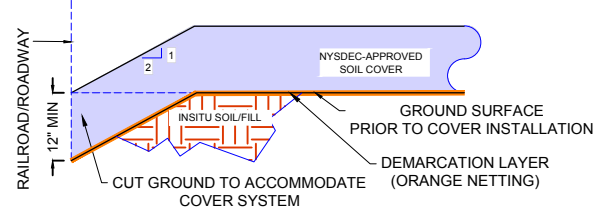


COVER SYSTEM BENEATH TRACKS
COVER SYSTEM DETAIL
NTS



NOTES:
1. BASED ON DESIGN DRAWINGS PROVIDED BY OTHERS

TIE-IN DETAIL
NTS



APPROXIMATE LOCATIONS AND TYPES OF
COVER SYSTEM MATERIALS
SITE MANAGEMENT PLAN



TECUMSEH PHASE I BUSINESS PARK
BCP SITE NOS. C915197I (I-9), C915197J (I-10) & C915197K (I-11)
LACKAWANNA, NEW YORK

PREPARED FOR
TECUMSEH REDEVELOPMENT INC.

JOB NO.: 0071-017-327

FIGURE 4

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. & TURNKEY ENVIRONMENTAL RESTORATION, LLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC & TURNKEY ENVIRONMENTAL RESTORATION, LLC.

ATTACHMENT A

MONITORING WELL BORING AND CONSTRUCTION LOGS



FIELD BOREHOLE/MONITORING INSTALLATION LOG

| | |
|---|--|
| Project Name: Phase 1 BPA | BORING NUMBER: MW-14A |
| Project Number: 0071-006-102 | Location: Phase I BPA |
| Client: Tecumseh Redevelopment, Inc. | Start Date/Time: 01/31/06 07:40 AM |
| Drilling Company: Earth Dimensions, Inc. | End Date/Time: 01/31/06 09:40 AM |
| Driller: Brian Bartran | Logged By: TAB |
| Helper: Harold | Drilling Method: 4.25 HSA |
| Rig Type: CME 85 | Weather: overcast, cold, sl. breeze, Low 30's F |

| Elevation (fmsl) | Depth (fbgs) | Sample No. | Blows (per 6") | SPT N-Value | Recovery | SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, Percentage of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other | USCS Code | PID Scan (ppm) | PID HDSP (ppm) | Soil Unit | Well Construction Details | |
|------------------|--------------|------------|----------------|-------------|----------|---|-------------|----------------|----------------|--------------|---------------------------|---|
| 583.82 | 0 | S1 | 4 | 23 | 1.4 | SOIL/FILL: Black/Dark Brown, moist, 80% NPF 20% FS, w/ coal & brick debris, dense, LWD | FILL | 0.0 | 0.0 | FILL | | concrete Bentonite Chips 2" Sch. 40 PVC riser sand pack - #00N (14.0 - 3.0 fbgs) 2" Sch. 40 PVC screen, 0.010" slot |
| 581.82 | 2 | | 9 | | | | | | | | | |
| | | | 14 | | | | | | | | | |
| | | | 20 | | | | | | | | | |
| | | | 23 | | | | | | | | | |
| 579.82 | 4 | S2 | 4 | 13 | 1.1 | (0.0 - 0.5) REWORKED CLAY: Medium grey, moist, 70% MPF, 30% FS, w/ pieces of orange brick, stiff (0.5 - 1.1) Same as S1, wet | FILL | 0.0 | 0.0 | FILL | | |
| | | | 6 | | | | | | | | | |
| | | | 7 | | | | | | | | | |
| 577.82 | 6 | S3 | 7 | 13 | 1.4 | Same as S1, wet | FILL | 0.0 | 0.0 | FILL | | |
| | | | 6 | | | | | | | | | |
| | | | 7 | | | | | | | | | |
| 575.82 | 8 | S4 | 12 | 22 | 0.5 | Same as S1, wet | FILL | 0.0 | 0.0 | FILL | | |
| | | | 9 | | | | | | | | | |
| | | | 11 | | | | | | | | | |
| 573.82 | 10 | S5 | 11 | 13 | 1.0 | SANDY LEAN CLAY: Medium grey, wet, 50% MPF, 50% FS, w/ iron-stained mottling and gravel, stiff, slow dilatency | CL | 0.0 | 0.0 | CLAY | | |
| | | | 13 | | | | | | | | | |
| | | | 5 | | | | | | | | | |
| 571.82 | 12 | S6 | 14 | 17 | 0.9 | same as S5, w/ brick fragments | CL | 0.0 | 0.0 | CLAY | | |
| | | | 5 | | | | | | | | | |
| | | | 7 | | | | | | | | | |
| 569.82 | 14 | S7 | 10 | 15 | 1.1 | (0.0 - 0.8) Same as S5 (0.8 - 1.1) SANDY ORGANIC SOIL: Dark brown, moist, 60% LPF, 40% FS, w/rootlets, dense, LWD | CL OL/OH | 0.0 | 0.0 | CLAY PEAT | | |
| | | | 12 | | | | | | | | | |
| | | | 7 | | | | | | | | | |
| 567.82 | 16 | | | | | EOB @ 14.0 fbgs | | | | | | |
| 565.82 | 18 | | | | | | | | | | | |

