

# Periodic Review Report

*Tecumseh Phase III Business Park  
Sites III-5 & III-6*

*2303 Hamburg Turnpike*

November 2018

B0397-017-001

Prepared For:

Steel Sun, LLC

Prepared By:



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# PERIODIC REVIEW REPORT

**TECUMSEH PHASE III BUSINESS PARK  
SITES III-5 & III-6  
(BCP SITE NO.S C915199E & C915199F)**

**2303 HAMBURG TURNPIKE  
LACKAWANNA, NEW YORK**

---

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B0397-017-001

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**Steel Sun, LLC**

Prepared By:



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**PERIODIC REVIEW REPORT**  
**Sites III-5 & III-6: C915199E & C915199F**  
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**PERIODIC REVIEW REPORT**  
**Sites III-5 & III-6: C915199E & C915199F**  
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## 1.0 INTRODUCTION

Benchmark Environmental Engineering and Science, PLLC (Benchmark) has prepared this Periodic Review Report (PRR) to summarize the post-remedial status of New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site No.s C915199E and C915199F, located at 2303 Hamburg Turnpike in the City of Lackawanna, Erie County, New York.

This PRR has been prepared for the Subject BCP Sites in accordance with NYSDEC DER-10 *Technical Guidance for Site Investigation and Remediation* (Ref 1). Institutional and Engineering Control (IC/EC) Certification Forms have been completed for the Sites and are included in Appendix A.

This PRR and the associated certifications have been completed on behalf of the BCP Site operator, Steel Sun, LLC, to document post-remedial activities covered by the Site Management Plan (Ref. 2). The post remedial period covered by this PRR is: March 15, 2017- March 15, 2018.

### 1.1 Site Background

In March of 2007 Tecumseh Redevelopment Inc. (Tecumseh) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) to investigate and remediate an approximate 150-acre property located in Lackawanna, New York. The property, deemed the “Phase III Business Park Site” is located in the County of Erie, New York and encompasses tax parcel numbers 141.15-1-1, 141.15-1-2, and part of tax parcel number 141.11-1-50 per Erie County Tax Map records. The Phase III Business Park Site is bounded by Gateway Metroport Ship Canal and property owned by Gateway Trade Center to the north; the South Buffalo Railroad Company to the south; Phase II Business Park Site and the South Return Water Trench (SRWT) to the east; and other Tecumseh property to the west (see Figures 1 and 2). The 150-acre Phase III Business Park was originally deemed Brownfield Cleanup Program (BCP) Site No. C915199, but was subsequently subdivided into ten smaller parcels to facilitate remediation and redevelopment (see Figure 2). On August 20, 2012, the original BCA for Site C915199 was amended to cover the smaller Site III-1, with separate BCAs

issued and executed for the remaining nine BCP Sites (i.e., Sites III-2 through III-10, having BCP Site Nos. C915199b through C915199j).

In July 2014 Steel Sun, LLC arranged to lease from Tecumseh Sub-parcels III-5 (Site No. C915199e) and III-6 (Site No. C915199f), encompassing 22.6 acres of property, for construction and operation of a commercial-scale solar electricity generation system. Sub-parcels III-5 and III-6 were subsequently remediated to Track 4 restricted (commercial) use with site specific soil cleanup objectives (SCOs) consistent with the approved Remedial Action Work Plan. The final remedial measures implemented by Steel Sun included placement of acceptable cover material in areas not otherwise covered by asphalt roadway, pavement, etc.

## 1.2 Remedial History

### *1.2.1 Phase III Business Park*

The approximate 150-acre Phase III Business Park was formerly part of the Bethlehem Steel Corporation (BSC) Lackawanna Works and housed several facilities used in BSC's steel manufacturing processes. Specific processes and steel making facilities performed on or proximate to the subject BCP Sites included:

- Open Hearth Furnaces
- Basic Oxygen Furnace
- Mold Warming and Preparation
- Electrical Substations
- Wastewater Treatment

Remedial Investigation (RI) activities on the Phase III Business Park were initiated in August 2008, with additional activities undertaken in late 2009 through early 2010. Some supplemental investigation work was also completed in April 2012.

The RI identified several Constituents of Concern (COCs) that were generally present across widespread areas of the Phase III Business Park site, primarily in site soils and to a lesser extent in groundwater. These included polyaromatic hydrocarbons (PAHs), arsenic,

lead, and mercury. Isolated areas of petroleum impact were also encountered. The Remedial Investigation/Alternatives Analysis (RI/AA) Report (Ref. 3) recommended remediation of “hotspot” slag/fill (characterized by more pronounced levels of COCs) and isolated groundwater/saturated soil impacts (affecting only select sites in the Phase III Business Park), with cover placement recommended as the final remedial measure under a Track 4 Cleanup approach. Additional requirements included development and adherence to a Site Management Plan (SMP) and filing of an Environmental Easement to restrict use of the Phase III Business Park property to commercial and industrial applications and to place other limitations on post-redevelopment activities.

### ***1.2.2 Sites III-5 & III-6***

In accordance with the May 2008 RI/AA Work Plan, 86 test pits were completed across the Phase III Business Park including approximately 27 test pits on Sites III-5 and III-6. The investigation identified evidence of potentially significant soil/fill impacts associated with Test Pit BP3-TP-42 within Sub-parcel III-6. At this location, which was subsequently deemed “Hotspot A,” a PID reading of 400 ppm was measured and suspected red paint was observed at 0.5- 1.5 feet below ground surface (fbgs). A soil sample was collected and submitted for laboratory analysis. An elevated estimated concentration of lead (4,550 mg/kg) was detected within the sample, consistent with the observed red paint. The test pit was expanded with similar observations recorded across an isolated area having dimensions of approximately 10 feet x 10 feet x 2.5 feet deep. These results are summarized in the RI/AA Report.

### ***1.2.3 IRM Activities: August – December 2013***

Based on the findings of the RI/AA Report, an interim remedial measure (IRM) in the form of soil/fill excavation and offsite disposal was undertaken to address Hotspot A in 2013. TurnKey Environmental Restoration, LLC (TurnKey) implemented IRM work on Site III-6 on behalf of Tecumseh Redevelopment, Inc. The work was performed on a design-build basis in accordance with an NYSDEC-approved IRM Work Plan (Ref. 4). Hotspot excavation activities were performed in August 2013, with offsite disposal of the impacted

slag/fill performed in December 2013. The IRM activities, fully described in the January 2014 Construction Completion Report for the Phase III Business Park (Ref. 5), included:

- Excavating approximately 9.3 cubic yards of lead-impacted slag/fill surrounding Hotspot A (i.e., Remedial Investigation Test pit BPA3-TP-42 on Sub-Parcel III-6 -see Figure 3), with off-site disposal of these materials at the Chautauqua County Landfill (CCLF) in Ellery, NY.
- Collecting post-excitation documentation samples from the lead-impacted hotspot excavation area. One representative sidewall sample was collected from each of the four sides of each excavation area and one bottom sample was collected from the base of each excavation area. The samples were submitted to a New York State Department of Health (NYSDOH)-ELAP certified laboratory for analysis of lead in accordance with USEPA SW-846 Method 6010. The samples were compared to the site-specific action level (SSAL) of 3,900 parts per million. All detections fell below the SSAL and no further excavation work was completed at Hotspot A. Based on the shallow nature of the excavation no backfill work was performed.

