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October 7, 2011

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Mr. Chad Staniszewski, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

**Re: Scott Rotary Seals Site (Site No. C905036)**
**Alternatives Analysis Report**

Dear Mr. Staniszewski:

Please find attached one hard copy of Alternatives Analysis Report for the Scott Rotary Seals Site. An electronic copy of these documents was previously provided to you.

Please contact me if you have any questions regarding this submittal.

Sincerely,
TurnKey Environmental Restoration, LLC

Michael Lesakowski
Project Manager

cc: Crystal Wiech (Scott Rotary Seals)

File: 189-001-105

# Alternatives Analysis Report

Scott Rotary Seals Site
Olean, New York
BCP Site No. 905036

October 2011 0189-001-105

Prepared For: DST Properties NY, LLC
Scott Rotary Seals

TurnKey Environmental Restoration, LLC

2558 Hamburg Turnpike, Buffalo, New York | phone: (716) 856-0599 | fax: (716) 856-0583

# ALTERNATIVES ANALYSIS REPORT

**SCOTT ROTARY SEALS SITE**
**OLEAN, NEW YORK**

October 2011 0189-001-105

Prepared for:

**DST Properties NY, LLC**

**and**

Scott Rotary Seals

Prepared by:

TurnKey Environmental Restoration, LLC

In Association With:

Benchmark Environmental Engineering & Science, PLLC

# ALTERNATIVES ANALYSIS REPORT

## Scott Rotary Seals Site

## Olean, New York

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# ALTERNATIVES ANALYSIS REPORT
## Scott Rotary Seals Site
## Olean, New York

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# 1.0 INTRODUCTION

DST Properties NY, LLC (DST), has elected to pursue cleanup and redevelopment of the property, located at 301 Franklin Street, Olean, New York (see Figures 1 and 2), under the New York State Brownfield Cleanup Program (BCP or Program) and executed a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in March 2010.

This document presents the remedial alternatives analysis for the Scott Rotary Seals Site.

## 1.1 Site Background

The subject property (hereinafter, the "Project Site" or the "Site") is an approximate 2-acre parcel of vacant land located in a historic heavy industrial area of the City of Olean, New York. The parcel is not currently improved with any buildings and is bound by railroad tracks to the south and east and former industrial properties to the north and west. Several debris piles containing brick, concrete, metal, and piping apparently associated with former aboveground storage tanks (ASTs) are currently located on-site.

The Site was historically a portion of a larger petroleum refinery and petroleum bulk storage facility commonly known as the former Socony-Vacuum facility. The Site and surrounding area were historically developed as a petroleum refinery with numerous ASTs and heavy industrial operations.

## 1.2 Environmental History

### *1.2.1 September 2008– Phase I Environmental Site Assessment*

Neeson-Clark Associates, Inc. (Neeson) conducted a Phase I Environmental Site Assessment (ESA) of the subject property in September 2008. Neeson indicated that the Site was utilized for industrial purposes since approximately 1880 and was historically utilized as a bulk petroleum storage and refining facility. Neeson recommended a subsurface investigation due to historic use of the Site.

### *1.2.2 November 2008 – Limited Phase II Site Investigation*

A Limited Subsurface Investigation Letter Report was completed by Neeson-Clark Associates, Inc. on November 11, 2008. The area of the subsurface investigation was

limited to the suspected areas of former ASTs. The investigation included excavation of six test pits to approximately 10 feet below grade and collection of soil samples from 5 of the 6 test pits for analysis of VOCs and SVOCs. The subsurface investigation revealed fill materials consisting of bricks, stone, concrete, and metal piping. Soil discoloration and odors of petroleum products were also noted during the test pit excavations. The report concluded that the discoloration and odors would be consistent with degraded petroleum products.

### *1.2.3 July 2009 – Phase II Site Investigation*

TurnKey conducted a Phase II Environmental Investigation at the Site in June 2009. The investigation included the excavation of 12 test pits, completion of 3 soil borings, and installation of 3 groundwater monitoring wells on-site. Soil and groundwater samples were collected and analyzed via USEPA SW-846 methods, with Category B deliverable packages, for Target Compound List (TCL) plus NYSDEC Spill Technology and Remediation Series (STARS) list VOCs, STARS List SVOCs, Resource Conservation and Recovery Act (RCRA) metals and polychlorinated biphenyls (PCBs) during the investigation.

During the investigation, grossly contaminated soils, stained soils and petroleum-like odors were observed Site-wide. Most locations exhibited strong petroleum odors and photoionization detector (PID) readings were over 1,000 ppm at several locations. The Phase II Investigation identified the presence of elevated benzo(a)anthracene, chrysene, mercury, VOC tentatively identified compounds (TICs) and SVOC TICs in soil, and acetone, sec-butylbenzene, phenanthrene, in groundwater above NYSDEC GWQS, as well as the presence of VOC TICs and SVOC TICs. Elevated concentrations of VOC TICs (up to 183,600 ug/kg) and SVOC TICs (up to 320,100 ug/kg) were detected in each of the soil samples analyzed. Elevated concentrations of VOC TICs (up to 26,000 ug/L) and SVOC TICs (up to 8,640 ug/L) were detected in each of the groundwater samples. It was concluded that, based on visual/olfactory observations, PID measurements, and analytical results, significant site-wide petroleum-VOC and -SVOC impacts are evident, with grossly contaminated soils (GCS) present in some areas, and that site remediation appears warranted.

### *1.2.4 March 2010 Remedial Action Work Plan*

DST submitted a Remedial Action Work Plan to the Department (revised March 2010) that included provisions for a Pre-Design Investigation to further delineate impacts

on-Site. In addition to the Pre-Design Investigation, the proposed remedy included: excavation and off-Site disposal of contaminated soil in the area of the planned building, utilities and "hot-spots"; installation of a vapor barrier and sub-slab depressurization system within the planned building; and, implementation of a Site Management Plan. In a July 2010 letter, the Department approved the investigation activities and requested that DST consider in-situ remedial measures other than large-scale excavation given the potential high volume of impacted soil, the nature of impacts (predominantly petroleum VOCs with high PID readings) and the coarse –grained nature of soil at the Site.

### *1.2.5 Pre-Design Investigation*

A Pre-Design Investigation was completed to characterize the Site in accordance with BCP requirements. The investigation was completed in three phases as follows:

#### *1.2.5.1 August 2010 - Initial Pre-Design Investigation*

DST submitted a draft Remedial Action Work Plan (RAWP) dated December 2009, which included Pre-Design Investigation activities, including additional surface samples, test pits and soil borings to further characterize the Site per BCP requirements. NYSDEC approved the investigation activities described in that work plan in July 2010 and fieldwork was completed in August 2010.

Four surface soil/fill samples, identified as SS-1 through SS-4 were collected across the Site and analyzed for TCL plus STARS VOCs, TCL SVOCs, RCRA metals, PCBs, herbicides and pesticides. Arsenic was detected above its Part 375 Commercial Soil Cleanup Objective (SCO) at all four sample locations at concentrations ranging from 18.5 milligrams per kilogram (mg/kg) to 42.4 mg/kg. Sample locations SS-2 and SS-4 slightly exceeded the Commercial SCO for benzo(a)pyrene with a concentration of 1.5 mg/kg observed in each of those samples and sample location SS-4 slightly exceeded the Commercial SCO for dibenz(a,h)anthracene with a concentration of 1.5 mg/kg. No other analytes were detected above Commercial SCOs.

The subsurface investigation included the excavation of 12 test-pits and the advancement of 12 on-Site soil borings. Selected subsurface soil/fill samples were analyzed for TCL plus STARS VOCs including TICs and TCL SVOCs including TICs. Subsurface soil/fill samples TP-15 (3-4'), TP-16 (15-17'), and TP-20 (16-18') were also analyzed for TAL metals, PCBs, herbicides and pesticides for BCP site characterization purposes. The

qualitative field results were consistent with the findings of the 2009 Phase II Investigation; stained soils and petroleum-like odors were observed Site-wide with many sample locations exhibiting strong petroleum odors and elevated PID readings. Furthermore, subsurface piping was encountered in numerous test pits at depths of approximately four to six feet below ground surface (fbgs). Subsurface soil analytical results indicated that elevated concentrations of VOCs (up to 472 mg/kg total VOCs), and to a lesser extent, SVOCs (up to 270 mg/kg) were present in subsurface soils.

Groundwater samples were collected from existing monitoring wells MW-1, MW-2 and MW-3 and analyzed for TCL plus STARS list VOCs including TICs, TCL SVOCs including TICs, TAL metals, PCBs, herbicides, and pesticides. VOCs including TICs were detected in groundwater at concentrations ranging from non-detect (MW-3) to 1,060 ug/L (MW-2).

#### *1.2.5.2 October 2010 - Supplemental Pre-Design Investigation*

Based on the sampling results of the initial Pre-Design Investigation fieldwork and discussions with NYSDEC, DST submitted a Supplemental Investigation Work Plan to further evaluate groundwater conditions at the Site. Additional monitoring wells MW-4 through MW-6 were installed, developed and sampled for VOCs in October 2010. Total VOCs were detected in groundwater at concentrations ranging from non-detect (MW-3) to 1,042 ug/L in MW-4, which is the farthest up-gradient monitoring well on-Site. No individual VOC analytes were detected above their respective GWQS; VOC TICs concentrations accounted for the vast majority of total VOCs detected in groundwater. During this phase of the investigation LNAPL was observed in MW-2 (@ 0.01 ft. thick), MW-4 (@ 0.01 ft. thick) and MW-6 (@ 0.88 ft. thick).

#### *1.2.5.3 December 2010 NYSDEC meeting*

Subsequent to completing the Pre-Design Investigation and Supplemental Pre-Design Investigation, DST met with NYSDEC in December 2010 to discuss the scope of the planned off-Site investigation, interim remedial measures (IRMs) and the final remedy. The off-Site investigation was completed as discussed in Section 1.2.5.4 below and the IRM was implemented as discussed in Section 1.2.6 below. The scope of the final remedy was also discussed in the context of NYSDEC recommending that DST consider in-situ remedial alternatives other than large-scale of excavation as mentioned above. It was agreed

by both DST and the Department that large-scale excavation it is not a practicable alternative for the Site. The remedy discussed with Department during that meeting is the selected final remedy that has been evaluated against the other remedial alternatives for the Site.

#### *1.2.5.4 January 2011 - Off-Site Investigation*

Upon completion of the initial and supplemental Pre-Design Investigation fieldwork, DST and TurnKey met with the NYSDEC to discuss the results and plan future investigation and remedial work (see Section 1.2.5 above). Based on the previous sampling results and discussions with NYSDEC personnel, DST submitted an Off-Site Investigation Work Plan to further evaluate potential off-Site LNAPL in the area of MW-6. Additional monitoring wells MW-7 and MW-8 were installed, developed and sampled for VOCs in January 2011. VOCs including TICs were detected in groundwater at concentrations of 308 ug/L in MW-7 and 355 ug/L in MW-8. However, no individual VOCs exceeded their respective GWQS. Of note, VOCs in off-Site wells MW-7 and MW-8 were detected at slightly higher concentrations than on-Site well MW-6. LNAPL was not observed in any wells on-Site, including MW-6, where 0.88 ft. of LNAPL was previously observed in October 2010.

### *1.2.6 Interim Remedial Measures*

DST submitted an interim remedial measures (IRM) work plan in February 2011 to immediately address certain environmental concerns at the Site. The IRM included the following activities:

- Stockpiled soil/fill piles were sampled for potential re-use. Due to elevated concentrations of arsenic, copper, lead, and mercury at levels exceeding Part 375 Commercial SCOs, the soil piles were loaded and transported to Waste Management of New York Chaffee Landfill (Waste Management). Approximately 1,982 tons of soil/fill was excavated and disposed off-Site.

- Approximately 5,761 linear feet of subsurface product piping ranging in size from two-inch to twelve-inch diameter was tapped, evacuated of contents, removed, cleaned and recycled. Piping which extended beyond the property boundary was capped and/or grouted at the apparent property line.

- Approximately 1,489-gallons of oil/water mixture was pumped into an on-Site temporary holding tank and ultimately disposed off-Site. Eight 55-gallon drums of product/oil and 17 55-gallon drums of pipe scale were generated and are awaiting disposal at Waste Management.

Upon completion of the pipe removal, additional exploratory trenching was completed to search for additional abandoned piping. No additional piping was encountered during the exploratory trenching.

### *1.2.7 Summary of Environmental Conditions*

Based on the data and analyses of the Pre-Design Investigation and historic investigations, the following environmental conditions exist at the Site:

**Geology/Hydrogeology**

- Soil at the site consists of fill materials consisting of varying amounts of gravel, brick, ash and concrete that is up to 6 feet thick. Native soil consists of medium/coarse sand and gravel to depths of at least 30 fbgs.

  The uppermost water bearing unit is within an unconfined sand and gravel layer. The depth to groundwater from ground surface ranges between about 13 to 26 feet. Groundwater in the uppermost water bearing unit generally flows toward the southeast, which is consistent with regional groundwater flow based on our knowledge of hydrogeology at other nearby BCP sites.

**Contamination**

- **Surface Soil** - Arsenic was detected above its Commercial SCO at all four sample locations. Two sample locations (SS-2 and SS-4) slightly exceeded the Commercial SCO for benzo(a)pyrene and SS-4 slightly exceeded the Commercial SCO for dibenz(a,h)anthracene. Samples collected from stockpiled soil/fill during the IRM contained concentrations of arsenic, lead, copper and mercury above Commercial SCOs.

- **Subsurface Soil** - VOCs, SVOCs, inorganics, pesticides, herbicides and PCBs were not detected at concentrations in excess of their respective Commercial SCOs.

  Grossly contaminated soils, stained soils and/or petroleum-like odors were observed Site-wide. Many sample locations exhibited strong petroleum odors and PID readings over 1,000 ppm. PID screening results show that elevated concentrations of VOCs exist in the subsurface soils. The northwestern portion of the Site contains VOCs in subsurface soils in shallower locations relative to existing grades when compared to other areas of the Site. The highest VOCs concentrations are generally found directly above the water table in the smear zone.

  Total VOC and SVOCs concentrations, including TICs, correlate with the elevated PID screening results and with the presence of odors and discolored soils.

- **Groundwater** - There were no exceedances of GWQS for VOCs, SVOCs, PCBs or herbicides in Site groundwater. Total VOCs were detected in groundwater at concentrations up to 1,042 ug/L (MW-4) during the most recent groundwater sampling event (October 2010), with VOC TICs concentrations accounting for the vast majority of total VOCs detected in groundwater.

  Three inorganics (iron, magnesium, and manganese) and one pesticide did exceed GWQS. However, these exceedances are likely due to ambient groundwater conditions.

  LNAPL was observed present in wells MW-2, MW-4 and MW-6 in October 2010, with the greatest thickness of LNAPL (0.88 ft.) measured in well MW-6. LNAPL was not observed during well gauging events in January and March 2011.

The distribution of total VOCs in groundwater shows the highest concentration was located in the farthest upgradient well on-Site (MW-4) proximate to the northern property line. The concentration contours show a decreasing trend in the direction of groundwater flow toward the southeast. Off-Site VOC contamination is apparent in wells MW-7 and MW-8; however, VOCs in off-Site wells MW-7 and MW-8 were detected at slightly higher concentrations than in nearby on-Site well MW-6.

The source of the groundwater contamination found on the Site is likely a combination of the upgradient groundwater and contributions from the former refinery operations on the Site (e.g., leaking pipelines, spillage, etc).

Figures 1 through 7 and Tables 1 through 8, taken from the Pre-Design Investigation report summarize the environmental conditions and are included in Appendix A for reference.

## 1.3 Primary Constituents of Concern (COCs)

Based on the investigation data, the primary Constituents of Concern (COCs) are:

- Metals in surface soils;
- Petroleum-related VOCs, primarily TICs, in unsaturated soils; and,
- Light non-aqueous phase liquid (LNAPL) in groundwater.

# 2.0 ANALYSIS OF ALTERNATIVES

## 2.1 Remedial Action Objectives

The remedial actions for the Scott Rotary Seals Site must satisfy Remedial Action Objectives (RAOs). Remedial Action Objectives are site-specific statements that convey the goals for minimizing substantial risks to public health and the environment. For the Scott Rotary Seals Site, appropriate RAOs have been defined as:

Soil RAOs

- Remove or mitigate Grossly Contaminated Soils (GCS) to the degree possible to protect human health and the environment and to prevent further degradation of on and off-Site groundwater quality.
- Prevent ingestion/direct contact with contaminated soil/fill.
- Prevent migration of contaminants that further result in groundwater or surface water contamination.
- Prevent inhalation of or exposure to contaminants volatilizing from contaminated soil/fill.

Groundwater RAOs

- Prevent ingestion of groundwater containing contaminant levels exceeding NYSDEC Class GA groundwater quality standards and guidance values or with evidence of LNAPL.
- Prevent contact with or inhalation of volatile compounds emanating from contaminated groundwater.
- Prevent degradation of off-Site water quality.

In addition to achieving RAOs, NYSDEC's Brownfield Cleanup Program calls for remedy evaluation in accordance with DER-10 Technical Guidance for Site Investigation and Remediation. Specifically, the guidance states "When proposing an appropriate remedy, the person responsible for conducting the investigation and/or remediation should identify and develop a remedial action that is based on the following criteria..:"

- **Overall Protection of Public Health and the Environment**. This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure

are eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls.

- **Compliance with Standards, Criteria, and Guidance (SCGs)**. Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.
- **Long-Term Effectiveness and Permanence**. This criterion evaluates the long-term effectiveness of the remedy after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: (i) the magnitude of the remaining risks (i.e., will there be any significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals), (ii) the adequacy of the engineering and institutional controls intended to limit the risk, (iii) the reliability of these controls, and (iv) the ability of the remedy to continue to meet RAOs in the future.
- **Reduction of Toxicity, Mobility or Volume with Treatment**. This criterion evaluates the remedy's ability to reduce the toxicity, mobility, or volume of Site contamination. Preference is given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the wastes at the Site.
- **Short-Term Effectiveness**. Short-term effectiveness is an evaluation of the potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during construction and/or implementation. This includes a discussion of how the identified adverse impacts and health risks to the community or workers at the Site will be controlled, and the effectiveness of the controls. This criterion also includes a discussion of engineering controls that will be used to mitigate short term impacts (i.e., dust control measures), and an estimate of the length of time needed to achieve the remedial objectives.
- **Implementability**. The implementability criterion evaluates the technical and administrative feasibility of implementing the remedy. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.
- **Cost**. Capital, operation, maintenance, and monitoring costs are estimated for the remedy and presented on a present worth basis.
- **Community Acceptance**. This criterion evaluates the public's comments, concerns, and overall perception of the remedy.