| | | | |
|-----------------------|----------------------------------|----------------------------|-------------------------|
| ABBREVIATIONS: | | | MS = medium sand |
| C = coarse | fbgs = feet below ground surface | HSA = hollow stem auger | NA = not applicable |
| CG = coarse gravel | FG = fine gravel | LP = low plasticity | NPF = not plastic fines |
| CS = coarse sand | fmsl = feet above mean sea level | LWD = loose when disturbed | SA = sub-angular |
| EOB = end of boring | FS = fine sand | M = medium | SR = sub-rounded |
| F = fines or fine | HP = high plasticity | MP = medium plasticity | SS = split spoon |



FIELD BOREHOLE/MONITORING INSTALLATION LOG

| | |
|---|---|
| Project Name: Phase 1 BPA | BORING NUMBER: MW-15A |
| Project Number: 0071-006-102 | Location: Phase I BPA |
| Client: Tecumseh Redevelopment, Inc. | Start Date/Time: 01/29/06 13:00:00 AM |
| Drilling Company: Earth Dimensions, Inc. | End Date/Time: 01/29/06 14:45:00 PM |
| Driller: Brian Bartran | Logged By: TAB |
| Helper: Harold | Drilling Method: 4.25 HSA |
| Rig Type: CME 85 | Weather: Partly Cloudy, cool, sl. breeze, Low 40's F |

