

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. Note that OU-04 is limited to the groundwater in the Coke Oven Area, so the table below only lists objectives specific to that medium.

The established cleanup objectives for OU-04 are identified in the table below.

Compound	Groundwater Cleanup Objective ¹ (ppb or ug/l)
VOCs	
1,1,2,2-Tetrachloroethane	5
1,2,4-Trimethylbenzene	5
1,3,5-Trimethylbenzene	5
2-Butanone	50
Acetone	50
Benzene	1
Carbon disulfide	60
Chlorobenzene	5
Ethylbenzene	5
Isopropylbenzene	5
Methyl cyclohexane	NV ²
Styrene	5
Toluene	5
Trichloroethene	5
Xylenes, Total	5
SVOCs	
2,4-Dimethylphenol	50
2-Methylnaphthalene	NV
2-Methylphenol (o-Cresol)	NV
3-Methylphenol (m-Cresol)	NV
Acenaphthene	20
Acenaphthylene	NV
Anthracene	50
Benzo(a)anthracene	0.002
Benzo(b)fluoranthene	0.002
Biphenyl	5

Compound	Groundwater Cleanup Objective ¹ (ppb or ug/l)
Bis(2-ethylhexyl)phthalate	5
Carbazole	NV
Chrysene	0.002
Dibenzofuran	NV
Fluoranthene	50
Fluorene	50
Naphthalene	10
Phenanthrene	50
Phenol	NV
Pyrene	50
Pyridine	50
General Chemistry	
Phenolics (chlorinated)	1
Phenolics (unchlorinated)	5

Table Notes:

¹ Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (NYSDEC TOGS 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

² NV indicates that no comparison value is listed in TOGS 1.1.1.

Exhibit C

Description of Remedial Alternatives

The following potential remedies were considered based on the remedial action objectives (see Section 6.5) to address the contamination identified at the site as described in Exhibit A. For costing purposes, operation, monitoring and maintenance for a 30 year period is included for each alternative.

Alternative 1: No Further Action

Under this alternative, the existing Benzol Yard ICM groundwater treatment system would continue to operate with no significant modifications or enhancements. Key elements of this system are shown on Figure C-1. Monitoring of the groundwater in the Coke Oven Area (OU 04) would continue. This alternative would not prevent contaminated groundwater from reaching the Gateway Metroport Ship Canal. This alternative serves as the baseline for comparison of the overall effectiveness of the other remedial alternatives and does not provide any additional protection of the environment and public health. This alternative could be implemented immediately. The costs associated with this alternative are estimated to be \$1.4 million.

Alternative 2: Enhanced Groundwater Collection and Treatment

Under the alternative, expanded groundwater collection, conveyance and treatment systems would be constructed. The southern groundwater collection system would include the 11 existing Benzol Yard collection wells (that were initially installed as an Interim Corrective Measure in 2005), supplemented with 12 new groundwater collection wells. Extracted groundwater would be treated by phase separation (oil-water separator), followed by air stripping for removal of volatile organic compounds (VOCs).

Under this alternative, groundwater in the northern portion of OU-04 (including SWMU P-11A) would be captured by the installation of 29 new groundwater pumping wells. Water would be treated by air stripping for VOC removal, with secondary polishing by granular activated carbon to remove phenolics and naphthalene (these compounds are not elevated in the groundwater in the southern area). In total, 52 groundwater collection wells, associated force mains and two independent groundwater treatment systems would be constructed to capture, convey and treat the extracted groundwater in OU-04.

The treatment systems for both the southern and northern collection systems, with a combined capacity of approximately 80 gallons per minute would be housed in single new building centrally located in OU-04. Treated water would be re-injected into groundwater through an expanded infiltration gallery located along the western perimeter of OU-04.

Key elements of this system are shown on Figure C-2. The costs associated with this alternative are estimated to be \$3.8 million.