#### ***1.2.4 IRM Activities: September 2014***

During subgrade work on other Phase III Business Park property in 2013 an abandoned 30” diameter pipeline was encountered. The line, which contained a heel of materials exhibiting visual and olfactory evidence of impact, was identified through review of historical drawings to be part of a network of aboveground and subsurface piping used to convey coke oven gas for heating applications in the former steel manufacturing and support buildings. A 14” diameter branch off the 30” gas line, which extended west into Sub-parcel III-5, was identified on the drawings as well (see Figure 3).

Due to the presence of the impacted heel within the piping (believed to be residual scale and sediment resulting from gas condensate), the NYSDEC determined that the line represented a potential source area requiring remediation. Tecumseh subsequently prepared an Interim Remedial Work Plan (Ref 6) to address the piping on the Brownfield areas of its Lackawanna property. The 14” branch extending into Site III-5 was remediated by Turnkey on behalf of Tecumseh on September 4-5, 2014. The work involved exposing the pipe along its length followed by excavating and removing the cast iron piping in sections. Overlying clean overburden material was staged adjacent to the excavation. Minor quantities

of scale/sediment within the piping were removed and stockpiled on poly sheeting. An estimated 3.76 tons of non-hazardous slag/fill and piping residuals were disposed at the CCLF. The cleaned piping was staged on poly sheeting in Business Park III for offsite transport and recycling.

The excavation for the 14-inch diameter piping was backfilled with the overlying clean overburden material and supplemented with imported BUD-approved (BUD #555-9-15) slag from a commercial stockpile operated by Iron City Recovery.

### **1.3 Compliance**

At the time of the Site inspection, the Site was fully compliant with the NYSDEC-approved SMP (Ref 2).

### **1.4 Recommendations**

Based on observations recorded during the annual inspection and IC/EC certification, no modifications are recommended at this time.

## 2.0 SITE OVERVIEW

Final remedial activities undertaken on Sites III-5 and III-6 are described below. All of the remediated properties within the Phase III Business Park are subject to a comprehensive, site-wide SMP which identifies requirements for monitoring and maintenance of engineering and institutional controls and procedures for post-remedial excavation and related activities. Specific requirements affecting individual Sites within Phase III Business Park are included as appendices to the comprehensive plan. The SMP is updated as additional Sites within the Phase III Business Park are remediated.

### 2.1 Final Remedial Measures

Final (post-IRM) remedial activities on Sites III-5 and III-6 were performed by Steel Sun, LLC with oversight provided by the New York State Department of Environmental Conservation (NYSDEC). Benchmark performed the remedial work on a design-build basis with assistance from Zoladz Construction Company, Inc., the designated remedial subcontractor, in accordance with an NYSDEC-approved Remedial Action Work Plan (Ref. 7). The final remedial measures incorporated the following activities:

- Railroad ties (approx. six loads) were removed from the Site by the subcontractor and transported to Iron City Recovery, LLC for disposal.
- All areas of the Site not covered by existing competent asphalt were covered with approximately 73,249 tons of imported beneficial use determination (BUD)-approved slag over a demarcation layer. Imported slag was placed to a minimum compacted thickness of 1 foot (see Figure 4).
- An addendum to the previously-approved Business Park III SMP was prepared to summarize the remedial measures on Sites III-5 and III-6 and describe site-specific monitoring and maintenance requirements for those parcels. (An Environmental Easement restricting end use of the Site and enforcing adherence to the SMP was filed in November 2013).

The remedial program was successful in achieving the remedial objectives for the Site. The Final Engineering Report (FER) was approved in December 2014 (Ref 8). A

Certificate of Completion (COC) was issued for Site III-5 and III-6 by the NYSDEC in December 2014.

### **3.0 REMEDY PERFORMANCE**

A post-remedial site inspection involving a walk-over of the Sites covered by this PRR was performed to visually observe and document the use of the Site for commercial/industrial use, confirm absence of site groundwater use, inspect the cover system integrity, and verify conformance with other requirements under the SMP. The site inspection completed during this reporting period indicates that the controls are in-place and functioning as intended in accordance with the SMP.

The completed IC/EC Certification forms and site photographs are included in Appendix A and B, respectively.

## 4.0 SITE MANAGEMENT PLAN

A site-wide SMP was prepared for the Phase III Business Park and approved by the Department in December 2013. Parcel-specific SMP requirements for Sites III-5 and III-6 were added by Addenda in November 2014 and are presented in SMP appendices H5 and H6. Key components of the SMP are described below.

### 4.1 Engineering and Institutional Control (IC/EC) Plan

Since remaining contaminated soil/fill and groundwater exists beneath the Phase III Business Park, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. The Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs on the Sites within the Phase III Business Park.

#### 4.1.1 Institutional Controls

The following institutional controls apply to all Sites within the Phase III Business Park:

- The use and development of the property is restricted to commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- Groundwater cannot be used as a source of potable or process water, without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or County DOH;
- All Sites must comply with the Department approved Site Management Plan; and
- The remedial party or site owner must complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3.)

#### 4.1.2 Engineering Controls

Engineering controls covering Sites within the Phase III Business Park include:

- Cover System – The cover system, including building foundations, concrete sidewalks, concrete or asphalt driveways, parking areas, and landscaped vegetated areas must be maintained in compliance with the SMP.
- Vapor Barrier (specific to Sites with buildings) - A poly vapor barrier must be installed and remain in-place beneath new building concrete floor slabs.

At the time of the site inspection, the Sites covered by this PRR were fully compliant with all engineering and institutional control requirements.

#### **4.2 Excavation Work Plan**

An Excavation Work Plan (EWP) was included in the approved-SMP for the Phase III Business Park. The Excavation Work Plan provides guidelines for the management of soil and fill material during any future intrusive activities. Any intrusive work that will penetrate the cover or cap, or encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover system, must be performed in compliance with the EWP and must also be conducted in accordance with a site-specific Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) meeting the minimum requirements of the sample HASP and CAMP included with the SMP.

For the Subject Sites III-5 and III-6, no ground-intrusive activities requiring disturbance of the cover system, management of on-Site soil/fill material, or placement of backfill materials occurred in during the subject March 15, 2017 -March 15, 2018 reporting period. Disturbances of the cover system and excavation activities on the southern portion of the parcels to allow subsurface industrial water line protection and installation of a new rail line occurred in summer of 2018. This work, which was undertaken with NYSDEC knowledge and periodic inspection and oversight/monitoring by a Qualified Environmental Professional, will be documented in the next PRR.

#### **4.3 Annual Inspection and Certification Program**

The Annual Inspection and Certification Program outlines requirements for certifying and attesting that the institutional controls and engineering controls employed on the Sites are unchanged from the original design and/or previous certification. The Annual

Certification includes a Site Inspection and completion of the NYSDEC's IC/EC Certification Form. The Site inspection is intended to verify that the IC/ECs:

- Are in place and effective.
- Are performing as designed.
- That nothing has occurred that would impair the ability of the controls to protect the public health and environment.
- That nothing has occurred that would constitute a violation or failure to comply with any operation and maintenance plan for such controls.
- Access is available to the Site to evaluate continued maintenance of such controls.

Inspection of Sites III-5 and III-6 was conducted by Thomas Forbes, P.E. of Benchmark on October 30, 2018. Mr. Forbes meets the requirements of a Qualified Environmental Professional (QEP) per 6NYCRR Part 375.12. At the time of the inspection, the Sites were unoccupied and in service as photovoltaic (solar) power generating facilities. No observable indication of intrusive activities was noted during the Site inspection.

The completed Site Management Periodic Review Report Notice – Institutional and Engineering Controls Certification Forms are included in Appendix A. A PRR photo log is included in Appendix B.