## 2.2 Future Land Use Evaluation

In developing and screening remedial alternatives, NYSDEC's Part 375 regulations require that the reasonableness of the anticipated future land be factored into the evaluation of remedial alternatives. The regulations identify 16 criteria that must be considered. These criteria and the resultant outcome for the Scott Rotary Seals Site are presented below.

1. *Current use and historical and/or recent development patterns:* The Scott Rotary Seals Site was historically a portion of a larger petroleum refinery and petroleum bulk storage facility commonly known as the former Socony-Vacuum facility. The Site and surrounding area were historically developed as a petroleum refinery with numerous ASTs and heavy industrial operations; and current surrounding land use is a mixed commercial and residential area in the City of Olean. The Site is presently being redeveloped as a new commercial operation (Scott Rotary Seals). **Accordingly, commercial site redevelopment would be consistent with historic site use.**

2. *Applicable zoning laws and maps:* The Site is located in an area of the City zoned for Commercial (Com 1) Business (B-2) use. **Continued use in a commercial capacity is therefore consistent with current zoning.**

3. *Brownfield opportunity areas as designated set forth in GML 970-r:* The Brownfield Opportunity Area (BOA) Program provides municipalities and community based organizations with assistance to complete revitalization plans and implementation strategies for areas or communities affected by the presence of brownfield sites, and site assessments for strategic sites. **The subject property lies with the proposed Northwest Olean Brownfield Opportunity Area. The Olean BOA is currently in "Step 1 – BOA Application" phase.**

4. *Applicable comprehensive community master plans, local waterfront revitalization plans as provided for in EL article 42, or any other applicable land use plan formally adopted by a municipality:* The Scott Rotary Seals Site lies within the boundaries of the City of Olean Comprehensive Development Plan 2005-2025. **Site remediation and redevelopment is consistent with the redevelopment plan.**

*5. Proximity to real property currently used for residential use, and to urban, commercial, industrial, agricultural and recreational areas:* The surrounding land is mixed use, including commercial and industrial. Residential land use is located within approximately 1.0 miles of the Site. **Maintaining the use of the Site in a commercial capacity is consistent with surrounding property.**

*6. Any written and oral comments submitted by members of the public on the proposed use as part of the activities performed pursuant to the citizen participation plan:* **No comments have been received from the public relevant to Site use concerns.**

*7. Environmental justice concerns, which include the extent to which the proposed use may reasonably be expected to cause or increase a disproportionate burden on the community in which the site is located, including low-income minority communities, or to result in a disproportionate concentration of commercial or industrial uses in what has historically been a mixed use or residential community:* **Nearby and adjacent property is actively used in a commercial and industrial capacity. Maintaining use of the site in a commercial capacity does not pose environmental justice issues.**

*8. Federal or State land use designations:* The property is designated Commercial Land Use (COM 1) by the City of Olean (Real Property GIS). **Reuse in a restricted capacity (commercial) is consistent with the current land use designation.**

*9. Population growth patterns and projections:* The City of Olean, encompassing 6.2 square miles, has a population of 14,054 (2009 US Census Bureau), a decrease of 8.4% from the 2000 U.S. Census, and as such, the redevelopment of the site is not expected to have a significant impact on the housing market**. Reuse of the Site in a non-residential capacity does not materially affect opportunities for residential growth.**

*10. Accessibility to existing infrastructure:* Access to the Site is from Franklin Street. Utilities (sewer, water, electric) are present along Franklin Street**. Existing infrastructure supports reuse in a commercial capacity**.

*11. Proximity of the site to important cultural resources, including federal or State historic or heritage sites or Native American religious sites*: **No such resources or sites are known to be present on or adjacent to the Site.**

*12. Natural resources, including proximity of the site to important federal, State or local natural resources, including waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species:* The Cattaraugus County Internet Mapping System shows that State or Federal wetlands do not exist on the subject property. The Allegheny River, and several tributaries, including Olean Creek are located approximately 0.75-miles from the Site. **The absence of significant ecological resources on or adjacent to the Site indicates that cleanup to restricted use conditions will not pose an ecological threat.**

*13. Potential vulnerability of groundwater to contamination that might emanate from the site, including proximity to wellhead protection and groundwater recharge areas and other areas identified by the Department and the State's comprehensive groundwater remediation and protection program established set forth in ECL article 15 title 31:* Currently, there are no known deed restrictions on the use of groundwater at the Site. Municipal water is available to the Site and all properties in the area. The municipal water supply is derived from the following sources:

- Ischua Creek (a tributary of Olean Creek) at the City of Olean's Water Filtration Plan, 1332 River Street, approximately 2,300 feet northeast (cross-gradient) of the Site.
- Groundwater supply wells:
    - Well Site M18: 104 Richmond Ave., approximately 3 miles southeast of the Site.
    - Well Sites M37/38: 1900 East River Rd., approximately 3.7 miles southeast of the Site.

Potable water service is provided off-site and on-site by the local municipal water authority. **The cleanup to restricted use conditions will not pose a drinking water threat.**

*14. Proximity to flood plains:* The Cattaraugus County Internet Mapping System indicates that the Two Mile Creek Corridor located approximately 1000-ft west of the Site is

designated floodplains. No flood zones are present on the property; there is no risk of significant soil erosion due to flooding. **As such, cleanup to commercial standards does not pose a threat to surface water.**

*15. Geography and geology:* The Site is located within the Allegheny River valley, with the primary bedrock type that forms the bedrock surface in the Olean area consists predominantly of Upper Devonian shale, siltstone, and sandstone of the Conewango and Conneaut Groups. Surface soils within the vicinity of the Site are describes Chenango gravelly silt loam, 0 to 3 percent slopes (ChA), as nearly level, very deep, and well drained. Former development cycles of the Site have impacted both the surface and subsurface geology. **Geography and geology are consistent with a commercial re-use.**

*16. Current institutional controls applicable to the site:* **No institutional controls are currently present that would affect redevelopment options.**

Based on the above analysis, reuse of the Site in a commercial capacity is consistent with past and current development and zoning on and around the Site, and does not pose additional environmental or human health risk.

# 3.0 REMEDIAL ALTERNATIVES EVALUATION

In addition to the evaluation of alternatives to remediate to the likely end use of the Site, NYSDEC regulation and policy calls for evaluation of more restrictive end-use scenarios. These include an unrestricted use scenario (considered under 6NYCRR Part 375 to be representative of cleanup to pre-disposal conditions), and a scenario less restrictive than the reasonably anticipated future use, which is residential use. Per NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, evaluation of a "no action/ no further action" alternative is also required to provide a baseline for comparison against other alternatives.

The alternatives evaluated below in greater detail include:

- No Further Action/IRM;
- Commercial Use Cleanup;
- Residential Use Cleanup; and,
- Unrestricted Use Cleanup

## 3.1 Alternative 1 – No Further Action/IRM

Under this alternative, the Site would remain in its current state, with no additional controls in-place beyond the IRMs completed (i.e., process piping and residual product removal and disposal, and surface soil/debris pile removal).

***Overall Protection of Public Health and the Environment*** **–** The Site is not protective of human health and the environment, due to the presence of contamination remaining on-Site, and the absence of institutional controls to prevent more restrictive forms of future site use (e.g., unrestricted, residential, and restricted residential) or the export of Site soils to uncontrolled off-Site locations. Accordingly, no further action is not protective of public health and does not satisfy the RAOs.

***Compliance with SCGs*** – Under the current and reasonably anticipated future use scenario (commercial), the remaining contamination on-Site detected in the soil/fill and groundwater do not comply with applicable SCGs.

***Long-Term Effectiveness and Permanence*** **–** The no further action alternative involves no additional remedial activities, equipment, institutional controls or facilities subject to maintenance, and provides no long-term effectiveness or permanence toward achieving the RAOs.

***Reduction of Toxicity, Mobility, or Volume with Treatment*** **–** The IRMs completed at the Site have reduced the toxicity, mobility and volume of COPCs. However, remaining contamination on-Site will need to be removed to comply with RAOs, and therefore, no further action is not protective of public health and does not satisfy the RAOs.

***Short-Term Effectiveness*** **–** The completed IRMs were effective in initially reducing short-term adverse impacts to the community; however the remaining contamination on-Site does pose short-term risks to workers and the environment. Therefore, implementation of the no further action alternative does not satisfy the RAOs.

***Implementability*** **–** No technical or administrative implementability issues are associated with the no further action alternative.

***Cost*** – The capital cost of the IRMs completed was approximately $250,000. There would be no capital or long-term operation, maintenance, or monitoring costs associated with the no further action alternative.

***Community Acceptance*** – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets and other planned Citizen Participation activities.

## 3.2 Alternative 2 - Commercial Use Cleanup

Under this alternative, in addition to the IRMs which have been completed, the Site would be cleaned up in accordance with the submitted Remedial Action Work Plan, which will include:

- limited excavation and off-Site disposal of shallow contaminated soil in the northwest portion of the Site;

- installation of soil vapor extraction (SVE) system to treat deeper VOC-impacted soil;
- removal of LNAPL from monitoring wells as necessary;
- installation of an active sub-slab depressurization system within the planned building;
- placement of a soil cover system in areas without building or hardscape (i.e., asphalt, concrete); and,
- implementation of a Site Management Plan (SMP).

***Overall Protection of Public Health and the Environment –*** This alternative would be fully protective of human health and the environment, based on the completion of IRMs, and the planned extent of remedial activities, including removal and off-site disposal of certain shallow soils, in-situ treatment of deeper VOC-contaminated soil; and the use of engineering and institutional controls to prevent potential future exposure, and limit the future site use to commercial/industrial uses. Accordingly, the Commercial Use Cleanup alternative is protective of public health and fully satisfies the RAOs.

***Compliance with SCGs*** – The completed remedial activities will be performed in accordance with applicable, relevant, and appropriate standards, guidance, and criteria. The IRM and planned remedial actions are fully protective of human health and the environment, and achieves all RAOs for the Site. The Site Management Plan will include: an Operation and Maintenance (O&M) plan to confirm that engineering controls, including the SVE system, ASD system and soil cover are operating and being maintained in accordance with the SMP; an Excavation Work Plan to address any impacted soil/fill encountered during post-development maintenance activities; and, a Site-wide Inspection program to assure that the engineering and institutional controls placed on the Site have not been altered and remain effective.

***Long-Term Effectiveness and Permanence –*** The IRM removed approximately 5,761 linear feet of subsurface product piping, approximately 1,489 gallons of oil/water mixture from the product piping, 25 drums of product/pipe scale and approximately 1,982 tons of impacted soil., and planned remedial activities include additional removal/treatment

of impacted soil/fill, LNAPL removal, installation of engineering controls including the ASD system, SVE system, and soil cover system, and use of institutional controls. A Site Management Plan will address any impacted soil/fill encountered during post-development maintenance activities, and assure that the Engineering and Institutional controls placed on the Site have not been altered and remain effective. Furthermore, an Environmental Easement for the Site will be filed with Cattauraugus County, which will limit future site use to industrial/commercial uses, restrict groundwater use and reference the Department-approved Site Management Plan. As such, this alternative will provide long-term effectiveness and permanence.

***Reduction of Toxicity, Mobility, or Volume with Treatment*** **–** The IRM removed approximately 5,761 linear feet of subsurface product piping, approximately 1,489 gallons of oil/water mixture from the product piping, 25 drums of product/pipe scale and approximately 1,982 tons of impacted soil. This alternative will further reduce the toxicity, mobility and volume of COPCs by: additional removal of contaminated soil via excavation and off-site disposal; in-situ treatment of VOCs via SVE; and, removal of LNAPL. The Site Management Plan will include an Excavation Work Plan to address any impacted soil/fill encountered during post-development maintenance activities and a Site-wide Inspection program to assure that the Engineering and Institutional Controls placed on the Site have not been altered and remain effective. Accordingly, this alternative satisfies this criterion.

***Short-Term Effectiveness*** **–** The short-term adverse impacts and risks to the community, workers, and environment during implementation of the IRM were effectively controlled and will be controlled during implementation of the remedy. Installation of the SVE system, ASD system, cover soil placement and LNAPL removal will not cause adverse short term effects. During intrusive remedial activities (e.g., limited excavation), air monitoring will be performed to assure conformance with community air monitoring action levels. The potential for chemical exposures and physical injuries are reduced through safe work practices; proper personal protection equipment; environmental monitoring; establishment of work zones and Site control; and appropriate decontamination procedures. The limited excavation will be completed within approximately two-week timeframe, limiting short-term adverse effects. Planned remedial activities will be performed in accordance with

an approved work plan, including health and safety plan (HASP) and community air monitoring plan (CAMP).. This alternative achieves the RAOs for the Site.

***Implementability –*** No technical or action-specific administrative implementability issues are associated with the Commercial Use Cleanup alternative.

***Cost –***The capital cost of the IRM was approximately $250,000, with the remedial activities estimated at approximately $1,000,000, and long-term monitoring and annual certification is estimated at approximately $22,000 per year. Based on an assumed 30 years of monitoring and annual certifications, the net present value of this alternative is approximately $1,564,000 as shown on Table 1. Table 4 is a summary of costs of each of the alternatives.

***Community Acceptance*** – The IRM Work Plan fact sheet to inform the public that IRM activities were to commence was issued on February 22, 2011. Continued community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets and other planned Citizen Participation activities.

## 3.3 Alternative 3 – Residential Use Cleanup

Under this alternative, in addition to the IRMs which have been completed, the Site would be cleaned up to achieve Part 375 Residential Use Cleanup (Track 2), which in general will include: excavation and off-Site disposal of contaminated soil to a depth of 15-ft below post-development final grade across the entire site, LNAPL removal, and implementation of a Site Management Plan, and filing of an environmental easement to restrict the use of on-Site groundwater and land-use.

***Overall Protection of Public Health and the Environment –*** Since the IRM and remedial action would achieved removal of impacted soil/fill to below residential SCOs, this alternative is fully protective of human health and the environment, and successfully achieves all RAOs for the Site. An environmental easement would be filed to restrict the use of on-Site groundwater.

***Compliance with SCGs*** – The remedial action, including IRM, would be performed in accordance with applicable, relevant, and appropriate standards, guidance, and criteria. The achievement of residential SCOs is fully protective of human health and the environment, and successfully achieves all RAOs for the Site.

***Long-Term Effectiveness and Permanence*** – The remedial action would effectively remove COPCs to below residential SCOs to a depth of 15 fbgs, and thereby permanently removing them from the Site. A Site Management Plan would be prepared to assure that the Institutional controls placed on the Site have not been altered and remain effective. As such, this alternative will provide long-term effectiveness and permanence.

***Reduction of Toxicity, Mobility, or Volume with Treatment*** – Through removal of impacted soil/fill exceeding residential SCOs to 15 fbgs, the remedial action permanently and significantly reduced the toxicity, mobility, and volume of Site contamination. Accordingly, this alternative satisfies this criterion.

***Short-Term Effectiveness*** – The principal advantage of a large-scale excavation to achieve residential standards is reliability of effectiveness in the long-term. In the short-term, there would be significant increase in exposure of VOC-impacted soil to on-site workers and the community under this alternative. Excavation activities would be completed over an approximate two-month period and backfilling would take approximately one month. Commercial construction equipment would be utilized, a health and safety plan would be followed, and community air monitoring would be completed during excavation activities. However, primary disadvantages include increased truck traffic during excavation and backfill, noise, and air emissions, including fugitive dust, odors and VOCs. Therefore, this alternative represents a significant adverse effect in the short-term.

***Implementability*** – Excavations of VOC-impacted soils to depths of 15 fbgs in coarse-grained sand and gravel poses several technical implementability concerns. Sloughing of excavation walls could occur, which would likely require shoring/stabilizing excavation sidewalls. Depending on the time of year and weather conditions, groundwater and/or stormwater handling, treatment and/or discharge/disposal would likely be required. Given the high volume of soil required for removal, a high volume of truck traffic on a relatively

small site would be needed to remove soils from the Site. Administrative implementability issues may include the need for rezoning of the area to allow for residential uses, which are not consistent with current surrounding land-use or the reasonably anticipated future use of the Site.

***Cost*** **–**The capital cost of this alternative, including the completed IRM, and the assumed 30 years of monitoring and annual certifications, the net present value of this alternative is approximately $6,510,000 as shown on Table 2. Table 4 is a summary of costs of each of the alternatives.

***Community Acceptance*** – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets and other planned Citizen Participation activities.

## 3.4 Alternative 4 - Unrestricted Use Cleanup

An Unrestricted Use alternative would necessitate remediation of all soil/fill where concentrations exceed the unrestricted use SCO per 6NYCRR Part 375. For Unrestricted Use scenarios, excavation and off-site disposal of impacted soil/fill is generally regarded as the most applicable remedial measure, because engineering controls cannot be used to supplement the remedy. As such, the Unrestricted Use alternative assumes that those areas which exceed Unrestricted SCOs would be excavated and disposed at an off-Site commercial solid waste landfill. In addition IRM completed and LNAPL product recovery, the entire 2.0-acre BCP Site would need to be excavated to approximately 20-feet below post-redevelopment final grade to potentially achieve Unrestricted SCOs. The estimated total volume of impacted soil/fill that would be removed from the Site is approximately 64,535 cubic yards.

Based on the removal of all assumed source areas (i.e., subgrade piping, LNAPL and impacted soil-fill) groundwater concentration would be expected to decrease significantly. Annual LNAPL removal and groundwater monitoring would be conducted for up to five years. In addition, per Part 375, a restriction on groundwater use would be included as part of the remedial program.

***Overall Protection of Public Health and the Environment –*** The Unrestricted Use alternative would achieve the corresponding Part 375 SCOs, which are designed to be protective of human health under any reuse scenario.