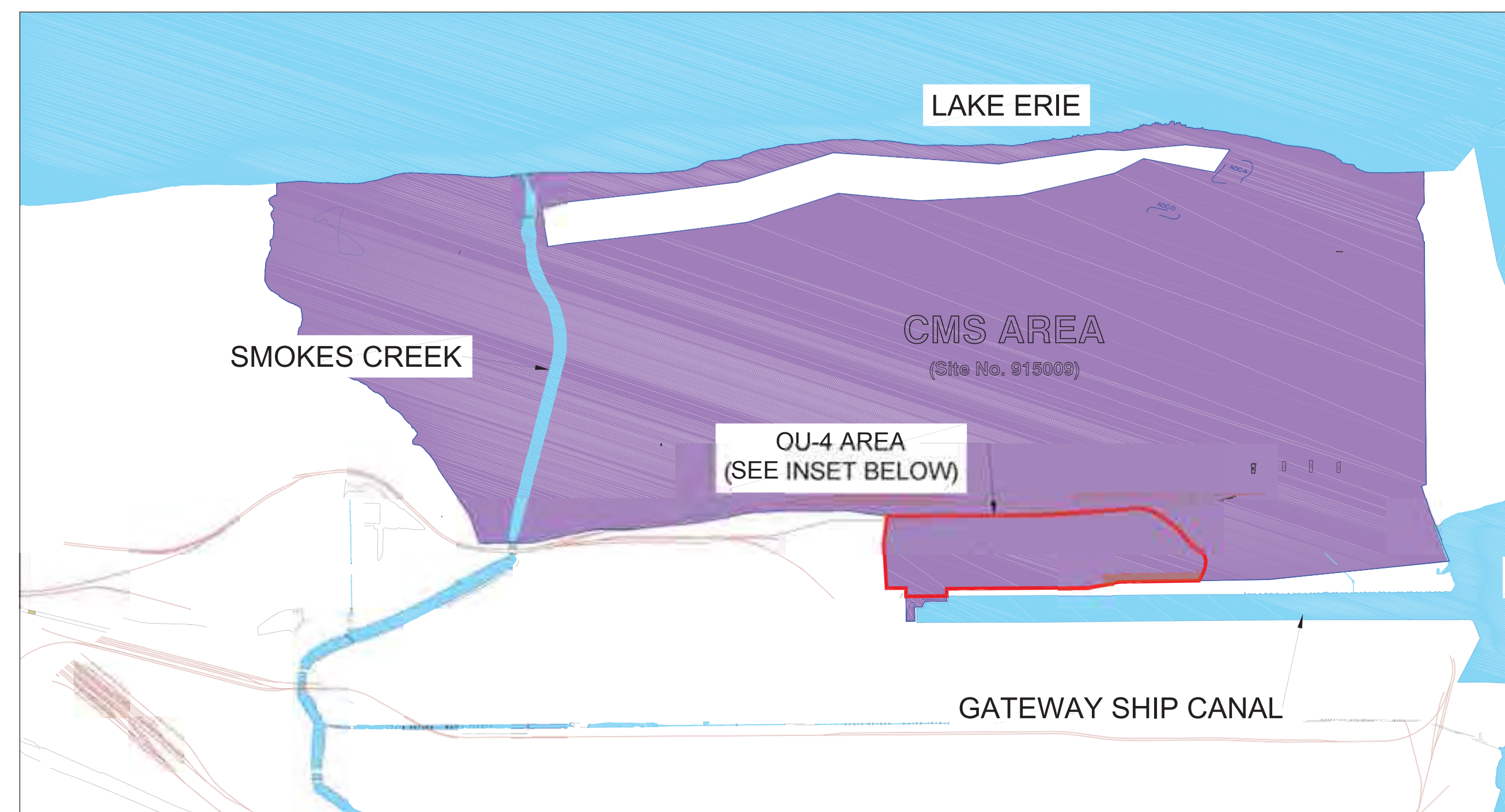
Alternative 3: Partial Slurry Wall Containment System with Enhanced Groundwater Collection and Treatment

Under this alternative, approximately 2,500 linear feet of low permeability bentonite slurry wall would be constructed along the eastern side of OU-04 to isolate groundwater flow to and from the Ship Canal. A new groundwater extraction and treatment system would be constructed to collect and treat the extracted groundwater. The treatment system would consist of the same process units described for Alternative 2, but would be sized for slightly lower flow rates (i.e., 60 gpm) since the slurry wall would reduce recharge of groundwater along the eastern perimeter of OU-04. As described in Alternative 2, treated groundwater would be reinjected via an infiltration gallery. Key elements of this system are shown on Figure C-3. The costs associated with this alternative are estimated to be \$6.15 million.

Alternative 4: Slurry Wall Containment System with Low-Permeability Cover System and Enhanced Groundwater Collection and Treatment





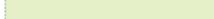




Under this alternative, approximately 5,500 linear feet of low permeability bentonite slurry wall would be constructed around OU-04 to isolate groundwater flow to and from the Ship Canal, a low permeability geo-composite cover system would be constructed over the OU-04 area to reduce infiltration from precipitation, and a new groundwater extraction and treatment system would be constructed to treat extracted groundwater. The treatment system would consist of the same process units described for Alternatives 2 and 3, but would be sized for an even lower flow rates (i.e., 40 gpm) since the slurry wall would reduce lateral recharge of groundwater along the perimeter of OU-04, and the cover system would reduce vertical recharge. Treated groundwater would be discharged to groundwater outside of the slurry wall, or discharged to the municipal treatment plant (POTW) through the existing site sewer system. Key elements of this system are shown on Figure C-4. The costs associated with this alternative are estimated to be \$16.2 million.