#### **4.4 Operation, Monitoring and Maintenance Plan**

The remedy for Sites III-5 and III-6 does not rely on any mechanical systems such as sub-slab depressurization or soil vapor extraction, to protect public health and the environment. Therefore, an Operation and Maintenance Plan is not required.

## 5.0 GROUNDWATER MONITORING

Appendices H5/H6 of the SMP require groundwater monitoring at wells MWN-58A, MWN-59A, and MWN-60A on an annual basis for a period of approximately 2 years, after which the need for continued monitoring or a revision to the monitoring program will be discussed with the NYSDEC. During the first two years the SMP requires that groundwater sampled from all three wells be analyzed for VOCs, SVOCs (base neutrals only), site-specific metals (i.e., arsenic, chromium, lead, and mercury), and field parameters (i.e., pH, temperature, specific conductance, turbidity, dissolved oxygen, and oxidation-reduction potential).

TurnKey Environmental Restoration performed the first annual monitoring event at MWN-58A, MWN-59A, and MWN-60A on February 2, 2016 as part of a comprehensive groundwater monitoring event requested by the NYSDEC for all of the Tecumseh Business Parks. A summary of the analytical results and laboratory data from this event were provided to the NYSDEC in the February 2016 PRR.

A second annual monitoring event was conducted by Steel Sun, LLC on March 13, 2017. A summary of the laboratory results and analytical results from this event were provided to the NYSDEC in the March 2017 PRR.

In June 2017 the NYSDEC requested to continue the annual groundwater monitoring for total arsenic only to further evaluate any increasing values, particularly in monitoring well MW- 58A.

On October 30, 2018 TurnKey on behalf of Steel Sun, LLC collected groundwater samples from monitoring wells MWN-58A, MWN-59A & MWN-60A. The samples were delivered under Chain of Custody command to Alpha Laboratories for total and soluble (dissolved) arsenic analysis. Laboratory results are included in Appendix C along with field data sheets. Table 1 summarizes the monitoring results, as well as groundwater monitoring data from prior sampling events. NYSDEC Class GA groundwater quality standards (GWQS) per NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 are presented for comparison. As indicated, total arsenic data are generally consistent with those collected during the RI and prior events. Dissolved (soluble) arsenic results indicate concentrations below GWQS at each well location.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions and recommendations are as follows:

- At the time of the Site inspection, Sites III-5 and III-6 were in compliance with the SMP.
- Groundwater data have been consistent throughout the 3-year monitoring period and prior RI, with no only minor exceedances of the standard for total arsenic at MW-58A. Soluble arsenic results indicate concentrations below the GWQS at all locations. Accordingly, Steel Sun, LLC requests termination of annual groundwater monitoring.

## 7.0 DECLARATION/LIMITATION

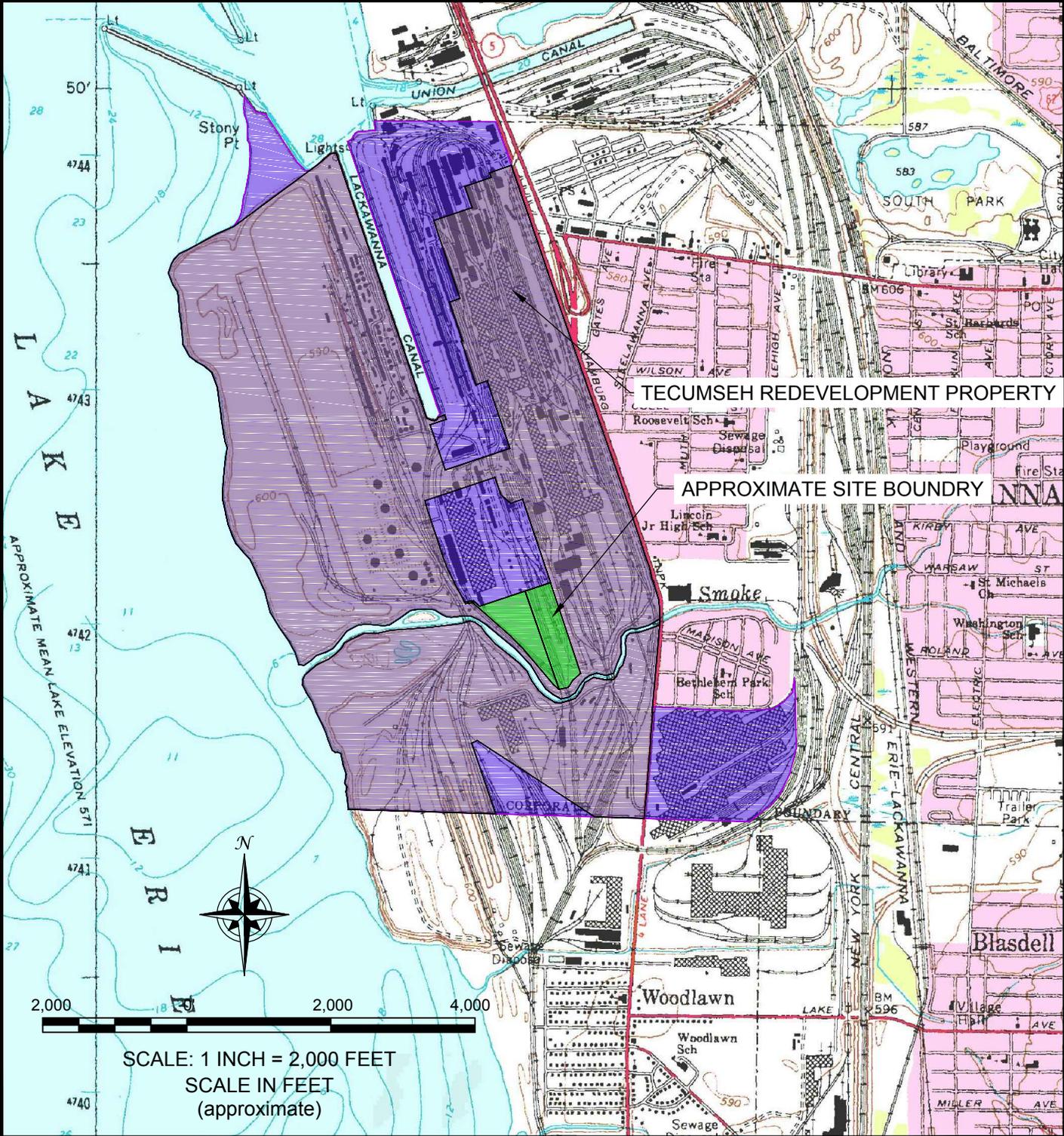
This report has been prepared for the exclusive use of Steel Sun, LLC. The contents of this report are limited to information available at the time of the site inspection. The findings herein may be relied upon only at the discretion of Steel Sun, LLC. Use of or reliance upon this report or its findings by any other person or entity is prohibited without written permission of Benchmark Environmental Engineering and Science, PLLC.

