1030 East Dominick Street
Environmental Restoration Project

City of Rome
Oneida County, New York

Alternatives Analysis Report (AAR)

State Assistance Contract No. C303406
New York State Site No. E633064

November 2015

Barton & Loguidice

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I, the undersigned engineer, certify that I am currently a NYS registered professional engineer. This Alternatives Analysis Report was prepared in accordance with all applicable statutes and regulations, and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10). All activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Scott D. Nostrand, P.E.

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Executive Summary

The City of Rome conducted a remedial investigation (RI) in accordance with the New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Program (ERP) at its property located at 1030 East Dominick Street (Site) in the City of Rome, Oneida County, New York. The 0.88 acre property, which is currently owned by the City of Rome, contains an automobile maintenance and repair facility and was historically used as a gasoline station until 1999. The investigation was conducted under the oversight of Barton & Loguidice, D.P.C. (B&L), the NYSDEC, and the New York State Department of Health (NYSDOH). The results of the investigation are summarized in the Draft Remedial Investigation (RI) Report dated August 2012 and the Supplemental Site Investigation Summary prepared by B&L dated June 13, 2014.

Site investigation activities determined the on-site and off-site extent of surface soil, subsurface soil, groundwater, and soil vapor contamination originating from the site. Specifically, two of the on-site surface soil samples reported one or more semi-volatile organic compound (SVOC) parameters in exceedance of the NYDEC Part 375 Restricted-Residential Soil Cleanup Objectives (SCOs). While there were no volatile organic compound (VOC) exceedances of the applicable Part 375 Restricted-Residential SCOs in the analyzed surface soil samples, tentatively identified compounds (TICs) for VOCs were detected in one surface soil sample. Copper levels exceeded the Part 375 Restricted-Residential SCO in one of the surface soil samples, but this parameter was also detected in the method blank.

With regards to the analyzed subsurface soil samples collected at both on-site and off-site soil boring and monitoring well locations, there were no VOCs exceedances of the applicable Part 375 Restricted-Residential SCOs. However, field observations collected with a photoionization detector (PID) recorded VOC readings as high as 1,220 parts per million (ppm) in the on-site soil borings. There was one reported low level exceedance of a SVOC parameter, and both VOC and SVOC TICs were reported for various subsurface soil samples.

Two of the analyzed soil vapor samples exhibited a slight exceedance of the New York State Department of Health (NYSDOH) Air Guideline Value (AGV) for trichloroethene.

The groundwater sampling results exhibited one or more VOC parameter concentration exceedances in the four of the on-site water quality samples as compared to the applicable Part 703.5 Groundwater Standards, as well as the detection of VOC TICs in two of the analyzed groundwater samples. SVOC parameter concentration exceedances of the NYSDEC Part 703.5 Groundwater Standards were reported at three monitoring well locations, in addition to the detection of SVOC TICs at all of the monitoring well locations. The groundwater sampling results exhibited metals parameter concentration exceedances in all of the on-site and off-site monitoring wells as compared to the Part 703.5 Groundwater Standards. However, the metals parameter concentration exceedances are likely attributable to elevated sample turbidity.

As noted above, TICs are reported in several of the analyzed surface soil, subsurface soil, and groundwater samples. Further review of the reported TICs indicate that the TICs primarily consist of hydrocarbons and polycyclic hydrocarbons (PAHs), both groups of which are

associated with petroleum products. Based on the site's history as an automobile maintenance facility, it is probable that the reported TICs are indicative of residual, weathered subsurface petroleum contamination. Similarly, the PID readings and visual evidence of subsurface petroleum contamination observed on-site is likely related to historic petroleum contamination, rather than recent spill events of which there have been none recorded for the site.

The results of the environmental evaluation and qualitative risk assessment suggest that the residual contamination remaining on-site does not represent a significant risk to human health receptors or to the environment (including wildlife) under current conditions. Key considerations to the risk assessment include:

- The presence of a public water supply (there are no on or off-site private supply wells);
- Remaining site contaminants are vertically and horizontally defined.

