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PREPARED FOR TECUMSEH REDEVELOPMENT, LLC

SWMU P-18 BORING LOCATIONS OPERABLE UNIT 2

ATP WASTE CONSOLIDATION LACKAWANNA, NEW YORK

FIGURE 7

JOB NO.: 0071-013-217

DATE: AUGUST 2014

Exhibit B

SUMMARY OF THE CLEANUP OBJECTIVES

The goal for the corrective measure program is to achieve unrestricted use of the site to the extent feasible. At a minimum, the corrective measure(s) shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the facility through the proper application of scientific and engineering principles.

The established objectives for OU02 are 6NYCRR Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health - Values for Industrial Use.

Exhibit C

BASIS FOR FINAL CORRECTIVE MEASURES SELECTION

The Department's basis for selection of the remedy is summarized below.

Selected Remedy: SWMU Material Stabilization and Consolidation into ATP

This alternative involves the stabilizing, removing and consolidating the solids from SWMUs S-18, P-9, and P-18, and consolidating the material within the Acid Tar Pit (ATP) containment system. The scope of the proposed remedy would typically be considered an interim response action for source control. However, since the action involves permanent consolidation on the ATP OU03 site, DEC is processing the action as a final remedy.

Identification and Evaluation of Remedial Alternatives

In addition to the preferred remedy, the following alternatives were also considered: No Action; Close in Place; and Excavate and Offsite Disposal. The alternatives were evaluated against the selection criteria below. The No Action and Close in Place alternatives fail to meet the threshold selection criteria, so they were eliminated from further consideration. For the remaining alternatives, the selection of the preferred alternative was based on the other selection/balancing criteria provided below. Additional information regarding the alternatives analysis can be found in the administrative record.

Remedy Selection Criteria

Threshold Criteria

Protection of Human Health and the Environment

The remedy is protective of the environment because it includes stabilization and consolidation of waste material that reduces toxicity and mobility of contamination. The treated material will be placed into the ATP containment system and isolated from the environment. Future exposures will be mitigated by the ATP cover system, internal leachate collection system, and the external groundwater pumping system.

The remedy is protective of human health as the pathway for direct contact and potential leaching of contamination is eliminated by the stabilization and placement of SWMU material within the ATP containment system, collection and treatment of any leachate generated within the ATP system.

<u>Achieve Cleanup Objectives for the Contaminated Media</u> – Based on stabilization testing of the SWMU material, the potential for leaching of contaminants can be effectively controlled. Any contaminants derived from SWMU material (i.e., in the leachate removed

from the Acid Tar Pit consolidation area) can be effectively treated to comply with pretreatment standards required under the associated Erie County sewer use permit.

Remediate the Sources of Releases – The remedy will isolate the contaminated SWMU/source material from the environment, and effectively eliminate/remove three source areas that are presently uncontrolled.

Comply with Standards for Management of Wastes – The consolidation of the SWMU material is consistent with the USEPA policy regarding handling of remediation waste. That policy allows for the consolidation of material within an area of contamination. Under that policy, the facility owner/operator can consolidate contiguous areas of contamination into a single area or engineered unit within the contaminated area without triggering the hazardous waste disposal restrictions or minimum technology requirements. As noted above, leachate generated from the Acid Tar Pit containment system will be pre-treated and discharged in compliance with a municipal sewer use permit, so that aspect of the remedy also complies with standards for the management of that waste.

Other Selection Criteria (Balancing)

Long-term Effectiveness and Permanence. The remedy includes actions that result in permanent isolation and treatment of the SWMU material and associated leachate. It also effectively removes uncontrolled source material from SWMUs S-18, P-9 and P-18. The consolidation area is subject to continuing site management requirements to ensure that the ATP containment system is operated, maintained and monitored, to ensure the long-term effectiveness of the remedy. Tecumseh has been required to provide DEC with financial assurance to cover these future costs. The remedy also includes actions that resulted in permanent treatment of residual contamination (in leachate) to reduce mobility and toxicity.

Reduction of Toxicity, Mobility, Volume. The remedy removes source material from the currently uncontrolled conditions at the SWMU locations, and consolidates it within an engineered containment system designed to limit mobility and migration potential of the SWMU material. The system also includes pre-treatment to reduce the toxicity of the leachate prior to discharge to the municipal sewer for additional treatment. The remedy will not necessarily reduce the volume of contaminated material but through consolidation, will reduce the areal footprint of the source material.

<u>Short-term Impacts and Effectiveness.</u> The remedy will include operating controls along with community air monitoring to ensure that potential impacts to the community, the workers, and the environment are effectively controlled during implementation of the remedy. These controls will be of primary importance during the consolidation phase of the remedy implementation.