ALTERNATIVE 1 - NO FURTHER ACTION - EXISTING INTERIM CORRECTIVE MEASURE SYSTEM



CMS AREA FEATURES
APPROXIMATE SCALE 1" = 800'

LEGEND:

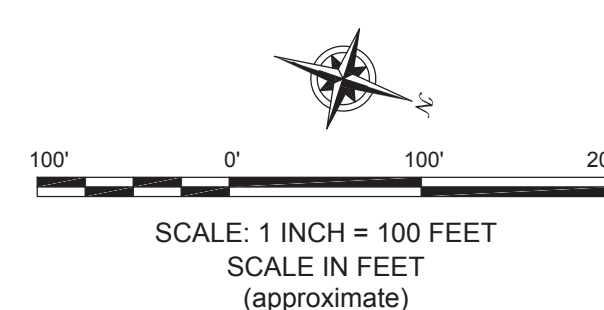
- | | |
|---|---|
|  | TECUMSEH PROPERTY BOUNDARY |
|  | OPERABLE UNIT 4 BOUNDARY |
|  | EXISTING GROUNDWATER COLLECTION FORCE MAIN |
|  | SOLID WASTE MANAGEMENT UNIT (SWMU) BOUNDARY |
|  | REMIEDIATED AND CLOSED SWMU BOUNDARY |
|  | CMS AREA BOUNDARY (EXCLUDING WATER COURSES) |
|  | APPROXIMATE SWMU BOUNDARY FROM RFI OPERABLE UNIT 4 BOUNDARY |
| MWN-54A  | EXISTING MONITORING WELL |
| RW-H  | EXISTING RECOVERY WELLS |

NOTES:

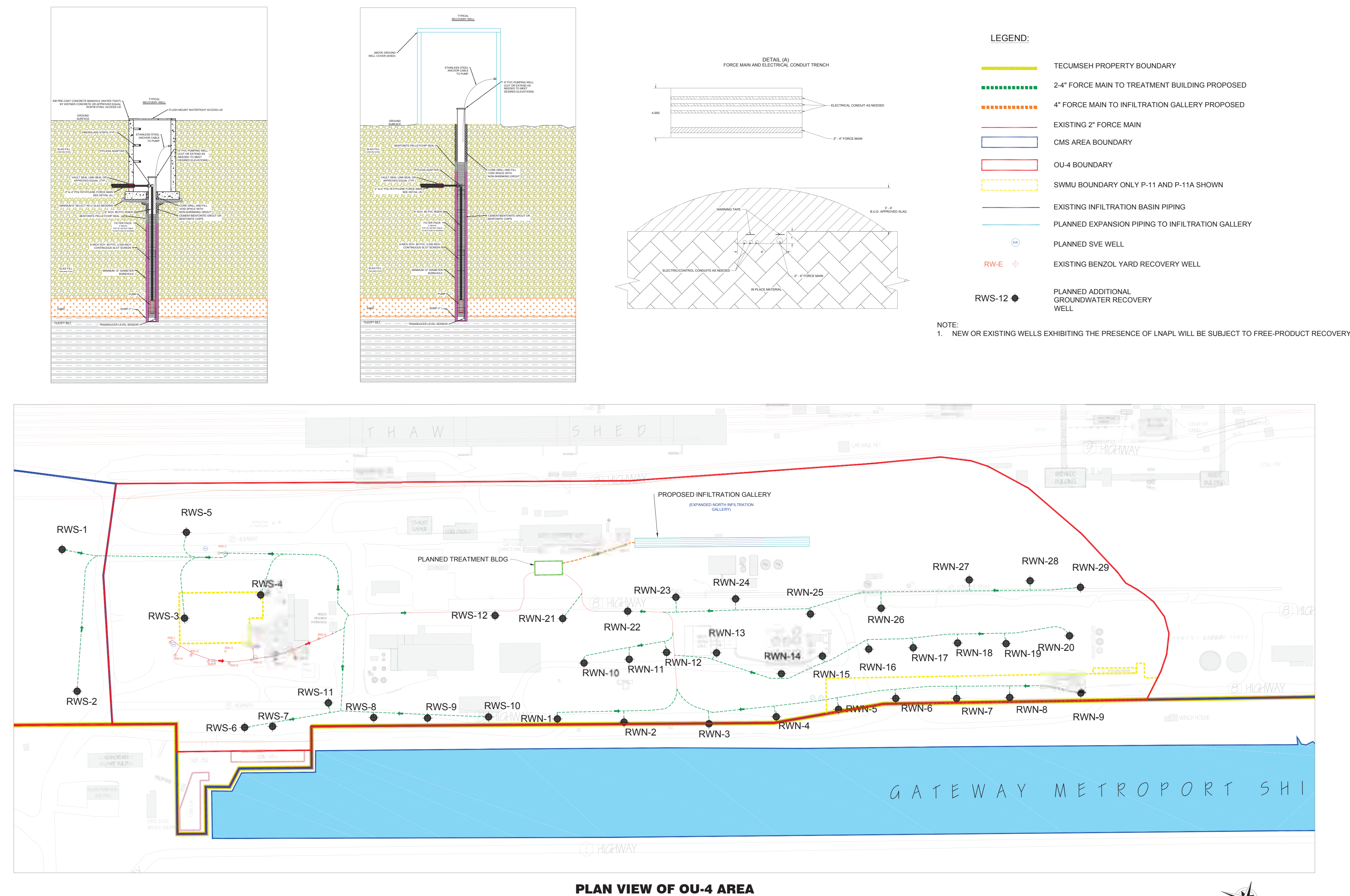
- Existing monitoring well suffix definitions are as follows: A = fill unit, B = sand unit, C = misc. unit, D = bedrock unit. Monitoring wells without a suffix are fill unit wells.



