# 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:

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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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# 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 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 ¾-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 theses 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<br>Title: Executive Vice President, Buffalo and Erie County Industrial Land Development Corporation | Work: (716) 856-6525<br>Mobile: (716) 472-6667 |
| Name: Thomas Forbes<br>Title: Principal Engineer, Benchmark Environmental | Work: (716) 856-0599<br>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 requirement 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 1**
**SUMMARY OF REMAINING SOIL/FILL CONTAMINATION ABOVE USCOs**

**SITE MANAGEMENT PLAN**

**Phase I Business Park, Sites I-9, I-10 and I-11**
**Tecumseh Redevelopment Inc., Lackawanna, New York**

| Parameter [1] | SS-07 | SS-14 | SS-15 | SS-16 | SS-17 | SS-30 | SS-31 | SS-(32-33) | TP-6-(1-5) | TP-6-(1-5) | TP-6-6 | TP-7-(1-3)/8-4 | TP-7-(1-3)/8-4 | TP-7-2 | TP-7-(4-7) | TP-7-(4-7) | TP-8-(1-3) | TP-8-(1-3) | TP-9-3 | TP-9-3 | 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 | USCO [2] (mg/kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 - 1.0 | 0.0 - 1.0 | 0.0 - 2.0 | 2.0 - 6.0 | 2.0 - 6.0 | 0.0 - 2.0 | 1.5 - 5.5 | 2.0 - 5.0 | 0.0 - 1.0 | 2.0 - 7.0 | 0.0 - 1.0 | 1.0 - 7.0 | 0.0 - 1.0 | 1.0 - 4.5 | 1.0 - 4.5 | 0.0 - 1.0 | 1.0 - 4.0 | 0.0 - 1.0 | 1.0 - 2.5 | 0.0 - 1.0 | 1.0 - 5.5 | 1.0 - 2.5 | |
| | grab | grab | grab | grab | grab | grab | grab | composite | composite | composite | grab | composite | composite | grab | composite | composite | composite | composite | grab | grab | grab | composite | composite | composite | composite | grab | grab | grab | |
| ***Headspace Determination (ppm) - 10.6 eV Lamp [subsurface samples only]*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total VOCs | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.0 (max) | -- | -- | -- | -- | -- | -- | -- | 0.0 (max) | -- | -- | 216 | -- | 0.0 (max) | -- | 0.0 (max) | -- | -- | 0.0 | -- |
| ***PID Field Scans (ppm) - 10.6 eV Lamp*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total VOCs | -- | -- | -- | -- | -- | -- | -- | -- | 1.0 (max) | 1.1 (max) | -- | -- | -- | -- | -- | -- | 0.0 (max) | 0.0 (max) | -- | -- | 10.2 | 0.0 (max) | 0.0 (max) | 0.0 (max) | 0.0 (max) | -- | -- | 0.0 | -- |
| ***STARS Volatile Organic Compounds (VOCs - Method 8021) - mg/kg*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| n-Butylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 7.6 | -- | -- | -- | -- | -- | 8.2 | ND | -- | -- | -- | -- | ND | **19** | -- | **12** |
| sec-Butylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | 6.0 | 5.5 | -- | -- | -- | -- | ND | **22** | -- | **11** |
| tert-Butylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | 2.0 | ND | -- | -- | -- | -- | ND | **16** | -- | **5.9** |
| Ethylebenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **1.8** | -- | -- | -- | -- | -- | ND | ND | -- | -- | -- | -- | ND | ND | -- | **1** |
| Isopropylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.48 | -- | -- | -- | -- | -- | 0.75 | 0.29 | -- | -- | -- | -- | ND | ND | -- | **--** |
| p-Cymene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.4 | -- | -- | -- | -- | -- | 2.3 | 2.1 | -- | -- | -- | -- | ND | 16 | -- | **--** |
| n-Propylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 1.6 | -- | -- | -- | -- | -- | 3.4 | ND | -- | -- | -- | -- | ND | **30** | -- | **3.9** |
| Toluene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | 0.16 | ND | -- | -- | -- | -- | ND | **25** | -- | **0.7** |
| 1,2,4-Trimethylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **26** | -- | -- | -- | -- | -- | **7.9** | ND | -- | -- | -- | -- | ND | **77** | -- | **3.6** |
| 1,3,5-Trimethylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | 1.6 | 2.2 | -- | -- | -- | -- | ND | **13** | -- | **8.4** |
| o-Xylene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | **2.1** | ND | -- | -- | -- | -- | ND | **21** | -- | **0.26** |
| m-Xylene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **3.1** | -- | -- | -- | -- | -- | 0.23 | ND | -- | -- | -- | -- | ND | **14** | -- | **0.26** |
| Xylenes, Total | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3.1 | -- | -- | -- | -- | -- | 2.3 | ND | -- | -- | -- | -- | ND | 34 | -- | **--** |
| Naphthalene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- | -- | -- | 16 | 4.7 | -- | -- | -- | -- | ND | 9.1 | -- | **--** |
| Methyl tert butyl ether | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ND | -- | -- | -- | -- | -- | ND | ND | -- | -- | -- | -- | ND | **0.93** | -- | **0.93** |
| *TOTAL VOCs (mg/kg)* | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | *162* | -- | -- | -- | -- | -- | *51* | *15* | *0* | *0* | *0* | *0* | *0* | *263* | *0* | -- |
| ***Base-Neutral Semi-Volatile Organic Compounds (SVOCs - Method 8270) - mg/kg*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene | -- | -- | -- | -- | -- | -- | ND | 0.41 J | 5.4 J | 6.8 J | 0.84 J | ND | ND | ND | ND | ND | 0.62 J | ND | 0.096 J | 5.1 | 2.9 J | 1.7 J | 0.056 J | ND | ND | -- | -- | ND | **20** |
| Acenaphthylene | -- | -- | -- | -- | -- | -- | 0.2 J | 0.22 J | ND | ND | 2 J | 1.6 J | 0.25 J | 3.8 J | 0.68 J | 0.9 J | 0.36 J | ND | 0.4 J | ND | 0.63 J | ND | ND | 0.2 J | ND | -- | -- | ND | **100** |
| Anthracene | -- | -- | -- | -- | -- | -- | 0.07 J | 0.83 J | 14 J | 14 J | 3.8 J | 1 J | ND | 2.7 J | 0.48 J | 1.4 J | 1.4 J | ND | 0.57 J | 3.2 | 0.61 J | 3.3 J | 0.12 J | 0.14 J | ND | -- | -- | ND | **100** |
| Benzo(a)anthracene | -- | -- | -- | -- | -- | -- | 0.33 J | **2.4** | **30 J** | **28 J** | **17** | **6 J** | **1 J** | **9.3** | **2.2 J** | **4.3 J** | **3.7 J** | 0.81 J | **1.3** | 0.21 J | **1.4 J** | **7.7** | 0.3 J | 0.72 J | 0.077 J | -- | -- | 0.042 J | **1** |