<u>Implementability.</u> The remedy is readily implementable as it relies on readily available construction and material handling technologies. A modified sewer use permit from the Erie County Sewer District is expected to be necessary for the Acid Tar Pit pre-treatment system and should not pose a problem to secure. Permitting or temporary authorization

from the municipality or the State for management of water from the P-18 hot and cold wells may also be necessary depending on the design for the removal of the P-18 material, as de-watering may be necessary.

<u>Cost-Effectiveness.</u> The remedy is cost effective because the ATP containment system has already been substantially constructed and that area is already subject to long-term site management provisions, so the incremental cost associated with consolidation of the additional SWMU material is relatively small. The remedy also avoids the costs associated with off-site transport and disposal.

From a green remediation perspective, the remedy is also preferred relative to an off-site disposal alternative since considerably less energy will be used for the material transport. The remedy is also preferable to an alternative involving containment in place at each SWMU since it does not encumber/restrict future use of as much of the site. It also focuses future site management activities on one area where existing infrastructure is already place and where long-term monitoring is already required.

Summary

The remedy satisfies the threshold selection criteria, and has the potential to meet the remedial objectives for this site. The remedy is also viewed favorably when the other selection criteria outlined above are considered. The remedy provides an effective approach for eliminating the potential source of contamination for three SWMUs, protecting the environment and minimizing exposure potential, in a readily implementable, cost effective manner.

OPERABLE UNIT 02 STATEMENT OF BASIS

Exhibit D

Explanation of Significant Differences Operable Unit 03 Remedy (Acid Tar Pit SWMUs)

Tecumseh Redevelopment, Inc.
Former Bethlehem Steel Corporation
Site No. 915009
EPA ID No. NYD053585667
City of Lackawanna, Erie County
June 2015

EXPLANATION OF SIGNIFICANT DIFFERENCES TECUMSEH REDEVELOPMENT INC. SITE



City of Lackawanna / Erie County / DEC Registry Site No. 915009 / May 2015

Prepared by the New York State Department of Environmental Conservation
Division of Environmental Remediation

1.0 Introduction

The purpose of this notice is to inform you about a change in the site remedy for the Acid Tar Pit (ATP) Operable Unit OU3 Solid Waste Management Units (SWMUs) located at the Tecumseh Redevelopment Inc. Site. In March 2010, the New York State Department of Environmental Conservation (the "Department") prepared a Statement of Basis selecting a final remedy for the ATP OU3 SWMUs. The main elements of the selected remedy included installation of a slurry wall, waste consolidation, leachate and groundwater extraction with treatment, and capping. The remedial design was completed in August 2010 and construction was initiated by Tecumseh in April 2011. Aside from final capping, the elements of the ATP OU3 SWMU remedy have been constructed and the leachate collection and treatment system is operating.

While this work was in progress, other remedial wastes present at the Site were identified as candidates for consolidation within the ATP OU3 remedy. The consolidation of this additional material was not contemplated when the remedial design for the ATP OU3 SWMU was originally prepared in 2010. The purpose of this Explanation of Significant Difference (ESD) is to describe and justify the changes that are being made to the ATP OU3 SWMU Remedy. This ESD will become part of the Administrative Record for this site. The information here is a summary of what can be found in documents that have been placed in the following repositories:

NYSDEC - Region 9 Office 270 Michigan Avenue Buffalo, NY 14203-2915 Contact: Stan Radon Phone: 716-851-7220 Call for Appointment stanley.radon@.dec.ny.gov NYSDEC Central Office
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7017
Contact: Larry Thomas
Phone: 518-402-9813
Call for Appointment
lawrence.thomas@dec.ny.gov

Although this is not a request for comments, interested persons are invited to contact the Department's Project Manager for this site to obtain more information or have questions answered.

2.0 Site Description

Location: The Tecumseh Redevelopment Inc. Site is located on the shore of Lake Erie in the Cities of Buffalo and Lackawanna, Erie County. The Site is located along the west side of Route 5, Lackawanna, comprising a significant portion of the former Bethlehem Steel Corporation - Lackawanna facility (see Figure 1).

Site Features: The Site features the remains of a sprawling former steel manufacturing complex. While some buildings remain, the majority of the structures have been razed. The western part of the site includes approximately 440 acres of manmade land where slag and plant wastes were disposed of on the shores of Lake Erie. The site includes approximately two miles of Lake Erie waterfront. The site also includes several other surface water features including: Smokes Creek, Blasdell Creek, the Gateway Metroport Ship Canal, the Union Ship Canal, and the North and South Water Return Trenches. Although not part of the site, the United State Army Corps of Engineers Sediment Disposal Area abuts the north end of the site. Environmental investigations identified 43 solid waste management units and several water courses as potentially requiring remedial action.