| Elevation (fmsl) | Depth (fbgs) | Sample No. | Blows (per 6") | SPT N-Value | Recovery | SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, Percentage of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other | USCS Code | PID Scan (ppm) | PID HDSP (ppm) | Soil Unit | Well Construction Details |
|------------------|--------------|------------|----------------|-------------|----------|--|-----------|----------------|----------------|-----------|---|
| 583.71 | 0 | NA | 0 | 0 | NA | Augered to 4.0 fbgs (description from soil cuttings) SOIL/FILL: Black/dark brown, moist, NPF, w/ brick fragments | FILL | 0.0 | - | FILL | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center;">concrete</div> <div style="width: 100%; text-align: center;">Benetone Chips</div> <div style="width: 100%; text-align: center;">2" Sch. 40 PVC riser</div> <div style="width: 100%; text-align: center;">sand pack - #00N (14.0 - 3.0 fbgs)</div> <div style="width: 100%; text-align: center;">2" Sch. 40 PVC screen, 0.010" slot</div> </div> |
| 581.71 | 2 | NA | 0 | 0 | NA | Same as above | FILL | 0.0 | - | FILL | |
| 579.71 | 4 | S1 | 2, 2, 4 | 6 | 1.0 | SANDY LEAN CLAY: Medium grey to dark grey, wet, stiff, 40%MPF, 60% FS, slow dilatency w/ some gravel | FILL | 0.0 | 0.0 | FILL | |
| 577.71 | 6 | S2 | 3, 5, 5 | 10 | 1.3 | (0.0 - 0.3) ORGANIC SANDY SOIL: Dark brown, wet, 30% LPF, 70% FS, dense, LWD (0.3 - 1.3) SANDY LEAN CLAY: Medium grey, wet, medium soft, 40% MPF, 50% FS, 10%CG | OL/OH CL | 0.0 | 0.0 | PEAT CLAY | |
| 575.71 | 8 | S3 | 3, 3, 6 | 9 | 0.9 | (0.0 - 0.5) SANDY ORGANIC SOIL: Dark Brown, wet, 60% FS, 40% LPF, firm, LWD (0.5 - 0.9) SANDY LEAN CLAY: Medium grey with black specks, wet, 60% MPF, 40% FS, stiff, slow dilatency | OL/OH CL | 0.0 | 0.4 | PEAT CLAY | |
| 573.71 | 10 | S4 | 2, 3, 6 | 9 | 1.7 | (0.0 - 0.3) Same as S3 (0.0 - 0.5) (0.3 - 1.7) SANDY LEAN CLAY: Medium grey, wet, 60% MPF, 40% FS, w/ some gravel, stiff, rapid dilatency | OL/OH CL | 0.0 | 0.0 | PEAT CLAY | |
| 571.71 | 12 | S5 | 7, 8, 6, 9 | 15 | 1.5 | Same as S4 (0.3 - 1.7) | CL | 0.0 | 0.0 | CLAY | |
| 569.71 | 14 | | 9 | | | EOB @ 14.0 fbgs | | | | | |
| 567.71 | 16 | | | | | | | | | | |
| 565.71 | 18 | | | | | | | | | | |

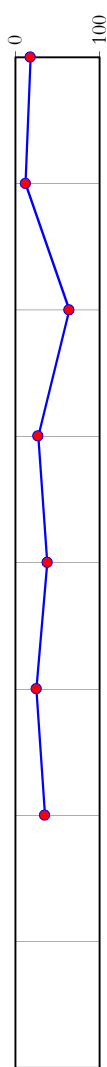
| | | | |
|-----------------------|----------------------------------|----------------------------|-------------------------|
| ABBREVIATIONS: | | | MS = medium sand |
| C = coarse | fbgs = feet below ground surface | HSA = hollow stem auger | NA = not applicable |
| CG = coarse gravel | FG = fine gravel | LP = low plasticity | NPF = not plastic fines |
| CS = coarse sand | fmsl = feet above mean sea level | LWD = loose when disturbed | SA = sub-angular |
| EOB = end of boring | FS = fine sand | M = medium | SR = sub-rounded |
| F = fines or fine | HP = high plasticity | MP = medium plasticity | SS = split spoon |



FIELD BOREHOLE/MONITORING INSTALLATION LOG

| | |
|---|--|
| Project Name: Phase 1 BPA | BORING NUMBER: MW-18A |
| Project Number: 0071-006-102 | Location: Phase I BPA |
| Client: Tecumseh Redevelopment, Inc. | Start Date/Time: 02/01/06 11:00 AM |
| Drilling Company: Earth Dimensions, Inc. | End Date/Time: 02/01/06 12:20 PM |
| Driller: Brian Bartran | Logged By: TAB |
| Helper: Harold | Drilling Method: 4.25 HSA |
| Rig Type: CME 85 | Weather: overcast, cold, sl. breeze, Low 30's F |