## 8.0 REFERENCES

1. 2013. New York State Department of Environmental Conservation. *DER-10/Technical Guidance for Site Investigation and Remediation*. May 3.
2. 2013. TurnKey Environmental Restoration, LLC. *Site Management Plan for Tecumseh Phase III Business Park*. Revised July 2015.
3. 2012. TurnKey Environmental Restoration, LLC. *Remedial Investigation/Alternatives Analysis Report for Phase III Business Park, Lackawanna, New York*. Revised July.
4. 2013. TurnKey Environmental Restoration, LLC and Benchmark Environmental Engineering & Science, PLLC. *Interim Remedial Measures (IRM) Work Plan, Phase III Business Park, Sub-Parcels III-4, III-6 and III-10, Lackawanna, New York, BCP Site Nos. 915199D, C915199F, and C915199J*. July.
5. 2014. TurnKey Environmental Restoration, LLC and Benchmark Environmental Engineering & Science, PLLC. *Construction Completion Report, Metal-Impacted Hotspots, Business Park Sub-parcels III-4, III-6 & III-10, Lackawanna, New York, BCP Sites C915199D, C915199F & C915199J*. January
6. 2014. TurnKey Environmental Restoration, LLC and Benchmark Environmental Engineering & Science, PLLC. *Interim Remedial Measures (IRM) Work Plan for BCP Business Parks II & III: Decommissioning of Former Coke Oven Gas Lines, Tecumseh Redevelopment Site, Lackawanna, New York*. April.
7. 2014. Benchmark Environmental Engineering & Science, PLLC. *Remedial Action Work Plan, Steel Sun Site, Lackawanna, New York, BCP Site Nos. C915199E & C915199F*. July
8. 2014. Benchmark Environmental Engineering & Science, PLLC. *Final Engineering Report, Tecumseh Phase III-5 & 6 Business Park Sites, NYSDEC Site Nos. C915199E/C915199F, Lackawanna, New York*. November.

# FIGURES

FIGURE 1



**BENCHMARK**  
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 ENGINEERING &  
 SCIENCE, PLLC

2558 HAMBURG TURNPIKE  
 SUITE 300  
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 (716) 856-0599

PROJECT NO.: 0302-016-001

DATE: JANUARY 2016

DRAFTED BY: RPL

**REGIONAL MAP**

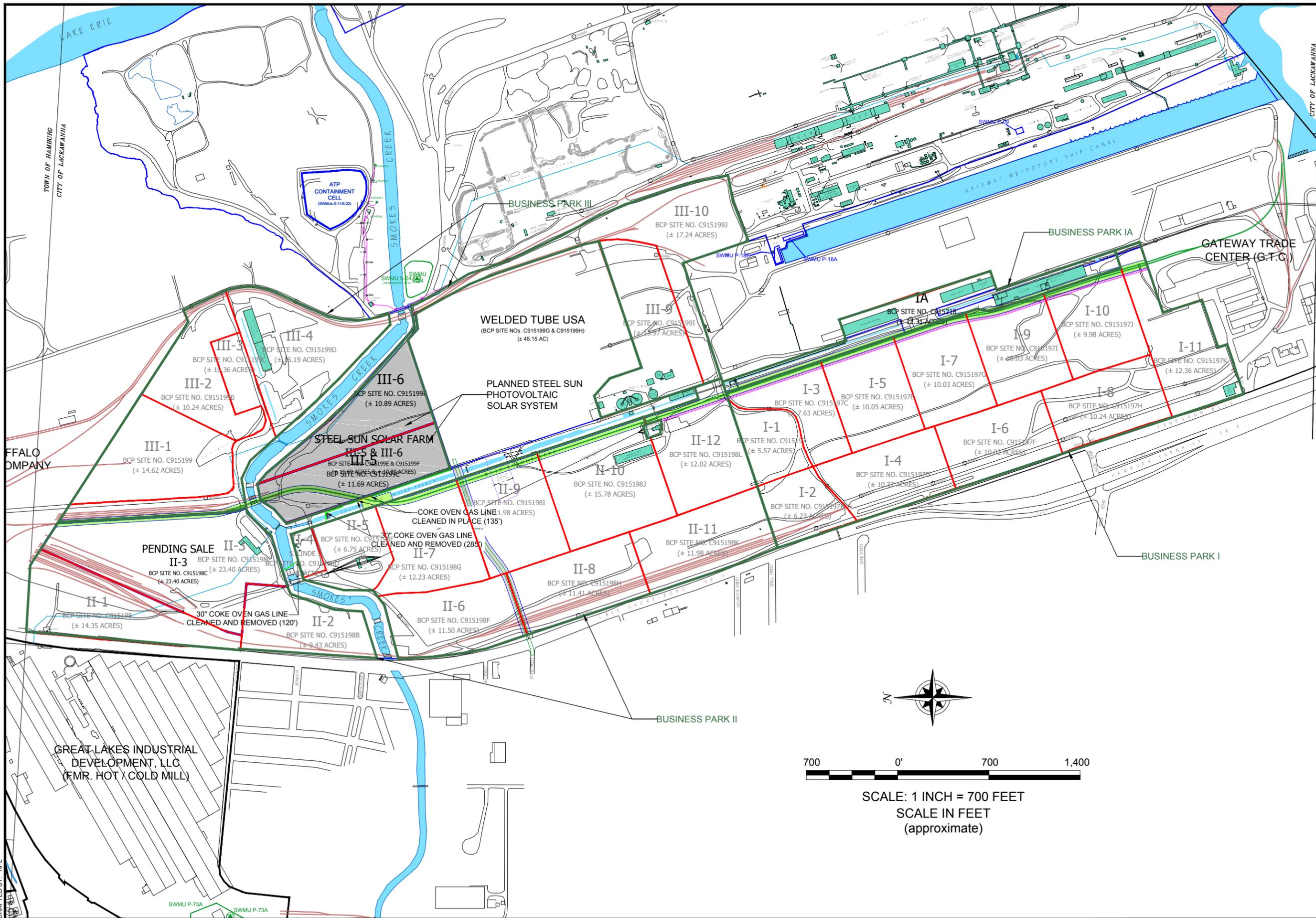
PERIODIC REVIEW REPORT

TECUMSEH PHASE III BUSINESS PARK  
 SITES III-5 AND III-6  
 LACKAWANNA, NY

PREPARED FOR  
**STEEL SUN, LLC**

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DATE: JANUARY 2016  
DRAFTED BY: RPL



GREAT LAKES INDUSTRIAL  
DEVELOPMENT, LLC  
(FMR. HOT / COLD MILL)

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 ENVIRONMENTAL  
 ENGINEERING &  
 SCIENCE, PLLC