| Benzo(b)fluoranthene | -- | -- | -- | -- | -- | -- | 0.78 J | **3.2 J** | **36 J** | **27 J** | **16 J** | **8.7 J** | **1.1 J** | **12 J** | **2.8 J** | **5.1 J** | **4.2 J** | **1.4 J** | **2 J** | ND | **1.5 J** | **9.7 J** | 0.33 J | **1.1 J** | 0.19 J | -- | -- | 0.05 J | **1** |
| Benzo(k)fluoranthene | -- | -- | -- | -- | -- | -- | 0.23 J | **1.1 J** | **41 J** | **6.8 J** | **6 J** | **2.2 J** | 0.46 J | **3 J** | **1 J** | **1.6 J** | **1.6 J** | **1.6 J** | 0.64 J | ND | 0.69 J | **2.3 J** | 0.12 J | 0.39 J | 0.19 J | -- | -- | ND | **0.8** |
| Benzo(g,h,i)perylene | -- | -- | -- | -- | -- | -- | 0.62 | 1.3 J | 15 J | 14 J | 9 | 5.8 J | 0.65 J | 6.8 | 1.1 J | 2.7 J | 2.3 J | 0.7 J | 1.2 | ND | 0.89 J | 3.6 J | 0.12 J | 0.59 J | 0.099 J | -- | -- | 0.034 J | **100** |
| Benzo(a)pyrene | -- | -- | -- | -- | -- | -- | 0.51 | **2.3** | **22 J** | **22 J** | **14** | **6.4 J** | 0.87 J | **9.7** | **2 J** | **3.6 J** | **3.1 J** | 0.85 J | **1.2** | ND | **1.1 J** | **6.4 J** | 0.25 J | 0.81 | 0.092 J | -- | -- | 0.04 J | **1** |
| Chrysene | -- | -- | -- | -- | -- | -- | 0.37 J | **2.5** | **28 J** | **25 J** | **17** | **6.2 J** | 0.96 J | **10** | **2.1 J** | **4.3 J** | **3.8 J** | 0.82 J | **1.3** | 0.4 J | **1 J** | **7 J** | 0.26 J | 0.72 J | 0.08 J | -- | -- | 0.034 J | **1** |
| Dibenzo(a,h)anthracene | -- | -- | -- | -- | -- | -- | 0.18 J | 0.4 J | **4.5 J** | **4.1 J** | **2.7 J** | **1.5 J** | 0.2 J | **1.7 J** | **0.35 J** | **0.81 J** | **0.62 J** | ND | 0.28 J | ND | ND | **1.2 J** | 0.043 J | 0.16 J | 0.025 J | -- | -- | ND | **0.33** |
| Dibenzofuran | -- | -- | -- | -- | -- | -- | 0.04 J | 0.27 J | 3.1 J | 3.6 J | 0.5 J | ND | ND | 1 J | ND | ND | 0.31 J | ND | 0.17 J | 1.3 J | ND | 0.71 J | ND | 0.047 J | ND | -- | -- | ND | **--** |
| Di-n-butyl phthalate | -- | -- | -- | -- | -- | -- | ND | 0.18 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | -- | -- | ND | **--** |
| Fluoranthene | -- | -- | -- | -- | -- | -- | 0.35 J | 4.9 | 71 | 65 | 40 | 9.3 | 1.5 J | 16 | 3.2 J | 8.1 | 8.6 | 1.2 J | 2.4 | 0.55 J | 4.5 J | 15 | 0.62 | 1.1 | 0.14 J | -- | -- | 0.056 J | **100** |
| Fluorene | -- | -- | -- | -- | -- | -- | ND | 0.35 J | 5.8 J | 6.4 J | 0.95 J | ND | ND | 2.9 J | ND | 0.59 J | 0.49 J | ND | 0.16 J | 9 | 1.2 J | 1.4 J | 0.042 J | ND | ND | -- | -- | ND | **30** |
| Indeno(1,2,3-cd)pyrene | -- | -- | -- | -- | -- | -- | **0.53** | **1.2 J** | **13 J** | **12 J** | **8.2** | **4.7 J** | **0.59 J** | **5.4 J** | **0.98 J** | **2.2 J** | **1.9 J** | **0.55 J** | **0.89** | ND | **0.76 J** | **3 J** | 0.11 J | **0.5 J** | 0.083 J | -- | -- | 0.029 J | **0.5** |
| 2-Methylnaphthalene | | -- | -- | -- | -- | -- | 0.1 J | 0.2 J | ND | ND | ND | ND | ND | 15 | ND | ND | ND | ND | 0.5 J | 35 | 0.48 J | ND | ND | 0.073 J | ND | -- | | ND | **--** |
| Naphthalene | -- | -- | -- | -- | -- | -- | 0.06 J | 0.24 J | ND | 2.2 J | 0.4 J | 0.83 J | ND | 7.5 J | ND | 0.44 J | 0.27 J | ND | 0.32 J | ND | ND | 0.41 J | ND | 0.068 J | ND | -- | -- | ND | **12** |
| Phenanthrene | -- | -- | -- | -- | -- | -- | 0.15 J | 3.5 | 52 | 51 | 15 | 4.2 J | 0.45 J | 13 | 1.7 J | 5.2 J | 5.4 | 0.54 J | 1.9 | 23 | 0.48 J | 11 | 0.39 | 0.51 J | 0.051 J | -- | -- | 0.028 J | **100** |
| Pyrene | -- | -- | -- | -- | -- | -- | 0.35 J | 4 | 55 | 51 | 35 | 8.5 | 1.4 J | 17 | 2.8 J | 7.1 J | 7.5 | 1.1 J | 2 | 2.4 | 3.3 J | 12 | 0.45 | 0.92 | 0.12 J | -- | -- | 0.057 J | **100** |
| *TOTAL SVOCs (mg/kg)* | *0* | *0* | *0* | *0* | *0* | *0* | *4.9* | *30* | *396* | *339* | *188* | *67* | *9.4* | *136.8* | *21* | *48* | *46* | *9.6* | *17* | *80* | *21* | *86* | *3.2* | *8.0* | *1.1* | *--* | *--* | *0.37* | -- |
| ***Polychlorinated Biphenyls (PCBs) - mg/kg*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor 1254 | ND | ND | ND | ND | ND | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **--** |
| Aroclor 1260 | 1.6 | ND | ND | 0.02 J | 0.14 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | **--** |
| *TOTAL PCBs (mg/kg)* | ***1.6*** | *ND* | -- | *0.02* | ***0.14*** | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ***0.1*** |
| ***Inorganic Compounds - mg/kg*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Arsenic, Total | -- | -- | -- | -- | -- | **18.5** | -- | 4.6 J | **14.7 J** | **22.6 J** | **152 J** | **116 J** | **15.8 J** | 4.2 J | 10 J | 10.1 J | 11.5 J | 6.3 J | **26.8** | 4.8 | **18 J** | **29.5 J** | 2.4 J | **18.4 J** | 2.7 J | -- | -- | -- | **13** |
| Cadmium, Total | -- | -- | -- | -- | -- | **6.7** | -- | **2.9 J** | **5.3 J** | **5.1 J** | **7.9 J** | **7.6 J** | 1.4 J | 0.75 J | **4.4 J** | **2.7 J** | **2.6 J** | 0.71 J | **5.5 J** | ND | 1.2 | **3.3** | 0.38 | **2.7** | ND | -- | -- | -- | **2.5** |
| Chromium, Total | -- | -- | -- | -- | -- | **97.5** | -- | **71.5 J** | **123** | **99.1** | **242** | **315** | **124** | **52.1** | **118** | **34.4** | **84** | **101** | **249 J** | **6.3 J** | **28.8 J** | **167 J** | **9.8 J** | **29 J** | **7.5 J** | -- | -- | -- | **1** |
| Lead, Total | -- | -- | -- | -- | -- | **549** | -- | **1250 J** | **454** | **474** | **774** | **728** | 61.5 | **171** | **628** | **318** | **286** | 57.9 | **620 J** | **73.7 J** | **421 J** | **234 J** | 26.2 J | **260 J** | **91.1 J** | -- | -- | -- | **63** |
| Mercury, Total | -- | -- | -- | -- | -- | **3** | -- | **5.7 J** | **1.2** | **1.1** | **0.429** | **2.1** | 0.141 | **0.086** | **0.637** | **0.757** | **0.293** | 0.033 | 0.144 | 0.031 | 0.113 J | 0.092 J | ND | **0.356 J** | 0.043 J | -- | -- | -- | **0.18** |
| Cyanide, Total | -- | -- | -- | -- | -- | ND | -- | 7.7 J | ND | ND | ND | ND | ND | ND | ND | ND | 2.2 | ND | ND | ND | ND | 10.3 J | 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. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.