***Compliance with SCGs*** – The Unrestricted Use alternative would need to be performed in accordance with applicable, relevant, and appropriate standards, guidance, and criteria.

***Long-Term Effectiveness and Permanence –*** The Unrestricted Use alternative would achieve removal of all residual impacted soil/fill; therefore, no soil/fill exceeding the unrestricted use SCOs would remain on the Site. As such, the Unrestricted Use alternative would provide long-term effectiveness and permanence.

***Reduction of Toxicity, Mobility, or Volume with Treatment –*** Through removal of all impacted soil/fill; LNAPL, and subgrade piping; the Unrestricted Use alternative would permanently and significantly reduce the toxicity, mobility, and volume of Site contamination.

***Short-Term Effectiveness –*** The principal advantage of a large-scale excavation to achieve unrestricted standards is reliability of effectiveness in the long-term. In the short-term, there would be significant increase in exposure of VOC-impacted soil to on-site workers and the community under this alternative. Excavation activities would be completed over an approximate three-month period and backfilling would take approximately one month. Commercial construction equipment would be utilized, a health and safety plan would be followed, and community air monitoring would be completed during excavation activities. However, primary disadvantages include increased truck traffic during excavation and backfill, noise, and air emissions, including fugitive dust, odors and VOCs. Therefore, this alternative represents a significant adverse effect in the short-term.

***Implementability –*** Excavations of VOC-impacted soils to depths of 20 fbgs in coarse-grained sand and gravel poses several technical implementability concerns. Sloughing of excavation walls could occur, which would likely require shoring/stabilizing excavation

sidewalls. Groundwater and/or stormwater handling, treatment and/or discharge/disposal would be required. Given the high volume of soil required for removal, a high volume of truck traffic on a relatively small site would be needed to remove soils from the Site. Administrative implementability issues may include the need for rezoning of the area to allow for unrestricted uses, which are not consistent with current surrounding land-use or the reasonably anticipated future use of the Site.

***Cost –*** The capital cost of implementing an Unrestricted Use alternative (post-IRM) is estimated at $8,250,000 as shown on Table 3. Post-remedial groundwater monitoring and annual certification costs would not be incurred. Table 4 is a summary of costs of each of the alternatives.

***Community Acceptance*** – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets and other planned Citizen Participation activities.

## 3.5 Recommended Remedial Measure

Based on the Alternatives Analysis evaluation, Alternative #2 – Commercial Use Cleanup is the recommended final remedial approach for the Scott Rotary Seals Site. This remedy is fully protective of human health and the environment, is advantageous over other remedies when evaluated against the remedy selection criteria, and fully satisfies all RAOs for the Site. Furthermore, this remedy is consistent with previous discussions between DST and the Department. The components and details of the remedial approach are more fully described in the RAWP recently submitted to the Department.

# 4.0 REFERENCES

1) New York State Department of Environmental Conservation. *DER-10 Technical Guidance for Site Investigation and Remediation.* May 2010.

2) Neeson-Clark Associates, Inc. *Phase I Environmental Site Assessment (ESA) for 350 Franklin Street (Vacant Parcel), Olean, New York*. September 2008.

3) Neeson-Clark Associates, Inc. *Limited Subsurface Investigation for Vacant Lot- Franklin Street, Olean, New York*. November 2008.

4) TurnKey Environmental Restoration, LLC. *Phase II Investigation Report, Franklin Street, Olean, New York*. July 2009.

5) TurnKey Environmental Restoration, LLC. *Pre-Design Investigation Report, 301 Franklin Street, Olean, New York*. Revised June 2011.

# TABLES

**TABLE 1**

**COST ESTIMATE FOR COMMERCIAL USE ALTERNATIVE**

**SCOTT ROTARY SEALS SITE**

**OLEAN, NEW YORK**

| Item | Quantity | Units | Unit Cost | Total Cost |
|---|---|---|---|---|
| **Impacted Soil/Fill Removal** | | | | |
| Soil/Fill Excavating & Hauling | 5300 | CY | $ 20.00 | $ 106,000 |
| Disposal at TSDF (1.5 tons per CY) | 7950 | TON | $ 30.00 | $ 238,500 |
| Post-Excavation Confirmatory Sampling [1] | 150 | EA | $ 325.00 | $ 48,750 |
| **Subtotal:** | | | | **$ 393,250** |
| **Site Restoration** | | | | |
| Import, Backfill, Place & Compact | 5300 | CY | $ 18.50 | $ 98,050 |
| **Subtotal:** | | | | **$ 98,050** |
| **Soil Vapor Extraction System** | | | | |
| System Installation and Maintenance | 1 | LS | $ 125,000.00 | $ 125,000 |
| **Subtotal:** | | | | **$ 125,000** |
| **NAPL Removal** | | | | |
| Equipment Installation and Maintenance | 1 | LS | $ 10,000.00 | $ 10,000 |
| **Subtotal:** | | | | **$ 10,000** |
| **Soil Cover System** | | | | |
| Import and Place | 2000 | CY | $ 18.50 | $ 37,000 |
| Cover Soil Characterization and Sampling | 4 | EA | $ 900.00 | $ 3,600 |
| **Subtotal:** | | | | **$ 40,600** |
| **Active Sublab Depressurization System** | | | | |
| System Installation and Maintenance | 1 | LS | $ 20,000.00 | $ 20,000 |
| **Subtotal:** | | | | **$ 20,000** |
| **Subtotal Capital Cost** | | | | **$ 686,900** |
| Contractor Mobilization/Demobilization (5%) | | | | $ 34,345 |
| Health and Safety (2%) | | | | $ 13,738 |
| Engineering/Contingency (35%) | | | | $ 240,415 |
| **Total Unrestricted Cleanup Cost** | | | | **$ 975,398** |
| **Total IRM Cost** | | | | **$ 250,000** |
| **Total Capital Cost** | | | | **$ 1,225,398** |
| **Annual Operation Maintenance & Monitoring (OM&M):** | | | | |
| Groundwater Monitoring/NAPL Removal | 1 | Yr | $ 20,000.00 | $ 20,000 |
| Annual Certification | 1 | Yr | $ 2,000.00 | $ 2,000 |
| **Total Annual OM&M Cost** | | | | **$ 22,000** |
| Number of Years ( n ): | | | | 30 |
| Interest Rate ( I ): | | | | 5% |
| p/A value: | | | | 15.3725 |
| **OM&M Present Worth (PW):** | | | | **$ 338,195** |
| **Total Present Worth (PW): Capital Cost + OM&M PW** | | | | **$ 1,563,593** |

**TABLE 2**

**COST ESTIMATE FOR RESIDENTIAL USE ALTERNATIVE**

**SCOTT ROTARY SEALS SITE**

**OLEAN, NEW YORK**

| Item | Quantity | Units | Unit Cost | Total Cost |
|---|---|---|---|---|
| **Impacted Soil/Fill Removal** | | | | |
| Soil/Fill Excavating & Hauling | 48400 | CY | $ 20.00 | $ 968,000 |
| Disposal at TSDF (1.5 tons per CY) | 72600 | TON | $ 30.00 | $ 2,178,000 |
| Post-Excavation Confirmatory Sampling | 150 | EA | $ 325.00 | $ 48,750 |
| **Subtotal:** | | | | **$ 3,194,750** |
| **Site Restoration** | | | | |
| Import, Backfill, Place & Compact | 48400 | CY | $ 18.50 | $ 895,400 |
| Backfill Characterization Sampling | 50 | EA | $ 900.00 | $ 45,000 |
| **Subtotal:** | | | | **$ 940,400** |
| **Excavation Groundwater Management** | | | | |
| Treatment System Operation and Maintenance | 1 | LS | $ 25,000.00 | $ 25,000 |
| **Subtotal:** | | | | **$ 25,000** |
| **NAPL Removal** | | | | |
| Equipment Installation and Maintenance | 1 | LS | $ 10,000.00 | $ 10,000 |
| **Subtotal:** | | | | **$ 10,000** |
| **Subtotal Capital Cost** | | | | **$ 4,170,150** |
| Contractor Mobilization/Demobilization (5%) | | | | $ 208,508 |
| Health and Safety (2%) | | | | $ 83,403 |
| Engineering/Contingency (35%) | | | | $ 1,459,553 |
| **Total Restricted Cleanup Cost** | | | | **$ 5,921,613** |
| **Total IRM Cost** | | | | **$ 250,000** |
| **Total Capital Cost** | | | | **$ 6,171,613** |
| **Annual Operation Maintenance & Monitoring (OM&M):** | | | | |
| Groundwater Monitoring/NAPL Removal | 1 | Yr | $ 20,000.00 | $ 20,000 |
| Annual Certification | 1 | Yr | $ 2,000.00 | $ 2,000 |
| **Total Annual OM&M Cost** | | | | **$ 22,000** |
| Number of Years ( n ): | | | | 30 |
| Interest Rate ( I ): | | | | 5% |
| p/A value: | | | | 15.3725 |
| **OM&M Present Worth (PW):** | | | | **$ 338,195** |
| **Total Present Worth (PW): Capital Cost + OM&M PW** | | | | **$ 6,509,808** |

**TABLE 3**

**COST ESTIMATE FOR UNRESTRICTED USE ALTERNATIVE**

**SCOTT ROTARY SEALS SITE**

**OLEAN, NEW YORK**

| Item | Quantity | Units | Unit Cost | Total Cost |
|---|---|---|---|---|
| **Impacted Soil/Fill Removal** | | | | |
| Soil/Fill Excavating & Hauling | 64535 | CY | $ 20.00 | $ 1,290,700 |
| Disposal at TSDF (1.5 tons per CY) | 96803 | TON | $ 30.00 | $ 2,904,075 |
| Post-Excavation Confirmatory Sampling [1] | 150 | EA | $ 325.00 | $ 48,750 |
| **Subtotal:** | | | | **$ 4,243,525** |
| **Site Restoration** | | | | |
| Import, Backfill, Place & Compact | 64535 | CY | $ 18.50 | $ 1,193,898 |
| Backfill Characterization Sampling | 50 | EA | $ 900.00 | $ 45,000 |
| **Subtotal:** | | | | **$ 1,238,898** |
| **Excavation Groundwater Management** | | | | |
| Treatment System Operation and Maintenance | 1 | LS | $ 25,000.00 | $ 25,000 |
| Groundwater Disposal | 150000 | GAL | $ 0.10 | $ 15,000 |
| **Subtotal:** | | | | **$ 40,000** |
| **NAPL Removal** | | | | |
| Equipment Installation and Maintenance | 1 | LS | $ 10,000.00 | $ 10,000 |
| **Subtotal:** | | | | **$ 10,000** |
| **Subtotal Capital Cost** | | | | **$ 5,532,423** |
| Contractor Mobilization/Demobilization (5%) | | | | $ 276,621 |
| Health and Safety (2%) | | | | $ 110,648 |
| Engineering/Contingency (35%) | | | | $ 1,936,348 |
| **Total Unrestricted Cleanup Cost** | | | | **$ 7,856,040** |
| **Total IRM Cost** | | | | **$ 250,000** |
| **Total Capital Cost** | | | | **$ 8,106,040** |
| **Annual Operation Maintenance & Monitoring (OM&M):** | | | | |
| Groundwater Monitoring/NAPL Removal | 5 | Yr | $ 20,000.00 | $ 100,000 |
| Annual Certification | 5 | Yr | $ 2,000.00 | $ 10,000 |
| **Total Remedial Cost** | | | | **$ 8,216,040** |

**TABLE 4**

**SUMMARY OF REMEDIAL ALTERNATIVES COSTS**

**SCOTT ROTARY SEALS SITE**

**OLEAN, NEW YORK**

| Remedial Alternative | Estimated Cost |
|---|---|
| **No Further Action**<br>(Cost of completed IRM) | **$250,000** |
| **Commercial Use Cleanup**<br>(Cost of completed IRM, plus commercial use cleanup) | **$1,563,593** |
| **Residential Use Cleanup**<br>(Cost of completed IRM, plus residential use cleanup) | **$6,509,808** |
| **Unrestricted Use Cleanup**<br>(Cost of completed IRM, plus unrestricted use cleanup) | **$8,216,040** |

# APPENDIX A

Pre-Design Investigation Report (revised June 2011)
Tables and Figures

**TABLE 1**
**SURFACE SOIL ANALYTICAL RESULTS**
**SCOTT ROTARY SEALS SITE**
**301 FRANKLIN STREET**
**OLEAN, NEW YORK**

| Parameter [1] | Commercial SCOs[2] (mg/kg) | SAMPLE LOCATION August - 2010 | | | |
|---|---|---|---|---|---|
| | | SS-1 | SS-2 | SS-3 | SS-4 |
| ***TCL plus STARS Volatile Organic Compounds (VOCs) - mg/kg*** [3] | | | | | |
| Acetone | **500** | 0.071 | ND | ND | ND |
| 2-Butanone (MEK) | **500** | 0.036 | ND | ND | ND |
| Methylcyclohexane | **--** | 0.02 | 0.0033 | ND | ND |
| Methylene chloride | **500** | 0.0063 | ND | ND | 0.0046 J |
| *Tentatively Identified Compounds (TICs)* | **--** | 0.16 | 0.020 | ND | ND |
| ***Total VOCs*** | **--** | ***0.30*** | ***0.023*** | ***ND*** | ***0.005*** |
| ***TCLSemi-Volatile Organic Compounds (SVOCs) - mg/kg*** [3] | | | | | |
| Acenaphthene | **500** | ND | 0.25 DJ | ND | ND |
| Anthracene | **500** | ND | 0.45 DJ | ND | ND |
| Benzo(a)anthracene | **5.6** | 0.16 | 1.3 DJ | ND | 0.91 D |
| Benzo(b)fluoranthene | **5.6** | 0.28 | 1.6 DJ | 0.88 | 1 D |
| Benzo(g,h,i)perylene | **500** | 0.16 | 1.1 DJ | 0.93 | 2.1 D |
| Benzo(k)fluoranthene | **56** | ND | 0.6 DJ | ND | ND |
| Benzo(a)pyrene | **1** | 0.17 | 1.5 DJ | ND | 1.5 D |
| Carbozole | **--** | ND | 0.23 DJ | ND | ND |
| Chrysene | **56** | 0.19 | 1.4 DJ | ND | 1.5 D |
| Dibenzo(a,h)anthracene | **0.56** | ND | ND | ND | 1.5 D |
| Fluoranthene | **500** | 0.3 | 2.9 D | ND | 0.35 DJ |
| Fluorene | **500** | ND | 0.17 DJ | ND | ND |
| Bis(2-ethylhexyl) phthalate | **--** | ND | ND | ND | ND |
| Indeno(1,2,3-cd)pyrene | **5.6** | 0.13 | 0.81 DJ | ND | 0.92 D |
| Naphthalene | **500** | ND | ND | ND | ND |
| Phenanthrene | **500** | 0.17 | 2 D | ND | 0.28 DJ |
| Pyrene | **500** | 0.27 | 2.7 D | 0.71 | 0.51 DJ |
| *Tentatively Identified Compounds (TICs)* | **--** | 0.84 | ND | ND | 46.23 |
| ***Total SVOCs*** | **--** | ***2.7*** | ***17.0*** | ***2.5*** | ***56.8*** |
| ***TAL Metals - mg/kg*** | | | | | |
| Aluminum | **--** | 9390 | 7340 | 6800 | 8180 |
| Arsenic | **16** | 18.5 | 30.7 | 42.4 | 21.1 |
| Barium | **400** | 82.1 | 84.9 | 96.8 | 132 |
| Beryllium | **590** | 0.406 | 0.406 | 0.455 | 0.741 |
| Cadmium | **9.3** | ND | 0.31 | 0.329 | ND |
| Calcium | **--** | 5520 | 21000 | 9190 | 3210 |
| Chromium | **400** | 9.59 | 10 | 16 | 8.98 |
| Cobalt | **--** | 6.61 | 4.82 | 5.6 | 6.67 |
| Copper | **270** | 53.1 | 63.9 | 173 | 167 |
| Iron | **--** | 17800 | 16900 | 27800 | 16900 |
| Lead | **1000** | 69 | 93.9 | 518 | 93.5 |
| Magnesium | **--** | 2550 | 5280 | 2550 | 1500 |
| Manganese | **10,000** | 546 J | 437 J | 282 J | 429 J |
| Nickel | **310** | 13.5 | 14.2 | 16.8 | 13.6 |
| Potassium | **--** | 692 | 1020 | 583 | 695 |
| Vanadium | **--** | 16.2 | 20 | 20.4 | 18.1 |
| Zinc | **10,000** | 87.1 J | 142 J | 142 J | 114 J |
| Mercury | **2.8** | 0.571 | 0.872 | 1.93 | 0.191 |
| ***Organochlorine Pesticides mg/kg*** [3] | | | | | |
| alpha-BHC | **3.4** | ND | ND | ND | ND |
| 4,4'-DDE | **62** | ND | ND | ND | ND |
| 4,4'-DDT | **47** | ND | 0.0074 J | ND | 0.0056 NJ |
| Endrin | **89** | ND | ND | ND | 0.0018 J |
| ***Polychlorinated Biphenyls (PCBs) - mg/kg*** [3] | | | | | |
| All Aroclors | **1** | ND | ND | ND | ND |

**Notes:**
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Restricted-Commercial Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in micograms per kilogram (ug/kg) and converted to milligram per kilogram (mg/kg) for comparison to SCOs.

**Definitions:**
ND = Parameter not detected above laboratory detection limit.
"--" = No SCO available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
NJ = The detection is tentative in identification and estimated in value.
D = All compounds were identified in an analyisis at the secondary dilution factor.
Sample concentration exceeds Commercial SCO.