The results of the ecological evaluation and qualitative risk assessment suggest that the SVOC parameter concentration exceedances reported in surface soil samples, subsurface soil samples, soil vapor samples, and groundwater samples have the potential to pose a threat to human health receptors or impacts on the environment through direct contact (i.e. absorption), inhalation, ingestion, or possible future site development activities (e.g., site construction) with the impacted surface soil, subsurface soil, and groundwater at the site.

Based on the exceedance of one or more SVOC parameters in surface soil samples SS-02 and SS-07, combined with the detection of one or more VOC parameter concentration exceedances in the water quality samples collected from on-site monitoring wells MW-1, MW-4, MW-5, and MW-7, and the detection of slightly elevated concentrations of trichloroethene in soil vapor points SV-3 and SV-5, the vegetated and/or non-paved areas to the east, south, and west of the on-site building structure constitute Area of Concern No. 1 (AOC-1). Remedial alternatives, including the "No Further Action" alternative, were evaluated to address the remedial objectives for the site. One alternative was evaluated that would be fully protective of human health and environment under existing and future hypothetical conditions. The option with the greatest cost-benefit appeal includes the placement of a two-foot thick layer of clean fill material over the entire property limits coupled with monitored natural attenuation. This option also included institutional controls to address hypothetical future exposure scenarios. One additional alternative was evaluated that involved contaminant removal to 15 feet below the ground surface, however, this particular alternative is no more protective of human health and the environment than the installation of the two-foot thick layer of clean fill material across the entire site. The soil excavation option would cost approximately $2,496,708.

A key factor in the analysis of possible remedial alternatives was to determine if the resulting benefit to potential human health exposures and impacts to the environment warranted additional capital expenditures.

The installation of a two-foot thick layer of clean fill material over the AOC-1 area, combined with the development of institutional controls including an environmental easement, Site Management Plan, and monitored natural attenuation (Alternative 2) will be effective in protecting human health and the environment. This approach addresses all current and future hypothetical exposure scenarios.

1.0 Introduction

The City of Rome is the current owner of the 1030 East Dominick Street (Site) property which is located on the south side of East Dominick Street in the City of Rome, Oneida County, New York, and designated on the City of Rome tax map as parcel number 242.069-001-041 (Figure 1). The approximate 0.88-acre property is currently leased to Mr. Michael Burth, who operates an automobile maintenance and repair shop. A single, one-story, concrete block building with a wood-framed mezzanine level is present at the site. East Dominick Street constitutes the immediate northern site boundary of the property, with residences located on the opposite (north) side of East Dominick Street, as well as both sides of Carey Street. Located still farther to the north is the East Rome Business Park, an industrial area that has been the subject of significant remedial efforts. The property is bordered to the south by active railroad tracks and to the west by Tehan's Furniture Warehouse. Bordering the site immediately to the east is single family residence, with a Firestone Auto Center located just to the east of the residence. Additional site history and background detail is provided in the August 2012 Draft RI Report.

Based upon our evaluation of the soil, groundwater, and soil vapor data collected during the performance of the RI, B&L was able to define the vertical and horizontal limits of soil and groundwater contamination at the 0.88-acre parcel and northern limits of the two adjoining off-site properties to the south, and complete a contaminant fate and transport evaluation. Supplemental sampling activities were performed for the purpose of further characterizing and delineating the potential contamination, both on-site and off-site. A total of 8 surface soil samples, 28 soil borings, 8 groundwater monitoring wells, and 6 soil vapor points were installed at the site as part of the RI.

The subsurface investigation revealed some fill and apparent alluvial sand, gravel, and cobble at all of the boring locations. An overall relatively finer-grained lacustrine sand unit with some silt was encountered throughout the site typically at a depth of 12 ft below ground surface (bgs). Groundwater was typically encountered at a depth of 12-16 ft bgs. Bedrock was not encountered during the subsurface investigation.