**Definitions:**

J = estimated value; result is less than the sample quantitiation 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.

= Slag/fill removed from Test Pit Locations during IRM excavations

**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 | | **50*** |
| n-Butylbenzene | ND | | ND | | 0.97 | | ND | | ND | | ND | | **5** |
| 1,2,4-Trichlorobenzene | -- | | 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 | | **NA** |
| ***Polychlorinated Biphenyls (PCBs) - ug/L*** | | | | | | | | | | | | | |
| TOTAL PCBs (ug/L) | ND | | -- | | ND | | -- | | ND | | -- | | **NA** |
| ***Total Inorganic Compounds - mg/L*** [6] | | | | | | | | | | | | | |
| Barium, Total | -- | | 0.047 | | -- | | 0.045 | | -- | | 0.027 | | **1** |
| Cadmium, Total | ND | | ND | | ND | | ND | | ND | | 0.0011 J | | **0.005** |
| Chromium, Total | ND | | ND | | ND | | 0.0013 J | | ND | | ND | | **0.05** |
| Copper, Total | -- | | 0.0022 J | | -- | | 0.01 | | -- | | ND | | **0.2** |
| Cyanide, Total | ND | | ND | | 0.013 J | | ND | | ND | | ND | | **0.2** |
| Manganese, Total | -- | | **0.69 B** | | -- | | **0.37 B** | | -- | | 0.2 B | | **0.3** |
| Nickel, Total | -- | | ND | | -- | | 0.0035 J | | -- | | 0.0027 J | | **0.1** |
| Zinc, Total | ND | | 0.0062 JB | | 0.013 J | | 0.012 B | | ND | | 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.

