SESI
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Geotechnical
Environmental
Site Civil

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GROUNDWATER TREATMENT DESIGN

For

North America/Pulse Plastics Site
1156 E 165th St.
Bronx, Bronx County, NY
BCP Site. No C203144

Prepared for:

Whitlock Point LLC and
Whitlock Point Services LLC

September 2025

SESI Contact:
Fuad Dhan
fd@sesi.org

SESI Project No:
11913

CERTIFCATION STATEMENT

I, Fuad Dahan, certify that I am currently a NYS registered professional engineer and that this Report, Groundwater Treatment Design, was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

_____P.E.

9/26/2025
_____Date

Table of Contents

TABLES

FIGURES

APPENDICES

LIST OF ACRONYMS

Acronym	Definition
amsl	above mean sea level
AWQS	ambient water quality standards
BCP	Brownfield Cleanup Program
COC	Certificate of Completion
DO	Dissolved Oxygen
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
ORC-A	ORC Advanced
PHC	Petroleum Hydrocarbon
RAWP	Remedial Action Work Plan
SESI	SESI Consulting Engineers, Inc.
VOC	Volatile Organic Compound
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

On behalf of our Client, Whitlock Point LLC and Whitlock Point Services LLC (the "Volunteer"), SESI Consulting Engineers (SESI) has prepared this Groundwater Treatment Design document in accordance with the December 2024 Decision Document and the December 2024 RAWP and in accordance with Title 6 New York Codes, Rules, and Regulations Part 375, the NYSDEC Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10, May 3, 2010), and all other applicable regulatory and procedural requirements.. The document presents the approach to address Petroleum Hydrocarbon Compound (PHC) VOC contamination in groundwater in the area surrounding RI-MW-01.

PHC volatile organic compounds (VOCs) were identified exceeding the Ambient Water Quality Standards (AWQS) mainly in overburden well RI-MW-01 in the eastern portion of the Site (**Figure 1**). RI-MW-01 was screened from 22.5 to 12.5 ft above mean sea level (amsl). The overburden groundwater gradient was determined to be in east-southeasterly direction, but groundwater may also flow towards the north near the northeast corner of the Site due to a higher measured groundwater elevation in RI-MW-02 compared to RI-MW-01 (**Figure 2**). Overburden groundwater was encountered only on the eastern side of the Site during the Remedial Investigation (RI). The groundwater is present in native soils consisting of coarse to fine sand with varying amounts of silt, gravel, and cobbles, to elevation down to +-0 ft amsl. Bedrock was encountered beneath the native soils. During a well gauging event performed on March 29, 2024, groundwater was encountered at elevations between 19.33 and 21.39 ft amsl in the overburden wells.

2.0 THE CHOSEN GROUNDWATER REMEDIATION TECHNOLOGY

Because groundwater contamination consists mainly of PHC VOCs, and the dissolved oxygen (DO) level was 0 mg/L (anoxic conditions) on the 08/21/2023 sampling event for well RI-MW-01 (**Appendix A**), aerobic biodegradation of PHC VOCs most likely resulted in the depletion of oxygen in groundwater. Depletion of the electron acceptor (oxygen) by ubiquitous aerobic petroleum degrading bacteria is the primary oxygen depletion mechanism in petroleum contaminated sites. The continued degradation of PHCs can be sustained by enhancing oxygen levels in groundwater or by using other electron acceptors such as nitrate or sulfate to enhance PHC degradation through nitrate or sulfate reduction mechanisms. The groundwater pH was measured at 7.23, which is conducive to aerobic biodegradation.

ORC Advanced (ORC-A), an oxygen release compound technology, stimulates in situ aerobic bioremediation of groundwater contaminated with petroleum-based hydrocarbons such as the hydrocarbons present at this Site. It is supplied as a nontoxic, environmentally benign powder that is mixed with water to form an injectable slurry, which is then pumped into the subsurface contamination zone with direct-push injection equipment. Contact with groundwater causes the material, over a period of months, to gradually release molecular oxygen, which is then used by naturally occurring microbial populations to multiply and rapidly break down petroleum compounds into harmless end products. ORC Advanced can provide sustained oxygen release for up to 12 months on a single injection.

3.0 GROUNDWATER TREATMENT

The targeted treatment area is 3,600 ft^2 (**Figure 3**) and the treatment will be placed in a 10-ft vertical section (from EL. 21 ft to 11 ft amsl, the top 10 ft. of water column). Regenesis provided a design for the ORC-A treatment (**Appendix B**). The treatment will consist of in-situ injections of a 30% slurry of ORC-A in 30 injection points. An injection point spacing of 10-ft on center will be used. The quantity of ORC-A necessary to reduce VOC concentrations to the desired levels will depend on the residual VOC concentrations.

Based on the PHC total VOC (TVOC) concentration in well RI-MW-01 of 187 ug/L, the TVOC mass in groundwater in the treatment zone is 76.24 g (0.0762 kg). Because the level of absorbed PHC contamination is not known in the proposed treatment area, providing a large supply of oxygen can ensure sufficient long-term oxygen presence for an effective treatment of the PHC contamination. Regenesis estimates that 2,720 lbs of ORC-A (powder) (68 of 40-lb bags) will be necessary for the injection event. 2,720 pounds ORC-A will release 462 pounds of oxygen (17% wt/wt). Assuming 3.1 pounds of oxygen are needed to biodegrade one pound of petroleum contamination, the PHC degradation potential is 149 pounds (67.6 kg) in the injection area. This represents 887 times the TVOC mass in groundwater.

Each 40-lb bag of ORC-A powder will be mixed with 11.2 gallons of water. The resulting 30% slurry (approximately 13 gallons per bag of ORC-A) would be injected using direct push technology in injection points in the treatment area (**Figure 3**). Approximately 883 gallons of 30% ORC-A slurry would be injected equally in a total of 30 injection points (approximately 29.4 gal/injection point; 2.94 gal/ft) from EL. 21 ft to 11 ft amsl. The top of the injection interval will be adjusted based on the actual groundwater depth at the time of injection to encompass the upper 10 feet of the groundwater column, or to the top of bedrock if encountered at a shallower depth.

Each injection point will be two (2) inches in diameter. The materials will be equally injected through 30 injection points via the top-down methodology described in the following paragraphs. The 30 injection points will be sufficient to distribute the ORC treatment in the targeted area. Note that the injected ORC-A will serve as a source of oxygen that will be further distributed in the treatment area through groundwater advection and diffusion mechanisms. No sealing of the injection points is necessary as ORC-A treatment is a passive treatment method that allows the oxygen to be distributed by groundwater flow through hydration of ORC-A in the injection points. In order to accurately target the treatment depth, the treatment area will be surveyed before the injection activities. The injection point depth will be calculated accordingly to target the prescribed treatment elevation per the table below.

The injections will be performed using a top-down method. A perforated injection rod, measuring 4 feet in length and 2.25 inches in diameter, is equipped with a connector tip at the top, which attaches to the injection hose. The hose runs internally through the extension rods, and the connector tip prevents backflow of liquid to grade. During injection, the rod is pressurized so that the amendment remains contained entirely within the injection rod, as opposed to the bottom-up expandable point system where the chemical fills the entire drilling string. This configuration ensures greater control and equal distribution of amendments.

The injection rod will be advanced to the designated starting interval (top of rod at elevation 23 ft amsl), at which point injection will commence. As the rod is driven downward, amendments will be injected using a diaphragm double pump powered by an air compressor. The system includes a digital control valve and pressure gauge to regulate injection pressure and flow rate (gallons per minute), ensuring uniform distribution of material throughout the vertical treatment interval. Once the injection rod tip reaches the bottom of the treatment zone (elevation 11 ft amsl or bedrock, whichever is shallower), injection will be terminated.

Following completion of injections, the injection points will be closed in accordance with DER-10 Section 3.3(e). Each injection point will be backfilled with cohesive, compacted sand that meets the requirements of Subdivision 5.4(e) and Appendix 5 of DER-10. No drill cuttings are expected to be generated during injection.

Table 1: Groundwater Injection Tracking Table

Injection Date	Injection Point Surface Elevation (ft amsl)	Target Injection bottom Depth (ft bgs) Surface Elevation (ft asml) – 11 ft amsl or bedrock elevation	Target Injection top Depth (ft bgs) Surface Elevation (ft asml) – 21 ft amsl	Quantity Injected Gallons of Solutions and Lbs of ORC

A total of six (6) days with a single drill rig or three (3) days with two drill rigs is estimated to complete the injections. Additional days of injection may be needed depending on the permeability of the silty sand material at depth. **Table 2** below summarizes the injection design.