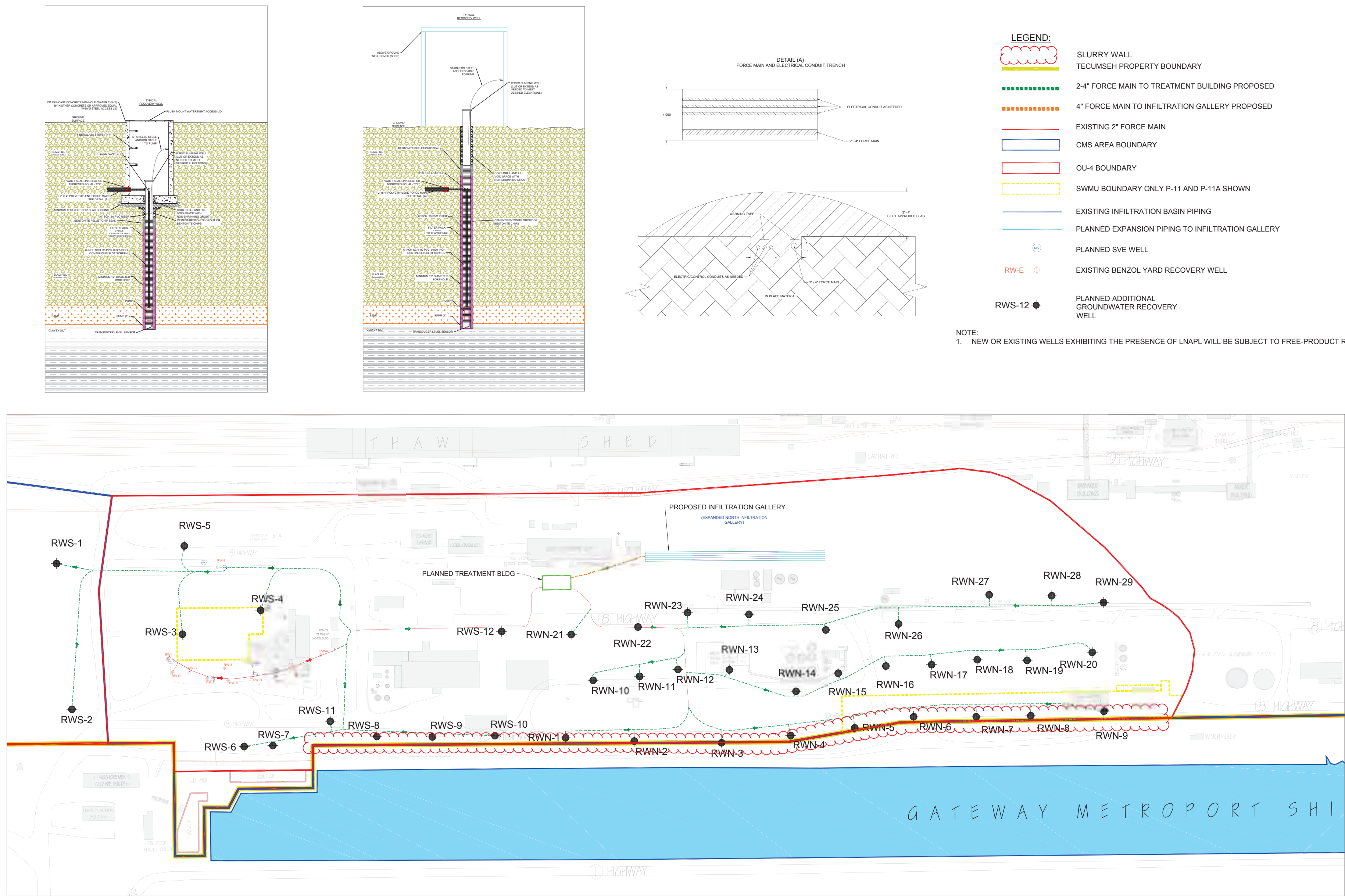
OPERABLE UNIT 4 PLAN VIEW

[illegible]

ALTERNATIVE 2 - ENHANCED GROUNDWATER EXTRACTION and TREATMENT

[illegible]