The site contaminants of concern consist of SVOC-contaminated surface and subsurface soils, VOC and SVOC-contaminated groundwater, and the detection of a single VOC parameter (trichloroethene) in two of the analyzed soil vapor samples at concentrations that slightly exceed the NYSDOH-established Air Guideline Value for trichloroethene.

The results of the groundwater investigation indicate that although there are no surface water bodies at the site, groundwater leaving the site and discharging to down gradient surface water bodies is a viable contaminant transport mechanism. However, since the groundwater does not appear to be significantly impacted, and groundwater contaminant transport is not expected to play a significant role, this transport mechanism does not appear to warrant further evaluation.

1.1 Purpose of Report

This Alternatives Analysis Report (AAR) presents an evaluation of the remedial alternatives to eliminate or mitigate threats to public health and the environment in order to support the selection of a preferred remedy. The alternatives are based upon the findings presented in the August 2012 Draft RI Report and the Supplemental Site Investigation Summary dated June 13, 2014. This AAR has been prepared in accordance with DER-10, 6 NYCRR Part 375, and the Environmental Restoration Program (ERP) Guidelines.

1.1.1 Report Organization

This report is organized into four major sections (including this introduction section), with appropriate subsections within each division. Tables and figures are located following the text, prior to the appendices in the back of the document.

Section 2.0 presents the remedial alternatives evaluation. Within this section, information is presented regarding remedial alternatives as compared to the DER-10 and ERP evaluation criteria. Section 3.0 outlines the cost-benefit analysis for each alternative. References cited are presented in Section 4.0.

1.2 Site Background

1.2.1 Site Description

Detailed site background information, including site history and previous site investigation data, is provided as part of the August 2012 Draft RI Report. The 1030 East Dominick Street site, which is located on the south side of East Dominick Street opposite Carey Street, was historically used as a gasoline station until 1999. The property is currently leased to Mr. Michael Burth, who operates an automobile maintenance and repair shop at the site.

A single, one-story, concrete block building with a wood-framed mezzanine level is present at the site. The on-site structure is 2,200 square feet in size and contains a slab-on-grade foundation. The walls on the first floor are comprised of concrete blocks, while the mezzanine level consists of wood framing and wood siding. According to information presented in a limited Phase I Environmental Site Assessment (ESA) prepared by Buck Engineering in 2002, the western half of the building was constructed in 1953, and the eastern half was subsequently added in the early 1990s. The west side of the building is heated with a natural-gas-fired, forced air furnace, while a kerosene furnace is used to heat the eastern portion of the building. The inside of the building contains four auto service bays along with two floor drains. The Limited Phase I ESA report indicates that the floor drains are not equipped with an oil water separator and reportedly discharge to the municipal sewer system. However, Mr. Burth reported to B&L during a telephone conversation in May 2010 that the two drains are connected to one another, but that he doesn't know if the drains discharge into the sanitary sewer or a dry well. Mr. Burth indicated that the drains are right in line with where the sanitary sewer enters the bathroom on the west side of the building. However, Mr. Burth informed B&L that sometime around 2006 he "capped" the drains at the request of the City. Specifically, Mr. Burth stated that he filled the two floor drains in with dirt and stone, and then covered them with concrete.

The general topography over most of the site is generally flat, with a gentle slope to the north. A steep slope exists along the southern portion of the site, where the general site grade slopes down to the grade of the adjoining railroad property and properties further to the south, which slope gently to the south toward the Erie Canal. It is apparent that the majority of the site has been raised with historic fill material. According to the site survey by Cornerstone Land Surveying in 2008, there is an approximate 2-foot change in grade across the site, with the exception of the eastern end of the site where the grade change is 5 feet.