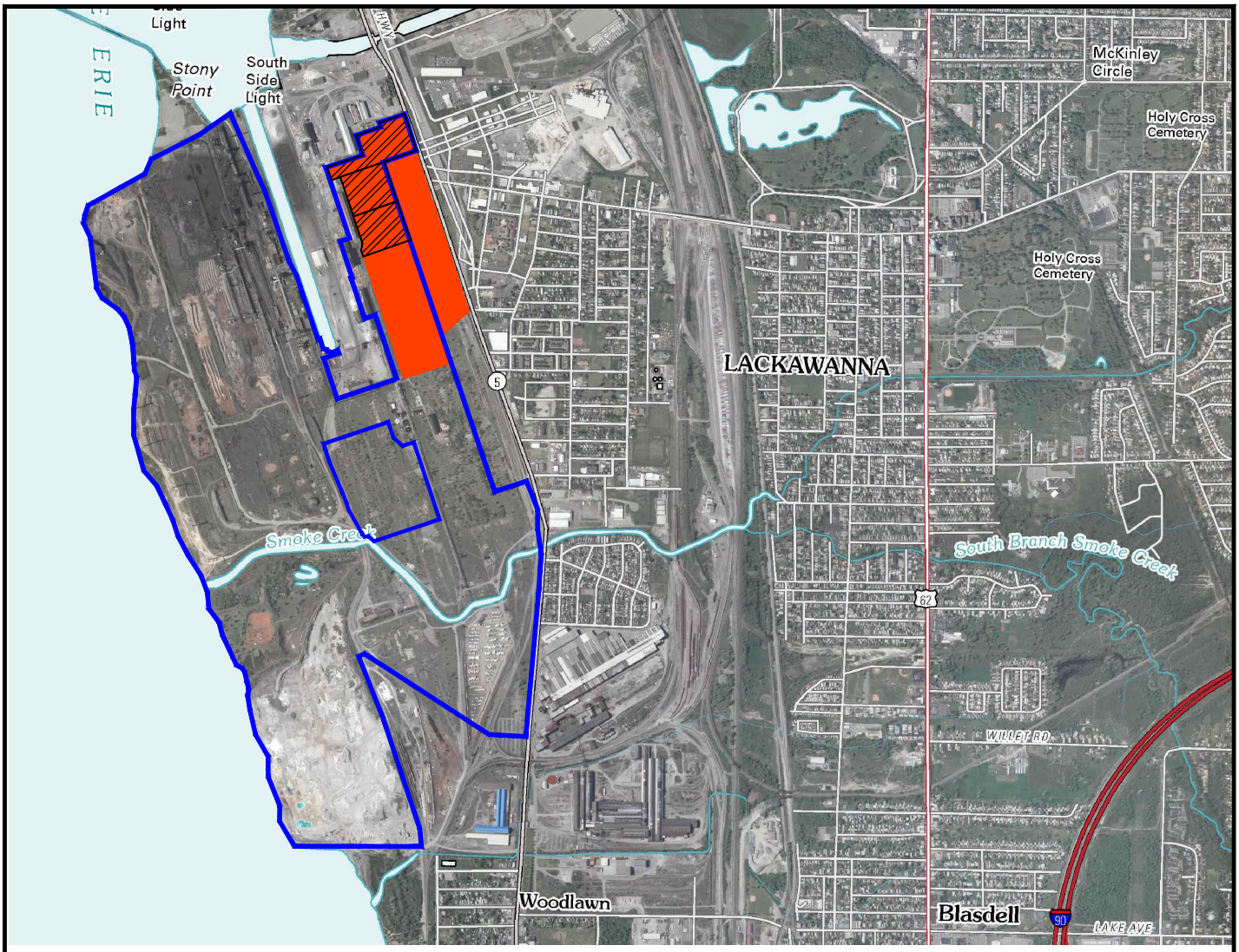
**Definitions:**
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
ND = Parameter not detected above laboratory method detection limit.
B= Parameter was found in method blank.
" -- " = Not analyzed for this parameter
" * " = Groundwater Quality Guidance Value
" ** " = 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

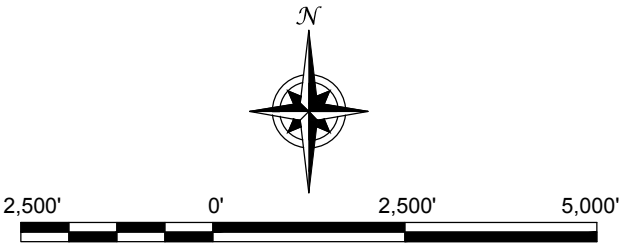
# FIGURES

F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase I Parcel\Site Management Plan\Site I-9, I-10, and I-11\Figure 1; Site Location and Vicinity Map.dwg

# FIGURE 1








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


TURNKEY ENVIRONMENTAL RESTORATION, LLC
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

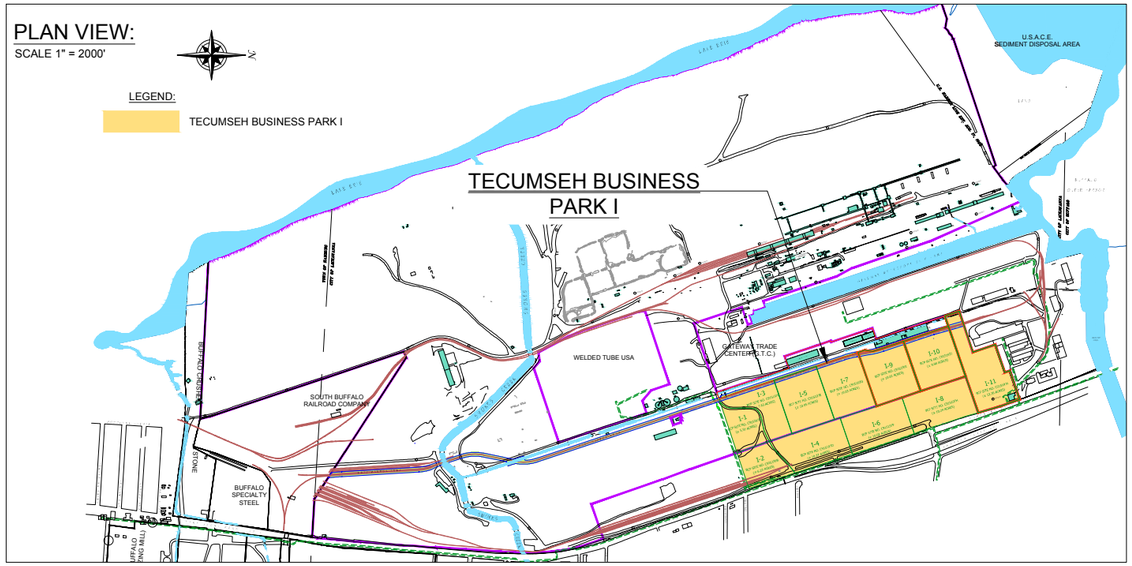
PREPARED FOR

TECUMSEH REDEVELOPMENT INC.