| Elevation (fmsl) | Depth (fbgs) | Sample No. | Blows (per 6") | SPT N-Value | Recovery | SAMPLE DESCRIPTION USCS Classification: Color, Moisture Condition, Percentage of Soil Type, Texture, Plasticity, Fabric, Bedding, Weathering/Fracturing, Odor, Other | USCS Code | PID Scan (ppm) | PID HDSP (ppm) | Soil Unit | Well Construction Details | | | |
|------------------|--------------|------------|----------------|-------------|----------|--|-----------|----------------|----------------|-----------|--|--|------|------|
| 584.00 | 0 | S1 | 5 | 18 | 1.0 | (0.0 - 0.9) SOIL/FILL: Black/Dark Brown, moist, dense, LWD, 90% NPF 10% Fine sand, w/ slag & brick debris (0.9 - 1.2) SANDY LEAN CLAY: Medium brown, stiff, moist, 60% MPF, 40% Fine sand (1.2 - 1.8) Same as S1 (0.0 - 0.9) | FILL | 0.0 | 0.0 | FILL | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;">concrete</div> <div style="width: 100%; text-align: center; font-size: 8px;">Bentonite Chips</div> <div style="width: 100%; text-align: center; font-size: 8px;">2" Sch. 40 PVC riser</div> </div> | | | |
| | | | 9 | | | | | | | | | | CL | CLAY |
| | | | 9 | | | | | | | | | | FILL | FILL |
| 582.00 | 2 | S2 | 8 | 12 | 1.8 | SANDY LEAN CLAY: Medium brown, stiff, slow dilatency, moist, 70% MPF, 30% Fine sand w/ gravel | CL | 0.0 | 0.0 | CLAY | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;">sand pack - #00N (14.0 - 3.0 fbgs)</div> <div style="width: 100%; text-align: center; font-size: 8px;">2" Sch. 40 PVC screen, 0.010" slot</div> </div> | | | |
| | | | 3 | | | | | | | | | | | |
| | | | 4 | | | | | | | | | | | |
| 580.00 | 4 | S3 | 11 | 64 | 1.1 | Same as S2, wet | CL | 0.0 | 0.0 | CLAY | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;">sand pack - #00N (14.0 - 3.0 fbgs)</div> <div style="width: 100%; text-align: center; font-size: 8px;">2" Sch. 40 PVC screen, 0.010" slot</div> </div> | | | |
| | | | 9 | | | | | | | | | | | |
| | | | 42 | | | | | | | | | | | |
| 578.00 | 6 | S4 | 9 | 27 | 1.1 | Same as S2 w/ iron staining | CL | 0.0 | 0.0 | CLAY | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;">sand pack - #00N (14.0 - 3.0 fbgs)</div> <div style="width: 100%; text-align: center; font-size: 8px;">2" Sch. 40 PVC screen, 0.010" slot</div> </div> | | | |
| | | | 12 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| 576.00 | 8 | S5 | 16 | 38 | 1.3 | Same as S2 | CL | 0.0 | 0.0 | CLAY | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;">sand pack - #00N (14.0 - 3.0 fbgs)</div> <div style="width: 100%; text-align: center; font-size: 8px;">2" Sch. 40 PVC screen, 0.010" slot</div> </div> | | | |
| | | | 8 | | | | | | | | | | | |
| | | | 11 | | | | | | | | | | | |
| 574.00 | 10 | S6 | 27 | 25 | 1.7 | Same as S2 w/ angular gravel form (0.2 - 0.3) & (1.1 - 1.2) | CL | 0.0 | 0.0 | CLAY | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;">sand pack - #00N (14.0 - 3.0 fbgs)</div> <div style="width: 100%; text-align: center; font-size: 8px;">2" Sch. 40 PVC screen, 0.010" slot</div> </div> | | | |
| | | | 15 | | | | | | | | | | | |
| | | | 15 | | | | | | | | | | | |
| 572.00 | 12 | S7 | 15 | 35 | 1.1 | SANDY LEAN CLAY: Medium grey, stiff, moist, 70% MPF, 30% Fine sand, slow dilatency, with angular gravel | CL | 0.0 | 0.0 | CLAY | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;">sand pack - #00N (14.0 - 3.0 fbgs)</div> <div style="width: 100%; text-align: center; font-size: 8px;">2" Sch. 40 PVC screen, 0.010" slot</div> </div> | | | |
| | | | 7 | | | | | | | | | | | |
| | | | 18 | | | | | | | | | | | |
| 570.00 | 14 | | 29 | | | | | | | | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; text-align: center; font-size: 8px;">sand pack - #00N (14.0 - 3.0 fbgs)</div> <div style="width: 100%; text-align: center; font-size: 8px;">2" Sch. 40 PVC screen, 0.010" slot</div> </div> | | | |
| 568.00 | 16 | | | | | | | | | | | | | |
| 566.00 | 18 | | | | | | | | | | | | | |