1.2.2 Current and Intended Use

The site is currently zoned E3-industrial, and an auto repair garage is a permitted use. The site is presently occupied by a single structure. The surrounding parcels are mixed commercial, residential, and industrial. East Dominick Street constitutes the immediate northern site boundary of the property, with residences located on the opposite (north) side of East Dominick Street, as well as both sides of Carey Street. Located still farther to the north is the East Rome Business Park, an industrial area that has been the subject of significant remedial efforts. The property is bordered to the south by active railroad tracks and to the west by Tehan's Furniture Warehouse. Bordering the site immediately to the east is single family residence, with a Firestone Auto Center located just to the east of the residence. The intended future use of the site is industrial.

2.0 Remedial Alternatives Evaluation

2.1 Remedial Goals

The remedial goal is to evaluate options and select a remedy to eliminate or mitigate threats to public health and the environment that upon successful implementation will allow the NYSDEC to issue a Certificate of Completion (COC) for the ERP site. This evaluation must take into account the potential exposure pathways under current and potential future conditions. The NYSDEC has identified a hierarchy of remedial goals in 6 NYCRR Part 375-1.8 (c) (1) as follows, ranked from most preferable to least preferable:

1. Removal and/or treatment. All sources, concentrated solid or semi-solid hazardous substances, dense non-aqueous phase liquid, light non-aqueous phase liquid and/or grossly contaminated media shall be removed and/or treated; provided however, if the removal and/or treatment of all such contamination is not feasible, such contamination shall be removed or treated to the greatest extent feasible.

2. Containment. Any source remaining following removal and/or treatment shall be contained; provided however, if full containment is not feasible, such source shall be contained to the greatest extent feasible.

3. Elimination of exposure. Exposure to any source remaining following removal, treatment and/or containment shall be eliminated through additional measures, including but not limited to, as applicable, the timely and sustained provision of alternative water supplies and the elimination of volatilization into buildings; provided however, if such elimination is not feasible such exposure shall be eliminated to the greatest extent feasible.

4. Treatment of source at the point of exposure. Treatment of the exposure resulting from a source of environmental contamination at the point of exposure, as applicable, including but not limited to, wellhead treatment or the management of volatile contamination within buildings, shall be considered as a measure of last resort.

As outlined in the Draft RI Report Baseline Risk Assessment, due to the presence of SVOCs in surface and subsurface soil samples, trichloroethene in soil vapor samples SV-3 and SV-5, and VOCs and/or SVOCs in groundwater samples, the potential absorption, inhalation, and ingestion pathways at the site are complete. In addition, exposure pathways exist with regards to possible future events (e.g., site construction) that could directly expose potential site workers to the residual contaminants.

2.2 Remedial Action Objectives

The final remedial measures for the site must satisfy Remedial Action Objectives (RAOs), which are site-specific statements that convey the goals for minimizing or eliminating substantial risks to public health and the environment.

The RAO's for the site were identified in the Draft RI Report and include:

1. Develop site management practices to address exposure pathways associated with hypothetical potential future site work (VOCs and SVOCs).

With an understanding of the NYSDEC's hierarchy of remedial goals as outlined in Section 2.1 above, the RAO's for the two identified AOCs will be evaluated against the following criteria:

1. 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.

2. Compliance with Standards, Criteria, and Guidance (SCGs) - Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance. The NYSDEC standard utilized for comparison of alternatives is the Part 375 Soil Cleanup Objectives (SCOs) for Unrestricted Use.

3. Long-Term Effectiveness and Permanence - This criterion evaluates the long-term effectiveness of the remedy after implementation. It is anticipated that residual contamination will remain on-site after the selected remedy has been implemented. This evaluation, therefore, will assess the impact of the remaining contamination on human exposures, ecological receptors and impacts to the environment. The use of institutional and/or engineering controls will be considered as part of this evaluation.

4. Reduction of Toxicity, Mobility or Volume - This criterion is an evaluation of the ability of an alternative or remedy to reduce the toxicity, mobility and volume of site contamination.