**TABLE 2**

**QUALITATIVE PID[1] SOIL SCREENING SUMMARY**
**SCOTT ROTARY SEALS SITE**
**301 FRANKLIN STREET**
**OLEAN, NEW YORK**

| Elevation (ft) | TP-1 | TP-2 | TP-3 | TP-4 | TP-5 | TP-6 | TP-7 | TP-8 | TP-9 | TP-10 | TP-11 | TP-12 | TP/SB-13 | TP-14 | TP/SB-15 | TP/SB-16 | TP/SB-17 | TP/SB-18 | TP-19 | TP/SB-20 | TP/SB-21 | TP/SB-22 | TP/SB-23 | TP/SB-24 | MW1 | MW2 | MW3 | MW4 | MW5 | MW6 | MW7 | MW8 | SB-1 | SB-2 | Elevation (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1435 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1435 |
| 1434 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1.7 | | | 1434 |
| 1433 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1433 |
| 1432 | | | | | | | | | | | | | | | | | | 1.6 | | | | | | | | | | | | | | 0.2 | | | 1432 |
| 1431 | | | | | | | | | | | | | | | | | | | | ND | | | | | 96 | | | | 0.1 | 0.1 | | | | | 1431 |
| 1430 | | | | | | | | | | | | | | | | | | 1.3 | | | | | | | | | | | | | 0.8 | | | | 1430 |
| 1429 | | | | | | | | | | | | ND | | | | | | | | 8.7 | | | | | | | | | 0.1 | 0 | | 2.4 | | | 1429 |
| 1428 | | | | ND | ND | | | | | | | | | | | | | 1.3 | | | | 11.3 | | | | | | | | | | | | | 1428 |
| 1427 | | | | | | | | | | | | 100 | ND | | | | | | | ND | | | | | 5.7 | | | | | 0.1 | 0 | 0.5 | 0 | ND | ND | 1427 |
| 1426 | | | | | | ND | | | | | ND | | | | ND | | | 1.3 | | | ND | 84.2 | 2.3 | 7.3 | | 4.3 | 13.3 | 1.2 | 0.1 | | | | | | 1426 |
| 1425 | ND | ND | ND | | ND | | | | | | | 805 | 0.7 | | 791 | ND | | 1 | 11.3 | | | 14.7 | 1.6 | 2.4 | 135 | | | 2.4 | 0.2 | 0.2 | 0.4 | 0.9 | | | 1425 |
| 1424 | | | | 195 | | | | | | | 25.8 | | 55.7 | | 1183 | | | 0.4 | 360 | 1.8 | | 345 | 69.6 | 73 | | 20.7 | 7.1 | 290 | 0.2 | 0.4 | 0.2 | 19.2 | 1.3 | 170 | 1424 |
| 1423 | | | | | 64 | 1195 | ND | ND | ND | ND | | | 309 | ND | 1536 | | ND | ND | 297 | 0.5 | 67 | 915 | 1316 | 295 | 125 | 1336 | 9 | 227 | 0.5 | 1 | 1.7 | 10.4 | | | 1423 |
| 1422 | | | 1.9 | | | | | | | | 540 | | 670 | | 1599 | | | 75 | 308 | | 103 | 833 | 1767 | 432 | | 1782 | 6.1 | 599 | 0.7 | 0.3 | 0.4 | 2.2 | ND | 778 | 1422 |
| 1421 | 11.9 | | | | | | | | | 1094 | | | 1463 | | 1609 | 451 | | 108 | 369 | 23 | 134 | 945 | 1700 | 463 | 78.9 | | 10.3 | 915 | 0.8 | 113 | 0.7 | 290 | 10.6 | 1040 | 1421 |
| 1420 | | 25.8 | | | | | | 42 | 1254 | | | | 1534 | ND | 1861 | 584 | | 180 | 187 | 230 | 650 | 1062 | 1605 | 481 | | 1989 | 9.5 | | 1.6 | 92.4 | 0.5 | 535 | 72 | 1588 | 1420 |
| 1419 | | | | | | | | | | | | | 1718 | | 1875 | 394 | 33.7 | 109 | 350 | 408 | 682 | 1082 | 1607 | 537 | | 1305 | 180 | 78.9 | 0.4 | 317 | 367 | 148 | | 1296 | 1419 |
| 1418 | | | | | | | | | | | | | 2453 | | 2048 | 912 | 106 | 705 | 523 | 787 | 316 | 1103 | 1934 | 1166 | 259 | 1726 | 718 | 754 | 765 | 230 | 16.7 | 655 | 212 | 1477 | 1418 |
| 1417 | | | | | | | | | | | | | 54.2 | 791 | 2048 | 912 | 106 | 705 | 523 | 538 | 316 | 1103 | 1934 | 1166 | | 1726 | 718 | 1306 | 765 | 14.3 | 116 | 860 | | | 1417 |
| 1416 | | | | | | | | | | | | | ND | | 904 | 1920 | 707 | 332 | | | 16 | | 714 | 1529 | 465 | 1928 | 488 | | 417 | | | | 255 | 726 | 1416 |
| 1415 | | | | | | | | | | | | | | | 285 | 0.2 | 290 | 803 | | | | | 590 | 1592 | | 508 | 227 | 1490 | 783 | 201 | 93.2 | 297 | 354 | 796 | 1415 |
| 1414 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 156 | 763 | | | | 1414 |
| 1413 | | | | | | | | | | | | | | | 185 | 130 | 58.7 | 21.7 | | | | | 185 | 132 | 230 | 775 | 137 | 813 | | | | | 278 | | 1413 |
| 1412 | | | | | | | | | | | | | | | | | | | | | | | | | | 314 | 79.8 | 507 | 499 | | 1087 | | 312 | | 1412 |
| 1411 | | | | | | | | | | | | | | | | | | 13.6 | | | | | | | | 646 | 720 | 853 | | | | | | | 1411 |
| 1410 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1326 | | | | | | | 1410 |
| 1409 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1409 |
| 1408 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1408 |
| 1407 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1407 |
| 1406 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1406 |
| 1405 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1405 |
| 1404 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1404 |
| 1403 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1403 |
| 1402 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1402 |
| 1401 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1401 |
| 1400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1400 |
| 1399 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1399 |

**Range of groundwater elevation (1406-1413 fmsl) based on data from Table 5**

1. Photoionization detector (PID) screening results in parts per million (ppm).

Notes:

ND = Not detected at that depth interval.

PID>1000 ppm

**Table 3**
**Subsurface Soil Analytical Results**
**Scott Rotary Seals Site**
**301 Franklin Street**
**Olean, New York**

| Parameter [1] | Commercial SCOs[2] (mg/kg) | SAMPLE LOCATION | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TP-2 (16-18) | TP-4 (4-10) | TP-5 (5-8) | TP-6 (3-11) | TP-9 (12-14) | TP-10 (3-11) | TP-12 (2.5-8.5) | MW-2 (16-20) | SB-1 (20-24) | SB-2 (16-20) | SB-13 (6-8) | TP-13 (14-16) | SB-13 (18-20) | TP-14 (15-17) | TP-15 (3-4) | TP-15 (15-17) | SB-15 (17-20) | TP-16 (15-17) | SB-16 (20-24) | TP-17 (15-17) | SB-17 (23-26) | TP-18 (15-17) | SB-18 (24-28) |
| **PID Results →** | | 25.8 | 195 | 64 | 1195 | 1254 | 1094 | 100-805 | 1305-1928 | 255-354 | 1296-1477 | 309-670 | 1718-2453 | 0-54.2 | 791 | 791-1183 | 1875-2048 | 904-2048 | 451-584 | 912-1920 | 0 | 290-707 | 75-108 | 21.7-803 |
| **Sample Date →** | | Jun-09 | Jun-09 | Jun-09 | Jun-09 | Jun-09 | Jun-09 | Jun-09 | Jun-09 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 |
| ***TCL plus STARS Volatile Organic Compounds (VOCs) - mg/kg*** [3] | | | | | | | | | | | | | | | | | | | | | | | | |
| Acetone | **500** | ND | NA | NA | 0.079 | ND | ND | 0.0073 J | ND | ND | ND | ND | ND | ND | 0.047 J | ND | 0.1 | ND | 0.04 J | ND | ND | ND | 0.029 J | ND |
| 2-Butanone (MEK) | **500** | ND | NA | NA | ND | ND | 0.18 | ND | 0.2 | ND | ND | ND | ND | ND | ND | ND | 0.019 J | ND | ND | ND | ND | ND | ND | ND |
| Carbon disulfide | **--** | ND | NA | NA | 0.0024 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.0043 J | ND | ND | ND | ND | ND | ND | ND |
| Isopropylbenzene (Cumene) | **--** | ND | NA | NA | 0.014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | | ND | ND | ND | ND | ND | ND | ND |
| Methylcyclohexane | **--** | ND | NA | NA | 20 | ND | ND | ND | 9.3 | ND | 0.81 | ND | ND | ND | ND | 33 D | 0.06 | 90 D | ND | 1.9 | ND | ND | ND | ND |
| Methylene chloride | **500** | ND | NA | NA | ND | ND | 0.2 | ND | 0.12 | ND | ND | ND | ND | ND | 0.055 | ND | 0.009 | ND | 0.076 | ND | 0.0076 | ND | 0.019 J | ND |
| Toluene | **500** | ND | NA | NA | ND | ND | ND | 0.0012 J | ND | ND | ND | ND | ND | ND | 0.016 J | ND | ND | ND | 0.017 J | ND | 0.0029 J | ND | 0.01 J | ND |
| 1,2,4-Trichlorobenzene | **--** | ND | NA | NA | ND | ND | 0.14 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| n-Propylbenzene | **500** | ND | NA | NA | 0.0056 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| p-Cymene (p-isopropyltoluene) | **--** | ND | NA | NA | ND | ND | ND | 0.042 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| n-Butylbenzene | **500** | ND | NA | NA | 0.036 | ND | ND | 0.031 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| sec-Butylbenzene | **500** | 0.0024 | NA | NA | 0.037 | 0.0074 | 0.094 | 0.022 J | ND | ND | 0.088 NJ | ND | ND | ND | ND | ND | ND | 0.78 | ND | ND | ND | ND | 0.0099 J | ND |
| tert-Butylbenzene | **500** | ND | NA | NA | ND | ND | ND | ND | ND | ND | ND | ND | 0.11 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| *Tentatively Identified Compounds (TICs)* | **--** | 0.5 | NA | NA | 9.0 | 8.5 | 110.7 | 5.6 | 174.0 | 23.6 | 108.0 | 57.2 | 85.0 | 16.2 | 16.7 | 280 W1 | 0.253 | 381 D | 33.2 | 78.8 | ND | 12.28 | 14.2 | 18.6 |
| ***Total VOCs*** | **--** | ***0.50*** | NA | NA | ***29.16*** | ***8.46*** | ***111.31*** | ***5.69*** | ***183.62*** | ***23.60*** | ***108.81*** | ***57.20*** | ***85.11*** | ***16.20*** | ***16.81*** | ***313.00*** | ***0.45*** | ***471.78*** | ***33.33*** | ***80.70*** | ***0.01*** | ***12.28*** | ***14.27*** | ***18.60*** |
| ***TCLSemi-Volatile Organic Compounds (SVOCs) - mg/kg*** [3] | | | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a)anthracene | **5.6** | ND | NA | NA | 0.068 DJ | ND | ND | 0.16 DJ | 0.048 DJ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.15 J | ND |
| Benzo(b)fluoranthene | **5.6** | ND | NA | NA | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Benzo(g,h,i)perylene | **500** | ND | NA | NA | ND | ND | ND | 0.1 DJ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.077 J | ND |
| Benzo(a)pyrene | **1** | ND | NA | NA | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.098 J | ND |
| Chrysene | **56** | 2 D | NA | NA | 0.14 DJ | ND | ND | 0.43 DJ | 0.085 DJ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.36 | ND |
| Fluoranthene | **500** | 0.17 DJ | NA | NA | ND | ND | ND | 0.092 DJ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fluorene | **500** | 0.076 DJ | NA | NA | ND | 0.31 DJ | ND | 0.17 DJ | 0.54 DJ | ND | ND | ND | ND | 0.014 NJ | 0.16 J | 0.35 | 0.017 NJ | 0.43 NJ | ND | ND | ND | ND | ND | 0.083 NJ |
| Bis(2-ethylhexyl) phthalate | **--** | ND | NA | NA | ND | ND | ND | ND | ND | 0.24 DJ | ND | 0.076 J | ND | 0.44 | ND | ND | ND | ND | ND | ND | ND | 0.29 | ND | 1.3 |
| Indeno(1,2,3-cd)pyrene | **5.6** | ND | NA | NA | ND | ND | ND | 0.06 DJ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Naphthalene | **500** | ND | NA | NA | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.03 J | ND | ND | ND | ND | ND | ND | ND |
| Phenanthrene | **500** | ND | NA | NA | 0.65 DJ | 0.64 D | ND | 0.52 DJ | 0.87 DJ | ND | 0.48 DJ | ND | ND | 0.029 J | ND | 0.61 | 0.042 J | 0.74 J | ND | 0.43 | ND | 0.046 | ND | 0.23 |
| 4-Methylphenol | **--** | ND | NA | NA | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Pyrene | **500** | ND | NA | NA | ND | ND | ND | 0.2 DJ | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| *Tentatively Identified Compounds (TICs)* | **--** | 29 | NA | NA | 319.2 | 58.9 | 89.1 | 121.4 | 195.1 | 17.59 | 164.4 | ND | 39.26 | 4.73 | 80.3 | 69.5 | 9.12 | 257.9 | 30.82 | 122.1 | 1.98 | 10.55 | 33.59 | 37.46 |
| ***Total SVOCs*** | **--** | ***31.2*** | NA | NA | ***320.1*** | ***59.9*** | ***89.1*** | ***123.1*** | ***196.6*** | ***17.8*** | ***164.9*** | ***0.1*** | ***39.3*** | ***5.2*** | ***80.5*** | ***70.5*** | ***9.2*** | ***258.6*** | ***30.8*** | ***122.5*** | ***2.0*** | ***10.9*** | ***34.3*** | ***39.0*** |
| ***TAL Metals - mg/kg*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | **--** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6370 | NA | NA | 4380 | NA | NA | NA | NA | NA |
| Arsenic | **16** | NA | 6 | 6.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 5.5 | NA | NA | 6.1 | NA | NA | NA | NA | NA |
| Barium | **400** | NA | 38.9 | 35.7 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 30.1 | NA | NA | 31.7 | NA | NA | NA | NA | NA |
| Cadmium | **9.3** | NA | 0.234 | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | ND | NA | NA | ND | NA | NA | NA | NA | NA |
| Calcium | **--** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 824 | NA | NA | 44400 | NA | NA | NA | NA | NA |
| Chromium | **400** | NA | 7.08 | 6.48 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6.02 | NA | NA | 5.04 | NA | NA | NA | NA | NA |
| Cobalt | **--** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 4.88 | NA | NA | 4.1 | NA | NA | NA | NA | NA |
| Copper | **270** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 32.4 | NA | NA | 15.3 | NA | NA | NA | NA | NA |
| Iron | **--** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 12200 B1 | NA | NA | 9890 B1 | NA | NA | NA | NA | NA |
| Lead | **1000** | NA | 26.3 | 23.6 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 10.4 | NA | NA | 8.5 | NA | NA | NA | NA | NA |
| Magnesium | **--** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 1980 | NA | NA | 4200 | NA | NA | NA | NA | NA |
| Manganese | **10,000** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 198 B1 J | NA | NA | 539 B1 J | NA | NA | NA | NA | NA |
| Nickel | **310** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 13.6 | NA | NA | 9.76 | NA | NA | NA | NA | NA |
| Potassium | **--** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 491 | NA | NA | 635 | NA | NA | NA | NA | NA |
| Vanadium | **--** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 9.42 | NA | NA | 6.94 | NA | NA | NA | NA | NA |
| Zinc | **10,000** | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 68.9 J | NA | NA | 53.4 J | NA | NA | NA | NA | NA |
| Mercury | **2.8** | NA | 0.363 | 0.592 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.042 | NA | NA | ND | NA | NA | NA | NA | NA |

**Notes:**
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Restricted-Commercial Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in micograms per kilogram (ug/kg) and converted to milligram per kilogram (mg/kg) for comparison to SCOs.
4. Previously referenced as "Poly Piles" in the laboratory analytical report.

**Definitions:**
ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
B = Analyte was detected in the associated blank as well as in the sample.
D = All compounds were identified in an analysis at the secondary dilution factor.
NJ = The detection is tentative in identification and estimated in value.
W1 = Sample was prepared and analyzed utilizing a medium level extraction.