ABBREVIATIONS:

| | | | |
|---------------------|----------------------------------|----------------------------|-------------------------|
| C = coarse | fbgs = feet below ground surface | HSA = hollow stem auger | MS = medium sand |
| CG = coarse gravel | FG = fine gravel | LP = low plasticity | NA = not applicable |
| CS = coarse sand | fmsl = feet above mean sea level | LWD = loose when disturbed | NPF = not plastic fines |
| EOB = end of boring | FS = fine sand | M = medium | SA = sub-angular |
| F = fines or fine | HP = high plasticity | MP = medium plasticity | SR = sub-rounded |
| | | | SS = split spoon |

ATTACHMENT B

SAMPLE EC/IC CERTIFICATION FORMS



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



| Site Details | Box 1 | |
|--|--------------------------|--------------------------|
| Site No. C9151971 | | |
| Site Name: Site I-9 Tecumseh Phase I Business Park | | |
| Site Address: 2303 Hamburg Turnpike | Zip Code: 14218 | |
| City/Town: Lackawanna | | |
| County: Erie | | |
| Current Use: Commercial | | |
| Intended Use: Commercial | | |
| Verification of Site Details | Box 2 | |
| | YES | NO |
| 1. Are the Site Details above, correct? | <input type="checkbox"/> | <input type="checkbox"/> |
| If NO, are changes handwritten above or included on a separate sheet? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Has a change-of-use occurred since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE NO. C9151971

Box 3

Description of Institutional Control Certification

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Groundwater monitoring as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |

Description of Engineering Control Certification

Box 4

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Maintenance of the cover systems over the Site: | <input type="checkbox"/> | <input type="checkbox"/> |

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

- (a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
- (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
- (c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
- (d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.
- (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

**IC/EC CERTIFICATIONS
SITE NO. C915197I**

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering
Certification

Stamp (if Required)

Date



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



| Site Details | Box 1 | |
|--|--------------------------|--------------------------|
| Site No. C915197J | | |
| Site Name: Site I-10 Tecumseh Phase I Business Park | | |
| Site Address: 2303 Hamburg Turnpike | Zip Code: 14218 | |
| City/Town: Lackawanna | | |
| County: Erie | | |
| Current Use: Commercial | | |
| Intended Use: Commercial | | |
| Verification of Site Details | Box 2 | |
| | YES | NO |
| 1. Are the Site Details above, correct? | <input type="checkbox"/> | <input type="checkbox"/> |
| If NO, are changes handwritten above or included on a separate sheet? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Has a change-of-use occurred since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE NO. C915197J

Box 3

Description of Institutional Control Certification

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Groundwater monitoring as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |

Description of Engineering Control Certification

Box 4

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Maintenance of the cover systems over the Site: | <input type="checkbox"/> | <input type="checkbox"/> |

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

- (a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
- (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
- (c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
- (d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.
- (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

**IC/EC CERTIFICATIONS
SITE NO. C915197J**

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering
Certification

Stamp (if Required)

Date



Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



| Site Details | Box 1 | |
|--|--------------------------|--------------------------|
| Site No. C915197K | | |
| Site Name: Site I-11 Tecumseh Phase I Business Park | | |
| Site Address: 2303 Hamburg Turnpike | Zip Code: 14218 | |
| City/Town: Lackawanna | | |
| County: Erie | | |
| Current Use: Commercial | | |
| Intended Use: Commercial | | |
| Verification of Site Details | Box 2 | |
| | YES | NO |
| 1. Are the Site Details above, correct? | <input type="checkbox"/> | <input type="checkbox"/> |
| If NO, are changes handwritten above or included on a separate sheet? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Has a change-of-use occurred since the initial/last certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid? | <input type="checkbox"/> | <input type="checkbox"/> |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ? | <input type="checkbox"/> | <input type="checkbox"/> |