Table 2: Injection Design Summary

Treatment Area	ft^2	3,600
Vertical Treatment Interval	ft	10.0
Treatment Zone Volume	ft^3	36,000
Treatment Zone Volume	cy	1,333
Soil Type	---	silty sand
Porosity	cm^3/cm^3	0.40
Effective Porosity	cm^3/cm^3	0.20
Treatment Zone Pore Volume	gals	107,719
Treatment Zone Effective Pore Volume	gals	53,860
Soil Density	g/cm^3	1.6
Hydraulic Conductivity	ft/day	10.0
Hydraulic Gradient	ft/ft	0.005
GW Velocity	ft/yr	91
Application Design Summary		
Application Method	-	**Direct Push**
Treatment Area	ft^2	3600
Spacing Within Rows	ft	10.0
Spacing Between Rows	ft	12.0
Application Points	-	**30**
ORC Advanced to be Applied	lbs	**2,720**
ORC Advanced per point	lbs	90.7
Percent Slurry	%	**30%**
Volume Water	gals	**760.5**
Volume ORC Advanced	gals	122.4
Total Application Volume	**gals**	**882.9**
Application Volume per Foot	gal/ft	2.94
Injection Volume per Point	gals	29.4
Application Dosing	**Unit**	**Value**
ORC Advanced to be Applied	**lbs**	**2720**

4.0 GROUNDWATER MONITORING

Because the contaminated soil has been removed, thereby eliminating the source of groundwater contamination, baseline sampling is warranted to evaluate current groundwater conditions prior to treatment. Monitoring wells will be installed prior to the proposed groundwater treatment.

SMP-MW-01 will be installed at the former location of RI-MW-01, as documented in the Remedial Investigation Report. SMP-MW-02 will be installed upgradient of RI-MW-01, while SMP-MW-03 will be installed downgradient. The wells will be installed in a triangular configuration to facilitate confirmation of groundwater flow direction. (**Figure 3**).

Consistent with the monitoring wells installed during the RI phase and documented in the RIR, the new monitoring wells will be installed using the following methodology:

- Prior to installation, the proposed monitoring well locations will be surveyed and marked in the field to guide depth determination.
- All monitoring wells will be constructed as 2-inch diameter wells.
- Wells will be installed using a hollow-stem auger with 4.5-inch ID and 8.5-inch OD, which allows for more than 2 inches of sand pack around the well screen.
- The target bottom elevation of the wells is 11 feet amsl. If bedrock is encountered at a shallower depth, the wells will be terminated at the bedrock surface, as they are intended to monitor the overburden aquifer. If bedrock is encountered during monitoring well installation such that the resulting monitoring well will not provide for a representative groundwater sample (i.e., won't be installed or constructed as designed), the location of the monitoring well will be adjusted in the field based on existing site data to facilitate proper installation and well design. The NYSDEC PM will be made aware of this circumstance, immediately, if and as needed.
- Each well will be constructed with 2-inch diameter 10-slot well screen. The screen interval will extend from the bottom of the boring to elevation 23 feet amsl, which is 2 ft above the previously measured groundwater level, so the well screen straddles the water table interface.
- Solid 2-inch schedule 40 PVC risers will be installed from the top of the screen to ground surface.
- #2 filter sand will be placed in the annular space around the well screen from the bottom of the screen to at least one (1) foot above the top of the screen to protect the screen from grout intrusion.
- At least a foot of bentonite seal will be placed in the annular space from above the sand pack to protect the screen from grout intrusion.
- Then the annulus will be sealed with grout mixture (94 lbs Portland cement mixed with 7 lbs of bentonite and 7 gallons of water)
- The wells will be subsequently completed with protective steel stickup or flush mount casing (see **Figure 4** for proposed monitoring well construction).
- Spoils generated during the installation of proposed monitoring wells will be handled in accordance with material handling procedures described in DER-10, Section 3.3(e).
- Once the grout cures for at least 48 hours, allowing for sufficient curing, the wells will be developed in accordance with ASTM D5521. Monitoring wells will be developed until the monitoring well has reached equilibrium and turbidity of the purge water is measured to 50 nephelometric turbidity units (NTUs) or less.
- Development water will be containerized, properly labelled, and properly stored onsite pending laboratory analytical results, which will be used to determine appropriate handling of generated development fluids.

Groundwater sampling within the treatment area will be conducted to establish baseline conditions (one week after well development and prior to treatment), followed by post-treatment sampling events at one (1) month and two (2) months after treatment to evaluate VOC concentrations in wells SMP-MW-01, SMP-MW-02, and SMP-MW-03. The wells will be

maintained for post Certificate of Completion (COC) sampling, if needed. Wells will be decommissioned in accordance with CP-43 if/when determined they are no longer necessary.

Groundwater parameters such as pH, ORP, Dissolved Oxygen (DO) and Specific Conductance will be measured, as well. If residual groundwater contamination is present when the COC is issued, it will be monitored as part of the SMP via periodic monitoring of the contaminant concentrations in the Site monitoring wells. Should levels require additional active remediation such as additional injections, the VOC, Dissolved Oxygen, and ORP data will be evaluated and addressed post-COC. **Table 3** below summarizes monitoring details.

Table 3 Groundwater Monitoring Details

MW Name	Location	Screening Interval	Sampling time	Monitoring Parameters	Sampling Method
SMP-MW-01	Former RI-MW-01	EL. 23' to EL. 11' amsl	Prior to treatment but one week after well development, one month and two months after treatment.	VOCs, pH, ORP, DO, Specific Conductance	Low-flow purge and sampling
SMP-MW-02	Upgradient	EL. 23' to EL. 11' amsl			
SMP-MW-03	Downgradient	EL. 23' to EL. 11' amsl			

Groundwater samples will be collected from groundwater monitoring wells using low flow purging techniques. Parameters such as pH, ORP, DO, and Specific will be measured via a Horiba U-52 during sampling. All samples will be sent under a chain of custody to an ELAP-certified lab for analysis. Category B deliverables are required for all samples. All data will be sent to a third party (Laboratory Data Consultants) for validation in accordance with NYSDEC BCP requirements.

CAMP will be operating during groundwater remediation and monitoring well installation activities due to the intrusive native of proposed activities.

5.0 GOVERNING DOCUMENTS

The following documents will govern the groundwater remediation activities proposed in this design document:

- HASP included in the December 2024 RAWP.
- QAPP included in the December 2024 RAWP.
- CAMP included in the December 2024 RAWP.

6.0 REPORTING

Daily work reports will be submitted to the NYSDEC and the NYSDOH PMs by the end of each day following the reporting period and will include a summary of CAMP results, odor and dust problems and corrective actions, and any complaints received from the public. All complaints received will immediately be reported to the NYSDEC PM and the NYSDOH PM.

All activities associated with the implementation and execution of the groundwater treatment remedial design work plan will be included in the Final Engineering Report.