5. Short-term impact and effectiveness - This criterion is an evaluation of the potential short-term adverse environmental impacts and human exposures during the construction and/or implementation of an alternative or remedy. Considerations include the potential for human exposures, adverse environmental impacts and nuisance conditions at the site resulting from the implementation of the remedy or alternative. Short term impacts include potential exposures resulting from increased traffic, detours or loss of the use of access to property; odors; vapors; dust; habitat disturbance; run off from the site, and noise. The length of the short-term impacts will be identified for each alternative.

6. Implementability. This criterion is an evaluation of the technical and administrative feasibility of implementing an alternative or remedy. Technical feasibility includes the difficulties associated with construction and the ability to monitor the effectiveness of an alternative or remedy. Administrative feasibility includes the availability of the necessary personnel and material; potential difficulties in obtaining specific operating approvals; access for construction and other concerns.

7. Cost effectiveness - This criterion is an evaluation of the overall cost effectiveness of an alternative or remedy. A remedy is cost effective if its costs are proportional to its overall effectiveness. To evaluate cost effectiveness:

a. the overall effectiveness of an alternative or remedy is determined;

b. a comparison of the overall effectiveness is then made to the cost of the alternative or remedy; and

c. an assessment is made as to whether the cost is proportional to the overall effectiveness, to determine whether it is cost effective.

8. Land use - This criterion is an evaluation of the current, intended and reasonably anticipated future use of the site and its surroundings, as it relates to an alternative or remedy, when unrestricted levels would not be achieved.

9. Community acceptance - This criterion is evaluated after the public review of the remedy selection process as part of the final NYSDEC selection/approval of a remedy for a site. Any public comment relative to these criteria will be considered by NYSDEC after the close of the public comment period.

In addition to the evaluation of alternatives to remediate to the likely end use of the Site, NYSDEC regulation and policy require an evaluation of an unrestricted use scenario. The evaluation of a "no-action" and "no further remedial action" alternatives are also required to provide a baseline for comparison against other alternatives.

2.3 General Response Actions

The following section discusses the general response actions that may be utilized within each media of interest in order to achieve the remedial objectives described above.

2.3.1 Remaining Surface Soil Impacts

A total of eight surface soil samples were collected at the 1030 East Dominick Street site. Specifically, four surface soil samples were collected from the site on November 11, 2009 in accordance with the NYSDEC-approved Site Investigation Work Plan, while four additional surface soil samples were collected on May 15, 2014 as part of a supplemental site investigation. The surface soil samples were collected in the vegetated areas to the south, southwest, and southeast of the on-site building structure, as depicted on Figure 2.

While all eight of the surface soil samples (SS-01 through SS-08) were analyzed for the presence of SVOCs, only four of the surface soil samples were also analyzed for the presence of VOCs, PCBs, and TAL metals.

Surface soil samples SS-01, SS-02, SS-03, and SS-04 were analyzed for the presence of VOCs by EPA Method 8260. There were no VOCs exceedances of the applicable Part 375 Unrestricted Use SCOs. However, the VOCs laboratory analyses also reported the concentration of tentatively identified compounds (TICs), if present. The total detected concentration of VOC TICs for surface soil sample SS-01 was 14 micrograms per kilogram (µg/kg). There were no VOC TICs detected in the other surface soil samples.

As indicated in Tables 1 below, surface soil samples SS-02 exceeded the applicable Part 375 Unrestricted Use SCOs for the following SVOC parameters:

- 4-Methylphenol,
- Benzo(a)anthracene,
- Benzo(a)pyrene,
- Benzo(b)fluoranthene,
- Benzo(k)fluoranthene,
- Chrysene,
- Indeno(1,2,3-cd)pyrene.