SITE NO. C915197K

Box 3

Description of Institutional Control Certification

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department: | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Groundwater monitoring as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | <input type="checkbox"/> | <input type="checkbox"/> |

Description of Engineering Control Certification

Box 4

| | <u>YES</u> | <u>NO</u> |
|--|--------------------------|--------------------------|
| 1. Maintenance of the cover systems over the Site: | <input type="checkbox"/> | <input type="checkbox"/> |

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

- (a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;
- (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;
- (c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and
- (d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.
- (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

**IC/EC CERTIFICATIONS
SITE NO. C915197K**

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____ (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner or Remedial Party Rendering Certification

Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

Signature of Qualified Environmental Professional, for
the Owner or Remedial Party, Rendering
Certification

Stamp (if Required)

Date

Enclosure 2

Certification of Institutional Controls/ Engineering Controls (ICs/ECs) Step-by-Step Instructions, Certification Requirements and Definitions

The Owner, or Remedial Party, and when necessary, a Professional Engineer (P.E.), or the Qualified Environmental Professional (QEP), must review and complete the IC/EC Certification Form, sign the IC/EC Certifications Signature Page, and return it, along with the Periodic Review Report (PRR), within 45 days of the date of this notice.

Please use the following instructions to complete the IC/EC Certification.

I. Verification of Site Details (Box 1 and Box 2):

Answer the six questions in the Verification of Site Details Section. Questions 5 and 6 refer to only sites in the Brownfield Cleanup Program. ECL Section 27-1415-7(c) is included in

IV. IC/EC Certification Requirements. The Owner and/or your P.E. or QEP may include handwritten changes and/or other supporting documentation, as necessary.

II. Verification of Institutional / Engineering Controls (Box 3 and Box 4)

Review the listed Institutional / Engineering Controls, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party is to petition the Department requesting approval to remove the control.

2. Select "YES" or "NO" for **Control Certification** for each IC/EC, based on Sections (a)-(e) of the **Control Certification Statement**.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. If the Department has any questions or concerns regarding the completion of the certification, the Project Manager will contact you.

3. If you cannot certify "Yes" for each Control, please continue to complete the remainder of this **Control Certification** form. Attach supporting documentation that explains why the **Control Certification** cannot be rendered, as well as a statement of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Control Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is conducted.

If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. Once the corrective measures are complete a new Periodic Review Report (with IC/EC Certification) is to be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 5 and Box 6):

1. If you certified "Yes" for each Control, please complete and sign the IC/EC Certifications page. To determine WHO signs the **IC/EC Certification**, please use Table 1. Signature Requirements for the IC/EC Certification, which follows.

| Table 1. Signature Requirements for Control Certification Page | | |
|---|---|--|
| Type of Control | Example of IC/EC | Required Signatures |
| IC only | Environmental Easement Deed Restriction. | A site or property owner or remedial party. |
| IC with an EC which does not include a treatment system or engineered caps. | Fence, Clean Soil Cover, Individual House Water Treatment System, Vapor Mitigation System | A site or property owner or remedial party, and a QEP. (P.E. license not required) |
| IC with an EC that includes treatment system or an engineered cap. | Pump & Treat System providing hydraulic control of a plume, Part 360 Cap. | A site or property owner or remedial party, and a QEP with a P.E. license. |

IV. IC/EC Certification Requirements:

Division of Environmental Remediation Program Policy requires periodic certification of IC(s) and EC(s) as follows:

For Environmental Restoration Projects: N.Y. Env'tl Conserv.Law Section 56-0503 (Environmental restoration projects; state assistance)

For State Superfund Projects: Env'tl Conserv.Law Section 27-1318. (Institutional and engineering controls)

For Brownfields Cleanup Program Projects: Env'tl Conserv.Law Section 27-1415. (Remedial program requirements)

Env'tl Conserv.Law Section 27-1415-7(c) states:

- (c) At non-significant threat sites where contaminants in groundwater at the site boundary contravene drinking water standards, such certification shall also certify that no new information has come to the owner's attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid. Every five years the owner at such sites shall certify that the assumptions made in the qualitative exposure assessment remain valid. The requirement to provide such certifications may be terminated by a written determination by the Commissioner in consultation with the Commissioner of Health, after notice to the parties on the brownfield site contact list and a public comment period of thirty days.