F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase I Parcel\Site Management Plan\Site I-9, I-10, and I-11\Figure 2; Site Delineation Map.dwg

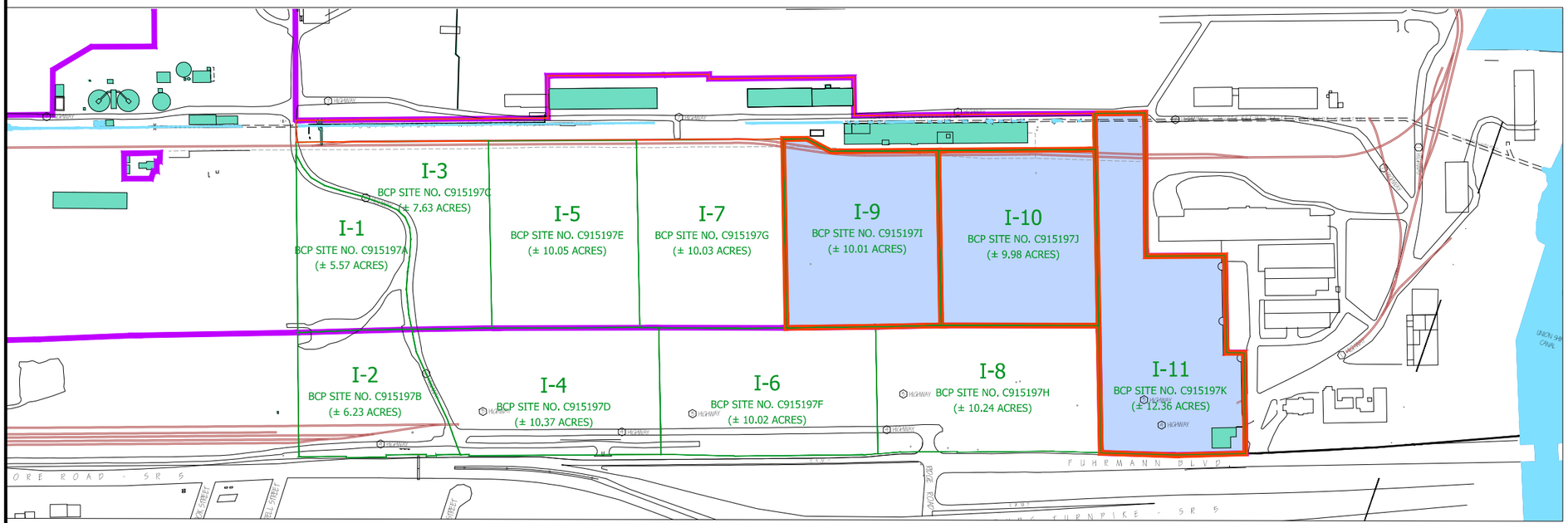
PLAN VIEW:
SCALE 1" = 2000'

LEGEND:
TECUMSEH BUSINESS PARK I




LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- SITES I-9, I-10, & I-11
- EXISTING BUILDING / STRUCTURE
- TECUMSEH BUSINESS PARK I SUB-PARCEL BOUNDARIES
- RAILROAD TRACK




500' 0' 500' 1,000'

SCALE: 1 INCH = 1,000 FEET
SCALE IN FEET
(approximate)

DATE: AUGUST 4, 2017
DRAFTED BY: RFL

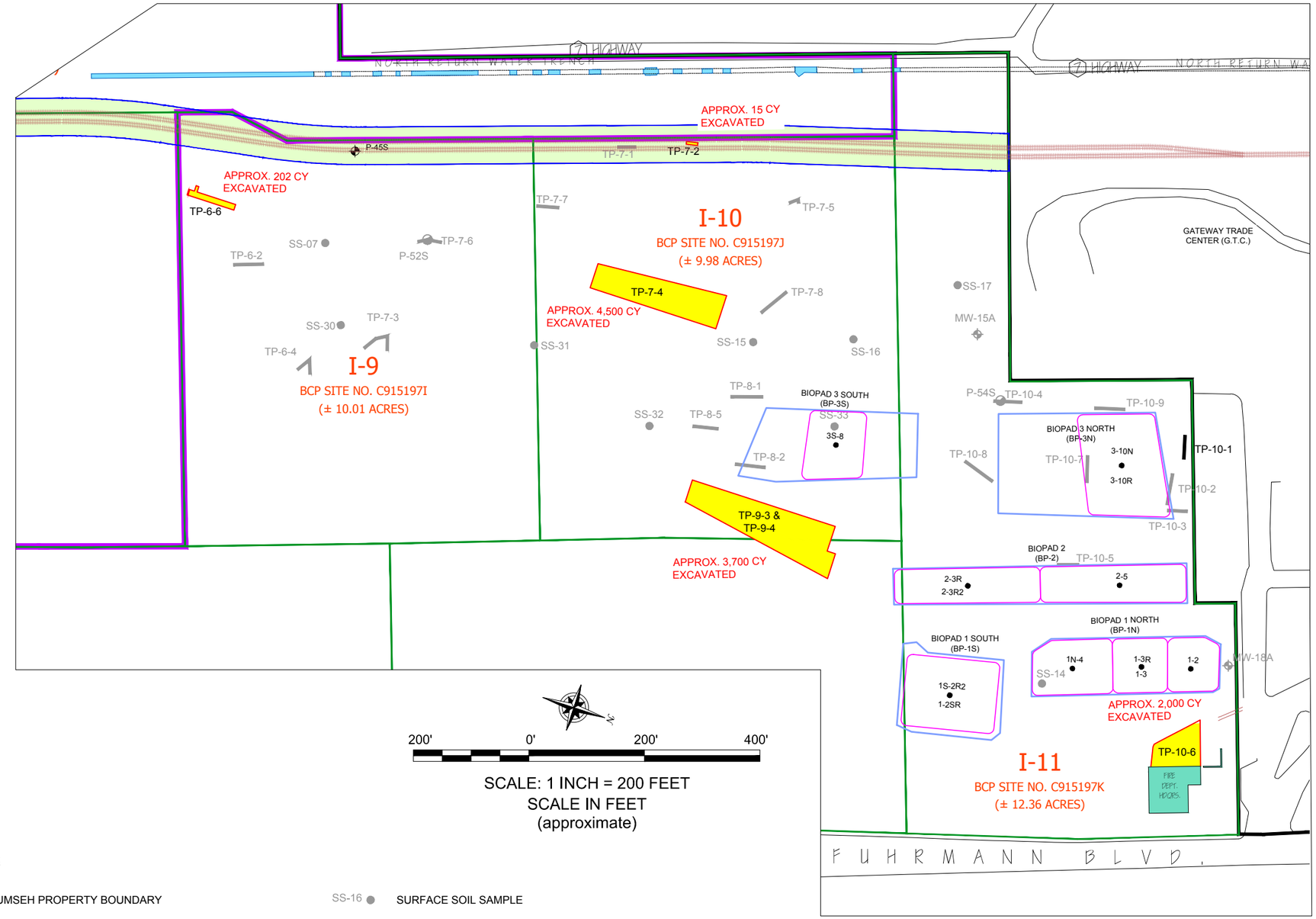
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
*2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599*