Table 1. Surface Soil Sample Exceedances: SVOCs (EPA Method 8270)
Area of Concern 1

Parameter	NYSDEC Part 375 Unrestricted Use SCOs (µg/kg)	NYSDEC Part 375 Restricted Residential Use SCOs (µg/kg)	1030ED-SS-07 (ppb)	1030ED-SS-02 (ppb)
4-Methylphenol	330		-	**1100 U,UJ**
Benzo(a)anthracene	1000	1000	-	**6100 J**
Benzo(a)pyrene	1000	1000	-	**5400 J**
Benzo(b)fluoranthene	1000	1000	-	**5700 J**
Benzo(k)fluoranthene	800	3900	-	**2000 J**
Chrysene	1000	3900	-	**6200 J**
Indeno(1,2,3-cd)pyrene	500	500	**1400 J**	**3000 J**

Notes:

Items in bold exceed NYSDEC Part 375 Unrestricted Use SCOs.

Qualifiers:

- Analyte Concentration does not Exceed SCO
U – Analyte was undetected.
J – Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. Concentrations within this range are estimated.

There were no TICs detected in the surface soil SVOCs analyses.

Surface soil samples SS-01, SS-02, SS-03, and SS-04 were analyzed for target analyte list (TAL) of metals (EPA Method 6010B). Surface soil samples SS-01, SS-02, SS-03, and SS-04 had one or more of the following at concentrations above their respective Unrestricted Use SCO:

- Chromium,
- Copper,
- Lead,
- Total Mercury,
- Zinc.

Table 2. Surface Soil Sample Exceedances: Metals (EPA Method 6010B)
Area of Concern 1

Parameter	NYSDEC Part 375 Unrestricted Use SCOs (mg/kg)	NYSDEC Part 375 Restricted Residential Use SCOs (mg/kg)	1030ED-SS-01 (ppm)	1030ED-SS-02 (ppm)	1030ED-SS-03 (ppm)	1030ED-SS-04 (ppm)
Chromium	1	110	**11.8**	**11.6**	**12.9**	**12.9**
Copper	50	270	**77.2 B**	**342 B**	**142 B**	**193 B**
Lead	63	4000	**-**	**157 J**	**72.6 J**	**241 J**
Total Mercury	0.18	0.81	-	-	-	**0.264 J,UJ**
Zinc	109	10000	**154 B,J**	**215 B,J**	**126 B,J**	**251 B,J**

Notes:

Items in bold exceed NYSDEC Part 375 Unrestricted Use SCOs.

Qualifiers:

B – Analyte was detected in the associated Method Blank.
U – Analyte was undetected.
J – Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. Concentrations within this range are estimated

The PCBs analyses of SS-01, SS-02, SS-03, and SS-04 revealed detectable concentrations of PCBs in each of the analyzed surface soil samples; however, total detected PCBs concentrations were below the NYSDEC Part 375 Unrestricted Use SCO. Total detected PCBs concentrations ranged from 21 µg/kg at surface soil sample SS-03, to 56 µg/kg at surface soil sample SS-02 (compared to applicable SCO of 100 µg/kg).

Based on the exceedance of one or more SVOC parameters in surface soil samples SS-02 and SS-07, and the presence of elevated metals parameters in surface soil samples SS-01, SS-02, SS-03, and SS-04, the vegetated and/or non-paved areas to the east, south, and west of the on-site building structure constitute Area of Concern No. 1 (AOC-1). The estimated area and volume of impacted soil for AOC-1 is presented in the following table:

Table 3. Approximate Area of Metals and SVOC-Impacted Surface Soil

AOC	Surface Area (ft^2)	Impacted Depth (fbg)	Soil Volume (ft^3)	Soil Volume (cy)
1 (non-paved area of the site)	30,000	2.0 ft	60,000	2,222

2.3.2 Remaining Subsurface Soil Impacts

Twenty subsurface soil samples (including a blind duplicate sample) were collected as part of the initial site investigation performed on November 11-19, 2009. The soil samples were analyzed for the presence of VOCs, SVOCs, PCBs, and metals. An additional eight subsurface soil samples (designated as SB-14 through SB-21) were collected as part of the supplemental site

investigation conducted on May 14-15, 2010. The subsurface soil samples collected from the seven on-site borings were submitted for the analysis of VOCs and SVOCs, while the subsurface soil sample collected from the sole off-site boring (SB-21) was analyzed for the presence of VOCs, SVOCs, PCBs, and metals. The soil boring locations are depicted on Figure 2.