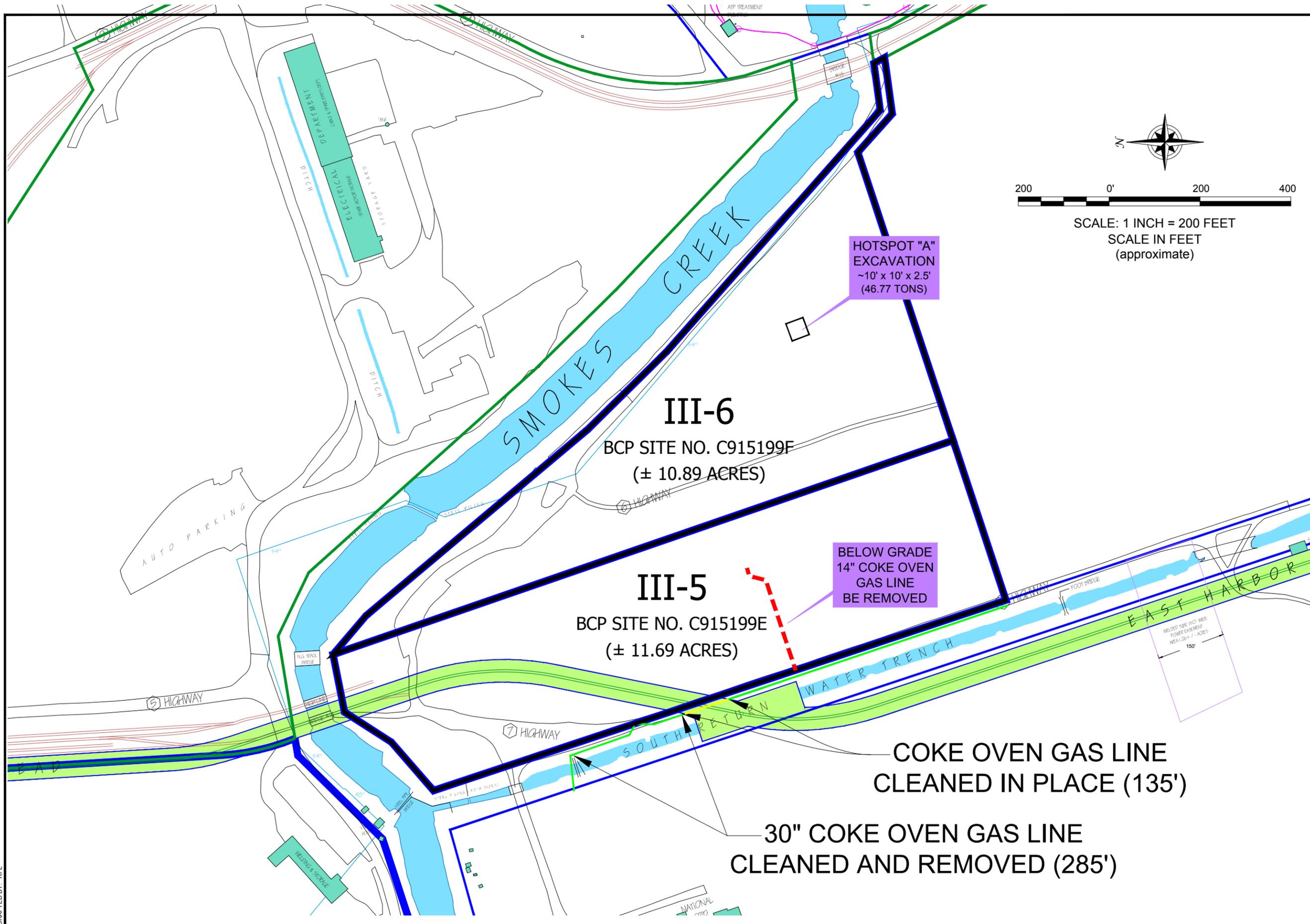
2558 HAMBURG TURNPIKE  
 SUITE 300  
 BUFFALO, NY 14218  
 (716) 856-0599

JOB NO.: B0302-016-001

### VICINITY MAP

PERIODIC REVIEW REPORT  
 STEEL SUN PHOTOVOLTAIC SOLAR SYSTEM  
 TECUMSEH REDEVELOPMENT AREA  
 LACKAWANNA, NY  
 PREPARED FOR  
 STEEL SUN, LLC

**FIGURE 2**



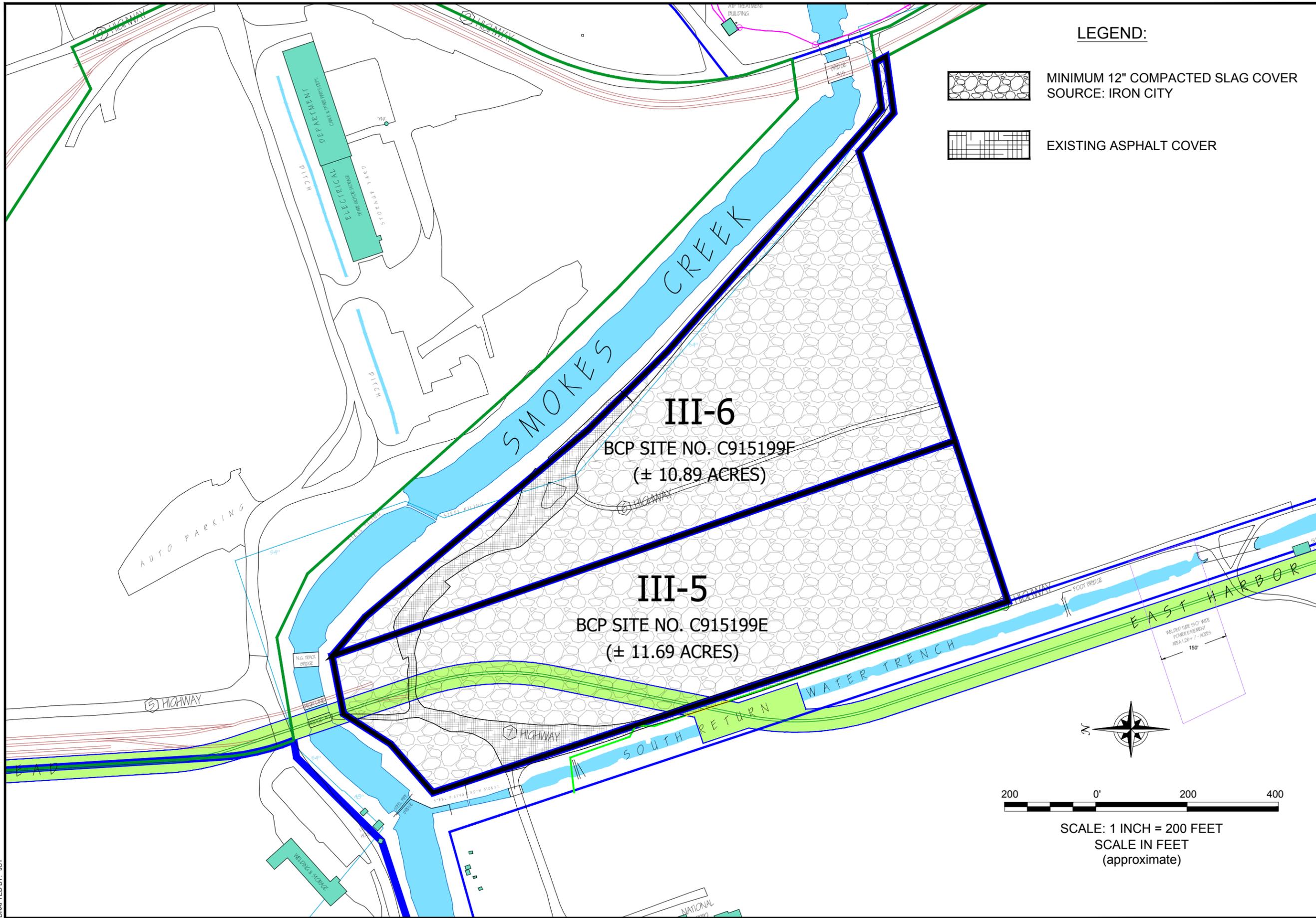
**REMEDIAL ACTIONS ON PARCELS III-5 & III-6**

FINAL ENGINEERING REPORT  
TECUMSEH PARCEL III-5&6 BUSINESS PARK SITE  
BCP SITE NOS. C915199E & C915199F  
LACKAWANNA, NY

PREPARED FOR  
STEEL SUN, LLC

**FIGURE 3**

DATE: SEPTEMBER 2014  
DRAFTED BY: JCT



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2558 HAMBURG TURNPIKE  
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### SITE-WIDE COVER SYSTEM