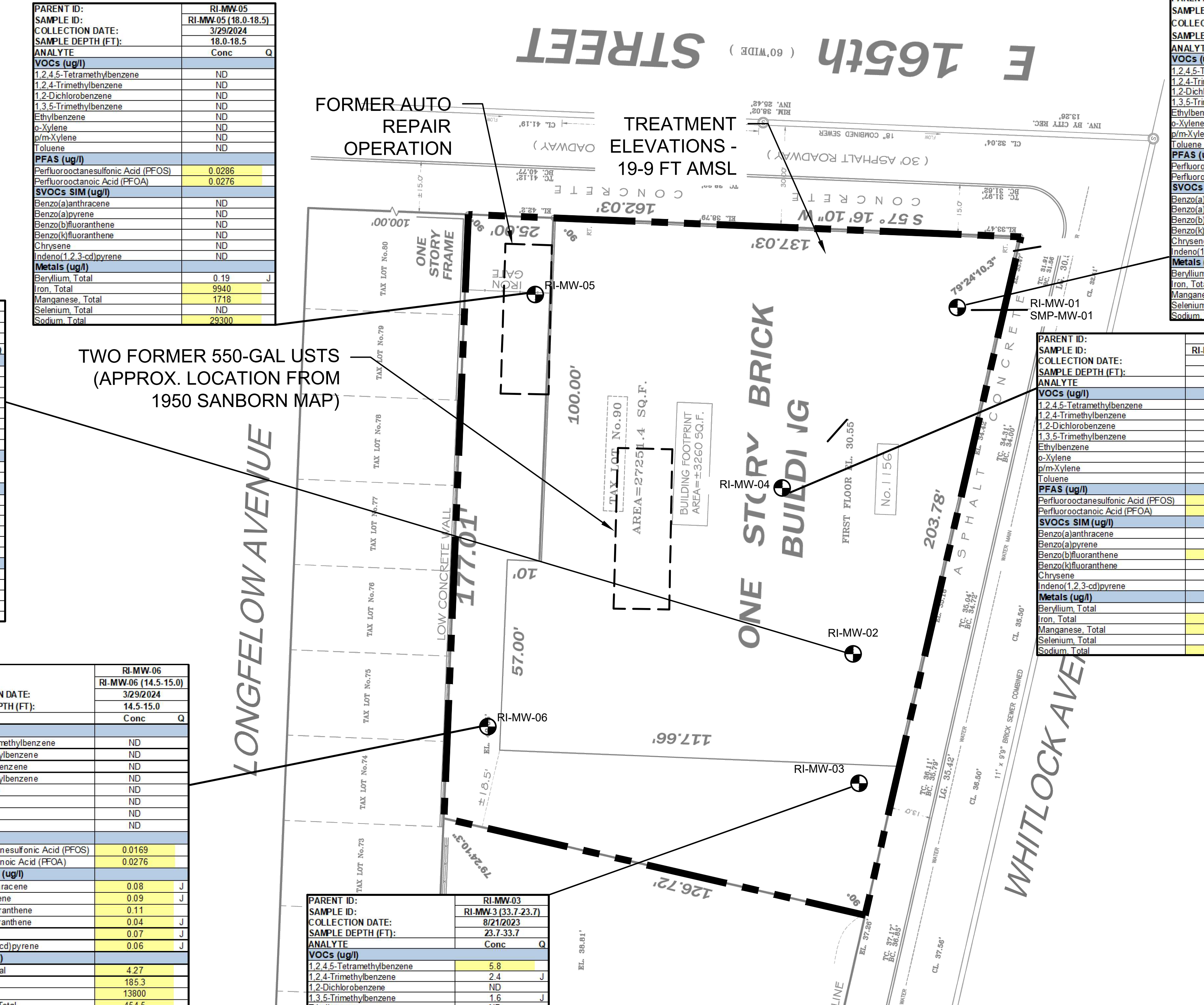
7.0 IMPLEMENTATION SCHEDULE

The following implementation schedule is anticipated:

Table 4: Implementation Schedule

Activity	Schedule
Treatment Area Surveying	9/30/2025
Monitoring Well Installation	9/30/2025
Monitoring Well Development	10/02/2025
Baseline Sampling	10/09/2025
Groundwater Injections	10/14/2025 to 10/16/2025
Post Treatment Sampling -1st	11/16/2025
Post Treatment Sampling -2nd	12/16/2025

Figures



PARENT ID:	RI-MW-05	
SAMPLE ID:	RI-MW-05 (18.0-18.5)	
COLLECTION DATE:	3/29/2024	
SAMPLE DEPTH (FT):	18.0-18.5	
ANALYTE	Conc	Q
VOCs (ug/l)		
1,2,4,5-Tetramethylbenzene	ND	
1,2,4-Trimethylbenzene	ND	
1,2-Dichlorobenzene	ND	
1,3,5-Trimethylbenzene	ND	
Ethylbenzene	ND	
o-Xylene	ND	
p/m-Xylene	ND	
Toluene	ND	
PFAS (ug/l)		
Perfluorooctanesulfonic Acid (PFOS)	0.0286	
Perfluorooctanoic Acid (PFOA)	0.0276	
SVOCs SIM (ug/l)		
Benzo(a)anthracene	ND	
Benzo(a)pyrene	ND	
Benzo(b)fluoranthene	ND	
Benzo(k)fluoranthene	ND	
Chrysene	ND	
Indeno(1,2,3-cd)pyrene	ND	
Metals (ug/l)		
Beryllium, Total	0.19	J
Iron, Total	9940	
Manganese, Total	1718	
Selenium, Total	ND	
Sodium, Total	29300	

PARENT ID:	RI-MW-01	
SAMPLE ID:	RI-MW-1 (24.9-14.9)	
COLLECTION DATE:	8/21/2023	
SAMPLE DEPTH (FT):	14.9-24.9	
ANALYTE	Conc	Q
VOCs (ug/l)		
1,2,4,5-Tetramethylbenzene	8	
1,2,4-Trimethylbenzene	44	
1,2-Dichlorobenzene	5.7	
1,3,5-Trimethylbenzene	21	
Ethylbenzene	6.8	
o-Xylene	42	
p/m-Xylene	48	
Toluene	11	
PFAS (ug/l)		
Perfluorooctanesulfonic Acid (PFOS)	0.0453	
Perfluorooctanoic Acid (PFOA)	0.0368	
SVOCs SIM (ug/l)		
Benzo(a)anthracene	0.06	J
Benzo(a)pyrene	0.05	J
Benzo(b)fluoranthene	0.05	J
Benzo(k)fluoranthene	0.03	J
Chrysene	0.1	
Indeno(1,2,3-cd)pyrene	0.03	J
Metals (ug/l)		
Beryllium, Total	ND	
Iron, Total	786	
Manganese, Total	961.8	
Selenium, Total	3.62	J
Sodium, Total	87900	

PARENT ID:	RI-MW-02	
SAMPLE ID:	RI-MW-2 (28.8-18.8)	
COLLECTION DATE:	8/21/2023	
SAMPLE DEPTH (FT):	18.8-28.8	
ANALYTE	Conc	Q
VOCs (ug/l)		
1,2,4,5-Tetramethylbenzene	ND	
1,2,4-Trimethylbenzene	ND	
1,2-Dichlorobenzene	ND	
1,3,5-Trimethylbenzene	ND	
Ethylbenzene	ND	
o-Xylene	ND	
p/m-Xylene	ND	
Toluene	ND	
PFAS (ug/l)		
Perfluorooctanesulfonic Acid (PFOS)	0.00412	
Perfluorooctanoic Acid (PFOA)	0.0267	
SVOCs SIM (ug/l)		
Benzo(a)anthracene	0.06	J
Benzo(a)pyrene	0.07	J
Benzo(b)fluoranthene	0.08	J
Benzo(k)fluoranthene	0.04	J
Chrysene	0.14	
Indeno(1,2,3-cd)pyrene	0.05	J
Metals (ug/l)		
Beryllium, Total	0.34	J
Iron, Total	14800	
Manganese, Total	7660	
Selenium, Total	ND	
Sodium, Total	27200	

PARENT ID:	RI-MW-04	
SAMPLE ID:	RI-MW-04 (23.0-23.5)	
COLLECTION DATE:	3/29/2024	
SAMPLE DEPTH (FT):	23.0-23.5	
ANALYTE	Conc	Q
VOCs (ug/l)		
1,2,4,5-Tetramethylbenzene	ND	
1,2,4-Trimethylbenzene	ND	
1,2-Dichlorobenzene	ND	
1,3,5-Trimethylbenzene	ND	
Ethylbenzene	ND	
o-Xylene	ND	
p/m-Xylene	ND	
Toluene	ND	
PFAS (ug/l)		
Perfluorooctanesulfonic Acid (PFOS)	0.0167	
Perfluorooctanoic Acid (PFOA)	0.0641	
SVOCs SIM (ug/l)		
Benzo(a)anthracene	ND	
Benzo(a)pyrene	ND	
Benzo(b)fluoranthene	0.02	J
Benzo(k)fluoranthene	ND	
Chrysene	ND	
Indeno(1,2,3-cd)pyrene	ND	
Metals (ug/l)		
Beryllium, Total	ND	
Iron, Total	1330	
Manganese, Total	649	
Selenium, Total	6.77	
Sodium, Total	48000	

PARENT ID:	RI-MW-06	
SAMPLE ID:	RI-MW-06 (14.5-15.0)	
COLLECTION DATE:	3/29/2024	
SAMPLE DEPTH (FT):	14.5-15.0	
ANALYTE	Conc	Q
VOCs (ug/l)		
1,2,4,5-Tetramethylbenzene	ND	
1,2,4-Trimethylbenzene	ND	
1,2-Dichlorobenzene	ND	
1,3,5-Trimethylbenzene	ND	
Ethylbenzene	ND	
o-Xylene	ND	
p/m-Xylene	ND	
Toluene	ND	
PFAS (ug/l)		
Perfluorooctanesulfonic Acid (PFOS)	0.0169	
Perfluorooctanoic Acid (PFOA)	0.0276	
SVOCs SIM (ug/l)		
Benzo(a)anthracene	0.08	J
Benzo(a)pyrene	0.09	J
Benzo(b)fluoranthene	0.11	
Benzo(k)fluoranthene	0.04	J
Chrysene	0.07	J
Indeno(1,2,3-cd)pyrene	0.06	J
Metals (ug/l)		
Beryllium, Total	4.27	
Lead, Total	185.3	
Iron, Total	13800	
Manganese, Total	454.5	
Selenium, Total	15.5	
Sodium, Total	108000	

PARENT ID:	RI-MW-03	
SAMPLE ID:	RI-MW-3 (33.7-23.7)	
COLLECTION DATE:	8/21/2023	
SAMPLE DEPTH (FT):	23.7-33.7	
ANALYTE	Conc	Q
VOCs (ug/l)		
1,2,4,5-Tetramethylbenzene	5.8	
1,2,4-Trimethylbenzene	2.4	J
1,2-Dichlorobenzene	ND	
1,3,5-Trimethylbenzene	1.6	J
Ethylbenzene	ND	
o-Xylene	0.7	J
p/m-Xylene	ND	
Toluene	ND	
PFAS (ug/l)		
Perfluorooctanesulfonic Acid (PFOS)	0.0184	
Perfluorooctanoic Acid (PFOA)	0.0328	
SVOCs SIM (ug/l)		
Benzo(a)anthracene	0.03	J
Benzo(a)pyrene	0.03	J
Benzo(b)fluoranthene	0.04	J
Benzo(k)fluoranthene	0.02	J
Chrysene	0.13	
Indeno(1,2,3-cd)pyrene	0.02	J
Metals (ug/l)		
Beryllium, Total	ND	
Iron, Total	9790	
Manganese, Total	2393	
Selenium, Total	1.75	J
Sodium, Total	40600	