ALTERNATIVE 3 - ENHANCED GROUNDWATER EXTRACTION with PARTIAL SLURRY WALL

[illegible]

ALTERNATIVE 4 - PERIMETER SLURRY WALL/COVER SYSTEM with ENHANCED GROUNDWATER EXTRACTION

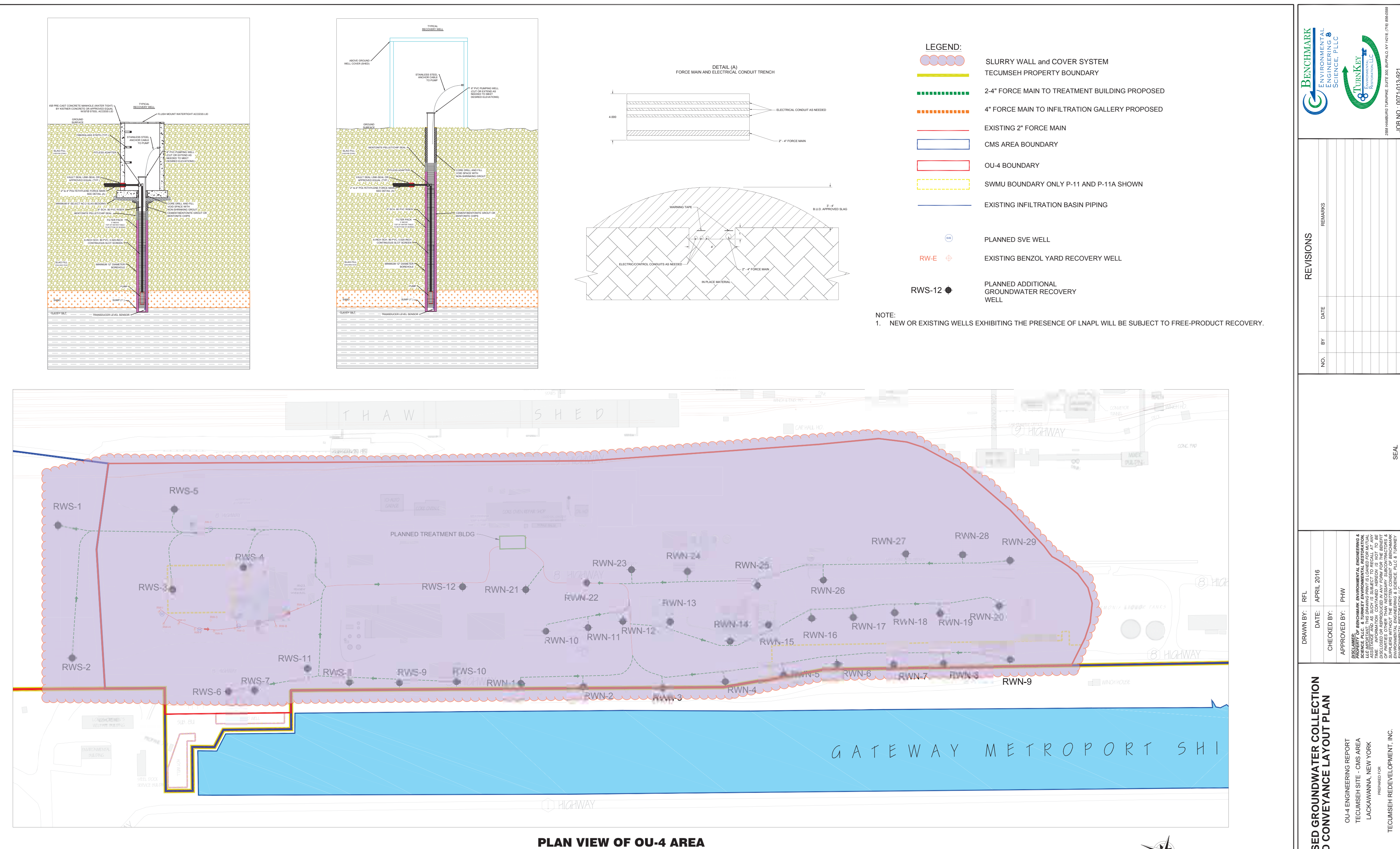


Exhibit D

Corrective Measure Alternative Cost Summary

Corrective Measure Alternative	Total Estimated Cost
Alternative No. 1 No Further Action	\$1.4 million
Alternative No. 2 Enhanced Groundwater Collection and Treatment	\$3.8 million
Alternative No. 3 Partial Slurry Wall Containment System with Enhanced Groundwater Collection and Treatment	\$6.15 million
Alternative No. 4 Slurry Wall Containment System with Low-Permeability Cover System and Enhanced Groundwater Collection and Treatment	\$16.2 million

Exhibit E

BASIS FOR FINAL CORRECTIVE MEASURES SELECTION

The Department has identified Alternative No. 2 – Enhanced Groundwater Collection and Treatment as the preferred remedy for this site. The Department's basis for selection of Alternative 2 is summarized below.