Current Zoning/Uses: The site is zoned for industrial use. The site is currently used for wind power generation, industrial manufacturing, and various material handling operations. These include slag reclamation activities.

Operable Units: The Tecumseh Redevelopment Inc. Site has been divided into a number of operable units. The ATP OU3 SWMU operable unit includes a grouping of three SWMUs and was recognized as a high priority area, due to the nature of the waste in these SWMUs, proximity to Smokes Creek, and the desire to protect the recently dredged Smokes Creek from recontamination (see Figure 2). Because of these concerns, the remedy decision for this operable unit was expedited and addressed ahead of the other SWMUs and watercourses at the site. An evaluation of remedial alternatives for the other SWMUs and watercourses is currently in progress and expected to be completed in late 2015, with remedy selection and implementation following in 2016.

The focus of this Explanation of Significant Differences (ESD) is to describe changes that are being made to the previously selected Acid Tar Pit OU3 SWMU Remedy.

3.0 March 2010 Acid Tar Pit OU3 SWMU Remedy

Hazardous wastes including volatile and semi-volatile organic compounds (VOCs) disposed of at the Acid Tar Pits have contaminated subsurface soils and groundwater. The 2010 Statement of Basis (SB) presents the remedy selected by the Department for OU3, and documents the information and rationale used to arrive at that decision. The OU3 remedy was finalized following public participation activities, including a public meeting.

The major elements of the March 2010 remedy consisted of:

- Construction of a bentonite/soil slurry wall around the perimeter of the SWMU S-11/S-22 footprint. A low-permeability vertical subsurface wall, extending to a depth of approximately 40 feet, will provide lateral containment of waste and groundwater from the surrounding subsurface environment (see Figure 3).
- Excavation and consolidation of the Agitator Sludge Area waste SWMU S-24 within the combined footprint of SWMUs S-11 and S-22. An estimated 23,000 to 35,000 cubic yards of visibly-impacted slag and soil/fill material would be excavated from SWMU S-24 and consolidated within the combined SWMU S-11 and S-22 footprint.
- Construction of Groundwater Collection System. To create an inward hydraulic gradient across the slurry wall extraction wells were installed inside the wall to collect leachate/groundwater and enhance the effectiveness of the containment system.

- Construction of Leachate/Groundwater Treatment System. The system treats/pre-treats extracted groundwater/leachate. The treated water is discharged to the sanitary sewer system under a municipal sewer use permit.
- Final Cover System. The cover system design consists of a geo-synthetic clay liner, high-density polyethylene geo-membrane liner, geo-composite drainage layer, 18-inch low-permeability barrier soil layer, and 6-inch vegetated soil cover. The final cover system will reduce infiltration of precipitation, promote storm water run-off, and eliminate the potential for direct contact with the waste fill. The cover system design also includes a gas venting system.
- Long-term Groundwater Monitoring. A monitoring program will be implemented to evaluate the continued hydraulic and chemical effectiveness of the remedy.
- The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determined that further remediation was technically impracticable or not feasible.

Except for final capping, the elements of the ATP remedy listed above have been constructed and the leachate collection and treatment system is operating. This work was performed by Tecumseh under a consent order with the Department.

4.0 Description of Significant Differences

4.1 New Information – OU2 SB

Since the issuance of the OU3 remedy in 2010, additional site characterization has taken place at the Tecumseh site as part of the corrective measures study/feasibility study process. This involved further characterization of other SWMUs at the site to get information needed to evaluate possible remedial options. This work identified the SWMUs listed below as candidates to be incorporated into the ATP OU3 SWMU Remedial Design (see Figures 4 and 5 for SWMU locations). These SWMUs, designated OU2 and subject to a separate statement of basis, are located in the slag fill area, in the western part of the site, where iron and steel-making wastes were disposed for many decades.

OU2 Units	Description	Volume/Primary Contaminants
SWMU S-18 – Lime Dust and Kish Landfill R (SWMU S-18 Sub- areas B and C)	Comprised of 2 materials: Lime Dust Kish (particulate material from iron and steel making operations)	Volume ~400 cubic yards (CY) Contaminant: Lead
SWMU P-9: Tar Decanter Sludge	Primarily Slag/Coal Backfill with Tar Residue	Volume ~1,000 CY Contaminant: SVOCs, Benzene
SWMU P-18: P-18A and P-18B: Blast Furnace Cooling Tower Hot and Cold Wells	Solids from Blast Furnace Air Pollution Control	Volume ~7,200 CY Contaminant: Lead

Additional characterization and evaluation of the groundwater conditions in the vicinity of the ATP OU3 SWMU has also been performed since the 2010 remedy selection. This information

indicates a need to enhance the groundwater controls for the ATP OU3 remedy. Engineering controls for the ATP OU3 remedy initially included groundwater extraction only inside the slurry wall. However, monitoring results indicate the need expand the controls to include groundwater extraction outside of the slurry wall, in the area between the ATP OU3 and Smokes Creek (see Figure 6). Contamination from the ATP OU3 area migrated towards Smokes Creek prior to the installation of the slurry wall, and in order to address that remaining contamination extraction wells will need to be operated in that area. The existing pre-treatment system has capacity to handle this additional flow.