Voluntary Cleanup Program: Applicable program guidance.

Petroleum Remediation Program: Applicable program guidance.

Federal Brownfields: Applicable program guidance.

Manufactured Gas Plant Projects: Applicable program guidance (including non-registry listed MGPs).

WHERE to mail the signed Certification Form by March 1st of each year (or within 45 days of the date of the Department notice letter):

New York State Department of Environmental Conservation
Division of Environmental Remediation

Attn: Division of Environmental Remediation – North Section
NYSDEC
270 Michigan Avenue
Buffalo, NY 14203-2999

Please note that extra postage may be required.

V. Definitions

“Engineering Control” (EC), means any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

“Institutional Control” (IC), means any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a remedial site.

“Professional Engineer” (P.E.) means an individual or firm licensed or otherwise authorized under article 145 of the Education Law of the State of New York to practice engineering.

“Property Owner” means, for purposes of an IC/EC certification, the actual owner of a property. If the site has multiple properties with different owners, the Department requires that the owners be represented by a single representative to sign the certification.

“Oversight Document” means any document the Department issues pursuant to each Remedial Program (see below) to define the role of a person participating in the investigation and/or remediation of a site or area(s) of concern. Examples for the various programs are as follows:

BCP (after approval of the BCP application by DEC) - Brownfield Site Cleanup Agreement.

ERP (after approval of the ERP application by DEC) - State Assistance Contract.

Federal Superfund Sites - Federal Consent Decrees, Administrative Orders on Consent or Unilateral Orders issued pursuant to CERCLA.

Oil Spill Program - Order on Consent, or Stipulation pursuant to Article 12 of the Navigation Law (and the New York Environmental Conservation Law).

State Superfund Program - Administrative Consent Order, Record of Decision.

VCP (after approval of the VCP application by DEC) - Voluntary Cleanup Agreement.

RCRA Corrective Action Sites- Federal Consent Decrees, Administrative Orders on Consent or permit conditions issued pursuant to RCRA.

“Qualified Environmental Professional” (QEP), means a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases to the surface or subsurface of a property or off-site areas, sufficient to meet the objectives and performance factors for the areas of practice identified by this Part. Such a person must:

(1) hold a current professional engineer’s or a professional geologist’s license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience in site investigation and remediation of the type detailed in this Part; or

(2) be a site remediation professional licensed or certified by the federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with Department guidance, and have the equivalent of three years of full-time relevant experience.

“Qualitative Exposure Assessment” means a qualitative assessment to determine the route, intensity, frequency, and duration of actual or potential exposures of humans and/or fish and wildlife to contaminants.

“Remedial Party” means a person implementing a remedial program at a remedial site pursuant to an order, agreement or State assistance contract with the Department.

“Site Management” (SM) means the activities undertaken as the last phase of the remedial program at a site, which continue after a Certificate of Completion is issued. Site management is conducted in accordance with a site management plan, which identifies and implements the institutional and engineering controls required for a site, as well as any necessary monitoring and/or operation and maintenance of the remedy.

“Site Management Plan” (SMP) means a document which details the steps necessary to assure that the institutional and engineering controls required for a site are in-place, and any physical components of the remedy are operated, maintained and monitored to assure their continued effectiveness, developed pursuant to Section 6 (DER10 Technical Guide).

“Site Owner” means the actual owner of a site. If the site has multiple owners of multiple properties with ICs and/or ECs, the Department requires that the owners designate a single representative for IC/EC Certification activities.

APPENDIX E-10

SITE I-10 (C915197J)

As the remedial actions are completed on Site I-10 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-10 as an addendum.

See Appendix E-9

APPENDIX E-11

SITE I-11 (C915197K)

As the remedial actions are completed on Site I-11 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix E-11 as an addendum.

See Appendix E-9