Alternative 2 – Enhanced Groundwater Collection and Treatment

Under this alternative, expanded groundwater collection, conveyance and treatment systems would be constructed. The southern groundwater collection system would include the 11 existing Benzol Yard collection wells (that were initially installed as an Interim Corrective Measure in 2005), supplemented with 12 new groundwater collection wells. Extracted groundwater would be treated by phase separation (oil-water separator), followed by air stripping for removal of volatile organic compounds (VOCs).

Groundwater in the northern portion of OU-04 (including SWMU P-11A) would be captured by the installation of 29 new groundwater pumping wells. Water would be treated by air stripping for VOC removal, with secondary polishing by granular activated carbon to remove phenolics and naphthalene (these compounds are not elevated in the groundwater in the southern area). In total, 52 groundwater collection wells, associated force mains and two independent groundwater treatment systems would be constructed to capture, convey and treat the extracted groundwater in OU-04.

The treatment systems for both the southern and northern collection systems, with a combined capacity of approximately 80 gallons per minute would be housed in single new building centrally located in OU-04. Treated water would be re-injected into groundwater through an expanded infiltration gallery located along the western perimeter of OU-04.

This alternative is implementable from a technical standpoint and utilizes readily available equipment, construction techniques, and relies on commonly used sampling, analytical, data assessment, and reporting methodologies for monitoring performance.

Remedy Selection Criteria

Threshold Criteria

Overall Protection of Public Health and the Environment

Alternatives 2, 3 and 4 are protective of public health, because they each provide effective controls to minimize future exposures related to groundwater contamination. Groundwater use within the impacted area is also not a contributing factor as the impacted area has access to municipal water service.

Alternatives 2, 3, and 4 are protective of the environment as the pathway for direct contact and potential metabolic uptake from ground water exposure to ecologic receptors is blocked. Alternatives 2, 3 and 4 also include collection and removal of LNAPL that is a source for the groundwater contamination. These alternatives include collection and treatment of highly contaminated groundwater that could be acting as a source impacting surrounding areas. Under Alternatives 2, 3, and 4 the potential for adverse future exposures will continue to diminish as contaminant concentrations continue to decline due to contaminant mass removal, as well as contaminant degradation and related natural attenuation processes.

Alternative 1 is not considered protective of human health or the environment because it does not effectively control the migration of contaminants from the site and it does not treat the source of the contamination. This migration and subsequent discharge to adjacent surface water has the potential to adversely affect human as well as ecological receptors. Since Alternative 1 fails to satisfy this threshold selection criterion, it is eliminated from further consideration.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) – Alternatives 2, 3, and 4 will generate wastes associated with the treatment of groundwater as well as through the collection of LNAPL. These wastes will be similar to those generated by operation of the existing ICM and are not expected to pose any significant waste management concerns. LNAPL will be shipped offsite for recycling or disposal as hazardous waste. Treated groundwater will either be re-injected or discharged to a POTW under an appropriate sewer use agreement. Spent carbon from the GAC treatment of water from the SWMU P-11A area will be shipped off-site for regeneration or disposal. Any wastes generated by these alternatives can readily be conducted in a protective manner.

Based on the results obtained from operation of the Benzol Yard interim measure, the technologies employed in Alternatives 2, 3, and 4 have the potential to reduce contaminant concentrations in groundwater to the SCGs, however it will take a considerable amount of time to do so.

Balancing Criteria

Long-term Effectiveness and Permanence. Alternatives 2, 3 and 4 are expected to provide similar levels of long-term effectiveness after implementation. Groundwater concentrations are expected to continue to exceed the SCGs for some time after remedy implementation for all of these alternatives because of difficulties in mobilizing contaminants out of the smear zone. Due to these site conditions, the time to achieve the SCGs for groundwater is expected to be generally comparable for all three alternatives.

These alternatives rely on common, active groundwater and LNAPL recovery technologies, so they are viewed as equivalent in this regard. Alternatives 3 and 4 also incorporate passive features (slurry wall and/or low permeability cover) to reduce the volume of recharge occurring either laterally, from the sides, or from above. This in turn

reduces the expected flow rate for the treatment system over the long term, and decreases the load and energy required by the system infrastructure, relative to Alternative 2. However, in order to sustain these potential benefits, these passive features need to be maintained and protected to retain their effectiveness.

The reliability of Alternatives 2, 3 and 4 is dependent on proper operation, monitoring and maintenance. Alternatives 3 and 4 include additional engineering controls that require additional protection relative to Alternative 2.

Alternatives 2, 3, and 4 are expected to provide comparable levels of long term effective and permanence.

Reduction of Toxicity, Mobility, Volume. Alternatives 2, 3 and 4 are expected to provide similar levels of performance relative to this criterion. The alternatives all include removal of similar contaminant mass, control of migration over a similar area and involve similar volumes of contaminated media.