All 28 subsurface soil samples were analyzed for the presence of VOCs by EPA Method 8260. There were five VOC exceedances of the applicable Part 375 Unrestricted Use SCOs. The VOCs analyses also reported TICs when detected. The total detected VOC TICs concentrations ranged from 11.4 µg/kg in the subsurface soil sample collected from the MW-02 soil boring, to a concentration of 313,000 µg/kg at the MW-04 soil boring.

As indicated in Table 4 below, subsurface soil samples SB-4, SB-5, SB-18, and MW-04 exceeded the applicable Part 375 Unrestricted Use SCOs for the following VOC parameters:

- 2-Butanone,
- Acetone,
- Benzo(b)fluoranthene,
- Ethylbenzene,
- Xylene.

Table 4. Subsurface Soil Sample Exceedances: VOCs (EPA Method 8260)
Area of Concern 1

Parameter	NYSDEC Part 375 Unrestricted Use SCOs (µg/kg)	NYSDEC Part 375 Restricted Residential Use SCOs (µg/kg)	1030ED-SB-04 (12-17)	1030ED-SB-05 (12-16.8)	1030ED-SB-18	1030ED-MW-04 (13-15)
2-Butanone	120	100000	-	-	-	**470 U,UJ**
Acetone	50	100000	**120 J,UJ**	-	-	**470 U,UJ**
Benzo(b)fluoranthene	1000	1000	**-**	**-**	-	**-**
Ethylbenzene	1000	1000	-	-	**1100**	**2100**
Xylene	260	100000	**2500 E**	**1500 E**	-	**11000**

Notes:

Items in bold exceed NYSDEC Part 375 Unrestricted Use SCOs.

Qualifiers:
U – Analyte was undetected.
E - Concentration exceeds the calibration range and therefore result is semi-quantitative.
J – Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. Concentrations within this range are estimated

All 28 subsurface soil samples were analyzed for the presence of SVOCs by EPA Method 8270. There was one SVOC exceedance of the applicable Part 375 Unrestricted Use SCOs in 5 of the 28 samples. The SVOC analyses also reported TICs when detected. The total detected SVOC TICs concentrations ranged from 170 µg/kg in the subsurface soil sample collected from the MW-06 soil boring, to a concentration of 121,500 µg/kg at the SB-05 soil boring.

As indicated in Table 5 below, subsurface soil samples SB-05, SB-08, MW-02, and MW-04 exceeded the applicable Part 375 Unrestricted Use SCOs for the following SVOC parameters:

- 4-Methylphenol

Table 5. Subsurface Soil Sample Exceedances: SVOCs (EPA Method 8270)
Area of Concern 1

Parameter	NYSDEC Part 375 Unrestricted Use SCOs (µg/kg)	NYSDEC Part 375 Restricted Residential Use SCOs (µg/kg)	1030ED-SB-05 (12-16.8)	1030ED-SB-08 (14.5-17.7)	1030ED-SB-08 (22.5-26.5)	1030ED-MW-02 (8-13.9)	1030ED-MW-04 (13-15)
4-Methylphenol	330	100000	**360 U,UJ**	**360 U,UJ**	**360 U,UJ**	**1900 U,UJ**	**1800 U,UJ**

Notes:

Items in bold exceed NYSDEC Part 375 Unrestricted Use SCOs.