4.2 Comparison of Changes to the March 2010 Remedy

Explanation of Significant Difference – Similar to the March 2010 SB, this remedy includes consolidation and containment of remediation waste into the S-11/S-22 SWMU footprint. The footprint remains the same, but in order to accommodate the increased volume of material. the design for the cap has been modified to increase the available airspace. The final elevation of the cap has been increased by a maximum of thirteen (13) feet. Although this change increases the height of the cap, the steepness of the side slopes will remain unchanged. As noted in Section 4.1 above, the engineering controls for groundwater will be enhanced to include groundwater extraction outside of the slurry wall in the area between the ATP and Smokes Creek. Groundwater contamination in this area will discharge to Smokes Creek if this action is not taken. Groundwater extracted in this area will be treated at the existing ATP OU3 SWMU treatment plant, and then discharged to the sanitary sewer system. The ATP OU3 plant has the capacity and capability of handling this additional flow. The municipal sewer use permit for the ATP plant is currently administratively limited to 15,000 gallons per day which is below the plant design capacity. A modification of the sewer use permit, to increase the allowable flow, has been requested, to insure that there is sufficient capacity to manage leachate, groundwater and storm water associated with the ATP OU3 remedy.

The remedy, as modified by this ESD, is protective of human health and the environment and meets the goals originally included in the March 2010 SB.

4.3 Summary of Major Elements of the May 2015 ATP OU3 SWMU Remedy

The major elements of the amended remedy include:

- Construction of a bentonite/soil slurry wall around the perimeter of the SWMU S-11/S-22 footprint. A low-permeability vertical subsurface wall, extending to a depth of approximately 40 feet, was installed to provide lateral containment of waste and groundwater from the surrounding subsurface environment. (unchanged/complete)
- Excavation and consolidation of the Agitator Sludge Area waste SWMU S-24 within the
 combined footprint of SWMUs S-11 and S-22. Construction of Groundwater Collection
 System. To create an inward hydraulic gradient across the slurry wall extraction wells
 were installed inside the wall to collect leachate/groundwater and enhance the
 effectiveness of the containment system. (unchanged/complete)
- Construction of Leachate/Groundwater Treatment System. The system treats/pretreats extracted groundwater/leachate. The treated water is discharged to the sanitary sewer system under a municipal sewer use permit. (unchanged/complete)
- Excavation and consolidation of the material from SWMUs S-18 (Sub-areas B&C), P-9, P-18 (A and B) within the combined footprint of SWMUs S-11 and S-22. An estimated

- 8,600 cubic yards of material would be excavated from the listed SWMUs and consolidated within the combined SWMU S-11 and S-22 footprint. (new)
- Construction and operation of an external groundwater extraction system to address contaminated groundwater in the area between the slurry wall and Smokes Creek. The objective is to intercept residual groundwater contamination in this area before it can migrate and discharge to Smokes Creek. (new)
- Final Cover System. The cover system design consists of a geo-synthetic clay liner, high-density polyethylene geo-membrane liner, geo-composite drainage layer, 18-inch low-permeability barrier soil layer, and 6-inch vegetated soil cover. The final cover system will reduce infiltration of precipitation, promote storm water run-off, and eliminate the potential for direct contact with the waste fill. The cover system design also includes a gas venting system. (unchanged)
- Long-term Groundwater Monitoring. A monitoring program has been implemented to evaluate the continued hydraulic and chemical effectiveness of the remedy. *(unchanged)*
- The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determined that further remediation was technically impracticable or not feasible. (unchanged)

5.0 Project Schedule and More Information

Remedial construction activities for the amended ATP OU3 SWMU remedy are tentatively scheduled to begin in the summer of 2015. Final capping is expected to be substantially completed before the end of 2015. The external groundwater collection system is also scheduled to be installed and placed in operation before the end of 2015. This work is expected to be performed by Tecumseh under an amendment of the existing consent order with the Department.

The evaluation of remedial alternatives for the rest of the Tecumseh Site is also in progress and is expected to be completed later in 2015. The Department anticipates selecting a final remedy for the remainder of the Tecumseh Site in 2016.