JOB NO.: 0071-017-327

# 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.

**FIGURE 2**




LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- TECUMSEH BUSINESS PARK I SITE-PARCEL BOUNDARIES
- IMPACTED SOIL/FILL EXCAVATED
- BIOPAD
- BIOPAD SAMPLE AREA
- 1N-4 BIOPAD COMPOSITE SAMPLE
- SS-16 SURFACE SOIL SAMPLE
- MW-15A MONITORING WELL
- P-54S PIEZOMETER
- TP-8-1 TEST PIT
- EXISTING EAST HARBOR LEAD RAILROAD TRACK AND ROW

DATE: OCTOBER 24, 2017
DRAFTED BY: RFL

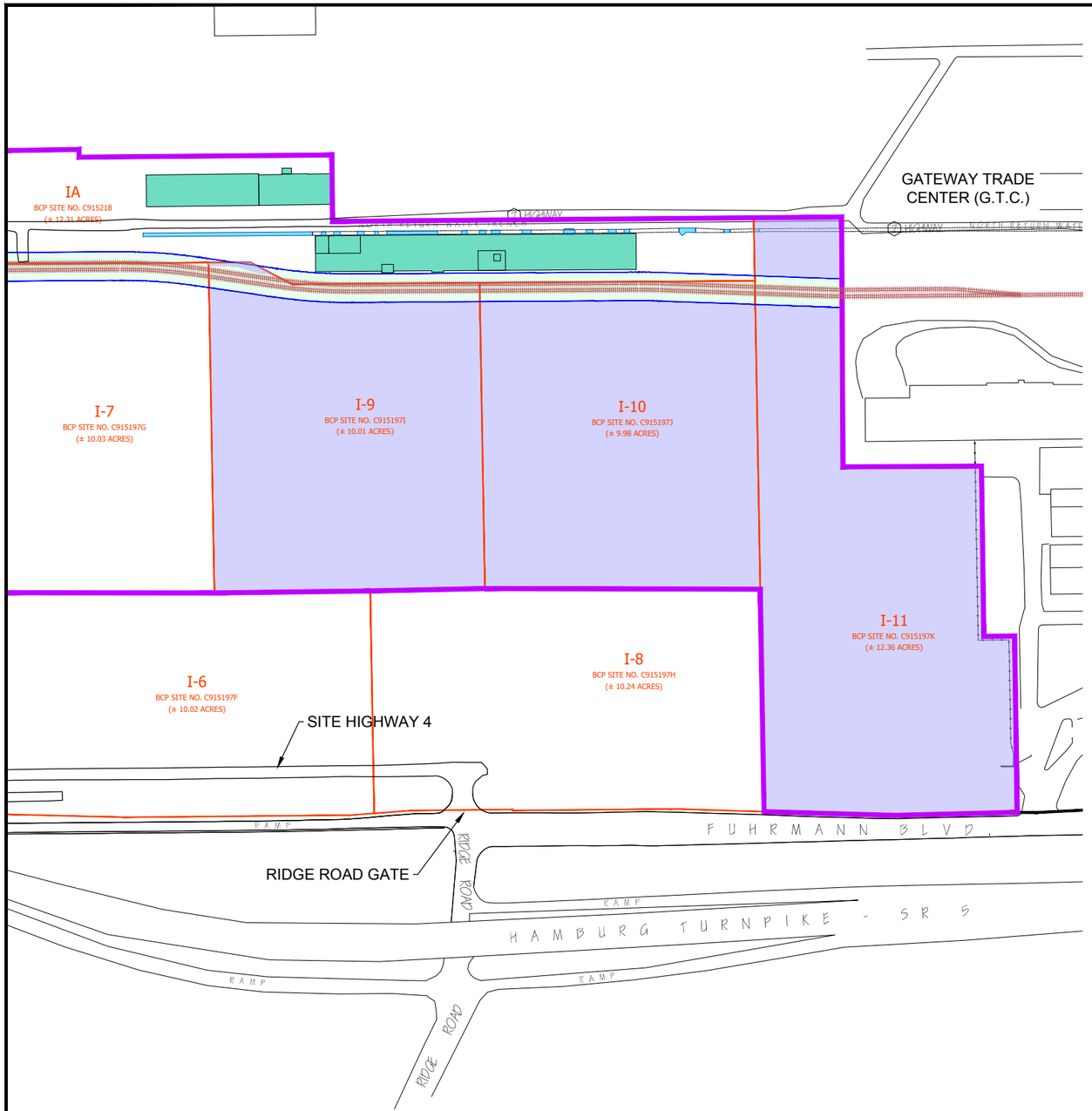
BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

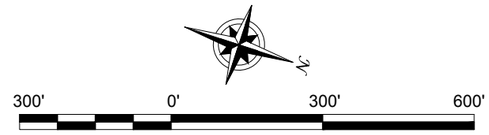
JOB NO.: 0071-017-327

# 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.

**FIGURE 3**



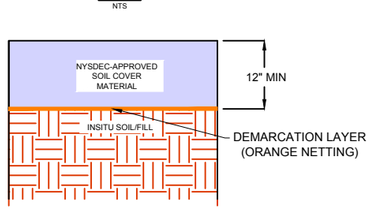




SCALE: 1 INCH = 300 FEET
SCALE IN FEET
(approximate)