Short-term Impacts and Effectiveness. Alternatives 2, 3 and 4 include similar levels of impact associated with extraction well installation and construction of related conveyance and treatment systems. Alternatives 3 and 4 involve considerable impacts associated with construction of slurry walls, such as management of spoils generated from the trench alignments and use of heavy equipment. Since Alternative 4 includes installation of substantially more slurry wall than Alternative 3, the magnitude of such impacts will be proportionally greater than those of Alternative 3. Alternative 4 also includes construction of an engineered low permeability cover system over a large area. This involves substantial impacts associated with removal of existing infrastructure to provide access, transport of cover materials to the site, and heavy equipment used during construction. The short-term impacts associated with Alternative 2 are less than those associated with Alternatives 3 and 4. While potential short-term adverse impacts upon the community, the workers, and the environment associated with construction/implementation of Alternatives 3 and 4 can be mitigated, these are negatives relative to Alternative 2. Alternatives 3 and 4 also involve greater direct and indirect greenhouse gas and other emissions relative to Alternative 2, so they are viewed negatively on these green remediation metrics. Alternative 2 is preferred based on this balancing criterion.

Alternatives 3 and 4 require more time to construct than Alternative 2, before they become effective, so Alternative 2 has a slight preference based on this balancing criterion.

Implementability. While implementation of all three alternatives is feasible, Alternative 2 is most readily implementable, since it does not involve construction of slurry walls. Past experience at this site encountered difficult subsurface conditions that made slurry wall construction difficult but not impossible. Alternative 4, especially the cover system element, is complicated by the presence of existing infrastructure (buildings, piping, and tankage) that will interfere with construction.

Alternatives 2, 3 and 4 involve reinjection of treated groundwater into the ground. Reinjection is subject to regulatory controls pursuant to DEC policy. Conditions related to reinjection are not expected to be a significant impediment since the existing ICM system re-injects treated water. One option under Alternative 4 involves directing effluent to a POTW. This requires a sewer use permit from the local municipality for discharge of the treated water, and typically imposes pretreatment requirements, but can generally be obtained readily.

Alternatives 2, 3 and 4 are expected to involve air stripping as part of the water treatment process. These alternatives are all subject to an air discharge evaluation (possible permit requirement) so all are considered equal on this issue.

Alternative 2 is preferred alternative based on the implementability balancing criterion.

Cost-Effectiveness. Alternative 2 has lower estimated costs than Alternatives 3 and 4, but offers a comparable level of effectiveness, so Alternative 2 is preferred based on this balancing criterion.

Summary

All three alternatives satisfy the threshold section criteria, and have the potential to meet the remedial objectives for this site. However, when the balancing criteria are taken into consideration, Alternative 2 is preferred. Alternative 2 provides an effective approach for reducing groundwater concentrations, protecting the environment and minimizing exposure potential, in a readily implementable, cost effective manner.

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Bethlehem Steel
Coke Oven Area Groundwater
Operable Unit 04
Site No. 915009
EPA ID No. NYD002134880
Lackawanna, Erie County

The Draft Statement of Basis (DSB) for the referenced site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 15, 2017. The DSB outlined the remedial measures proposed for the referenced operable unit associated with the Bethlehem Steel site.

The release of the DSB was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy. The notice also appeared in the Lackawanna Front Page.

A public meeting was held on March 8, 2017, which included a presentation of the site investigations as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the DSB was from February 15, 2017 through March 31, 2017.

This responsiveness summary responds to all questions and comments raised during the public comment period. This includes comments received at the public meeting, as well as those submitted by email, and by letter. The following are the comments received, with the Department's responses:

Public Meeting Comments:

COMMENT 1: Where does the oil go after it goes through the treatment center?

RESPONSE 1: After the oil is collected, it is shipped to a facility in Pennsylvania for recycling.

COMMENT 2: How long will these wells be in place?

RESPONSE 2: It is difficult to determine the exact time frame, but it is anticipated for at least 10 years. Once groundwater is contaminated, it is difficult to restore the groundwater quality. Source removal will also help in reducing the duration of the groundwater extraction system.

COMMENT 3: What is the goal of this cleanup plan/partial temporary system?

RESPONSE 3: The near-term goal is to prevent contaminated groundwater from entering into the ship canal and Lake Erie. The longer-term goal is to restore groundwater quality within the operable unit.

COMMENT 4: What steps remain before DEC has a plan to remove the source (that is making the groundwater contaminated)?

RESPONSE 4: The remedy that has been proposed will remove oil/free product that is contaminating the groundwater. However, contamination is also likely to be present within soil in the area. In conjunction with the proposed groundwater remedy, the Department is also evaluating an interim remedial measure for the soils. This measure involves a soil vapor extraction system that the Department expects will be implemented during the next year. A recent pilot test of this technology conducted in the coke oven area indicated favorable results.