For Technical Questions about the Explanation of Significant Differences, contact:

Stan Radon, Project Manager New York State Department of Environmental Conservation Region 9 Office 270 Michigan Avenue Buffalo, New York 14203-2915

Telephone: 716-851-7220 Email: stanley.radon@dec.ny.gov

For Site-Related Health Questions about the Explanation of Significant Differences, Contact:

Matt Forcucci New York State Department of Health Western Region Office 584 Delaware Avenue Buffalo, New York 14202

Telephone: 716-847-4501 Email: BEEI@health.ny.gov

6.0 May 2015 Tecumseh Redevelopment Inc. Site - Acid Tar Pit OU3 SWMU Remedy ESD Declaration

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

May 6, 2015

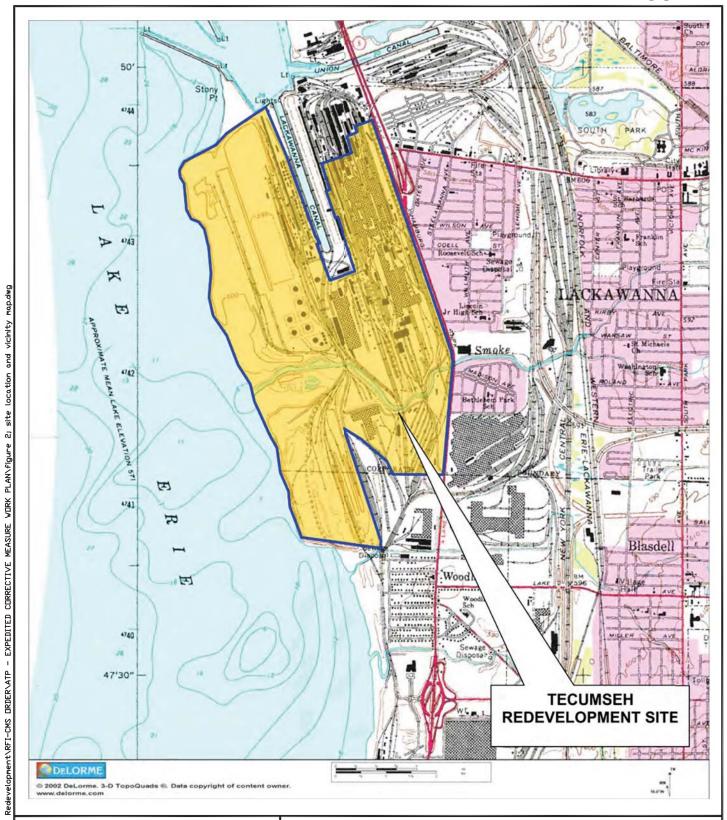