ANALYTE	AWQS
VOCs (ug/l)	
1,2,4,5-Tetramethylbenzene	5
1,2,4-Trimethylbenzene	5
1,2-Dichlorobenzene	3
1,3,5-Trimethylbenzene	5
Ethylbenzene	5
o-Xylene	5
p/m-Xylene	5
Toluene	5
PFAS (ug/l)	
Perfluorooctanesulfonic Acid (PFOS)	0.0027
Perfluorooctanoic Acid (PFOA)	0.0067
SVOCs SIM (ug/l)	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0.002
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Metals (ug/l)	
Beryllium, Total	3
Lead, Total	25
Iron, Total	300
Manganese, Total	300
Selenium, Total	10
Sodium, Total	20000

Legend:
NYSDEC = New York State Department of Environmental Conservation
AWQS = Ambient Water Quality Standards criteria
PFAS = Per- and polyfluoroalkyl substances
Conc = Concentration
MDL = Minimum Detection Limit
RL = Reeporting Limit
ND = Not Detected
Q = Qualifier
J = Estimated
Exceedance of the NYSDEC AWQS

Note for RI-MW-01, -02 and -03: a clarification to the sample IDs naming convention is included to avoid any confusion: "RI-MW-[WELL #] ([BOTTOM OF SCREEN]-[TOP OF SCREEN])".
Note for RI-MW-04, -05 and -06: a clarification to the sample IDs naming convention is included to avoid any confusion: "RI-MW-[WELL #] ([SAMPLE COLLECTION INTERVAL])".

LEGEND:

SITE BOUNDARY

RI-MW-02 - REMEDIAL INVESTIGATION MONITORING WELL NUMBER & LOCATION

SCALE: 1"=40'
0 40 80

REFERENCE
SITE INFORMATION TAKEN FROM "SUBDIVISION SURVEY" PREPARED BY BIG APPLE LAND SURV. D., DATED AUGUST 25, 2019.

N:\ACAD\11913\CAD\WHITLOCK PHASE II\11913.DWG_SAMPLING LOCATION PLAN AND CONTAMINATES-3.DWG 08/22/25 05:16:40PM, kim.vanderklein, LAYOUT:SAMP PLAN

dwg by: APG
chk by: CM
scale: AS NOTED
date: 08/22/2025

SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL
959 ROUTE 46E, 3RD FLOOR, PARSIPPANY, NJ 07054 PH: 973.808.9050

project: NORTH AMERICA/ PULSE PLASTICS
1156 EAST 165TH STREET
BRONX, NY 11419

title: SAMPLING LOCATION PLAN & CONTAMINANT DISTRIBUTION IN GROUNDWATER

job no: 11913
drawing no:

FIG 1

REFERENCE:

PARCELS: NYS OFFICE OF INFORMATION TECHNOLOGYSERVICES - GIS PROGRAM OFFICE, NYS DEPT OF TAXATION AND FINANCE'S OFFICE OF REAL PROPERTY TAX SERVICES; AERIAL IMAGERY: NEW YORK STATE, MAXAR, MICROSOFT; ELEVATION DATA: VERTICAL DATUM - NAVD88 US SURVEY FEET, HORIZONTAL DATUM - NAD83 NYSPC-E US SURVEY FEET

LEGEND:

- OVERBURDEN WELL LOCATION AND ELEVATION (FT)
- SITE LOCATION
- GROUNDWATER OVERBURDEN CONTOURS (FT)

SCALE: 1" = 30'

0 15 30 60 FEET

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GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL
959 ROUTE 46E, 3RD FLOOR, PARSIPPANY, NJ 07054 PH: 973.808.9050

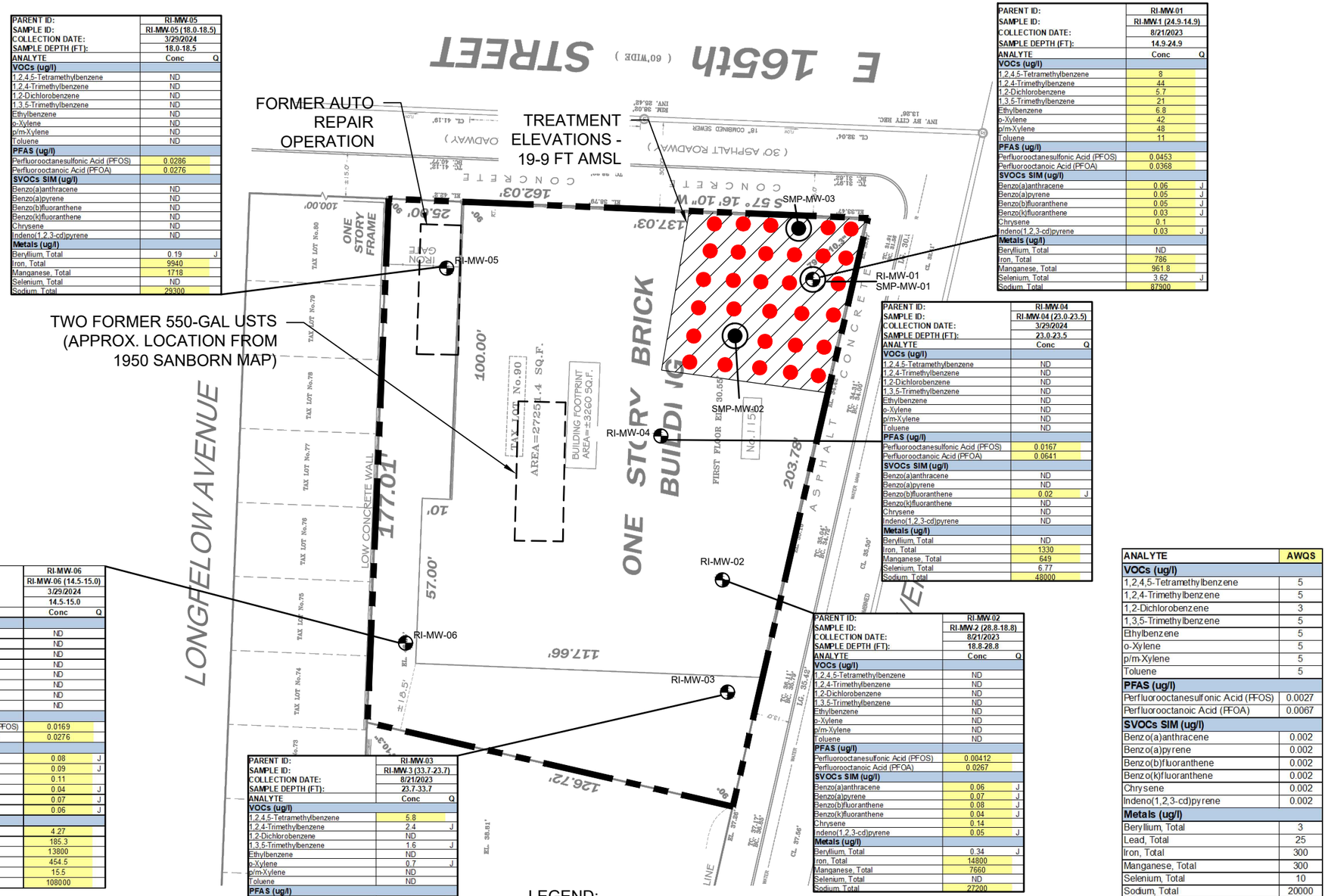
dwg by: KBV
chk by: CM
scale: AS NOTED
date: 8/22/2025

project:
NORTH AMERICA/PULSE PLASTICS
1156 EAST 165TH STREET
BLOCK 2756, LOT 90
BRONX, NY 11419

title:
MARCH 2024 OVERBURDEN GROUNDWATER ELEVATION CONTOURS

job no.: 11913
drawing no:
FIG-2

Y:\GIS\Project_Numbers\11913\APRX_PROJECT\APRX_Standard_Fig_Prj_No.aprx, 8/22/2025 3:24 PM, Kim Vanderklein, LAYOUT: FIG-2



PARENT ID:	RI-MW-05
SAMPLE ID:	RI-MW-05 (18.0-18.5)
COLLECTION DATE:	3/29/2024
SAMPLE DEPTH (FT):	18.0-18.5
ANALYTE	Conc Q
VOCs (ug/l)	
1,2,4,5-Tetramethylbenzene	ND
1,2,4-Trimethylbenzene	ND
1,2-Dichlorobenzene	ND
1,3,5-Trimethylbenzene	ND
Ethylbenzene	ND
o-Xylene	ND
p/m-Xylene	ND
Toluene	ND
PFAS (ug/l)	
Perfluorooctanesulfonic Acid (PFOS)	0.0286
Perfluorooctanoic Acid (PFOA)	0.0276
SVOCs SIM (ug/l)	
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Indeno(1,2,3-cd)pyrene	ND
Metals (ug/l)	
Beryllium, Total	0.19 J
Iron, Total	9940
Manganese, Total	1718
Selenium, Total	ND
Sodium, Total	29300