COMMENT 5: Is there no current overall study of the whole RCRA site?

RESPONSE 5: Yes, a site-wide RCRA Facility Investigation (RFI) was completed in 2006. This investigation assessed the environmental conditions across the entire site and identified potential sources of contamination.

COMMENT 6: Is there a timeline for Tecumseh to clean the whole site?

RESPONSE 6: There is no set timeline and the large site is being handled by breaking it into smaller more manageable units (operable units). The Department is currently reviewing additional projects such as the former tank farm area. The Department is addressing the highest-priority operable units first.

COMMENT 7: I thought Benzene breaks down over time and over distance? You said Benzene is going towards the lake, but that doesn't seem bad (as it would be almost non-existent by the time it gets there). Or how bad is it actually?

RESPONSE 7: Benzene does break down and by the time the westward component gets near the lake, the levels of benzene are very low.

COMMENT 8: How many sites/OU's are there total in the whole Former Bethlehem Steel area?

RESPONSE 8: 43 solid waste management units (SWMUs) and 5 watercourses were identified in the RFI. A number of them have been addressed in previous remedial programs. Currently there nine operable units associated with the site.

COMMENT 9: Are the hot spots (SWMUs?) right by Lake Erie part of this proposal?

RESPONSE 9: No, the proposal is for an action that is located next to the Ship Canal

and not out along the western edge of the site where the shore of Lake Erie is.

COMMENT 10: Do we have any idea of impact to wildlife on remediation of this site since 2001?

RESPONSE 10: An ecological risk assessment was performed as part of the RFI in 2006. Since that time, much work has been completed to reduce exposure of contaminants to fish and wildlife.

COMMENT 11: What are the current monitoring programs for the whole site? This specific area? Is there anywhere that is less than annual (monitoring fewer than once a year)?

RESPONSE 11: Monitoring occurs at different frequencies depending on the nature of the project. For example, quarterly monitoring occurs at the Acid Tar Pits (OU03), biannual monitoring occurs at the benzol yard (OU04A), and annual monitoring is performed at HWMUs 1A, 1B and HWMU 2A.

COMMENT 12: Is that ship canal still in use?

RESPONSE 12: Yes.

COMMENT 13: Where is the county trying to buy the parcel?

RESPONSE 13: A map was shown to the audience that showed the area that the county intends to buy. That area is not near the OU04 area.

COMMENT 14: Is the State paying for this project?

RESPONSE 14: Tecumseh Redevelopment is paying for all costs for this project and costs associated with investigation and cleanup of the site.

APPENDIX B

Administrative Record

Administrative Record

Bethlehem Steel
Coke Oven Area Groundwater
Operable Unit 04
Site No. 915009
EPA ID No. NYD002134880
Lackawanna, Erie County

URS Consultants, Inc. RCRA Facility Investigation (RFI) Report for the Former Bethlehem Steel Corporation Facility, Lackawanna, New York, Parts I through VII. October 2004.

TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. Corrective Measures Study Work Plan, Tecumseh Redevelopment Site, Lackawanna, New York. May 2009.

TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. Corrective Measures Study Report (Final Draft), Tecumseh Redevelopment Site, Lackawanna, New York. December 2011, revised October 2014.

TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. Comprehensive Groundwater Quality Assessment Report (2014). Tecumseh Redevelopment CMS Area, Lackawanna, New York. May 2014.

TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. Expedited Corrective Measures Work Plan, Operable Unit 4, Tecumseh Redevelopment Site, Lackawanna, New York. January 2014, revised June 2015.

Benchmark Environmental Engineering & Science, PLLC, in association with TurnKey Environmental Restoration, LLC. Benzol Yard Groundwater Contaminant Source Area Pilot-Scale Treatability Test Report, Operable Unit OU-4, Tecumseh Redevelopment Site, Lackawanna, New York. February 2016.

TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. Evaluation of Groundwater Corrective Measures Operable Unit 4 Coke Plant By-Products Solid Waste Management Group Tecumseh Redevelopment Site Lackawanna, New York. Rev August 2016

TurnKey Environmental Restoration, LLC in association with Benchmark Environmental Engineering & Science, PLLC. Year 11 – Annual & Second Semi-Annual ICM Operation and Performance Summary Report Tecumseh Redevelopment Inc. -

Lackawanna, NY Site Former Benzol Plant Tank Storage Area (SWMU P-11) Interim Corrective Measure (ICM) October 2016.

New York State Department of Environmental Conservation, Interim Order on Consent – File No. 03-73: Interim Corrective Measures for the Benzol Plant Tank Storage Area (SWMU P-11), November 2004.

New York State Department of Environmental Conservation, Draft Statement of Basis Corrective Measures Selection: Bethlehem Steel Coke Oven Groundwater Operable Unit 04, Site No. 915009, EPA ID No. NYD002134880, Lackawanna, Erie County February 2017.