Date

Robert W. Schick, Director

Duschel

Division of Environmental Remediation

FIGURE 21





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

PROJECT NO.: 0071-009-213

DATE: FEBRUARY 2010

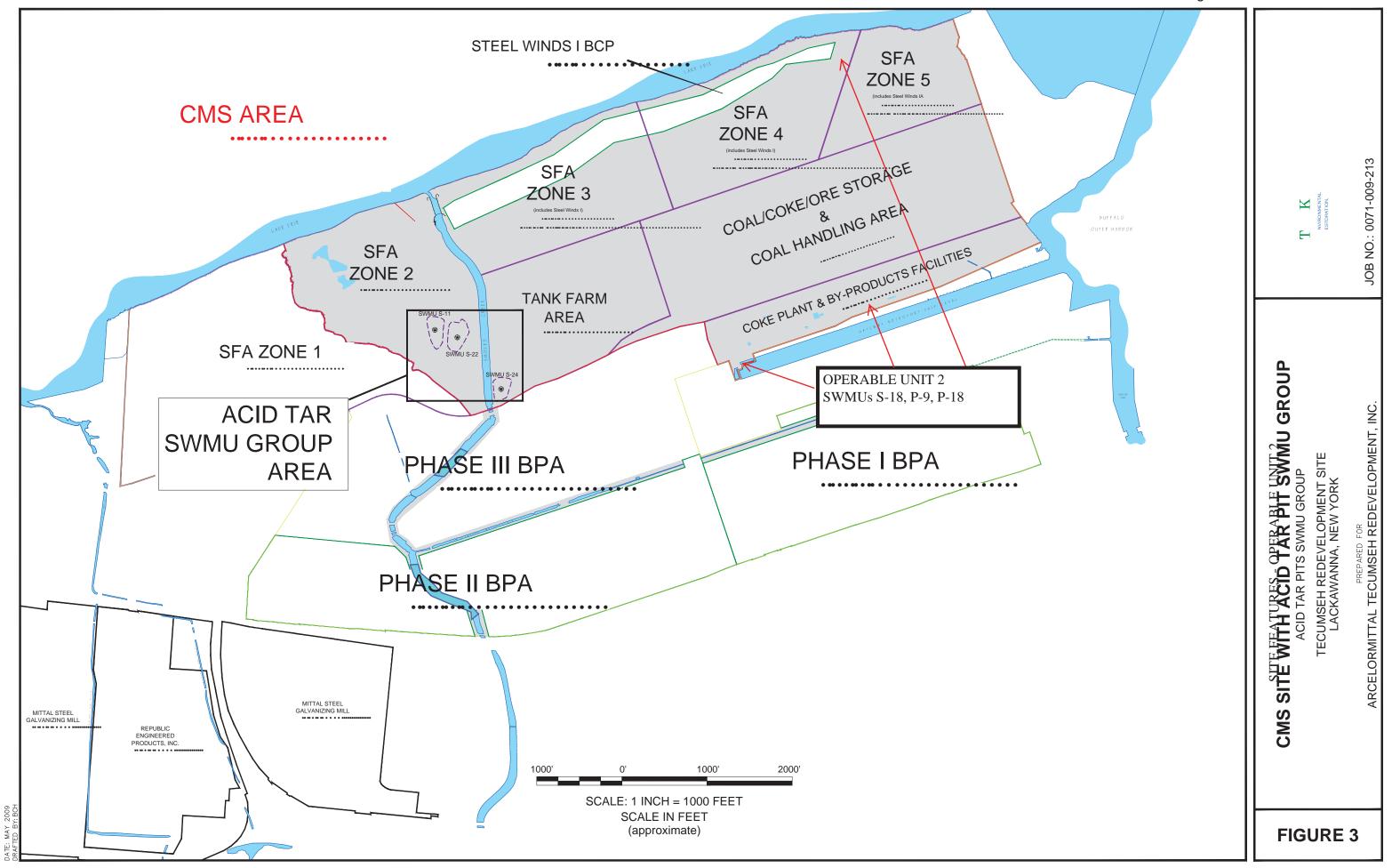
DRAFTED BY: AJZ

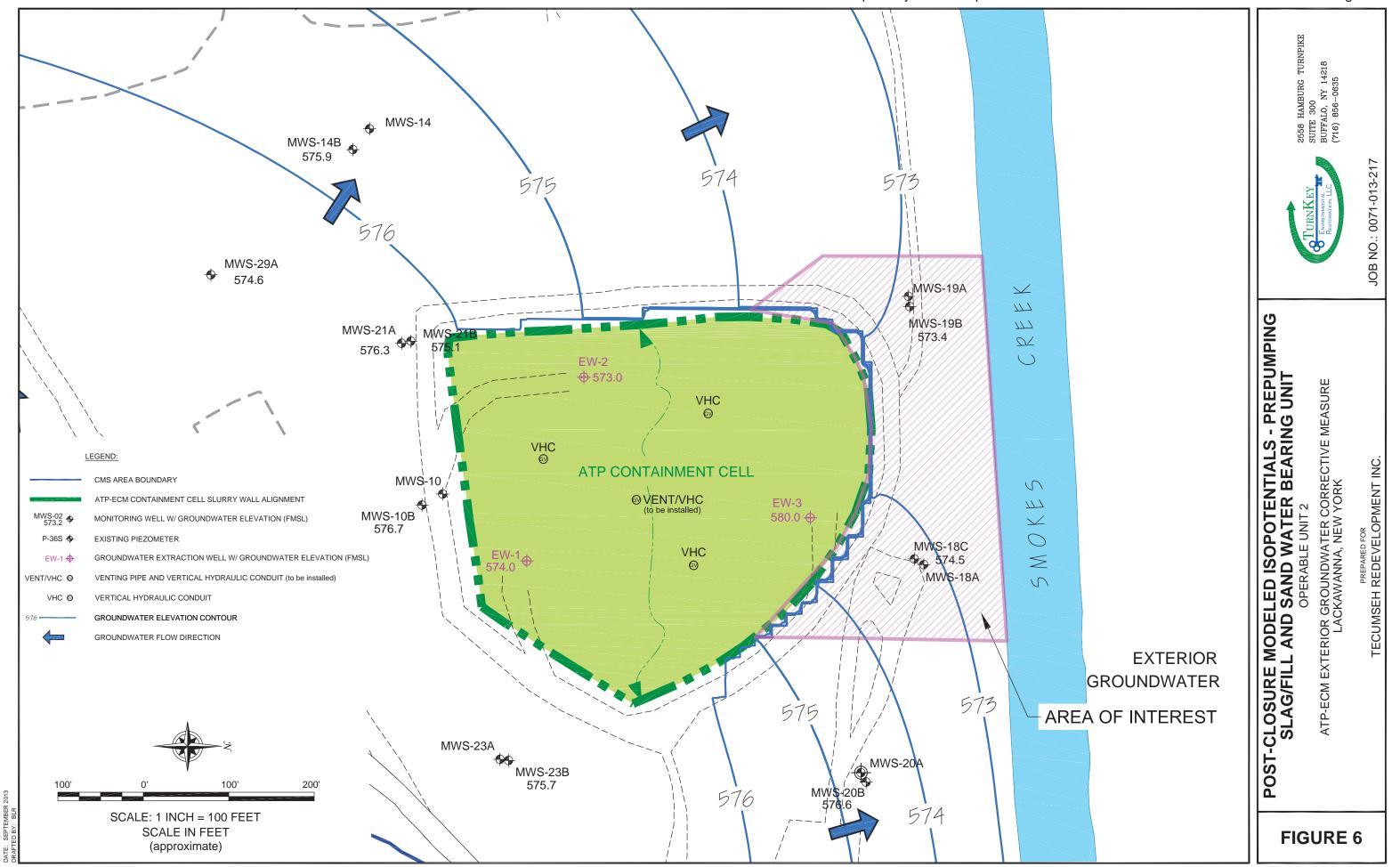
SITE LOCATION AND VICINITY MAP

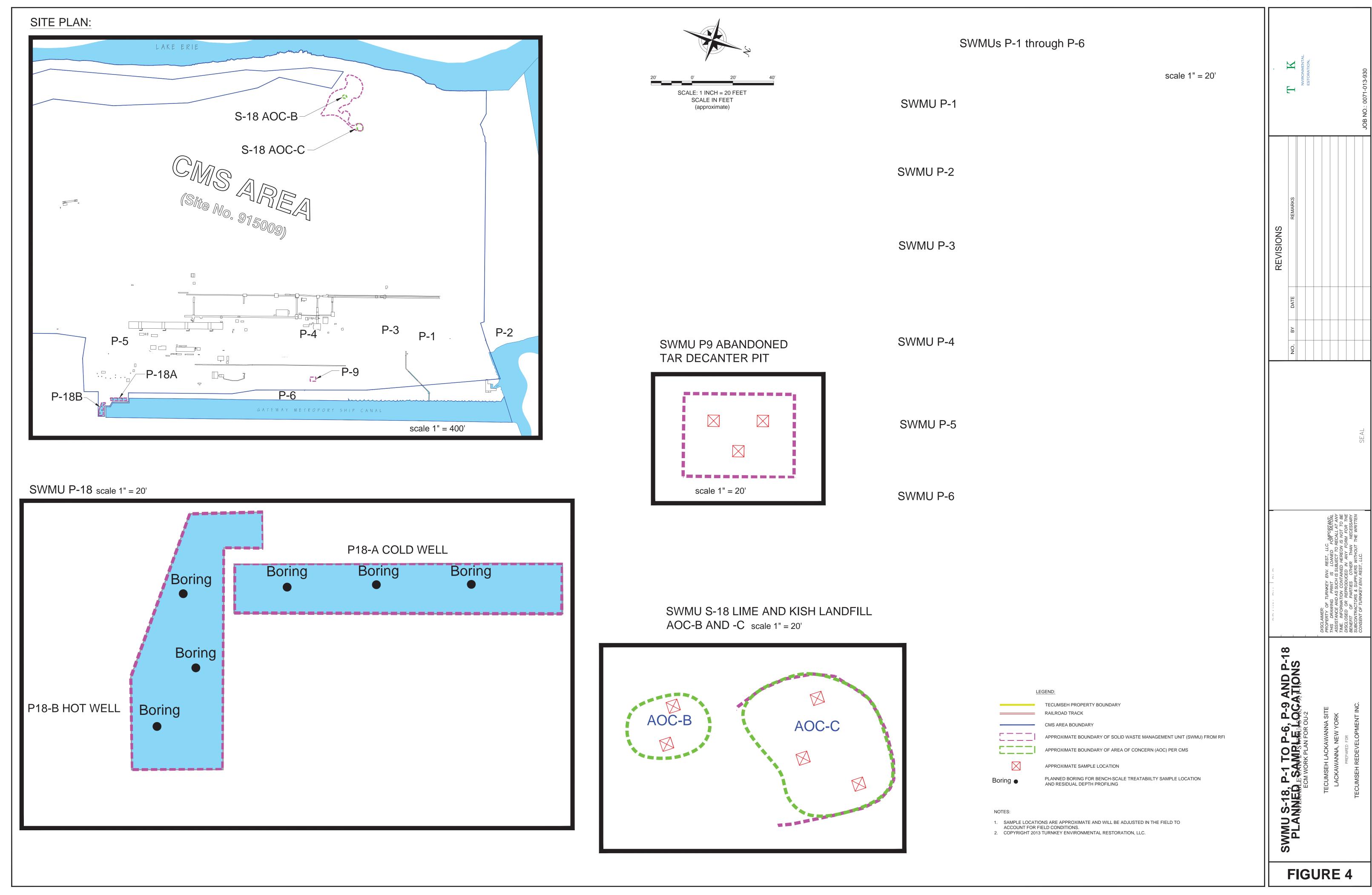