PARENT ID:	RI-MW-01
SAMPLE ID:	RI-MW-1 (24.9-14.9)
COLLECTION DATE:	8/21/2023
SAMPLE DEPTH (FT):	14.9-24.9
ANALYTE	Conc Q
VOCs (ug/l)	
1,2,4,5-Tetramethylbenzene	8
1,2,4-Trimethylbenzene	44
1,2-Dichlorobenzene	5.7
1,3,5-Trimethylbenzene	21
Ethylbenzene	6.8
o-Xylene	42
p/m-Xylene	48
Toluene	11
PFAS (ug/l)	
Perfluorooctanesulfonic Acid (PFOS)	0.0453
Perfluorooctanoic Acid (PFOA)	0.0368
SVOCs SIM (ug/l)	
Benzo(a)anthracene	0.06 J
Benzo(a)pyrene	0.05 J
Benzo(b)fluoranthene	0.05 J
Benzo(k)fluoranthene	0.03 J
Chrysene	0.1
Indeno(1,2,3-cd)pyrene	0.03 J
Metals (ug/l)	
Beryllium, Total	ND
Iron, Total	786
Manganese, Total	961.8
Selenium, Total	3.62 J
Sodium, Total	87900

PARENT ID:	RI-MW-04
SAMPLE ID:	RI-MW-04 (23.0-23.5)
COLLECTION DATE:	3/29/2024
SAMPLE DEPTH (FT):	23.0-23.5
ANALYTE	Conc Q
VOCs (ug/l)	
1,2,4,5-Tetramethylbenzene	ND
1,2,4-Trimethylbenzene	ND
1,2-Dichlorobenzene	ND
1,3,5-Trimethylbenzene	ND
Ethylbenzene	ND
o-Xylene	ND
p/m-Xylene	ND
Toluene	ND
PFAS (ug/l)	
Perfluorooctanesulfonic Acid (PFOS)	0.0167
Perfluorooctanoic Acid (PFOA)	0.0641
SVOCs SIM (ug/l)	
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	0.02 J
Benzo(k)fluoranthene	ND
Chrysene	ND
Indeno(1,2,3-cd)pyrene	ND
Metals (ug/l)	
Beryllium, Total	ND
Iron, Total	1330
Manganese, Total	649
Selenium, Total	6.77
Sodium, Total	48000

PARENT ID:	RI-MW-06
SAMPLE ID:	RI-MW-06 (14.5-15.0)
COLLECTION DATE:	3/29/2024
SAMPLE DEPTH (FT):	14.5-15.0
ANALYTE	Conc Q
VOCs (ug/l)	
1,2,4,5-Tetramethylbenzene	ND
1,2,4-Trimethylbenzene	ND
1,2-Dichlorobenzene	ND
1,3,5-Trimethylbenzene	ND
Ethylbenzene	ND
o-Xylene	ND
p/m-Xylene	ND
Toluene	ND
PFAS (ug/l)	
Perfluorooctanesulfonic Acid (PFOS)	0.0169
Perfluorooctanoic Acid (PFOA)	0.0276
SVOCs SIM (ug/l)	
Benzo(a)anthracene	0.08 J
Benzo(a)pyrene	0.09 J
Benzo(b)fluoranthene	0.11
Benzo(k)fluoranthene	0.04 J
Chrysene	0.07 J
Indeno(1,2,3-cd)pyrene	0.06 J
Metals (ug/l)	
Beryllium, Total	4.27
Lead, Total	185.3
Iron, Total	13800
Manganese, Total	454.5
Selenium, Total	15.5
Sodium, Total	108000

PARENT ID:	RI-MW-03
SAMPLE ID:	RI-MW-3 (33.7-23.7)
COLLECTION DATE:	8/21/2023
SAMPLE DEPTH (FT):	23.7-33.7
ANALYTE	Conc Q
VOCs (ug/l)	
1,2,4,5-Tetramethylbenzene	5.8
1,2,4-Trimethylbenzene	2.4 J
1,2-Dichlorobenzene	ND
1,3,5-Trimethylbenzene	1.6 J
Ethylbenzene	ND
o-Xylene	0.7 J
p/m-Xylene	ND
Toluene	ND
PFAS (ug/l)	
Perfluorooctanesulfonic Acid (PFOS)	0.0184
Perfluorooctanoic Acid (PFOA)	0.0328
SVOCs SIM (ug/l)	
Benzo(a)anthracene	0.03 J
Benzo(a)pyrene	0.03 J
Benzo(b)fluoranthene	0.04 J
Benzo(k)fluoranthene	0.02 J
Chrysene	0.13
Indeno(1,2,3-cd)pyrene	0.02 J
Metals (ug/l)	
Beryllium, Total	ND
Iron, Total	9790
Manganese, Total	2393
Selenium, Total	1.75 J
Sodium, Total	40600

PARENT ID:	RI-MW-02
SAMPLE ID:	RI-MW-2 (28.8-18.8)
COLLECTION DATE:	8/21/2023
SAMPLE DEPTH (FT):	18.8-28.8
ANALYTE	Conc Q
VOCs (ug/l)	
1,2,4,5-Tetramethylbenzene	ND
1,2,4-Trimethylbenzene	ND
1,2-Dichlorobenzene	ND
1,3,5-Trimethylbenzene	ND
Ethylbenzene	ND
o-Xylene	ND
p/m-Xylene	ND
Toluene	ND
PFAS (ug/l)	
Perfluorooctanesulfonic Acid (PFOS)	0.00412
Perfluorooctanoic Acid (PFOA)	0.0267
SVOCs SIM (ug/l)	
Benzo(a)anthracene	0.06 J
Benzo(a)pyrene	0.07 J
Benzo(b)fluoranthene	0.08 J
Benzo(k)fluoranthene	0.04 J
Chrysene	0.14
Indeno(1,2,3-cd)pyrene	0.05 J
Metals (ug/l)	
Beryllium, Total	0.34 J
Iron, Total	14800
Manganese, Total	7660
Selenium, Total	ND
Sodium, Total	27200

ANALYTE	AWQS
VOCs (ug/l)	
1,2,4,5-Tetramethylbenzene	5
1,2,4-Trimethylbenzene	5
1,2-Dichlorobenzene	3
1,3,5-Trimethylbenzene	5
Ethylbenzene	5
o-Xylene	5
p/m-Xylene	5
Toluene	5
PFAS (ug/l)	
Perfluorooctanesulfonic Acid (PFOS)	0.0027
Perfluorooctanoic Acid (PFOA)	0.0067
SVOCs SIM (ug/l)	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0.002
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Metals (ug/l)	
Beryllium, Total	3
Lead, Total	25
Iron, Total	300
Manganese, Total	300
Selenium, Total	10
Sodium, Total	20000

Legend:
NYSDEC = New York State Department of Environmental Conservation
AWQS = Ambient Water Quality Standards criteria
PFAS = Per- and polyfluoroalkyl substances
Conc = Concentration
MDL = Minimum Detection Limit
RL = Reporting Limit
ND = Not Detected
Q = Qualifier
J = Estimated
Exceedance of the NYSDEC AWQS

Note for RI-MW-01, -02 and -03: a clarification to the sample IDs naming convention is included to avoid any confusion: "RI-MW-[WELL #] ([BOTTOM OF SCREEN]-[TOP OF SCREEN])".
Note for RI-MW-04, -05 and -06: a clarification to the sample IDs naming convention is included to avoid any confusion: "RI-MW-[WELL #] ([SAMPLE COLLECTION INTERVAL])".

LEGEND:

- PROPOSED GROUNDWATER TREATMENT AREA
- SITE BOUNDARY
- RI-MW-05 - REMEDIAL INVESTIGATION MONITORING WELL
- SMP-MW-02 - PROPOSED ADDITIONAL MONITORING WELL
- RI-MW-03 - REMEDIAL INVESTIGATION MONITORING WELL (TO BE REINSTALLED)
- PROPOSED INJECTION POINT APPROXIMATE LOCATION

SCALE: 1"=40'
0 40 80

REFERENCE
SITE INFORMATION TAKEN FROM "SUBDIVISION SURVEY" PREPARED BY BIG APPLE LAND SURV. D., DATED AUGUST 25, 2019.

NYS Education Law
Unauthorized alterations or additions to this plan are a violation of section 7209 (2) of the New York State Education Law. Copies of this map not having the seal of the engineer shall not be valid.