TECUMSEH PHASE III BUSINESS PARK  
SITE III-5 AND III-6  
LACKAWANNA, NY  
PREPARED FOR  
STEEL SUN, LLC

### FIGURE 4

**TABLE**

**TABLE 1**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**

**PERIODIC REVIEW REPORT**

**Tecumseh Phase III Business Park: Sites III-5 & III-6**  
**Lackawanna, New York**

Parameter <sup>1,2,3</sup>	Sample Location												GWQS <sup>4</sup>												
	MW-N-58A 1/14/09		MW-N-58A 2/3/16		MW-N-58A 3/13/17		MW-N-58A 10/30/18		MW-N-59A 1/14/09		MW-N-59A 2/3/16			MW-N-59A 3/13/17		MW-N-59A 10/30/18		MW-N-60A 1/14/09		MW-N-60A 2/3/16		MW-N-60A 3/13/17		MW-N-60A 10/30/18	
<b>Field Measurements <sup>5</sup>:</b>																									
Sample No.	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	--
pH (units)	7.71	7.71	7.16	7.17	7.18	7.18	7.31	7.55	7.60	7.47	7.51	7.32	7.36	7.31	8.28	8.29	8.19	8.18	7.62	7.87	8.02	8.02	8.02	8.02	<b>6.5 - 8.5</b>
Temperature (°C)	10.3	9.3	12.1	12.1	9.0	8.5	13.60	9.1	8.8	12.4	12.1	9.2	8.7	15.80	9.6	9.6	12.20	12.30	7.1	6.4	15.8	15.8	15.8	15.8	NA
Sp. Conductance (mS)	412.4	411.5	559.8	558.9	523.3	526.1	483	704.3	700.8	823.7	824.2	729.5	722.4	607.2	614.8	619.0	663.2	660.3	672.4	666.7	499.7	499.7	499.7	499.7	NA
Turbidity (NTU)	31.30	22.60	26	7.97	29.6	28.3	16.20	24.40	11.10	13.4	24.8	6.38	5.31	1.66	5.57	4.54	7.47	4.02	1.33	1.29	3.15	3.15	3.15	3.15	NA
DO (ppm)	1.61	1.91	1.96	1.87	1.25	1.25	0.87	1.78	1.96	1.37	1.28	2.55	2.65	1.04	1.33	1.63	1.50	1.38	2.15	3.54	1.44	1.44	1.44	1.44	NA
Eh (mV)	-128	-120	-53	-65	31	42	-115	-142	-142	-118	-123	74	75	-133	-197	-189	176	152	7	43	-155	-155	-155	-155	NA
<b>Metals (mg/L): <sup>6</sup></b>																									
Arsenic - Total	0.0164		<b>0.035</b>		<b>0.1405</b>		<b>0.03678</b>		ND		ND		0.00343		0.00377		ND		0.0064 J		0.00225		0.00449		<b>0.025</b>
Arsenic - Dissolved	--		--		--		0.01733		--		--		--		0.0038		--		--		0.00432		0.00432		<b>0.025</b>
Barium - Total	--		0.043		--		--		--		0.056		--		--		0.03		--		--		--		1
Chromium - Total	ND		ND		0.00067 J		--		ND		ND		0.0009 J		--		ND		0.00029 J		--		--		<b>0.05</b>
Lead - Total	ND		0.0031 J		0.00077 J		--		ND		0.004 J		ND		--		ND		ND		--		--		<b>0.025</b>
Manganese - Total	--		0.15		--		--		--		0.29		--		--		--		<b>0.38</b>		--		--		<b>0.3</b>
Cyanide - Total	--		ND		--		--		--		0.011		--		--		--		0.01		--		--		<b>0.2</b>
<b>Volatile Organic Compounds (ug/L):</b>																									
Acetone	ND		ND		ND		--		ND		ND		ND		--		ND		0.02		--		--		50
Benzene	ND		ND		ND		--		ND		ND		ND		--		0.034 J		ND		ND		--		1
2-Butanone	ND		ND		ND		--		ND		ND		ND		--		ND		0.013		--		--		50
<b>Semi-Volatile Organic Compounds (ug/L):</b>																									
4-Chlorophenyl phenyl ether	ND		ND		ND		--		ND		0.39 J*		ND		--		ND		ND		ND		--		--
Benzaldehyde	ND		0.55 JHB		--		--		ND		0.54 JHB		--		--		ND		0.52 JHB		--		--		--
Butyl benzyl phthalate	ND		0.52 JHB		ND		--		ND		0.49 JHB		ND		--		ND		0.46 JHB		ND		--		50
Di-n-butyl phthalate	ND		ND		ND		--		0.3 BJ		ND		ND		--		ND		ND		ND		--		50
Di-n-octyl phthalate	ND		0.58 J		ND		--		ND		0.57 J		ND		--		ND		0.57 J		ND		--		50
Fluoranthene	ND		ND		ND		--		ND		ND		ND		--		0.23 J		ND		ND		--		50*
Hexachlorocyclopentadiene	ND		ND		ND		--		ND		0.75 JB		ND		--		ND		ND		ND		--		5***
Phenanthrene	ND		ND		ND		--		ND		ND		ND		--		0.74 J		ND		ND		--		50*
Pyrene	ND		ND		ND		--		ND		ND		ND		--		0.21 J		ND		ND		--		50*

- Notes:**
- Only those compounds detected above the method detection limit at a minimum of one sample location are reported in this table.
  - Shaded and bolded values represent exceedances of the GWQS/GV.
  - For summary purposes only detected parameters are shown on this table.
  - NYSDEC Class "GA" Groundwater Quality Standards (GWQS) as per 6 NYCRR Part 703.
  - Field measurements were collected immediately before and after groundwater sample collection.
  - COPC metals Per the 2016 periodic review report include arsenic, total chromium, lead, and mercury.
  - \* J \* = Estimated Value
  - \* H \* = Sample was prepped or analyzed beyond specified holding time.
  - \* B \* = Analyte was present in the blank.
  - \* ND \* indicates parameter was not detected above laboratory reporting limit and is reported herein as not detected (ND).
  - \* NA \* = not applicable.
  - \* \* \* = The Guidance Value was used where a Standard has not been established.
  - \* - \* = Not analyzed for this parameter.

# APPENDIX A

## INSTITUTIONAL & ENGINEERING CONTROLS CERTIFICATION FORMS

# APPENDIX A1

## SITE III-5



Enclosure 2  
**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
**Site Management Periodic Review Report Notice**  
**Institutional and Engineering Controls Certification Form**



	Site Details	Box 1	
<b>Site No.</b>	<b>C915199E</b>		
<b>Site Name</b> Site III-5 Tecumseh Phase III Business Park			
Site Address: 2303 Hamburg Turnpike		Zip Code: 14218	
City/Town: Lackawanna			
County: Erie			
Site Acreage: 11.7			
Reporting Period: March 15, 2017 to March 15, 2018			
		YES	NO
1. Is the information above correct?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
If NO, include handwritten above or on a separate sheet.			
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.</b>			
5. Is the site currently undergoing development?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<b>Box 2</b>	
		YES	NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial		<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Are all ICs/ECs in place and functioning as designed?		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.</b>			
<b>A Corrective Measures Work Plan must be submitted along with this form to address these issues.</b>			
_____ Signature of Owner, Remedial Party or Designated Representative		_____ Date	

**Box 2A**

8. Has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid? YES    NO

**If you answered YES to question 8, include documentation or evidence that documentation has been previously submitted with this certification form.**

9. Are the assumptions in the Qualitative Exposure Assessment still valid? YES    NO

(The Qualitative Exposure Assessment must be certified every five years)

**If you answered NO to question 9, the Periodic Review Report must include an updated Qualitative Exposure Assessment based on the new assumptions.**

**Box 3**

**SITE NO. C915199E**

**Description of Institutional Controls**

<u>Parcel</u>	<u>Owner</u>	<u>Institutional Control</u>
a portion of 141.11-1-50	Tecumseh Redevelopment Inc.	Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan Site Management Plan IC/EC Plan

Institutional Control Description:

Adherence to Site Management Plan (SMP)  
Restriction to commercial re-use  
Prohibition of groundwater use  
Allowance for Departmental access  
Requires a Periodic Review and Report

**Box 4**

**Description of Engineering Controls**

<u>Parcel</u>	<u>Engineering Control</u>
a portion of 141.11-1-50	Cover System

Engineering Control Description:

Beneficial Use Determination (Slag) cover over 5 acres

**Periodic Review Report (PRR) Certification Statements**

1. I certify by checking "YES" below that:

a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

b) 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 is accurate and complete.