**Table 3**
**Subsurface Soil Analytical Results**
**Scott Rotary Seals Site**
**301 Franklin Street**
**Olean, New York**

| Parameter [1] | Commercial SCOs[2] (mg/kg) | SAMPLE LOCATION | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TP-19 (14-16) | TP-20 (16-18) | SB-20 (16-20) | TP-21 (15-17) | SB-21 (20-22) | TP-22 (16-18) | TP-23 (8-10) | SB-23 (15-18) | SB-24 (8-12) | TP-24 (15-17) | SB-24 (20-23) | North Pile | East Pile[4] | South Pile | MW-4 (10-12) | MW-4 (17-19) | MW-5 (21-23) | MW-5 (23-25) | MW-6 (14-16) | MW-6 (18-20) | MW-7 (17-18) | MW-8 (19-21) |
| **PID Results →** | | 523 | 230 | 230-408 | 134-650 | 316 | 1082-1103 | 1767 | 1607-1934 | 432-463 | 537-1166 | 132-1592 | 0 | 0 | 0 | 915 | 1306 | 765 | 417 | 113 | 317 | 367 | 535 |
| **Sample Date →** | | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Aug-10 | Oct-10 | Oct-10 | Oct-10 | Oct-10 | Oct-10 | Oct-10 | Jan-11 | Jan-11 |
| ***TCL plus STARS Volatile Organic Compounds (VOCs) - mg/kg*** [3] | | | | | | | | | | | | | | | | | | | | | | | |
| Acetone | **500** | ND | 0.037 J | ND | ND | ND | ND | 0.07 | ND | ND | ND | ND | ND | ND | ND | 0.079 | ND | ND | ND | 0.051 J | 0.085 | 0.076 J | 0.064 J |
| 2-Butanone (MEK) | **500** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.013 J | ND | ND | ND | ND | ND | ND | ND |
| Carbon disulfide | **--** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Isopropylbenzene (Cumene) | **--** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Methylcyclohexane | **--** | 0.7 | ND | ND | ND | 1.9 | ND | 0.11 | 17 | 0.11 | 7.3 D | 4.3 | ND | ND | ND | 0.086 | 8.7 W1 | ND | ND | ND | ND | ND | ND |
| Methylene chloride | **500** | 0.02 J | 0.069 | ND | ND | ND | 0.022 J | 0.046 J | ND | ND | ND | ND | 0.013 | 0.0059 | 0.0072 | 0.007 | ND | 0.04 J | 0.008 | 0.026 J | 0.043 | 0.071 U | 0.048 B |
| Toluene | **500** | ND | 0.016 J | ND | ND | ND | 0.015 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2,4-Trichlorobenzene | **--** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| n-Propylbenzene | **500** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| p-Cymene (p-isopropyltoluene) | **--** | ND | ND | ND | ND | ND | 0.021 J | 0.021 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.21 NJ | ND | ND |
| n-Butylbenzene | **500** | ND | ND | ND | ND | ND | ND | 0.027 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| sec-Butylbenzene | **500** | ND | ND | ND | ND | ND | ND | 0.024 | 0.38 NJ | ND | 0.39 D | ND | ND | ND | ND | ND | 0.4 W1 | ND | ND | ND | ND | ND | ND |
| tert-Butylbenzene | **500** | 0.023 | ND | ND | 0.11 | ND | 0.049 | 0.013 | 0.15 NJ | ND | 0.43 D | 0.2 | ND | ND | ND | ND | ND | 0.042 J | 0.0025 U | ND | 0.044 U | 0.0077 J | 0.03 NJ |
| *Tentatively Identified Compounds (TICs)* | **--** | 19.1 | 0.57 | 56.40 | 111.1 | 136.0 | 14.3 | 5.07 | 122.00 | 78.10 | 274.00 | 129.10 | ND | 0.0152 | ND | 3.65 | 75.8 | 25.4 | 0.841 | 8.76 | 32.95 | 3.43 | 13.42 |
| ***Total VOCs*** | **--** | ***19.84*** | ***0.69*** | ***56.40*** | ***111.21*** | ***137.90*** | ***14.40*** | ***5.38*** | ***139.00*** | ***78.21*** | ***282.12*** | ***133.60*** | ***0.01*** | ***0.0211*** | ***0.01*** | ***3.835*** | ***84.9*** | ***25.482*** | ***0.8515*** | ***8.837*** | ***33.332*** | ***3.5847*** | ***13.562*** |
| ***TCLSemi-Volatile Organic Compounds (SVOCs) - mg/kg*** [3] | | | | | | | | | | | | | | | | | | | | | | | |
| Benzo(a)anthracene | **5.6** | ND | ND | ND | ND | ND | ND | 0.029 J | ND | ND | 0.17 J | ND | 0.28 DJ | 0.1 DJ | 0.22 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo(b)fluoranthene | **5.6** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.33 DJ | ND | 0.25 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo(g,h,i)perylene | **500** | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.17 NJ | ND | 0.4 | 0.15 DJ | 0.25 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| Benzo(a)pyrene | **1** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.29 DJ | ND | 0.27 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| Chrysene | **56** | ND | ND | ND | 0.11 J | ND | ND | 0.06 J | ND | ND | 0.38 | ND | 0.32 DJ | 0.13 DJ | 0.24 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| Fluoranthene | **500** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.48 DJ | 0.15 DJ | 0.39 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| Fluorene | **500** | ND | ND | ND | 0.31 | ND | ND | ND | 0.34 | ND | ND | ND | ND | ND | ND | NA | NA | NA | NA | NA | NA | NA | NA |
| Bis(2-ethylhexyl) phthalate | **--** | ND | ND | ND | ND | ND | ND | 0.077 J | 1 J | ND | ND | ND | ND | ND | ND | NA | NA | NA | NA | NA | NA | NA | NA |
| Indeno(1,2,3-cd)pyrene | **5.6** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.21 DJ | 0.1 DJ | 0.15 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| Naphthalene | **500** | ND | ND | ND | ND | ND | ND | 0.042 J | ND | ND | ND | ND | ND | ND | ND | NA | NA | NA | NA | NA | NA | NA | NA |
| Phenanthrene | **500** | ND | ND | ND | ND | 0.78 | ND | ND | 0.58 | ND | 2.1 | 0.7 | 0.18 DJ | 0.14 DJ | 0.25 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| 4-Methylphenol | **--** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.38 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| Pyrene | **500** | ND | ND | ND | ND | ND | ND | 0.048 J | ND | ND | ND | ND | 0.38 DJ | 0.14 DJ | 0.39 DJ | NA | NA | NA | NA | NA | NA | NA | NA |
| *Tentatively Identified Compounds (TICs)* | **--** | 53.96 | 3.58 | 77.8 | 60 | 270 | 23.5 | 7.57 | 154.4 | 186.8 | 51.5 | 157.9 | 0.78 | 5.4 | 0.92 B | NA | NA | NA | NA | NA | NA | NA | NA |
| ***Total SVOCs*** | **--** | ***54.0*** | ***3.6*** | ***77.8*** | ***60.4*** | ***270.8*** | ***23.5*** | ***7.8*** | ***156.3*** | ***186.8*** | ***54.3*** | ***158.6*** | ***3.7*** | ***6.3*** | ***3.7*** | ***0.0*** | ***0.0*** | ***0.0*** | ***0.0*** | ***0.0*** | ***0.0*** | ***0.0*** | ***0.0*** |
| ***TAL Metals - mg/kg*** | | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | **--** | NA | 3630 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Arsenic | **16** | NA | 4.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Barium | **400** | NA | 19.4 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cadmium | **9.3** | NA | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Calcium | **--** | NA | 40400 D | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chromium | **400** | NA | 5.33 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Cobalt | **--** | NA | 7.08 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Copper | **270** | NA | 37.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Iron | **--** | NA | 10300 B1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Lead | **1000** | NA | 6 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Magnesium | **--** | NA | 2630 J | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Manganese | **10,000** | NA | 733 B1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Nickel | **310** | NA | 13.7 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Potassium | **--** | NA | 405 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Vanadium | **--** | NA | 5.23 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Zinc | **10,000** | NA | 80.8 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Mercury | **2.8** | NA | ND | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

**Notes:**
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Restricted-Commercial Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in micograms per kilogram (ug/kg) and converted to milligram per kilogram (mg/kg) for comparison to SCOs.

**Definitions:**
ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
B = Analyte was detected in the associated blank as well as in the sample.
D = All compounds were identified in an analyisis at the secondary dilution factor.
NJ = The detection is tentative in identification and estimated in value.
W1 = Sample was prepared and analyzed utilizing a medium level extraction.

**TABLE 4**
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**
**SCOTT ROTARY SITE**
**301 FRANKLIN STREET**
**OLEAN, NEW YORK**

| Parameter [1] | NYSDEC Class GA Groundwater Quality Standards [2] | Sample Locations | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MW-1 | | MW-2 | | MW-3 | | MW-4 | MW-5 | MW-6 | MW-7 | MW-8 |
| | | 8/19/10 | 10/28/10 | 8/19/10 | 10/28/10 | 8/19/10 | 10/28/10 | 10/28/10 | 10/28/10 | 10/28/10 | 1/17/11 | 1/17/11 |
| ***TCL plus STARS Volatile Organic Compounds (VOCs) - ug/L*** | | | | | | | | | | | | |
| Acetone | **50** | ND J | ND | ND J | ND | ND J | ND | ND | 3.2 J | ND | 6.3 J | ND |
| 2-Butanone (MEK) | **50** | ND J | ND | ND J | ND | ND J | ND | ND | ND | ND | 1.7 J | ND |
| Carbon disulfide | **60** | ND J | ND | ND J | ND | ND J | ND | ND | ND | ND | ND | ND |
| Cyclohexane | **--** | ND J | ND | ND J | 3 D | ND J | ND | 3.9 DJ | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | **3** | ND J | ND | ND J | ND | ND J | ND | ND | ND | 1.1 | 1.1 | 0.98 J |
| Methylcyclohexane | **--** | ND J | ND | 260 J | 200 D | ND J | ND | 390 D | ND | 7 D | 71 D | 6.2 |
| o-Xylenes | **5** | ND J | ND | ND J | ND | ND J | ND | ND | ND | ND | ND | ND |
| sec-Butylbenzene | **5** | ND J | ND | ND J | ND | ND J | ND | 3.2 DJ | ND | 2.2 D | ND | ND |
| tert-Butylbenzene | **100** | 1.7 J | 1.4 | ND J | ND | ND J | ND | ND | 4.3 | 2.2 | 2.2 | 1.9 |
| Tentatively Identified Compounds (TICs)[3] | **--** | 110 J | 71.2 | 800 J | 461 | ND J | ND | 645 | 314 | 192.3 | 226 | 346 |
| ***Total VOCs*** | | ***110 J*** | ***73*** | ***1,060 J*** | ***664*** | ***ND J*** | ***ND*** | ***1,042*** | ***322*** | ***205*** | ***308*** | ***355*** |
| ***STARS Semi-Volatile Organic Compounds (SVOCs) - ug/L*** | | | | | | | | | | | | |
| Acenaphthene | **20** | ND J | *NA* | ND J | *NA* | 0.61 J | *NA* | *NA* | *NA* | *NA* | *NA* | *NA* |
| Di-n-butyl phthalate | **50** | ND J | *NA* | ND J | *NA* | ND J | *NA* | *NA* | *NA* | *NA* | *NA* | *NA* |
| Fluorene | **50** | ND J | *NA* | 2.7 J | *NA* | 1.7 J | *NA* | *NA* | *NA* | *NA* | *NA* | *NA* |
| Phenanthrene | **50** | ND J | *NA* | 2.3 DJ | *NA* | ND J | *NA* | *NA* | *NA* | *NA* | *NA* | *NA* |
| Tentatively Identified Compounds (TICs)[3] | **--** | 78 J | *NA* | 508 J | *NA* | 110 J | *NA* | *NA* | *NA* | *NA* | *NA* | *NA* |
| ***Total SVOCs*** | | ***78 J*** | ***NA*** | ***510 J*** | ***NA*** | ***112 J*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| ***TAL Metals - ug/L*** | | | | | | | | | | | | |
| Aluminum | **--** | ***ND J*** | ***NA*** | 357 J | ***NA*** | ***ND J*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Arsenic | **25** | ***ND J*** | ***NA*** | 21.4 J | ***NA*** | ***ND J*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Barium | **1000** | 270 J | ***NA*** | 687 J | ***NA*** | 345 J | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Calcium | **--** | 184000 J | ***NA*** | 185000 J | ***NA*** | 244000 J | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Iron | **300** | 1860 J | ***NA*** | 17500 J | ***NA*** | 1690 J | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Magnesium | **35000** | 23800 J | ***NA*** | 37400 J | ***NA*** | 26800 J | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Manganese | **300** | 1260 J | ***NA*** | 733 J | ***NA*** | 880 J | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Potassium | **--** | 3630 J | ***NA*** | 6170 J | ***NA*** | 3410 J | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Sodium | **20000** | 23.1 J | ***NA*** | 4500 J | ***NA*** | 5700 J | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| ***Organochlorine Pesticides ug/L*** | | | | | | | | | | | | |
| alpha-BHC | ***0.01*** | ***0.016 J*** | ***NA*** | ***0.018 J*** | ***NA*** | ***0.016 J*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| gamma-BHC (lindane) | ***0.05*** | ***ND J*** | ***NA*** | ***0.009 J*** | ***NA*** | ***0.011 J*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| 4,4'-DDE | ***0.2*** | ***ND J*** | ***NA*** | ***ND J*** | ***NA*** | ***0.014 J*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| 4,4'-DDT | ***0.2*** | ***ND J*** | ***NA*** | ***0.017 J*** | ***NA*** | ***ND J*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |
| Heptachlor | ***0.04*** | ***ND J*** | ***NA*** | ***ND J*** | ***NA*** | ***0.0094 J*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** | ***NA*** |

**Notes:**
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC TOGS 1.1.1 Class GA Groundwater Quality Standards.
3. Excludes TICs identified in the laboratory blank.

**Definitions:**
ND = Parameter not detected above laboratory detection limit.
"--" = No SCO available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
D= All compounds were identified in an analyisis at the secondary dilution factor.
Sample Result exceeds NYSDEC Groundwater Quality Standards.

**TABLE 5**
**SUMMARY OF GROUNDWATER ELEVATIONS**
**SCOTT ROTARY SEALS SITE**
**301 FRANKLIN STREET**
**OLEAN, NEW YORK**

| Location | Date | Grade | TOR Elevation [1] (fmsl) | DTP (if present) (fbTOR) | DTW (fbTOR) | Product Thickness (feet) | Groundwater Elevation (fmsl) | Corrected Groundwater Elevation [2] (fmsl) |
|---|---|---|---|---|---|---|---|---|
| MW-1 | 6/29/2009 | 1431.89 | 1435.04 | NP | 27.58 | NP | 1407.46 | 1407.46 |
| MW-1 | 8/19/2010 | 1431.89 | 1435.04 | NP | 28.40 | NP | 1406.64 | 1406.64 |
| MW-1 | 10/26/2010 | 1431.89 | 1435.04 | NP | 29.01 | NP | 1406.03 | 1406.03 |
| MW-1 | 3/10/2011 | 1431.89 | 1435.04 | NP | 23.71 | NP | 1411.33 | 1411.33 |
| MW-2 | 6/29/2009 | 1425.84 | 1428.19 | NP | 18.61 | NP | 1409.58 | 1409.58 |
| MW-2 | 8/19/2010 | 1425.84 | 1428.19 | NP | 19.51 | NP | 1408.68 | 1408.68 |
| MW-2 | 10/26/2010 | 1425.84 | 1428.19 | 20.34 | 20.35 | 0.01 | 1407.84 | 1407.85 |
| MW-2 | 3/10/2011 | 1425.84 | 1428.19 | NP | 15.28 | NP | 1412.91 | 1412.91 |
| MW-3 | 6/29/2009 | 1426.24 | 1428.26 | NP | 18.79 | NP | 1409.47 | 1409.47 |
| MW-3 | 8/19/2010 | 1426.24 | 1428.26 | NP | 19.52 | NP | 1408.74 | 1408.74 |
| MW-3 | 10/26/2010 | 1426.24 | 1428.26 | NP | 20.38 | NP | 1407.88 | 1407.88 |
| MW-3 | 3/10/2011 | 1426.24 | 1428.26 | NP | 15.31 | NP | 1412.95 | 1412.95 |
| MW-4 | 10/26/2010 | 1425.85 | 1427.61 | 19.71 | 19.72 | 0.01 | 1407.89 | 1407.90 |
| MW-4 | 3/10/2011 | 1425.85 | 1427.61 | NP | 14.69 | NP | 1412.92 | 1412.92 |
| MW-5 | 10/26/2010 | 1430.78 | 1433.26 | NP | 27.17 | NP | 1406.09 | 1406.09 |
| MW-5 | 3/10/2011 | 1430.78 | 1433.26 | NP | 21.91 | NP | 1411.35 | 1411.35 |
| MW-6 | 10/26/2010 | 1430.78 | 1434.02 | 27.80 | 28.68 | 0.88 | 1405.34 | 1406.04 |
| MW-6 | 3/10/2011 | 1430.78 | 1434.02 | NP | 22.42 | NP | 1411.60 | 1411.60 |
| MW-7 | 1/17/2011 | 1430.12 | 1432.97 | NP | 24.33 | NP | 1408.64 | 1408.64 |
| MW-7 | 3/10/2011 | 1430.12 | 1432.97 | NP | 21.37 | NP | 1411.60 | 1411.60 |
| MW-8 | 1/17/2011 | 1431.08 | 1434.01 | NP | 23.01 | NP | 1411.00 | 1411.00 |
| MW-8 | 3/10/2011 | 1431.08 | 1434.01 | NP | 20.59 | NP | 1413.42 | 1413.42 |

**Notes:**

1. Wells MW-1 through MW-6 were surveyed on 10-26-10 and wells MW-7 and MW-8 were surveyed on 1-14-11 with known elevation (fire hydrant) of 1428.94 feet above mean sea level.
2. Groundwater Elevation corrected for product level using assumed specific gravity of 0.80.
3. All elevations are feet above mean sea level (fmsl).

TOR = Top of riser
DTP = Depth to product
DTW = Depth to water
fb = feet below
= Most recent sampling event, elevations used to generate Figure 6.