NOTES:
1. PROPOSED ADDITIONAL MONITORING WELL LOCATIONS ARE NOT FINAL. ACTUAL WELL LOCATIONS WILL BE BASED ON SITE CONDITIONS.

dwg by: AW
chk by: SL
scale: AS NOTED
date: 09/03/2025

SESI CONSULTING ENGINEERS
GEOTECHNICAL | ENVIRONMENTAL | SITE CIVIL
959 ROUTE 46E, 3RD FLOOR, PARSIPPANY, NJ 07054 PH: 973.808.9050

project: NORTH AMERICA/ PULSE PLASTICS
1156 EAST 165TH STREET
BRONX, NY 11419

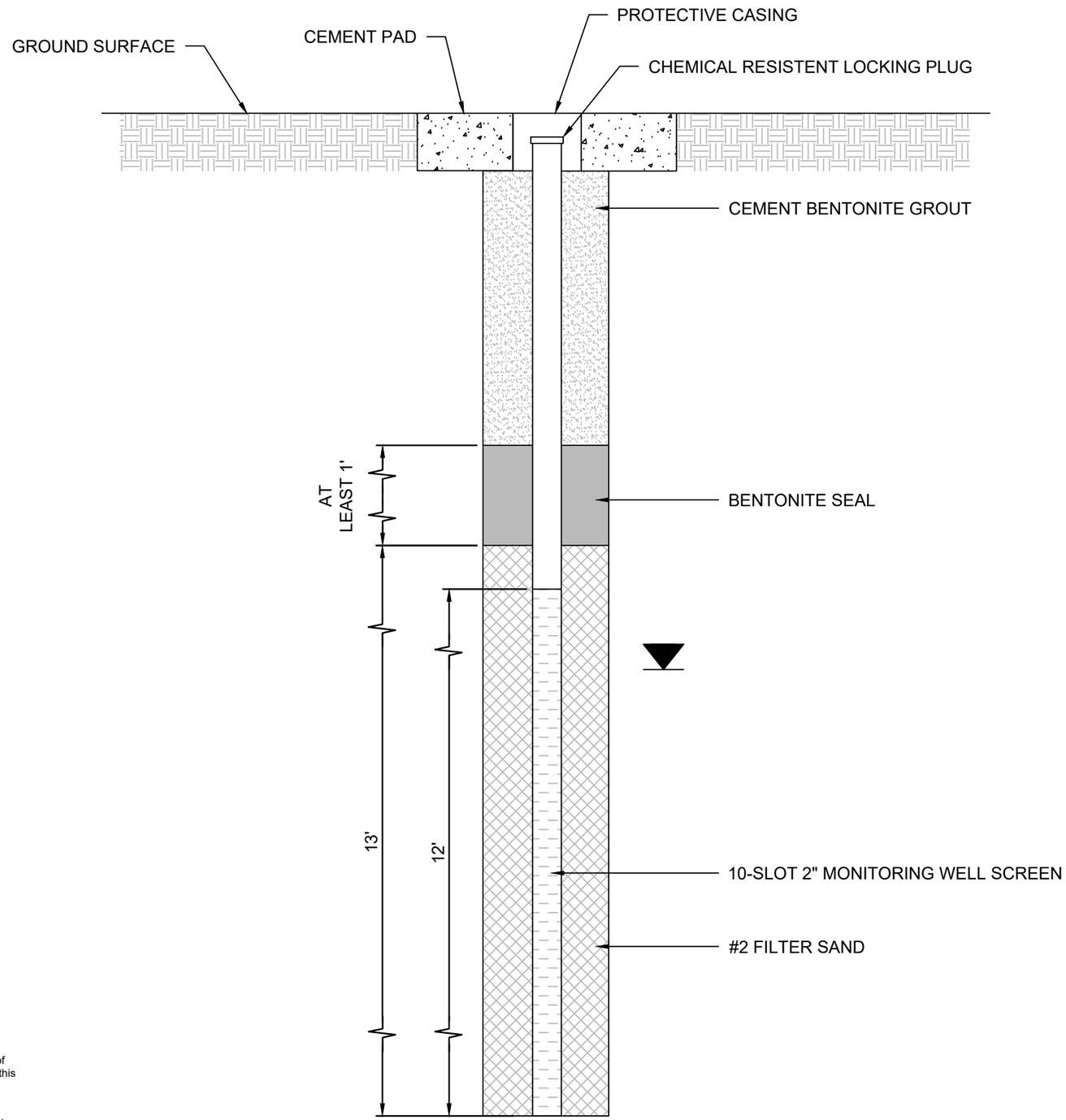
title: GROUNDWATER TREATMENT AND MONITORING PLAN

job no: 11913
drawing no:

FIG 3

1 of 1

N:\ACAD\11913\CAD\WHITLOCK PHASE II\11913.DWG_SAMPLING LOCATION PLAN AND CONTAMINATES-3.DWG 09/03/25 05:21:03PM, kim.vanderklein, LAYOUT:PROP INJECT PTS



N:\ACAD\11913\CAD\11895A.DWG.WELL SCHEMATIC.DWG 09/03/25 05:47:06PM, kim.vanderklein, LAYOUT:PROP BEDROCK WELL

dwg by: KBV
chk by: SL
scale: N.T.S.
date: 09/03/2025

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project: NORTH AMERICA/ PULSE PLASTICS
1156 EAST 165TH STREET
BRONX, NY 11419

title: PROPOSED
MONITORING WELL SCHEMATIC

job no: 11913
drawing no:

FIG 4

Appendix A:

Monitoring Well Sampling Logs

LOW-FLOW GROUNDWATER SAMPLING LOG

Location:	**1156 E 165 St, Bronx, NY**			**Job Number:**	**11913**	**WELL I.D. : RI-MW-01**			
Personnel:	**Ronnie Reynoso**			**Date:**	**8/21/2023**	SESI CONSULTING ENGINEERS			
				PID:	**14.0**				
Stickup? Y **Distance ground to Stickup Rim**	**Distance From Rim to PVC**	**Total Depth of Well PVC**	**Depth to Product Rim/PVC**	**Depth to Water (PVC)**	**Standing Water Column (feet)**	**Middle of Saturated Zone (feet)**	**Depth to Sample Tube (feet)**	**TOV @ Well Head (ppmv)**	**Pump Peristaltic or Bladder**
4.2'	**0.3'**	**24.9'**	**NA**	**16.3'**	**8.6'**	**20.3'**	**19.9'**	**NA**	**Peristaltic**
Turbidity at collection (NTU):		**38.0**	**(Less than 5 NTU is desirable)**		**Duplicate Collected? N**			**Filtered Sample**	**N**
Stabilization Parameters		**+/- 0.5 deg C.**	**+/- 0.1 Unit**	**+/- 10 umhos/cm or within 3% if >300umho**	**1 ppm**	**+/- 10 mV**	**No Limit**	**<.3 feet drawdown desirable**	**No Limit**

Volume Purged (gallons)	Time (actual Time) 5 minute Intervals	TEMP. (Deg. C)	pH	Specific Conductivity uS/cm	Dissolved Oxygen (mg/L)	ORP mV millivolts	Turbidity NTUs	DTW (feet)	Odors Y/N
	14:30	25.15	7.52	903	0.01	32	743.0	16.5	Y
	14:35	25.24	7.36	1180	0.11	19	328.0	16.5	Y
	14:40	25.25	7.33	1210	0.12	16	219.0	16.5	Y
	14:45	26.53	7.32	1200	0.01	9	161.0	16.4	Y
	14:50	26.80	7.32	1200	0.00	3	165.0	16.4	Y
	14:55	27.07	7.30	1230	0.00	4	111.0	16.4	Y
	15:00	27.35	7.30	1270	0.00	4	84.0	16.4	Y
	15:05	27.46	7.26	1300	0.00	5	69.0	16.4	Y
	15:10	27.83	7.24	1310	0.00	6	44.2	16.4	Y
	15:15	27.90	7.23	1310	0.00	6	38.0	16.4	Y

Well Condition Summary

Cover: Y	**Bolts: Y**		**Concrete Pad OK: Y**	**Gripper: Y**	

Sample Collection Information

Sample Time:	**15:20**	**Appearance: Clear**	**Filtered Sample Turbidity:**	**OTHER: Smells like gas**

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ABSORBENT SOCK

Sock Length (ft) =		**Capacity (Qt.) =**		**Present:**	**Y / N**	**Product Measured (Inches) :**	
Sock Installation Date:			**Sock Changed :**		**Y / N**		
Sock Depth (Depth to sock mid point):							

Appendix B:

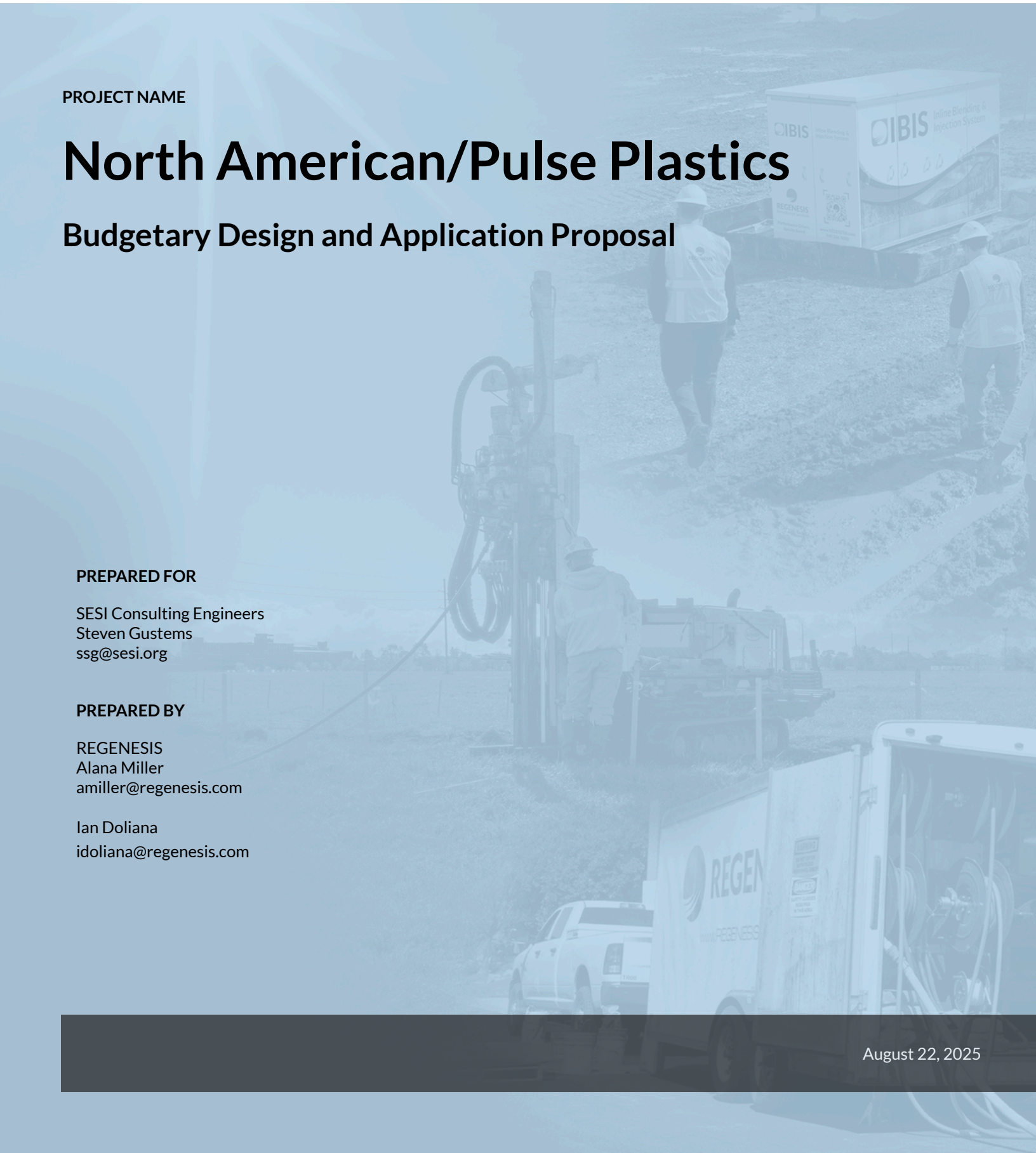
Regenesis Groundwater Treatment Proposal

REGENESIS®

PROJECT NAME

North American/Pulse Plastics

Budgetary Design and Application Proposal



PREPARED FOR

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August 22, 2025

PROJECT SUMMARY

REGENESIS is pleased to present SESI Consulting Engineers with a budgetary remedial design and cost range estimate for the North American/Pulse Plastics project. This budgetary proposal is intended for evaluation and planning purposes. We look forward to providing a comprehensive, detailed proposal once you have reviewed this information and confirmed that our approach aligns with your remedial goals.

Project Drivers and Goals

The subject site, located at 1156 East 165th Street, Bronx, NY, is impacted by petroleum hydrocarbons, with contamination primarily on-site. Regulatory agencies require remediation to achieve site closure.

Key drivers and challenges for this remediation effort include:

- Regulatory Compliance—To avoid regulatory action, the site must comply with state standards.

Proposed Solution

The proposed in situ treatment strategy relies on enhanced aerobic biodegradation using ORC Advanced® (ORC-A) to provide sustained aerobic biodegradation of dissolved-phase hydrocarbons.

The proposed approach addresses key project drivers:

- **Sustained Oxygen Supply.** Its controlled-release formulation provides a long-term oxygen source (~12 months), reducing the need for frequent reapplications or rapid release and waste of oxygen.
- **Cost Effective Application.** ORC-A is very easy to mix and inject compared to other remediation projects, requiring low injection volumes and a minimized chance for surfacing. Quickly injected where needed in any soil type.
- **Minimal Site Disruption.** With straightforward application methods (e.g., direct-push or injection wells), remedial activities can proceed without major interruption to site operations.
- **Regulatory Acceptance.** Backed by extensive field validation and widely recognized by regulatory agencies, ORC-A fosters smoother approval processes and faster closures.
- **Enhanced Flexibility.** Its versatile formulation adapts to various site conditions and contaminant profiles, offering various remediation design options such as excavation polishing, source polishing, and short-term barriers.
- **Proven Field Performance.** Numerous case studies and peer-reviewed publications confirm ORC-A's effectiveness at achieving and maintaining stringent cleanup goals.

Key Project Assumptions

Design Assumptions

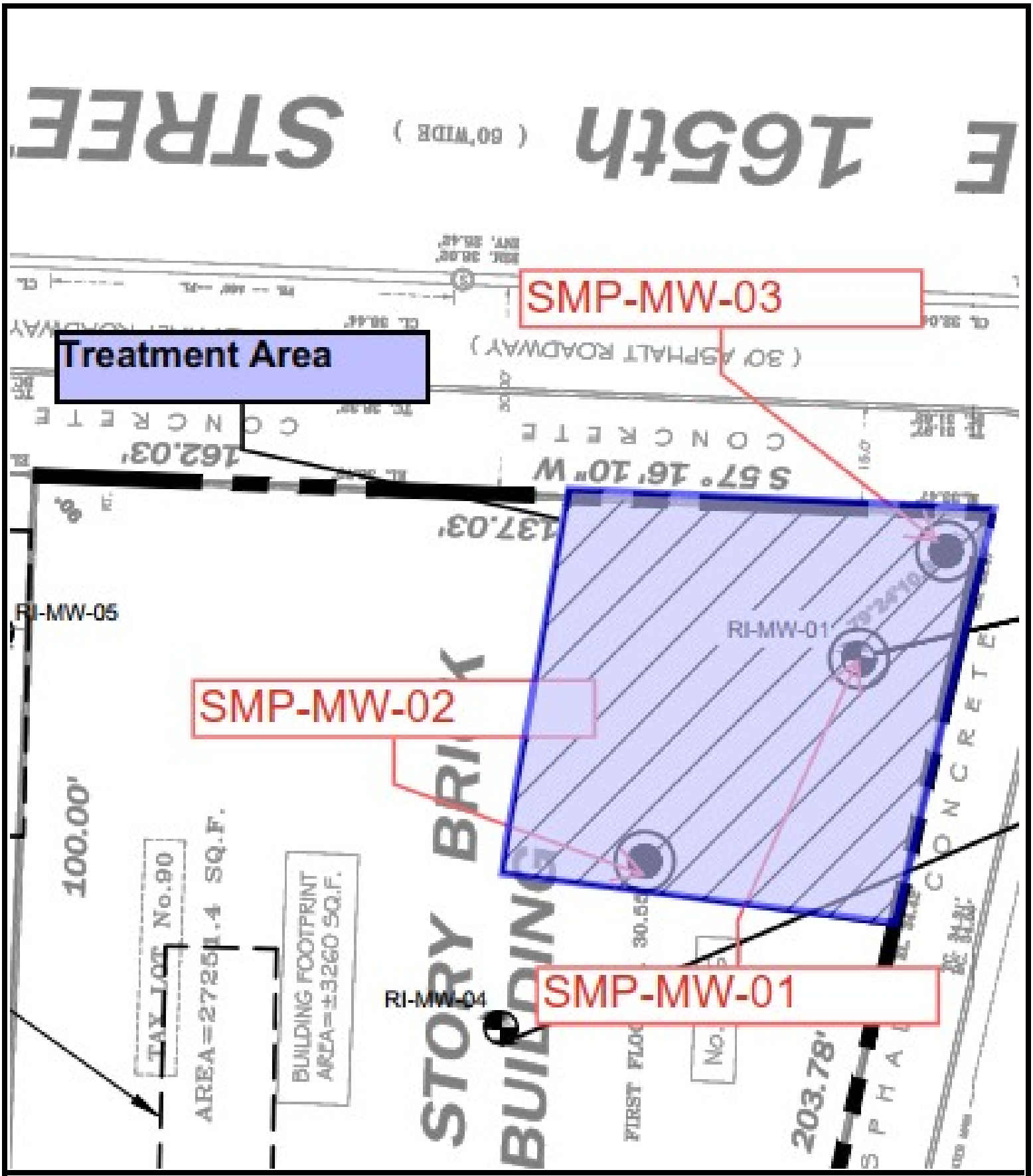
- **Groundwater Flow:** SESI Consulting Engineers is responsible for determining the groundwater flow direction to guide the placement and orientation of the proposed treatment grids or barriers, ensuring they are positioned effectively throughout the hydrologic cycle.
- **Pre-Existing Contamination:** Contaminants present beyond the proposed treatment zone before implementation may remain untreated. Downgradient areas could be impacted by back-diffusion or flow anomalies.
- **Contaminant Trends:** The design assumes that the concentration trend for hydrocarbons is not increasing significantly.
- **Soil Mass and LNAPL Assumptions:** It is assumed that significant soil-bound contaminant mass or LNAPL/DNAPL is not present near the treatment area, as heavy soil contamination may require additional or alternative treatment methods.
- **Compatibility of Treatments:** The design assumes no incompatible treatments have been or will be applied in proximity to the proposed treatment zone.