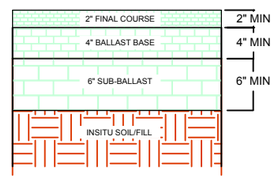
LEGEND:

- 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

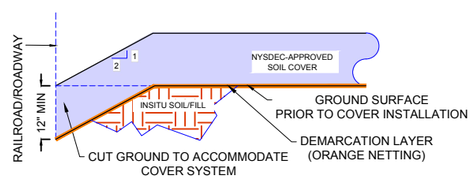



COVER SYSTEM BENEATH TRACKS
COVER SYSTEM DETAIL[1]
NTS




NOTES:
1. BASED ON DESIGN DRAWINGS PROVIDED BY OTHERS

TIE-IN DETAIL
NTS




BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
*2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599*

JOB NO.: 0071-017-327

# 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.

**FIGURE 4**



F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase I Parcel\Site Management Plan\Site I-9, I-10, and I-11\Figure 4, Cover System Plan Phase 3.dwg, DWG To PDF.pc3

DATE: OCTOBER 2017
DRAFTED BY: RFL

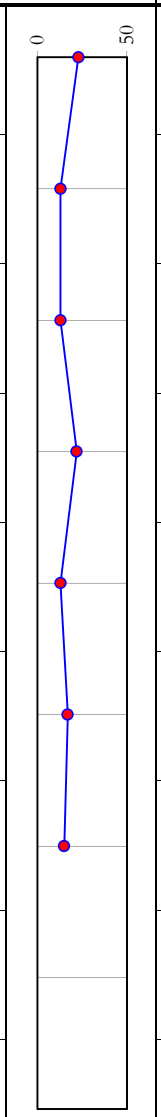
# ATTACHMENT A

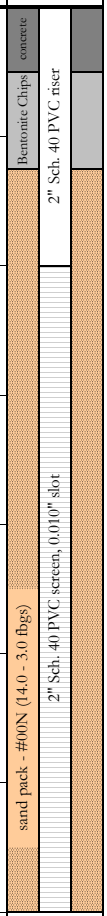
## MONITORING WELL BORING AND CONSTRUCTION LOGS

# 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<br>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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 583.82 | 0 | S1 | 4<br>9<br>14<br>20 | 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 |
| 581.82 | 2 | S2 | 4<br>6<br>7<br>10 | 13 | 1.1 | (0.0 - 0.5) **REWORKED CLAY:** Medium grey, moist, 70% MPF, 30% FS, w/ pieces of orange brick, stiff<br>(0.5 - 1.1) Same as S1, wet | FILL | 0.0 | 0.0 | FILL |
| 579.82 | 4 | S3 | 7<br>6<br>7<br>12 | 13 | 1.4 | Same as S1, wet | FILL | 0.0 | 0.0 | FILL |
| 577.82 | 6 | S4 | 9<br>11<br>11<br>13 | 22 | 0.5 | Same as S1, wet | FILL | 0.0 | 0.0 | FILL |
| 575.82 | 8 | S5 | 5<br>5<br>8<br>14 | 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 |
| 573.82 | 10 | S6 | 5<br>7<br>10<br>12 | 17 | 0.9 | same as S5, w/ brick fragments | CL | 0.0 | 0.0 | CLAY |
| 571.82 | 12 | S7 | 7<br>8<br>7<br>12 | 15 | 1.1 | (0.0 - 0.8) Same as S5<br>(0.8 - 1.1) **SANDY ORGANIC SOIL:** Dark brown, moist, 60% LPF, 40% FS, w/rootletts, dense, LWD | CL<br>OL/OH | 0.0 | 0.0 | CLAY<br>PEAT |
| 569.82 | 14 | | | | | EOB @ 14.0 fbgs | | | | |
| 567.82 | 16 | | | | | | | | | |
| 565.82 | 18 | | | | | | | | | |



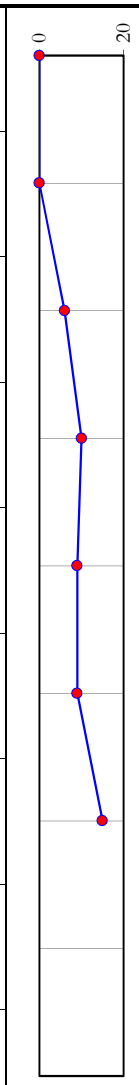

**ABREVIATIONS:**

C = coarse
CG = coarse gravel
CS = coarse sand
EOB = end of boring
F = fines or fine
fbgs = feet below ground surface
FG = fine gravel
fmsl = feet above mean sea level
FS = fine sand
HP = high plasticity
HSA = hollow stem auger
LP = low plasticity
LWD = loose when disturbed
M = medium
MP = medium plasticity
MS = medium sand
NA = not applicable
NPF = not plastic fines
SA = sub-angular
SR = sub-rounded
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<br>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 | NA | Augered to 4.0 fbgs (description from soil cuttings)<br>**SOIL/FILL:** Black/dark brown, moist, NPF, w/ brick fragments | FILL | 0.0 | -- | FILL | concrete |
| 581.71 | 2 | NA | -- -- -- -- | 0 | NA | Same as above | FILL | 0.0 | -- | FILL | Bentonite Chips |
| 579.71 | 4 | S1 | 2 2 4 4 | 6 | 1.0 | **SANDY LEAN CLAY:** Medium grey to dark grey, wet, stiff, 40%MPF, 60% FS, slow dialatency w/ some gravel | FILL | 0.0 | 0.0 | FILL | 2" Sch. 40 PVC riser |
| 577.71 | 6 | S2 | 3 5 5 6 | 10 | 1.3 | (0.0 - 0.3) **ORGANIC SANDY SOIL:** Dark brown, wet, 30% LPF, 70% FS, dense, LWD<br>(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 7 | 9 | 0.9 | (0.0 - 0.5) **SANDY ORGANIC SOIL:** Dark Brown, wet, 60% FS, 40% LPF, firm, LWD<br>(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 | sand pack - #00N (14.0 - 3.0 fbgs) |
| 573.71 | 10 | S4 | 2 3 6 7 | 9 | 1.7 | (0.0 - 0.3) Same as S3 (0.0 - 0.5)<br>(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 | 2" Sch. 40 PVC screen, 0.010" slot |
| 571.71 | 12 | S5 | 8 6 9 9 | 15 | 1.5 | Same as S4 (0.3 - 1.7) | CL | 0.0 | 0.0 | CLAY | |
| 569.71 | 14 | | | | | EOB @ 14.0 fbgs | | | | | |
| 567.71 | 16 | | | | | | | | | | |
| 565.71 | 18 | | | | | | | | | | |