ACID TAR PITS SWMU GROUP

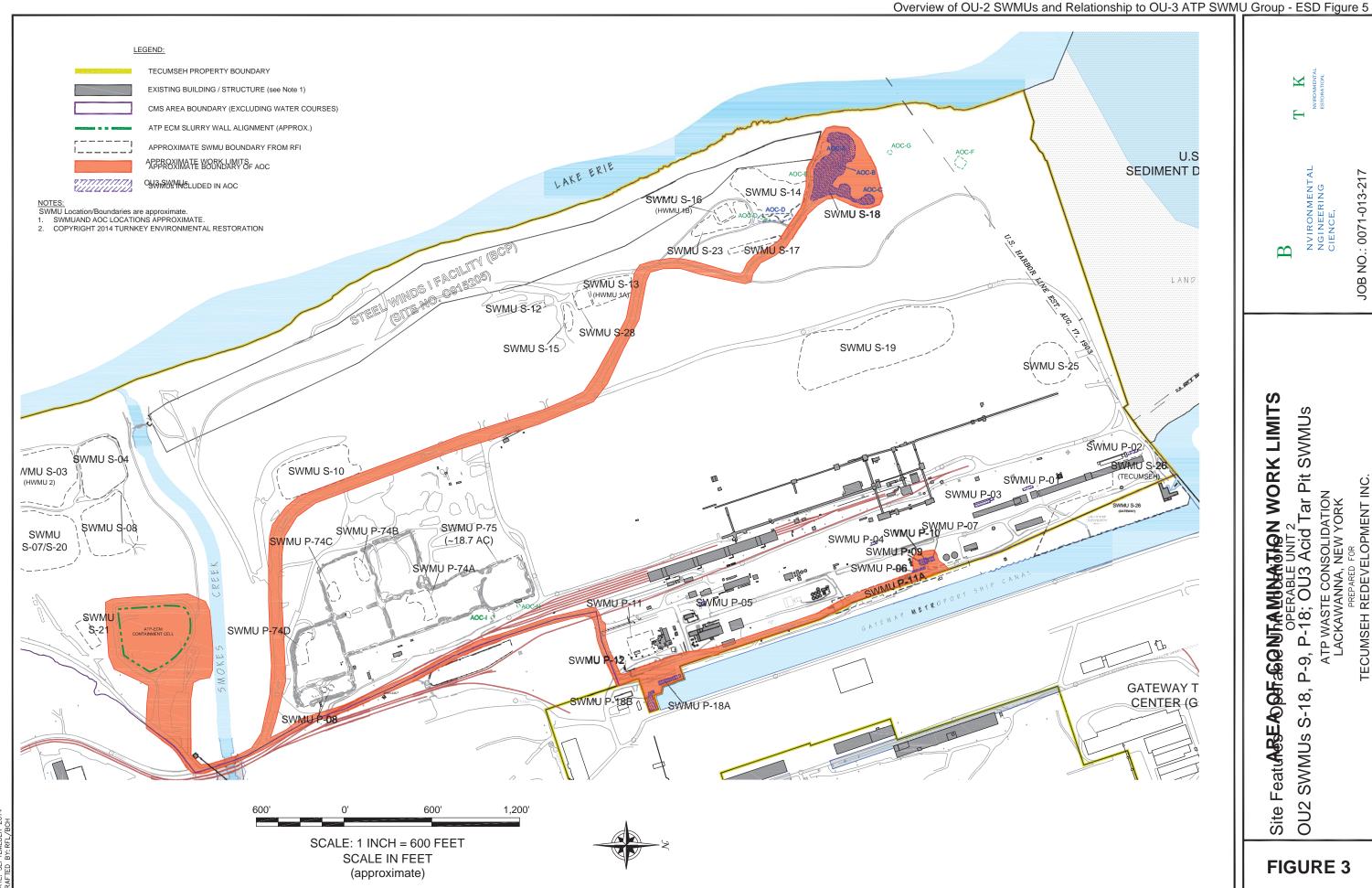
TECUMSEH REDEVELOPMENT SITE LACKAWANNA, NEW YORK

PREPARED FOR ARCELORMITTAL TECUMSEH REDEVELOPMENT, INC.









Featuare A Ser A S SWMUs Tar Pit **TECUMSEH REDEVELOPMENT INC** Acid OPERABLE SWMUS S-18, P-9, P-18; OU3 OU2 Site

H IS SUBJECT TO RECALL AT ANY WITHOUT THE WRITTEN CONSENT

JOB NO.: 0071-013-217

FIGURE 3