Application Assumptions

- **Site Access:** All injection points are accessible, and no subsurface obstructions (e.g., utilities, debris) are expected.
- **Injection Parameters:** Injection of ORC-A material will not be prevented by any subsurface obstructions.
- **Reagent Compatibility:** The Injection assumes no geochemical conditions (e.g., very low pH or very high pH) that would reduce the effectiveness of the chosen reagents. Acidic aquifers below pH 5 may significantly increase oxygen release rates.

Performance Assumptions

- **Monitoring Wells:** Performance monitoring wells are to be positioned within the treatment zone to accurately assess reagent performance.
- **Contaminant Reduction Timeline:** Under optimal field conditions, a reduction in contaminant concentrations is expected within 1 to 2 quarters.
- **Rebound Consideration:** The performance assumption includes the possibility of contaminant rebound due to matrix diffusion or non-uniform reagent distribution, which may necessitate additional treatment.



North American/Pulse Plastics
SESI Consulting Engineers
August 22, 2025

Figure 1-Treatment Area Map

REGENESIS®

Detailed Design Tables

Project Info		
North American/Pulse Plastics		
Bronx, NY		
Groundwater Treatment Area		
Prepared For:		
SESI		
Target Treatment Zone (TTZ) Info	**Unit**	**Value**
Treatment Area	ft^2	3,600
Vertical Treatment Interval	ft	10.0
Treatment Zone Volume	ft^3	36,000
Treatment Zone Volume	cy	1,333
Soil Type	---	silty sand
Porosity	cm^3/cm^3	0.40
Effective Porosity	cm^3/cm^3	0.20
Treatment Zone Pore Volume	gals	107,719
Treatment Zone Effective Pore Volume	gals	53,860
Soil Density	g/cm^3	1.6
Hydraulic Conductivity	ft/day	10.0
Hydraulic Gradient	ft/ft	0.005
GW Velocity	ft/yr	91
Application Design Summary		
Application Method	-	**Direct Push**
Treatment Area	ft^2	3600
Spacing Within Rows	ft	10.0
Spacing Between Rows	ft	12.0
Application Points	-	**30**
ORC Advanced to be Applied	lbs	**2,720**
ORC Advanced per point	lbs	90.7
Percent Slurry	%	**30%**
Volume Water	gals	**760.5**
Volume ORC Advanced	gals	122.4
Total Application Volume	**gals**	**882.9**
Application Volume per Foot	gal/ft	2.94
Injection Volume per Point	gals	29.4
Application Dosing	**Unit**	**Value**
ORC Advanced to be Applied	**lbs**	**2720**

Pricing

Below is the cost estimate to provide the remediation technologies and execute the application design provided in this proposal. Please also see the assumptions and qualifications section.

Remediation Technologies	Price	Qty	Subtotal
ORC Advanced®	$11.10	2720	$30,192
Shipping and Tax (estimated) (18%)			+$5,434.56
Total			**$35,626.56**

COST ESTIMATE DISCLAIMER: The cost listed assumes conditions set forth within the proposed scope of work and assumptions and qualifications. Changes to either could impact the final cost of the project. This may include final shipping arrangements, sales tax or application-related tasks such as product storage and handling, access to water, etc. If items listed need to be modified, please contact Regenesis for further evaluation.

REGENESIS developed this Scope of Work in reliance upon the data and professional judgments provided by those who completed the earlier environmental site assessment(s), and in reliance upon REGENESIS' prior experience on similar project sites. The fees and charges associated with the Scope of Work were generated through REGENESIS' proprietary formulas and thus may not conform to billing guidelines, constraints or other limits on fees. REGENESIS does not seek reimbursement directly from any government agency or any governmental reimbursement fund (the "Government"). In any circumstance where REGENESIS may serve as a supplier or subcontractor to an entity that seeks reimbursement from the Government for all or part of the services performed or products provided by REGENESIS, it is the sole responsibility of the entity seeking reimbursement to ensure the Scope of Work and associated charges are in compliance with and acceptable to the Government prior to submission. When serving as a supplier or subcontractor to an entity that seeks reimbursement from Government, REGENESIS does not knowingly present or cause to be presented any claim for payment to the government.

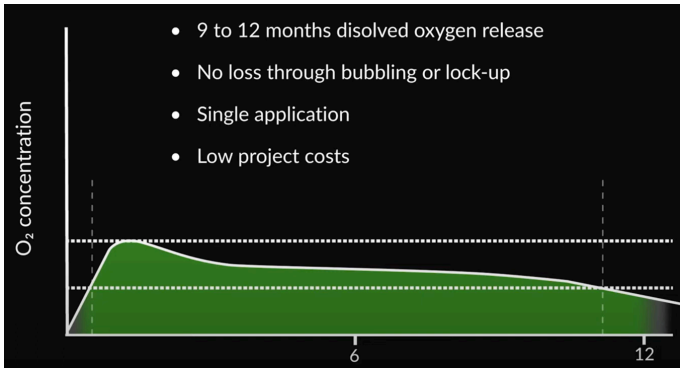
ORC Advanced® (ORC-A) Technical Overview

ORC-A is a state-of-the-art in situ oxygen release technology to stimulate aerobic bioremediation of contaminated groundwater and soil. It is a formulation of calcium peroxide with Controlled Release Technology™, allowing for sustained oxygen release over time.

Features and Benefits of ORC Advanced

- **Controlled Release Technology:** Commodity calcium peroxide releases oxygen rapidly and then experiences "lock-up" from hydroxide rind formation. ORC-A employs intercalated phosphate technology to maintain steady, controlled oxygen release over 12 months. This avoids the "blow-off" associated with commodity products followed by "lock-up." ORC-A provided a more even release of its 17% by weight oxygen.
- **Broad Contaminant Applicability:** Aerobic biostimulation is effective for BTEX, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), methyl tert-butyl ether (MTBE), and chlorinated solvents like vinyl chloride (VC) and dichloroethene (DCE).
- **Operational Simplicity:** ORC-A is easily applied as a dry powder or slurry, supporting flexible site application methods, including direct injection, excavations, and permeable reactive barriers (PRBs). It is safe around infrastructure and easily paired with other forms of remediation as a polish (e.g., post-chemical oxidation polishing).

Hyperlinked ORC-A YouTube Overview



ORC-A Resources

Media:

- **ORC-A Case Studies**: Over 90 case studies showing performance in varied conditions. Use search or pull-downs on this weblink to identify case studies of interest.

Product Literature:

- **ORC-A Spec Sheet:** Summary of specifications and properties of the PetroFix®,

Application Instructions:

- **ORC-A Application Instructions**: Instructions for using direct push injection equipment.
- **Oxygen Release Compound® (ORC) Installation Instructions: Excavation Applications:** Instructions for applying PetroFix within excavation sites.
- **ORC-A Socks Installation Instructions:** Procedures for administering ORC-A Socks.
- **ORC Installation Instructions: Geoprobe® Bore-Hole Back-Fill Method**: Instructions for backfilling augured boreholes with ORC-A.

Safety Data Sheets:

- **ORC-A SDS**: SDS for powdered ORC-A.
- **ORC-A Pellets SDS**: SDS Sheet for pellet formulated ORC-A.

Acknowledgement

This scope and associated costs are budgetary and should not be considered final. Listed below are the next steps to secure a final design and cost estimate from REGENESIS.

Steps to Final Design and Scope of Work

1. Signature notifying REGENESIS to proceed with final design.
2. REGENESIS technical team contacts SESI Consulting Engineers to review final scope of work and provide detailed design and cost estimate
3. Provide Detailed Remediation Services Scope of Work, if applicable.
4. Confirm Implementation Schedule
5. Submit Detailed Design and Cost Estimate to SESI Consulting Engineers for review and final approval

Signature below confirms signee accepts this budgetary scope of work and would like REGENESIS to proceed with a detailed design and cost estimate.

SIGNATURE
Steven Gustems

Not yet accepted

SESI Consulting Engineers | Steven Gustems, Project Manager, PG