YES    NO

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

(a) the Institutional Control and/or Engineering Control(s) 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) 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;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(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.

YES    NO

**IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and  
DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

**A Corrective Measures Work Plan must be submitted along with this form to address these issues.**

\_\_\_\_\_  
Signature of Owner, Remedial Party or Designated Representative

\_\_\_\_\_  
Date

IC CERTIFICATIONS  
SITE NO. C915199E

Box 6

**SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE**

I certify that all information and statements in Boxes 1,2, and 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 Thomas C. Biddinger at 311 N Bayshore Drive, Safety Harbor, FL 34695  
print name print business address

am certifying as Remedial Party (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

  
\_\_\_\_\_  
Signature of Owner, Remedial Party, or Designated Representative  
Rendering Certification

November 29, 2018  
Date

IC/EC CERTIFICATIONS

Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 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 Thomas Forbes at Benchmark Environmental Engineering  
print name 2558 Hamburg Tpk, Buffalo, NY 14219  
print business address

am certifying as a Professional Engineer for the Remedial Party  
(Owner or Remedial Party)

Thomas Forbes  
Signature of Professional Engineer, for the Owner or  
Remedial Party, Rendering Certification



11-29-18  
Date

## APPENDIX A2

### SITE III-6



Enclosure 2  
**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
**Site Management Periodic Review Report Notice**  
**Institutional and Engineering Controls Certification Form**



	Site Details	Box 1	
<b>Site No.</b>	<b>C915199F</b>		
<b>Site Name</b> Site III-6 Tecumseh Phase III Business Park			
Site Address: 2303 Hamburg Turnpike		Zip Code: 14218	
City/Town: Lackawanna			
County: Erie			
Site Acreage: 10.9			
Reporting Period: March 15, 2017 to March 15, 2018			
		YES	NO
1.	Is the information above correct?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If NO, include handwritten above or on a separate sheet.			
2.	Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.	Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.</b>			
5.	Is the site currently undergoing development?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<b>Box 2</b>	
		YES	NO
6.	Is the current site use consistent with the use(s) listed below? Commercial and Industrial	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7.	Are all ICs/ECs in place and functioning as designed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.</b>			
<b>A Corrective Measures Work Plan must be submitted along with this form to address these issues.</b>			
Signature of Owner, Remedial Party or Designated Representative		Date	

		<b>Box 2A</b>
		YES    NO
8.	Has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid?	<input type="checkbox"/> <input checked="" type="checkbox"/>
<p><b>If you answered YES to question 8, include documentation or evidence that documentation has been previously submitted with this certification form.</b></p>		
9.	Are the assumptions in the Qualitative Exposure Assessment still valid? (The Qualitative Exposure Assessment must be certified every five years)	<input checked="" type="checkbox"/> <input type="checkbox"/>
<p><b>If you answered NO to question 9, the Periodic Review Report must include an updated Qualitative Exposure Assessment based on the new assumptions.</b></p>		

<b>SITE NO. C915199F</b>	<b>Box 3</b>	
<b>Description of Institutional Controls</b>		
<u>Parcel</u> a portion of 141.11-1-50	<u>Owner</u> Tecumseh Redevelopment Inc.	<u>Institutional Control</u>  Ground Water Use Restriction Soil Management Plan Landuse Restriction Monitoring Plan Site Management Plan  IC/EC Plan
<p>Institutional Control Description:</p> <p>Adherence to Site Management Plan (SMP) Restriction to commercial re-use Prohibition of groundwater use Allowance for Departmental access Requires a Periodic Review and Report</p>		

		<b>Box 4</b>
<b>Description of Engineering Controls</b>		
<u>Parcel</u> a portion of 141.11-1-50	<u>Engineering Control</u>  Cover System	
<p>Engineering Control Description:</p> <p>Beneficial Use Determination (Slag) cover over 5 acres</p>		

**Periodic Review Report (PRR) Certification Statements**

1. I certify by checking "YES" below that:

a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

b) 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 is accurate and complete.

YES NO

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

(a) the Institutional Control and/or Engineering Control(s) 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) 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;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(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.

YES NO

**IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

**A Corrective Measures Work Plan must be submitted along with this form to address these issues.**

\_\_\_\_\_  
Signature of Owner, Remedial Party or Designated Representative

\_\_\_\_\_  
Date

IC CERTIFICATIONS  
SITE NO. C915199F

Box 6

**SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE**

I certify that all information and statements in Boxes 1,2, and 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 Thomas C. Biddinger at 311 N Bayshore Drive, Safety Harbor, FL 34695  
print name print business address

am certifying as Remedial Party (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.



Signature of Owner, Remedial Party, or Designated Representative  
Rendering Certification

November 29, 2018  
Date

IC/EC CERTIFICATIONS

Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 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 Thomas Forbes at Benchmark Environmental Engineering  
2558 Hamburg Tpk, Buffalo, NY 14218  
print name print business address

am certifying as a Professional Engineer for the Remedial Party  
(Owner or Remedial Party)

Thomas Forbes  
Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification



11-29-13  
Date

# APPENDIX B

## SITE PHOTO LOG

<b>Client Name:</b> Steel Sun, LLC		<b>Site Location:</b> Tecumseh Phase III Business Park Sites III 5 & III 6	<b>Project No.:</b> 0397-017-001
<b>Photo No.</b> 1	<b>Date</b> 10/30/18		
<b>Direction Photo Taken:</b> North			
<b>Description:</b> Cover system with Solar Panels			

<b>Photo No.</b> 2	<b>Date</b> 10/30/18	
<b>Direction Photo Taken:</b> South		
<b>Description:</b> Cover system with Solar Panels		

<b>Client Name:</b> Steel Sun, LLC		<b>Site Location:</b> Tecumseh Phase III Business Park Sites III 5 & III 6	<b>Project No.:</b> 0397-017-001
<b>Photo No.</b> 3	<b>Date</b> 10/30/18		
<b>Direction Photo Taken:</b> East			
<b>Description:</b> Cover system with Solar Panels			

<b>Photo No.</b> 4	<b>Date</b> 10/30/18		
<b>Direction Photo Taken:</b> West			
<b>Description:</b> Cover system with Solar Panels			

<b>Client Name:</b> Steel Sun, LLC		<b>Site Location:</b> Tecumseh Phase III Business Park Sites III 5 & III 6	<b>Project No.:</b> 0397-017-001
<b>Photo No.</b> 5	<b>Date</b> 10/30/18		
<b>Direction Photo Taken:</b> West			
<b>Description:</b> Inverter equipment on concrete pads.			

<b>Photo No.</b> 6	<b>Date</b> 10/30/18		
<b>Direction Photo Taken:</b> East			
<b>Description:</b> Inverter equipment on concrete pads.			