**TABLE 6**
**SUMMARY OF IRM SOIL PILE ANALYTICAL TESTING**
**SCOTT ROTARY SEALS SITE**
**301 FRANKLIN STREET**
**OLEAN, NEW YORK**

| Parameter [1] | Commercial SCOs[2] (mg/Kg) | SAMPLE LOCATION | | | | |
|---|---|---|---|---|---|---|
| | | North Pile | South Pile E | South Pile W | East Pile | West Pile |
| ***TCL plus STARS Volatile Organic Compounds (VOCs) - mg/Kg*** [3] | | | | | | |
| Methylene chloride | **500** | 0.0056 | 0.0046 J | 0.0045 J | 0.0042 J | 0.0052 J |
| 1,2,4-Trichlorobenzene | **190** | 0.0017 BJ | 0.0019 BJ | 0.0018 BJ | 0.002 BJ | 0.0022 BJ |
| 1,3,5-Trimethylbenzene | **190** | 0.00054 BJ | 0.00061 BJ | 0.00058 BJ | 0.0006 BJ | 0.00062 BJ |
| xylenes, Total | **500** | 0.0011 BJ | ND | ND | ND | 0.0011 BJ |
| ***Total VOCs*** | **--** | ***0.01*** | ***0.01*** | ***0.01*** | ***0.01*** | ***0.01*** |
| ***TCLSemi-Volatile Organic Compounds (SVOCs) - mg/Kg*** [3] | | | | | | |
| 2-Methylnaphthalene | **--** | 0.088 J | 0.088 J | 0.042 J | 0.054 J | 0.15 J |
| Acenaphthylene | **500** | ND | ND | ND | ND | 0.12 J |
| Anthracene | **500** | 0.03 J | 0.045 J | 0.031 J | 0.078 J | 0.18 J |
| Benzo(a)anthracene | **5.6** | 0.15 J | 0.24 J | 0.21 J | 0.2 J | 0.68 J |
| Benzo(b)fluoranthene | **5.6** | 0.1 J | 0.23 J | 0.24 J | 0.23 J | 0.55 J |
| Benzo(k)fluoranthene | **56** | 0.051 J | 0.15 J | 0.12 J | 0.11 J | 0.27 J |
| Benzo(g,h,i)perylene | **500** | 0.26 J | 0.2 J | 0.2 J | 0.17 J | 0.39 J |
| Benzo(a)pyrene | **1** | 0.13 J | 0.22 J | 0.21 J | 0.19 J | 0.6 J |
| Chrysene | **56** | 0.17 J | 0.28 J | 0.26 J | 0.27 J | 0.72 J |
| Dibenzofuran | **--** | 0.029 J | ND | ND | ND | ND |
| Fluoranthene | **500** | 0.18 J | 0.32 J | 0.36 J | 0.35 J | 1.3 |
| Indeno(1,2,3-cd)pyrene | **5.6** | 0.094 J | 0.12 J | 0.14 J | 0.12 J | 0.27 J |
| Naphthalene | **500** | 0.047 J | ND | ND | ND | 0.087 J |
| Phenanthrene | **500** | 0.15 J | 0.19 J | 0.18 J | 0.23 J | 0.87 J |
| Pyrene | **500** | 0.24 J | 0.42 J | 0.38 J | 0.32 J | 0.14 J |
| ***Total SVOCs*** | **--** | ***1.6*** | ***2.4*** | ***2.3*** | ***2.2*** | ***5.9*** |
| ***TAL Metals - mg/Kg*** | | | | | | |
| Aluminum | **--** | 8950 | 7670 | 6950 | 7160 | 9890 |
| Arsenic | **16** | 20.1 | 22.3 | 20.1 | 52.9 | 12.9 |
| Barium | **400** | 94.6 | 96.3 | 83.7 | 137 | 95.5 |
| Beryllium | **590** | 0.8 | 0.6 | 0.45 | 0.56 | 0.57 |
| Cadmium | **9.3** | 0.39 | 0.66 | 0.41 | 0.67 | 0.53 |
| Calcium | **--** | 3160 | 7010 | 9270 | 12300 | 19600 |
| Chromium | **400** | 10.3 B | 13.4 B | 12.1 B | 10.6 B | 11.9 B |
| Cobalt | **--** | 8.2 | 5.8 | 5.7 | 5 | 6.3 |
| Copper | **270** | 207 | 441 | 80.6 | 198 | 268 |
| Iron | **--** | 17100 | 19700 | 17500 | 16600 | 18100 |
| Lead | **1000** | 1770 | 195 | 230 | 143 | 90.7 |
| Magnesium | **--** | 2290 | 2840 | 3040 | 2340 | 3840 |
| Manganese | **10,000** | 521 | 376 | 405 | 346 | 429 |
| Nickel | **310** | 17.5 | 18.7 | 16.8 | 13.7 | 16.3 |
| Potassium | **--** | 589 | 797 | 841 | 700 | 641 |
| Vanadium | **--** | 19.2 | 24.9 | 31.8 | 16.2 | 18.7 |
| Zinc | **10,000** | 103 | 215 | 175 | 157 | 151 |
| Mercury | **2.8** | 1.5 | 2.9 | 3.6 | 4.4 | 2.7 |
| ***PCB's mg/kg*** [3] | | | | | | |
| 1260 | **1** | ND | ND | ND | 0.1 | ND |
| ***Organochlorine Pesticides mg/kg*** [3] | | | | | | |
| gamma-BHC (Lindane) | **9.2** | ND | ND | ND | ND | ND |
| Endosulfan II | **200** | ND | ND | ND | ND | ND |
| Heptachlor | **15** | ND | ND | ND | ND | ND |

**Notes:**

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Restricted-Commercial Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in ug/Kg and converted to mg/Kg for comparison to SCOs.

**Definitions:**

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
B = Analyte was detected in the associated blank as well as in the sample.

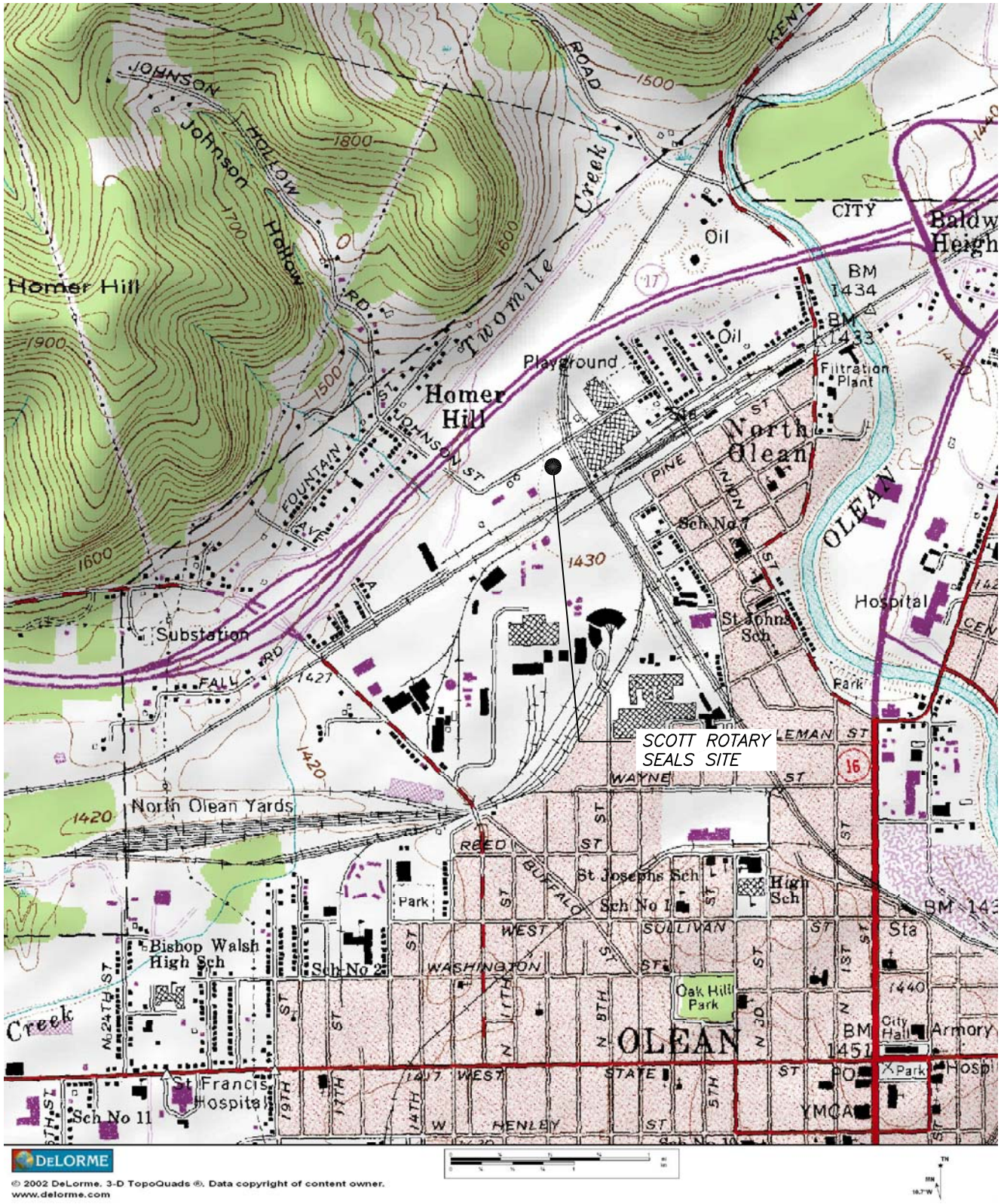
**TABLE 7**
**SUMMARY OF IRM PIPE REMOVAL QUANTITIES**
**SCOTT ROTARY SEALS SITE**
**301 FRANKLIN STREET**
**OLEAN, NEW YORK**

| Total Pipes | | |
|---|---|---|
| **Pipe Size** | **Total Removed Length (ft)** | **Contents** |
| 2-inch | 39 | Oil/Scale/Water |
| 3-inch | 1250 | Oil/Scale/Water |
| 4-inch | 1244 | Oil/Scale/Water |
| 6-inch | 1859 | Oil/Scale/Water |
| 8-inch | 860 | Oil/Scale/Water |
| 10-inch | 354 | Oil/Scale/Water |
| 12-inch | 155 | Oil/Scale/Water |
| Total Footage | 5761 | |

**TABLE 8**
**SUMMARY OF IRM MATERIALS/WASTES DISPOSITION**
**SCOTT ROTARY SEALS SITE**
**301 FRANKLIN STREET**
**OLEAN, NEW YORK**

| Material Removed/Recycled | | | |
|---|---|---|---|
| **Material Removed/Recycled** | **Identification** | **Amount** | **Disposal Facility** |
| Piping | Scrap Piping | 75.4 Tons | Gateway Materials<br>Cheektowaga, NY |
| Oil Drums | D-1,2,4,8,16,24,25,26 | 8 Drums | CWM Chemical Services, LLC<br>Model City, NY |
| Pipe Scale Drums | D-3,5,7,9,10,11,12,13,14,15,17,18,19,20,21,22,23 | 17 Drums | CWM Chemical Services, LLC<br>Model City, NY |
| Fill/Soil | Metals-Impacted Soil/Fill Piles | 1,982 tons | Waste Management- Chaffee Landfill<br>Chaffee, NY |
| Oil/Water | Oil/Water Mixture from Pipes | 1489 gallons/6.77 Tons | E.I.C.S.<br>Niagara Falls, NY |

# FIGURE 1






TurnKey Environmental Restoration, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599

PROJECT NO.: 0189-001-105

DATE: JUNE 2011

DRAFTED BY: AJZ

## SITE VICINITY AND LOCATION MAP

PRE-DESIGN INVESTIGATION REPORT

SCOTT ROTARY SEALS SITE

OLEAN, NEW YORK

PREPARED FOR

DST PROPERTIES NY, LLC


Not to Scale

Property Boundary (Approximate)

TurnKey Environmental Restoration, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0189-001-105

DATE: JUNE 2011

DRAFTED BY: NTM

# SITE PLAN (AERIAL)

PRE-DESIGN INVESTIGATION REPORT

SCOTT ROTARY SEALS SITE

OLEAN, NEW YORK

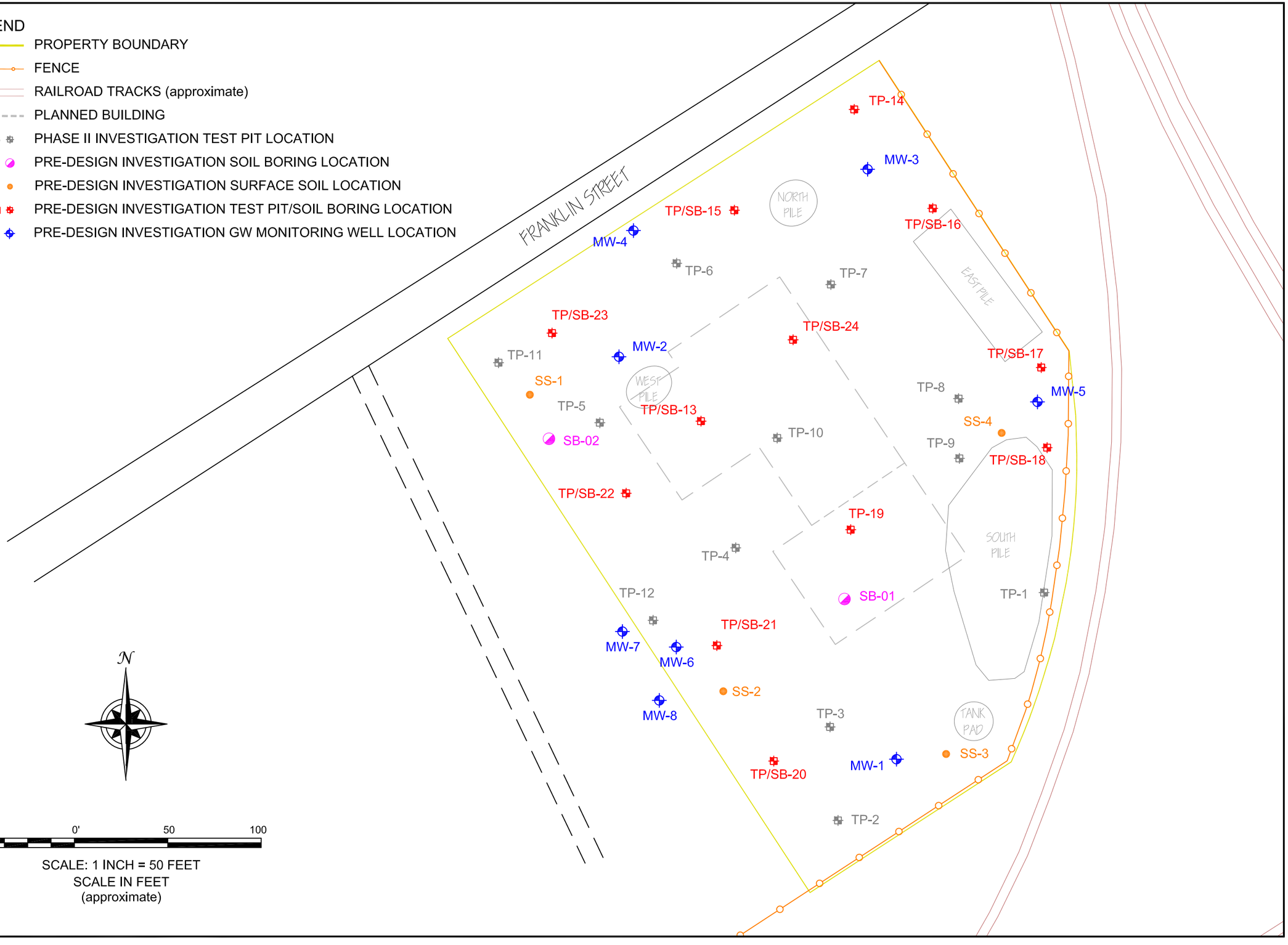
PREPARED FOR

DST PROPERTIES NY, LLC

FIGURE 2

LEGEND

- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS (approximate)
- PLANNED BUILDING
- TP-6 PHASE II INVESTIGATION TEST PIT LOCATION
- SB-02 PRE-DESIGN INVESTIGATION SOIL BORING LOCATION
- SS-2 PRE-DESIGN INVESTIGATION SURFACE SOIL LOCATION
- TP/SB-21 PRE-DESIGN INVESTIGATION TEST PIT/SOIL BORING LOCATION
- MW-3 PRE-DESIGN INVESTIGATION GW MONITORING WELL LOCATION

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TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0189-001-105

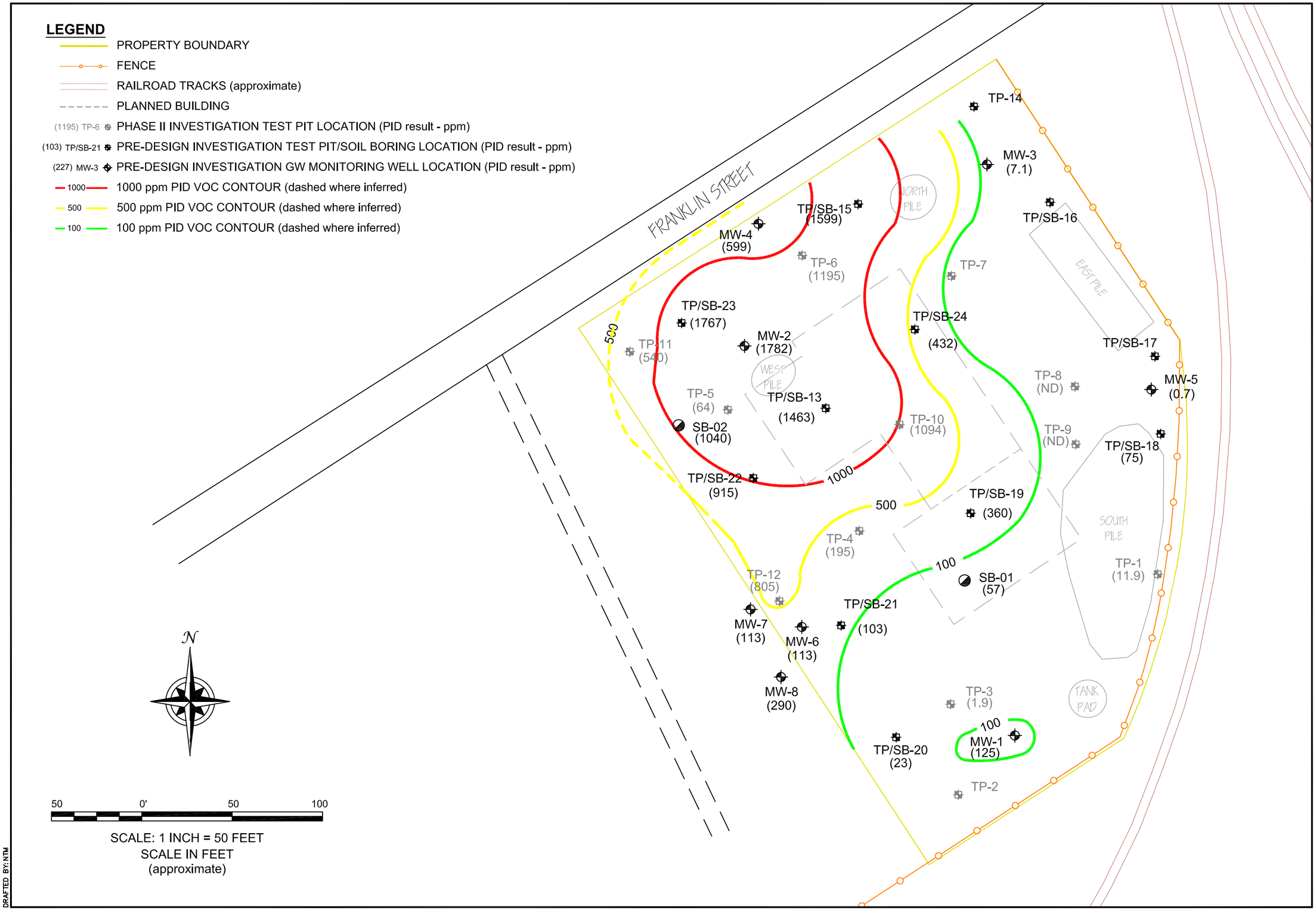
# INVESTIGATION SAMPLING LOCATIONS

PRE-DESIGN INVESTIGATION REPORT
SCOTT ROTARY SEALS SITE
OLEAN, NEW YORK
PREPARED FOR
DST PROPERTIES NY, LLC

**FIGURE 3**

**LEGEND**

- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS (approximate)
- PLANNED BUILDING
- (1195) TP-6 — PHASE II INVESTIGATION TEST PIT LOCATION (PID result - ppm)
- (103) TP/SB-21 — PRE-DESIGN INVESTIGATION TEST PIT/SOIL BORING LOCATION (PID result - ppm)
- (227) MW-3 — PRE-DESIGN INVESTIGATION GW MONITORING WELL LOCATION (PID result - ppm)
- 1000 — 1000 ppm PID VOC CONTOUR (dashed where inferred)
- 500 — 500 ppm PID VOC CONTOUR (dashed where inferred)
- 100 — 100 ppm PID VOC CONTOUR (dashed where inferred)