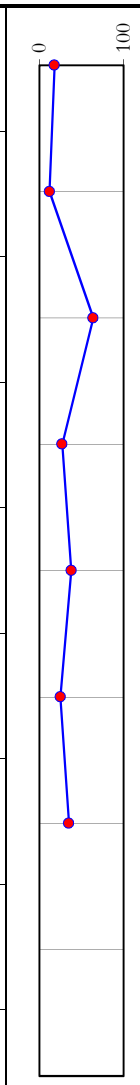

**ABREVIATIONS:**

| | | | |
|---|---|---|---|
| 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 |

# 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<br>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<br>9<br>9<br>8 | 18 | 1.0 | (0.0 - 0.9) **SOIL/FILL:** Black/Dark Brown, moist, dense, LWD, 90% NPF 10% Fine sand, w/ slag & brick debris<br>(0.9 - 1.2) **SANDY LEAN CLAY:** Medium brown, stiff, moist, 60% MPF, 40% Fine sand<br>(1.2 - 1.8) Same as S1 (0.0 - 0.9) | FILL<br>CL<br>FILL | 0.0 | 0.0 | FILL<br>CLAY<br>FILL | concrete |
| 582.00 | 2 | S2 | 3<br>4<br>8<br>11 | 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 | Bentonite Chips<br>2" Sch. 40 PVC riser |
| 580.00 | 4 | S3 | 9<br>42<br>22<br>9 | 64 | 1.1 | Same as S2, wet | CL | 0.0 | 0.0 | CLAY | |
| 578.00 | 6 | S4 | 9<br>12<br>15<br>16 | 27 | 1.1 | Same as S2 w/ iron staining | CL | 0.0 | 0.0 | CLAY | |
| 576.00 | 8 | S5 | 8<br>11<br>27<br>15 | 38 | 1.3 | Same as S2 | CL | 0.0 | 0.0 | CLAY | |
| 574.00 | 10 | S6 | 7<br>10<br>15<br>15 | 25 | 1.7 | Same as S2 w/ angular gravel form (0.2 - 0.3) & (1.1 - 1.2) | CL | 0.0 | 0.0 | CLAY | sand pack - #00N (14.0 - 3.0 fbgs)<br>2" Sch. 40 PVC screen, 0.010" slot |
| 572.00 | 12 | S7 | 7<br>18<br>17<br>29 | 35 | 1.1 | **SANDY LEAN CLAY:** Medium grey, stiff, moist, 70% MPF, 30% Fine sand, slow dialatency, with angular gravel | CL | 0.0 | 0.0 | CLAY | |
| 570.00 | 14 | | | | | EOB @ 14.0 fbgs | | | | | |
| 568.00 | 16 | | | | | | | | | | |
| 566.00 | 18 | | | | | | | | | | |




**ABREVIATIONS:**

| | | | |
|---|---|---|---|
| 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.C915197I**

**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? | ☐ | ☐ |
| If NO, are changes handwritten above or included on a separate sheet? | ☐ | ☐ |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 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? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 4. Has a change-of-use occurred since the initial/last certification? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 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? | ☐ | ☐ |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | ☐ | ☐ |
| 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) ? | ☐ | ☐ |

**SITE NO. C915197I** **Box 3**

**Description of Institutional Control Certification**

| | YES | NO |
|---|---|---|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | □ | □ |
| 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: | □ | □ |
| 3. Groundwater monitoring as specified in the SMP: | □ | □ |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | □ | □ |

**Description of Engineering Control Certification** **Box 4**

| | YES | NO |
|---|---|---|
| 1. Maintenance of the cover systems over the Site: | □ | □ |

**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? | ☐ | ☐ |
| If NO, are changes handwritten above or included on a separate sheet? | ☐ | ☐ |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 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? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 4. Has a change-of-use occurred since the initial/last certification? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 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? | ☐ | ☐ |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | ☐ | ☐ |
| 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) ? | ☐ | ☐ |

**SITE NO. C915197J** **Box 3**

**Description of Institutional Control Certification**

| | YES | NO |
|---|---|---|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | □ | □ |
| 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: | □ | □ |
| 3. Groundwater monitoring as specified in the SMP: | □ | □ |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | □ | □ |

**Description of Engineering Control Certification** **Box 4**

| | YES | NO |
|---|---|---|
| 1. Maintenance of the cover systems over the Site: | □ | □ |

**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? | ☐ | ☐ |
| If NO, are changes handwritten above or included on a separate sheet? | ☐ | ☐ |
| 2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 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? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 4. Has a change-of-use occurred since the initial/last certification? | ☐ | ☐ |
| If YES, is documentation or evidence that documentation has been previously submitted included with this certification? | ☐ | ☐ |
| 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? | ☐ | ☐ |
| If YES, is the new information or evidence that new information has been previously submitted included with this Certification? | ☐ | ☐ |
| 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) ? | ☐ | ☐ |

**SITE NO. C915197K** **Box 3**

**Description of Institutional Control Certification**

| | YES | NO |
|---|---|---|
| 1. Compliance with the Site Management Plan (SMP) for the implemented remedy: | □ | □ |
| 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: | □ | □ |
| 3. Groundwater monitoring as specified in the SMP: | □ | □ |
| 4. Operation and maintenance of the ASD system as specified in the SMP: | □ | □ |

**Description of Engineering Control Certification** **Box 4**

| | YES | NO |
|---|---|---|
| 1. Maintenance of the cover systems over the Site: | □ | □ |

**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. Envtl Conserv.Law Section 56-0503 (Environmental restoration projects; state assistance)

For State Superfund Projects: Envtl Conserv.Law Section 27-1318. (Institutional and engineering controls)

For Brownfields Cleanup Program Projects: Envtl Conserv.Law Section 27-1415. (Remedial program requirements)

Envtl 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.