# APPENDIX C

## GROUNDWATER MONITORING DATA



## ANALYTICAL REPORT

Lab Number:	L1844309
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Tom Forbes
Phone:	(716) 856-0599
Project Name:	STEEL SUN I GWM
Project Number:	397-018-001
Report Date:	11/06/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

---

Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** STEEL SUN I GWM  
**Project Number:** 397-018-001

**Lab Number:** L1844309  
**Report Date:** 11/06/18

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1844309-01	MWN-58A	WATER	LACKAWANNA, NY	10/30/18 12:05	10/30/18
L1844309-02	MWN-59A	WATER	LACKAWANNA, NY	10/30/18 12:53	10/30/18
L1844309-03	MWN-60A	WATER	LACKAWANNA, NY	10/30/18 11:14	10/30/18

**Project Name:** STEEL SUN I GWM  
**Project Number:** 397-018-001

**Lab Number:** L1844309  
**Report Date:** 11/06/18

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

---

**Project Name:** STEEL SUN I GWM  
**Project Number:** 397-018-001

**Lab Number:** L1844309  
**Report Date:** 11/06/18

### Case Narrative (continued)

#### Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

#### Sample Receipt

The samples were field filtered for Dissolved Metals.

The analyses performed were specified by the client.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Michelle M. Morris

Title: Technical Director/Representative

Date: 11/06/18

## METALS

**Project Name:** STEEL SUN I GWM**Lab Number:** L1844309**Project Number:** 397-018-001**Report Date:** 11/06/18**SAMPLE RESULTS**

Lab ID: L1844309-01

Date Collected: 10/30/18 12:05

Client ID: MWN-58A

Date Received: 10/30/18

Sample Location: LACKAWANNA, NY

Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
-----------	--------	-----------	-------	----	-----	--------------------	------------------	------------------	----------------	----------------------	---------

**Total Metals - Mansfield Lab**

Arsenic, Total	0.03678		mg/l	0.00050	0.00016	1	11/06/18 11:17	11/06/18 16:04	EPA 3005A	1,6020B	AM
----------------	---------	--	------	---------	---------	---	----------------	----------------	-----------	---------	----

**Dissolved Metals - Mansfield Lab**

Arsenic, Dissolved	0.01733		mg/l	0.00050	0.00016	1	11/05/18 18:00	11/06/18 09:50	EPA 3005A	1,6020B	AM
--------------------	---------	--	------	---------	---------	---	----------------	----------------	-----------	---------	----



**Project Name:** STEEL SUN I GWM**Lab Number:** L1844309**Project Number:** 397-018-001**Report Date:** 11/06/18**SAMPLE RESULTS**

Lab ID: L1844309-02

Date Collected: 10/30/18 12:53

Client ID: MWN-59A

Date Received: 10/30/18

Sample Location: LACKAWANNA, NY

Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
-----------	--------	-----------	-------	----	-----	-----------------	---------------	---------------	-------------	-------------------	---------

**Total Metals - Mansfield Lab**

Arsenic, Total	0.00377		mg/l	0.00050	0.00016	1	11/06/18 11:17	11/06/18 16:08	EPA 3005A	1,6020B	AM
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**Dissolved Metals - Mansfield Lab**

Arsenic, Dissolved	0.00380		mg/l	0.00050	0.00016	1	11/05/18 18:00	11/06/18 09:54	EPA 3005A	1,6020B	AM
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**Project Name:** STEEL SUN I GWM**Lab Number:** L1844309**Project Number:** 397-018-001**Report Date:** 11/06/18**SAMPLE RESULTS**

Lab ID: L1844309-03

Date Collected: 10/30/18 11:14

Client ID: MWN-60A

Date Received: 10/30/18

Sample Location: LACKAWANNA, NY

Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
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**Total Metals - Mansfield Lab**

Arsenic, Total	0.00449		mg/l	0.00050	0.00016	1	11/06/18 11:17	11/06/18 16:12	EPA 3005A	1,6020B	AM
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**Dissolved Metals - Mansfield Lab**

Arsenic, Dissolved	0.00432		mg/l	0.00050	0.00016	1	11/05/18 18:00	11/06/18 09:59	EPA 3005A	1,6020B	AM
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**Project Name:** STEEL SUN I GWM  
**Project Number:** 397-018-001

**Lab Number:** L1844309  
**Report Date:** 11/06/18

## Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-03 Batch: WG1176346-1									
Arsenic, Dissolved	ND	mg/l	0.00050	0.00016	1	11/05/18 18:00	11/06/18 09:22	1,6020B	AM

### Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-03 Batch: WG1176458-1									
Arsenic, Total	ND	mg/l	0.00050	0.00016	1	11/06/18 11:17	11/06/18 15:43	1,6020B	AM

### Prep Information

Digestion Method: EPA 3005A

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** STEEL SUN I GWM

**Project Number:** 397-018-001

**Lab Number:** L1844309

**Report Date:** 11/06/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1176346-2								
Arsenic, Dissolved	99		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-03 Batch: WG1176458-2								
Arsenic, Total	99		-		80-120	-		

**Matrix Spike Analysis**  
Batch Quality Control

**Project Name:** STEEL SUN I GWM  
**Project Number:** 397-018-001

**Lab Number:** L1844309  
**Report Date:** 11/06/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1176346-3 QC Sample: L1844309-01 Client ID: MWN-58A												
Arsenic, Dissolved	0.01733	0.12	0.1420	104	-	-	-	-	75-125	-	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1176458-3 QC Sample: L1844309-01 Client ID: MWN-58A												
Arsenic, Total	0.03678	0.12	0.1748	115	-	-	-	-	75-125	-	-	20

## Lab Duplicate Analysis

*Batch Quality Control*

Project Name: STEEL SUN I GWM

Project Number: 397-018-001

Lab Number: L1844309

Report Date: 11/06/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1176346-4 QC Sample: L1844309-01 Client ID: MWN-58A						
Arsenic, Dissolved	0.01733	0.01742	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1176458-4 QC Sample: L1844309-01 Client ID: MWN-58A						
Arsenic, Total	0.03678	0.03758	mg/l	2		20

**Project Name:** STEEL SUN I GWM

**Project Number:** 397-018-001

Serial\_No:11061817:28

**Lab Number:** L1844309

**Report Date:** 11/06/18

**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

**Cooler**                      **Custody Seal**

A                                      Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L1844309-01A	Plastic 250ml HNO3 preserved	A	<2	<2	4.9	Y	Absent		AS-6020S(180)
L1844309-01B	Plastic 250ml HNO3 preserved	A	<2	<2	4.9	Y	Absent		AS-6020T(180)
L1844309-02A	Plastic 250ml HNO3 preserved	A	<2	<2	4.9	Y	Absent		AS-6020S(180)
L1844309-02B	Plastic 250ml HNO3 preserved	A	<2	<2	4.9	Y	Absent		AS-6020T(180)
L1844309-03A	Plastic 250ml HNO3 preserved	A	<2	<2	4.9	Y	Absent		AS-6020S(180)
L1844309-03B	Plastic 250ml HNO3 preserved	A	<2	<2	4.9	Y	Absent		AS-6020T(180)

**Project Name:** STEEL SUN I GWM  
**Project Number:** 397-018-001

**Lab Number:** L1844309  
**Report Date:** 11/06/18

## GLOSSARY

### Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

**Report Format:** DU Report with 'J' Qualifiers



**Project Name:** STEEL SUN I GWM  
**Project Number:** 397-018-001

**Lab Number:** L1844309  
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#### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



**Project Name:** STEEL SUN I GWM  
**Project Number:** 397-018-001

**Lab Number:** L1844309  
**Report Date:** 11/06/18

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624/624.1:** m/p-xylene, o-xylene

**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 6860:** SCM: Perchlorate

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

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The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

**EPA 522.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1 Hg.**

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.