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JOB NO.: 0189-001-105

# QUALITATIVE PID SOIL SCREENING (ELEVATION 1417-1421 FMSL)

PRE-DESIGN INVESTIGATION REPORT

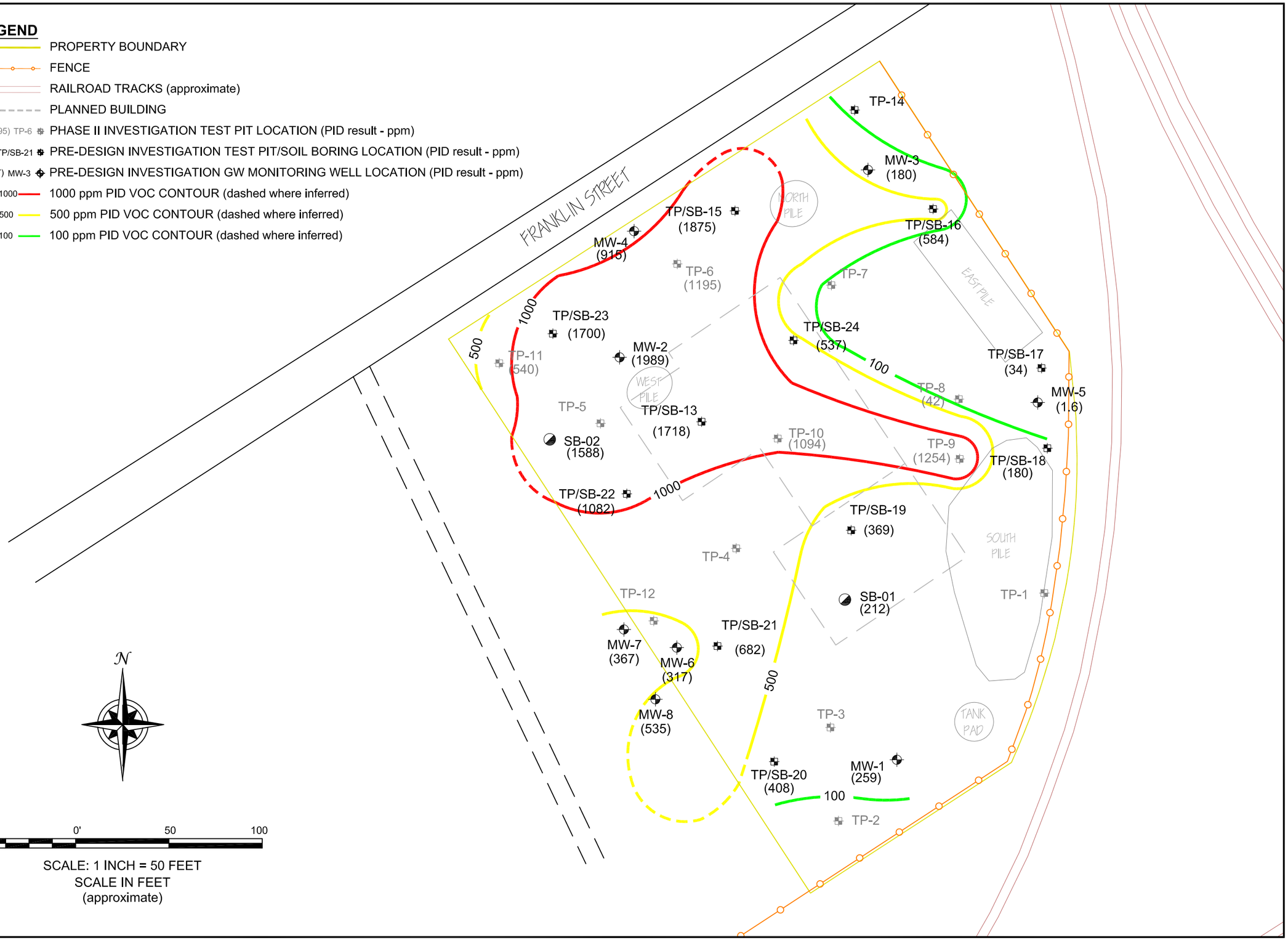
SCOTT ROTARY SEALS SITE
OLEAN, NEW YORK

PREPARED FOR
DST PROPERTIES NY, LLC

**FIGURE 4a**

**LEGEND**

- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS (approximate)
- PLANNED BUILDING
- (1195) TP-6 — PHASE II INVESTIGATION TEST PIT LOCATION (PID result - ppm)
- (103) TP/SB-21 — PRE-DESIGN INVESTIGATION TEST PIT/SOIL BORING LOCATION (PID result - ppm)
- (227) MW-3 — PRE-DESIGN INVESTIGATION GW MONITORING WELL LOCATION (PID result - ppm)
- 1000 — 1000 ppm PID VOC CONTOUR (dashed where inferred)
- 500 — 500 ppm PID VOC CONTOUR (dashed where inferred)
- 100 — 100 ppm PID VOC CONTOUR (dashed where inferred)




SCALE: 1 INCH = 50 FEET
SCALE IN FEET
(approximate)

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TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0189-001-105

# QUALITATIVE PID SOIL SCREENING (ELEVATION 1412-1416 FMSL)

PRE-DESIGN INVESTIGATION REPORT

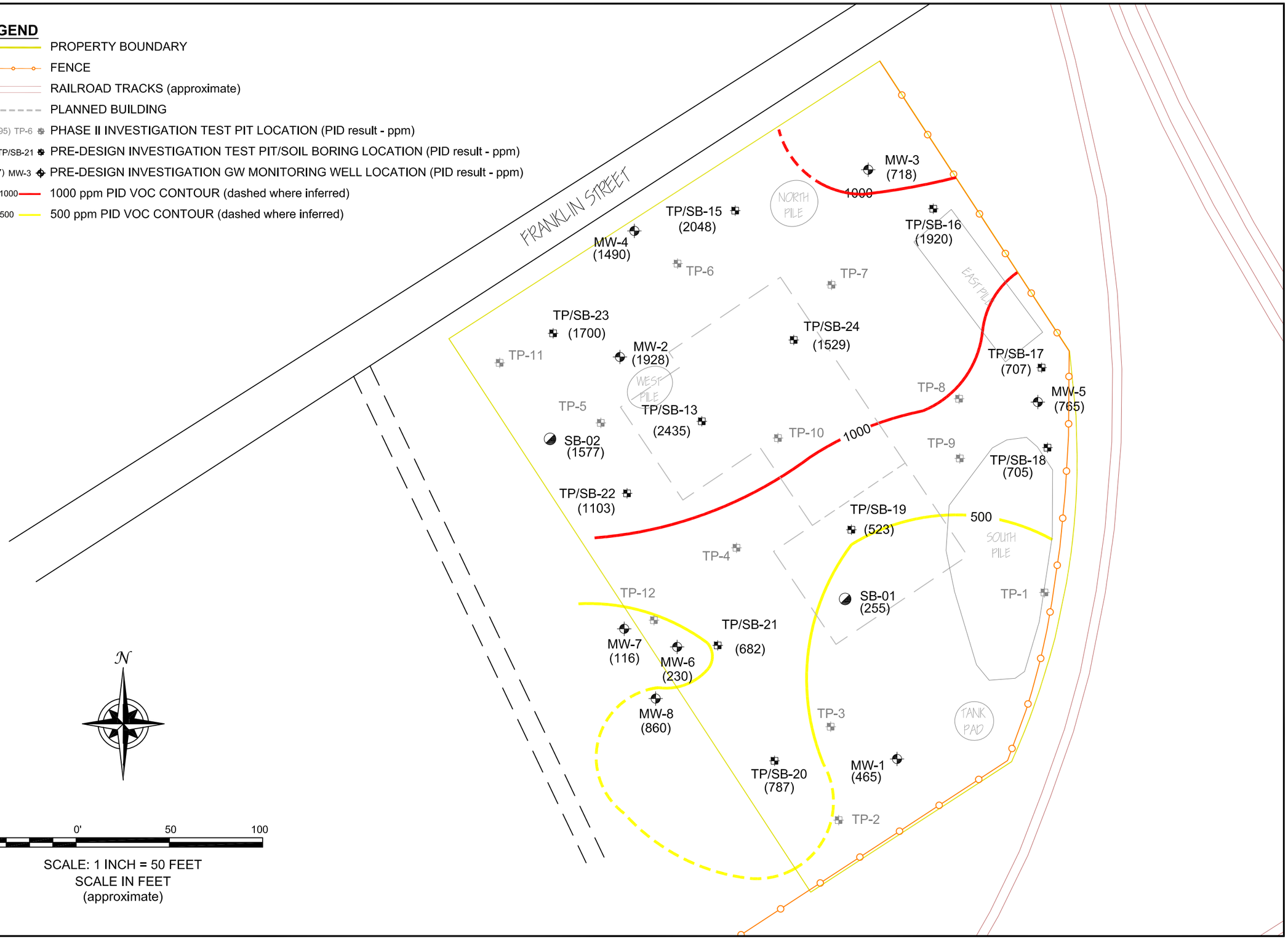
SCOTT ROTARY SEALS SITE
OLEAN, NEW YORK

PREPARED FOR
DST PROPERTIES NY, LLC

**FIGURE 4b**

**LEGEND**

- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS (approximate)
- PLANNED BUILDING
- (1195) TP-6 — PHASE II INVESTIGATION TEST PIT LOCATION (PID result - ppm)
- (103) TP/SB-21 — PRE-DESIGN INVESTIGATION TEST PIT/SOIL BORING LOCATION (PID result - ppm)
- (227) MW-3 — PRE-DESIGN INVESTIGATION GW MONITORING WELL LOCATION (PID result - ppm)
- 1000 — 1000 ppm PID VOC CONTOUR (dashed where inferred)
- 500 — 500 ppm PID VOC CONTOUR (dashed where inferred)

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TurnKey Environmental Restoration, LLC


JOB NO.: 0189-001-105

# QUALITATIVE PID SOIL SCREENING (ELEVATION 1407-1411 FMSL)

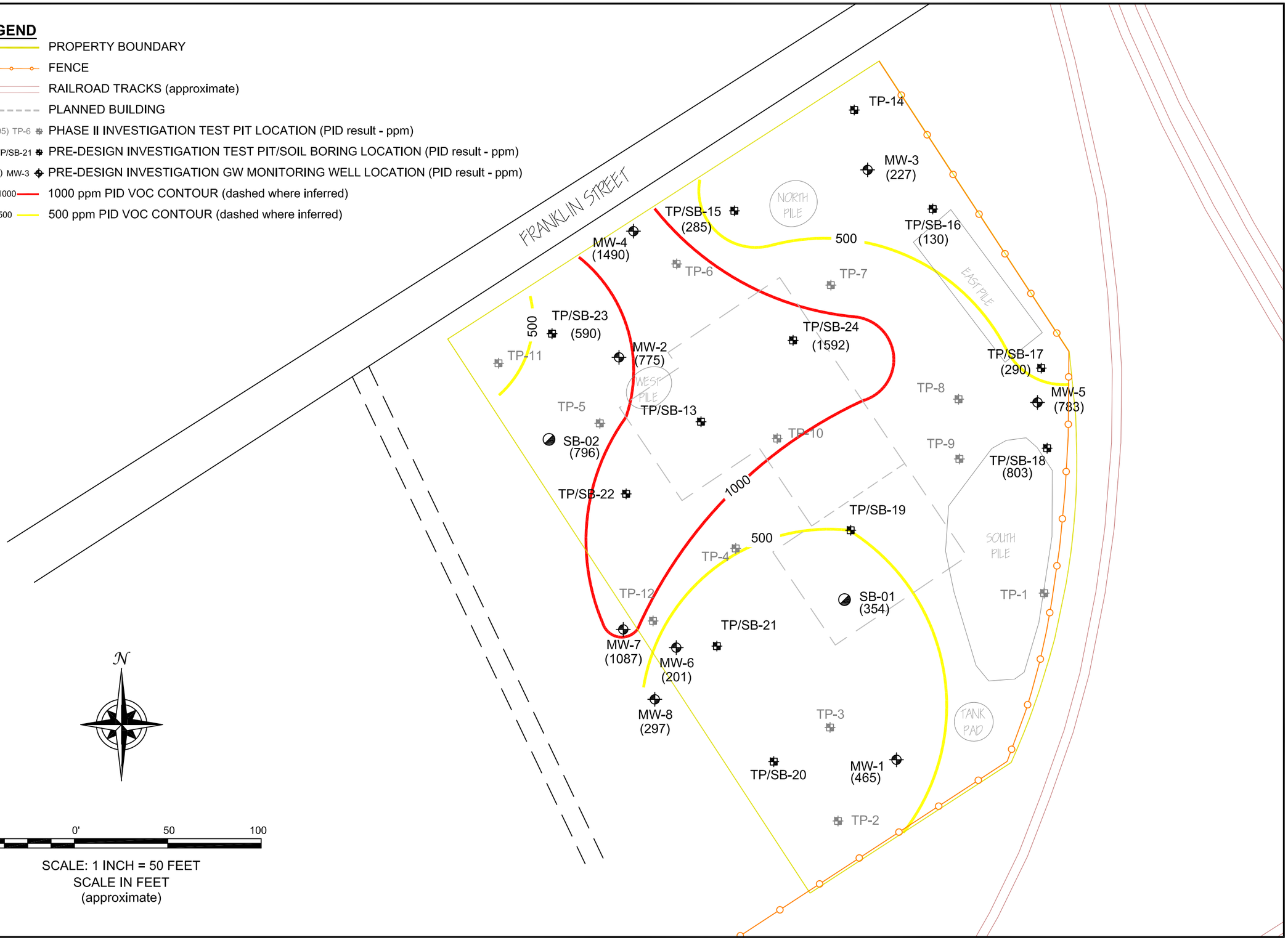
PRE-DESIGN INVESTIGATION REPORT

SCOTT ROTARY SEALS SITE
OLEAN, NEW YORK
PREPARED FOR
DST PROPERTIES NY, LLC

**FIGURE 4c**

**LEGEND**

- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS (approximate)
- PLANNED BUILDING
- (1195) TP-6 — PHASE II INVESTIGATION TEST PIT LOCATION (PID result - ppm)
- (103) TP/SB-21 — PRE-DESIGN INVESTIGATION TEST PIT/SOIL BORING LOCATION (PID result - ppm)
- (227) MW-3 — PRE-DESIGN INVESTIGATION GW MONITORING WELL LOCATION (PID result - ppm)
- 1000 — 1000 ppm PID VOC CONTOUR (dashed where inferred)
- 500 — 500 ppm PID VOC CONTOUR (dashed where inferred)

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TURNKEY ENVIRONMENTAL RESTORATION, LLC

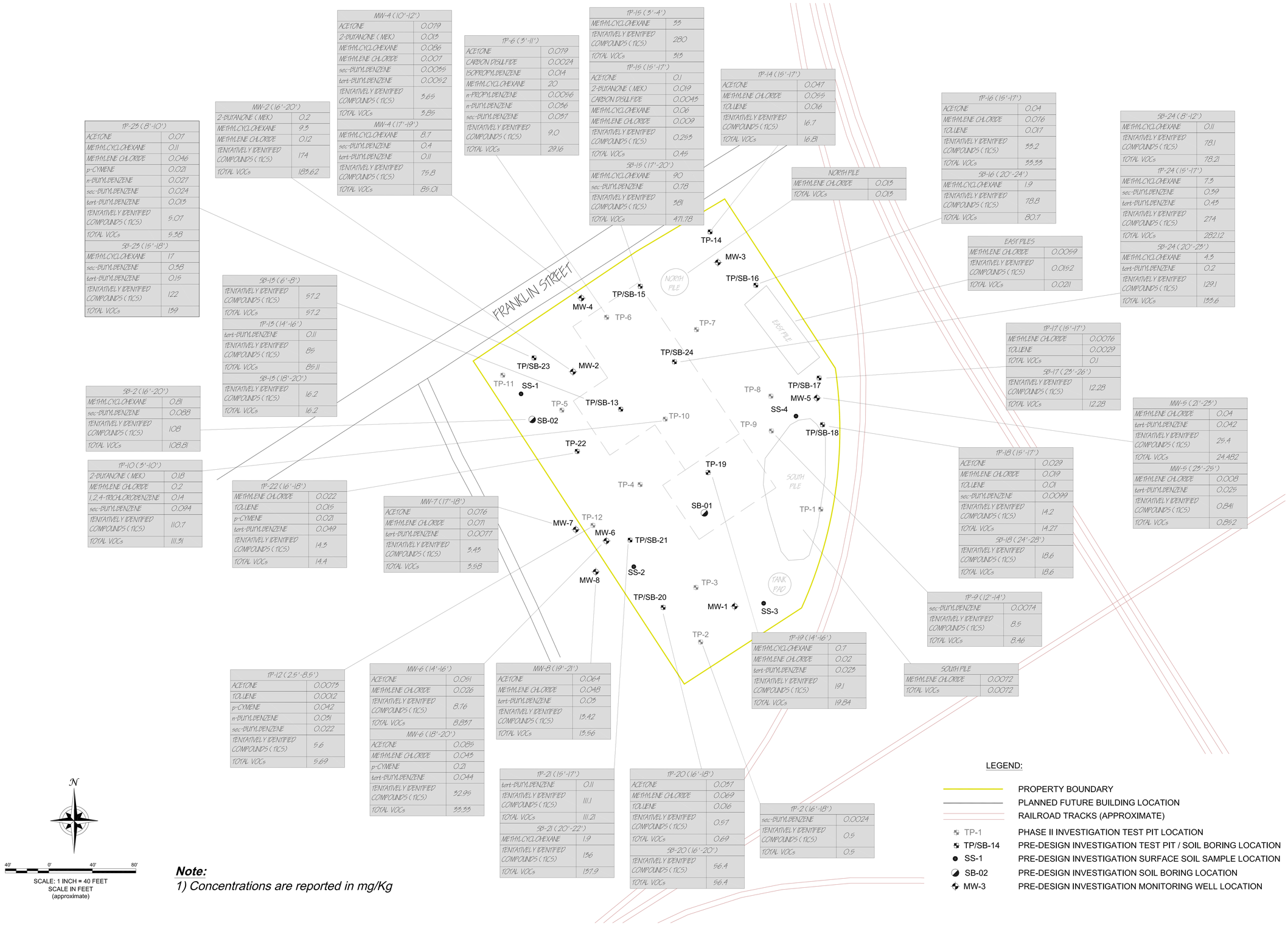
JOB NO.: 0189-001-105

# QUALITATIVE PID SOIL SCREENING (ELEVATION 1402-1406 FMSL)

PRE-DESIGN INVESTIGATION REPORT

SCOTT ROTARY SEALS SITE
OLEAN, NEW YORK
PREPARED FOR
DST PROPERTIES NY, LLC

**FIGURE 4d**




| TP-23 (8'-10') | |
|---|---|
| ACETONE | 0.07 |
| METHYLCYCLOHEXANE | 0.11 |
| METHYLENE CHLORIDE | 0.046 |
| p-CYMENE | 0.021 |
| n-BUTYLBENZENE | 0.027 |
| sec-BUTYLBENZENE | 0.024 |
| tert-BUTYLBENZENE | 0.015 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 5.07 |
| TOTAL VOCs | 5.38 |
| SB-23 (15'-18') | |
| METHYLCYCLOHEXANE | 17 |
| sec-BUTYLBENZENE | 0.38 |
| tert-BUTYLBENZENE | 0.15 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 122 |
| TOTAL VOCs | 139 |

| MW-2 (16'-20') | |
|---|---|
| 2-BUTANONE (MEK) | 0.2 |
| METHYLCYCLOHEXANE | 9.3 |
| METHYLENE CHLORIDE | 0.12 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 174 |
| TOTAL VOCs | 183.62 |

| MW-4 (10'-12') | |
|---|---|
| ACETONE | 0.079 |
| 2-BUTANONE (MEK) | 0.013 |
| METHYLCYCLOHEXANE | 0.086 |
| METHYLENE CHLORIDE | 0.007 |
| sec-BUTYLBENZENE | 0.0035 |
| tert-BUTYLBENZENE | 0.0052 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 3.65 |
| TOTAL VOCs | 3.85 |
| MW-4 (17'-19') | |
| METHYLCYCLOHEXANE | 8.7 |
| sec-BUTYLBENZENE | 0.4 |
| tert-BUTYLBENZENE | 0.11 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 76.8 |
| TOTAL VOCs | 85.01 |

| TP-6 (3'-11') | |
|---|---|
| ACETONE | 0.079 |
| CARBON DISULFIDE | 0.0024 |
| ISOPROPYLBENZENE | 0.014 |
| METHYLCYCLOHEXANE | 20 |
| n-PROPYLBENZENE | 0.0056 |
| n-BUTYLBENZENE | 0.036 |
| sec-BUTYLBENZENE | 0.057 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 9.0 |
| TOTAL VOCs | 29.16 |

| TP-15 (3'-4') | |
|---|---|
| METHYLCYCLOHEXANE | 33 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 280 |
| TOTAL VOCs | 313 |
| TP-15 (15'-17') | |
| ACETONE | 0.1 |
| 2-BUTANONE (MEK) | 0.019 |
| CARBON DISULFIDE | 0.0043 |
| METHYLCYCLOHEXANE | 0.06 |
| METHYLENE CHLORIDE | 0.009 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 0.253 |
| TOTAL VOCs | 0.45 |
| SB-15 (17'-20') | |
| METHYLCYCLOHEXANE | 90 |
| sec-BUTYLBENZENE | 0.78 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 381 |
| TOTAL VOCs | 471.78 |

| TP-14 (15'-17') | |
|---|---|
| ACETONE | 0.047 |
| METHYLENE CHLORIDE | 0.055 |
| TOLUENE | 0.016 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 16.7 |
| TOTAL VOCs | 16.81 |

| NORTH PILE | |
|---|---|
| METHYLENE CHLORIDE | 0.013 |
| TOTAL VOCs | 0.013 |

| TP-16 (15'-17') | |
|---|---|
| ACETONE | 0.04 |
| METHYLENE CHLORIDE | 0.076 |
| TOLUENE | 0.017 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 33.2 |
| TOTAL VOCs | 33.33 |
| SB-16 (20'-24') | |
| METHYLCYCLOHEXANE | 1.9 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 78.8 |
| TOTAL VOCs | 80.7 |

| EAST PILES | |
|---|---|
| METHYLENE CHLORIDE | 0.0059 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 0.0152 |
| TOTAL VOCs | 0.0211 |

| SB-24 (8'-12') | |
|---|---|
| METHYLCYCLOHEXANE | 0.11 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 78.1 |
| TOTAL VOCs | 78.21 |
| TP-24 (15'-17') | |
| METHYLCYCLOHEXANE | 7.3 |
| sec-BUTYLBENZENE | 0.39 |
| tert-BUTYLBENZENE | 0.43 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 274 |
| TOTAL VOCs | 282.12 |
| SB-24 (20'-23') | |
| METHYLCYCLOHEXANE | 4.3 |
| tert-BUTYLBENZENE | 0.2 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 129.1 |
| TOTAL VOCs | 133.6 |

| SB-13 (6'-8') | |
|---|---|
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 57.2 |
| TOTAL VOCs | 57.2 |
| TP-13 (14'-16') | |
| tert-BUTYLBENZENE | 0.11 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 85 |
| TOTAL VOCs | 85.11 |
| SB-13 (18'-20') | |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 16.2 |
| TOTAL VOCs | 16.2 |

| TP-17 (15'-17') | |
|---|---|
| METHYLENE CHLORIDE | 0.0076 |
| TOLUENE | 0.0029 |
| TOTAL VOCs | 0.1 |
| SB-17 (23'-26') | |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 12.28 |
| TOTAL VOCs | 12.28 |

| SB-2 (16'-20') | |
|---|---|
| METHYLCYCLOHEXANE | 0.81 |
| sec-BUTYLBENZENE | 0.088 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 108 |
| TOTAL VOCs | 108.81 |

| MW-5 (21'-23') | |
|---|---|
| METHYLENE CHLORIDE | 0.04 |
| tert-BUTYLBENZENE | 0.042 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 25.4 |
| TOTAL VOCs | 24.482 |
| MW-5 (23'-25') | |
| METHYLENE CHLORIDE | 0.008 |
| tert-BUTYLBENZENE | 0.025 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 0.841 |
| TOTAL VOCs | 0.892 |

| TP-18 (15'-17') | |
|---|---|
| ACETONE | 0.029 |
| METHYLENE CHLORIDE | 0.019 |
| TOLUENE | 0.01 |
| sec-BUTYLBENZENE | 0.0099 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 14.2 |
| TOTAL VOCs | 14.27 |
| SB-18 (24'-28') | |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 18.6 |
| TOTAL VOCs | 18.6 |

| TP-10 (3'-10') | |
|---|---|
| 2-BUTANONE (MEK) | 0.18 |
| METHYLENE CHLORIDE | 0.2 |
| 1,2,4-TRICHLOROBENZENE | 0.14 |
| sec-BUTYLBENZENE | 0.094 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 110.7 |
| TOTAL VOCs | 111.31 |

| TP-22 (16'-18') | |
|---|---|
| METHYLENE CHLORIDE | 0.022 |
| TOLUENE | 0.015 |
| p-CYMENE | 0.021 |
| tert-BUTYLBENZENE | 0.049 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 14.3 |
| TOTAL VOCs | 14.4 |

| MW-7 (17'-18') | |
|---|---|
| ACETONE | 0.076 |
| METHYLENE CHLORIDE | 0.071 |
| tert-BUTYLBENZENE | 0.0077 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 3.43 |
| TOTAL VOCs | 3.58 |

| TP-9 (12'-14') | |
|---|---|
| sec-BUTYLBENZENE | 0.0074 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 8.5 |
| TOTAL VOCs | 8.46 |

| TP-19 (14'-16') | |
|---|---|
| METHYLCYCLOHEXANE | 0.7 |
| METHYLENE CHLORIDE | 0.02 |
| tert-BUTYLBENZENE | 0.023 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 19.1 |
| TOTAL VOCs | 19.84 |

| SOUTH PILE | |
|---|---|
| METHYLENE CHLORIDE | 0.0072 |
| TOTAL VOCs | 0.0072 |

| TP-12 (2.5'-8.5') | |
|---|---|
| ACETONE | 0.0075 |
| TOLUENE | 0.0012 |
| p-CYMENE | 0.042 |
| n-BUTYLBENZENE | 0.051 |
| sec-BUTYLBENZENE | 0.022 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 5.6 |
| TOTAL VOCs | 5.69 |

| MW-6 (14'-16') | |
|---|---|
| ACETONE | 0.051 |
| METHYLENE CHLORIDE | 0.026 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 8.76 |
| TOTAL VOCs | 8.837 |
| MW-6 (18'-20') | |
| ACETONE | 0.085 |
| METHYLENE CHLORIDE | 0.043 |
| p-CYMENE | 0.21 |
| tert-BUTYLBENZENE | 0.044 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 32.95 |
| TOTAL VOCs | 33.33 |

| MW-8 (19'-21') | |
|---|---|
| ACETONE | 0.064 |
| METHYLENE CHLORIDE | 0.048 |
| tert-BUTYLBENZENE | 0.03 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 13.42 |
| TOTAL VOCs | 13.56 |

| TP-21 (15'-17') | |
|---|---|
| tert-BUTYLBENZENE | 0.11 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 111 |
| TOTAL VOCs | 111.21 |
| SB-21 (20'-22') | |
| METHYLCYCLOHEXANE | 1.9 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 136 |
| TOTAL VOCs | 137.9 |

| TP-20 (16'-18') | |
|---|---|
| ACETONE | 0.057 |
| METHYLENE CHLORIDE | 0.069 |
| TOLUENE | 0.016 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 0.57 |
| TOTAL VOCs | 0.69 |
| SB-20 (16'-20') | |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 56.4 |
| TOTAL VOCs | 56.4 |

| TP-2 (16'-18') | |
|---|---|
| sec-BUTYLBENZENE | 0.0024 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICS) | 0.5 |
| TOTAL VOCs | 0.5 |

***Note:***

*1) Concentrations are reported in mg/Kg*

LEGEND:

- PROPERTY BOUNDARY
- PLANNED FUTURE BUILDING LOCATION
- RAILROAD TRACKS (APPROXIMATE)
- TP-1 — PHASE II INVESTIGATION TEST PIT LOCATION
- TP/SB-14 — PRE-DESIGN INVESTIGATION TEST PIT / SOIL BORING LOCATION
- SS-1 — PRE-DESIGN INVESTIGATION SURFACE SOIL SAMPLE LOCATION
- SB-02 — PRE-DESIGN INVESTIGATION SOIL BORING LOCATION
- MW-3 — PRE-DESIGN INVESTIGATION MONITORING WELL LOCATION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JOB NO.: 0189-001-105

REVISIONS

| NO. | BY | DATE | REMARKS |
|---|---|---|---|

SEAL

DRAWN BY: NTM
DATE: JUNE 2011
CHECKED BY: MAL
APPROVED BY: MAL



# VOCs IN SOIL CONCENTRATIONS

PRE-DESIGN INVESTIGATION REPORT
SCOTT ROTARY SEALS SITE
301 FRANKLIN STREET
OLEAN, NEW YORK
PREPARED FOR
DST PROPERTIES NY, LLC

**FIGURE 5**

LEGEND:

- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS (APPROXIMATE)
- MW-2 (664) — MONITORING WELL (Total VOCs Concentration)
- 200 — 200 ug/L TOTAL VOC CONTOUR (dashed where inferred)
- 400 — 400 ug/L TOTAL VOC CONTOUR (dashed where inferred)
- 600 — 600 ug/L TOTAL VOC CONTOUR (dashed where inferred)
- 800 — 800 ug/L TOTAL VOC CONTOUR (dashed where inferred)
- 1000 — 1000 ug/L TOTAL VOC CONTOUR (dashed where inferred)
- 1408 — GROUNDWATER ELEVATION CONTOUR (dashed where inferred)

| MW-4 | |
|---|---|
| CYCLOHEXANE | 3.9 |
| METHYLCYCLOHEXANE | 390 |
| sec-BUTYLBENZENE | 3.2 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICs) | 645 |
| TOTAL VOCs | 1,042 |
| LNAPL (thickness in feet) | 0.01 |

| MW-5 | |
|---|---|
| ACETONE | 3.2 |
| tert-BUTYLBENZENE | 4.3 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICs) | 314 |
| TOTAL VOCs | 322 |

| MW-2 | |
|---|---|
| CYCLOHEXANE | 3 |
| METHYLCYCLOHEXANE | 200 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICs) | 461 |
| TOTAL VOCs | 664 |
| LNAPL (thickness in feet) | 0.01 |

| MW-7 | |
|---|---|
| ACETONE | 6.3 |
| BROMODICHLOROMETHANE | 0.87 |
| 2-BUTANONE (MEK) | 1.7 |
| 1,2-DICHLOROBENZENE | 1.1 |
| METHYLCYCLOHEXANE | 71 |
| tert-BUTYLBENZENE | 2.2 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICs) | 226 |
| TOTAL VOCs | 309 |

| MW-1 | |
|---|---|
| tert-BUTYLBENZENE | 1.4 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICs) | 71.2 |
| TOTAL VOCs | 73 |

| MW-6 | |
|---|---|
| 1,2-DICHLOROBENZENE | 1.1 |
| METHYLCYCLOHEXANE | 7 |
| sec-BUTYLBENZENE | 2.2 |
| tert-BUTYLBENZENE | 2.2 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICs) | 192.3 |
| TOTAL VOCs | 205 |
| LNAPL (thickness in feet) | 0.88 |

| MW-8 | |
|---|---|
| CYCLOHEXANE | 4.5 |
| 1,2-DICHLOROBENZENE | 0.98 |
| METHYLCYCLOHEXANE | 6.2 |
| tert-BUTYLBENZENE | 1.9 |
| TENTATIVELY IDENTIFIED COMPOUNDS (TICs) | 346 |
| TOTAL VOCs | 360 |

FRANKLIN STREET

MW-4 (1042)
MW-3 (ND)
MW-2 (664)
MW-5 (322)
MW-7 (309)
MW-6 (205)
MW-8 (360)
MW-1 (73)

1000
800
600
400
200
1413
1412
1413

60 0' 60 120

SCALE: 1 INCH = 60 FEET
SCALE IN FEET
(approximate)

N

**Notes:**

1.) Concentrations are reported in ug/L.
2.) Analytical data for MW-1 through MW-6 per October 28, 2010 sampling event.
3.) Analytical data for MW-7 and MW-8 per January 17, 2011 sampling event.
4.) Groundwater elevations recorded March 10, 2011.

DATE: JUNE 2011
DRAFTED BY: JCT/NTM

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(716) 856-0635

TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0189-001-105

# GROUNDWATER ELEVATION and VOCs CONCENTRATION CONTOURS

PRE-DESIGN INVESTIGATION REPORT

SCOTT ROTARY SEALS SITE

OLEAN, NEW YORK

PREPARED FOR

DST PROPERTIES NY, LLC

**FIGURE 6**

**LEGEND**

- PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACKS (approximate)
- PLANNED BUILDING
- IRM EXPLORATORY TEST TRENCH LOCATIONS
- IRM SUBSURFACE PIPING LOCATIONS (REMOVED)
- TP-6 PHASE II INVESTIGATION TEST PIT LOCATION
- SB-02 PRE-DESIGN INVESTIGATION SOIL BORING LOCATION
- SS-2 PRE-DESIGN INVESTIGATION SURFACE SOIL LOCATION
- TP/SB-21 PRE-DESIGN INVESTIGATION TEST PIT/SOIL BORING LOCATION
- MW-3 PRE-DESIGN INVESTIGATION GW MONITORING WELL LOCATION

FRANKLIN STREET

TP-14

LINES ENDED AT PROPERTY LINE

TP/SB-15

NORTH PILE

TP/SB-16

TP-6

TP-7

EAST PILE

TP/SB-23

TP/SB-24

TP-11

SS-1

TP/SB-17

WEST PILE III

TP-8

TP-5

TP/SB-13

SS-4

PIPE GROUTED AT PROPERTY LINE (Oily-scale contents)

TP-10

SB-02

TP-9

TP/SB-18

PIPE CAPPED WITH FITTINGS AT PROPERTY LINE (Oily-scale contents)

TP/SB-22

TP-19

SOUTH PILE

TP-4

PIPE GROUTED AT PROPERTY LINE (oil-water mixture contents)

TP-12

SB-01

TP-1

PREVIOUSLY CUT ENDS OF PIPES WERE STICKING THROUGH BERM ON NEIGHBORING PROPERTY AND PULLED OUT

TP/SB-21

SS-2

TP-3

TANK PAD

SS-3

TP/SB-20

TP-2

N

50 0' 50 100

SCALE: 1 INCH = 50 FEET
SCALE IN FEET
(approximate)

DATE: JUNE 2011
DRAFTED BY: NTM

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0189-001-105

# IRM PIPING AND SOIL REMOVAL

PRE-DESIGN INVESTIGATION REPORT
SCOTT ROTARY SEALS SITE
OLEAN, NEW YORK
PREPARED FOR
DST PROPERTIES NY, LLC

**FIGURE 7**