Qualifiers:

U – Analyte was undetected.
J – Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Detection Limit. Concentrations within this range are estimated

All 28 subsurface soil samples were analyzed for the target analyte list (TAL) of metals using EPA Method 6010B. Subsurface soil samples SB-01 through SB-10, SB-12, and MW-01 through MW-06 all had reported concentrations of Chromium that exceeded the established Unrestricted Use SCO of 1.0 mg/kg for hexavalent Chromium. Specifically, as noted on Figure 2, the detected Chromium concentrations for these samples ranged from 5.92 mg/kg (SB-02) to 22.5 mg/kg (MW-06). In addition, subsurface soil samples SB-07, SB-09, and MW-05 had reported Copper concentrations that barely exceeded the Unrestricted Use SCO of 50 mg/kg for Copper. Specifically, the reported Copper concentrations ranged from 54.3 mg/kg (SB-09) to 57.3 mg/kg, as depicted on Figure 2.

The PCBs analyses revealed detectable concentrations of PCBs in four of the analyzed subsurface soil samples. However, with the exception of subsurface soil SB-05, the total detected PCBs concentrations were below the NYSDEC Part 375 Unrestricted Use SCO value of 100 µg/kg. As indicated in Table 6 below, total PCBs were reported at a concentration of 259 µg/kg at SB-05.

Table 6. Subsurface Soil Sample Exceedances: PCBs (EPA Method 6010B) Area of Concern 1		
Parameter	**NYSDEC Part 375 Unrestricted Use SCOs (µg/kg)**	**1030ED-SB-05 (12-16.8)**
Aroclor 1242	-	130
Aroclor 1248	-	98
Aroclor 1260	-	31
Total Detectable	**100**	**259**

Notes:

Items in bold exceed NYSDEC Part 375 Unrestricted Use SCOs.

The following table summarizes the vertical extent of observed contamination and the peak PID readings noted during the installation of the soil borings.

Table 7. Subsurface Soil Sample Exceedances: Peak PID Readings – Area of Concern 1				
Onsite/Offsite Location	**Soil Boring ID**	**Observed Contamination**	**Peak PID Reading (ppm)**	**Depth of Impacts (Feet bgs)**
Onsite	SB-01	Minor staining; slight odor	3.4	4’
Onsite	SB-02	Minor staining; slight fuel odor	7.9	0’-4’
Onsite	SB-03	Minor staining; no odor	0.8	0’-2’ and 4’-5’
Onsite	SB-04	Staining; slight to strong odor	1,160	0-8 and 12.5’-18.6’
Onsite	SB-05	Staining; strong odor	793	12-22’
Onsite	SB-06	None noted.	1.4	-
Onsite	SB-07	Minor black staining	1.1	0’-4’
Onsite	SB-08	Staining; moderate odor.	227	0'-4' and 14'-19'
Onsite	SB-09	Minor staining.	6	2'-9.5'
Onsite	SB-10	Minor staining	2.1	0’-4’
Onsite	SB-12	Minor staining.	3.5	8'-14'
Onsite	SB-13	Moderate odor and staining	15.9	14'-16'
Onsite	SB-14	Moderate odor	249	15'-18'
Onsite	SB-15	None noted.	0.0	-
Onsite	SB-16	Staining; odor; sheen.	408	15'-16'
Onsite	SB-17	Moderate odor	351	14'-16'
Onsite	SB-18	None noted.	0.2	-
Onsite	SB-19	Slight odor	71.1	14'-15'
Onsite	SB-20	None noted.	0.0	-
Offsite	SB-21	None noted	0.2	-
Onsite	MW-01	Stained; slight odor.	538	0'-8' and 12'-21'
Onsite	MW-02	Minor staining; odor.	4	3'-5' and 12'-14.5'

Table 7. Subsurface Soil Sample Exceedances: Peak PID Readings – Area of Concern 1				
Onsite/Offsite Location	**Soil Boring ID**	**Observed Contamination**	**Peak PID Reading (ppm)**	**Depth of Impacts (Feet bgs)**
Onsite	MW-03	Staining	0.1	12'-16'
Onsite	MW-04	Staining; odor; possible sheen.	1,220	13'-15'
Onsite	MW-05	None noted	1.7	-
Onsite	MW-06	Minor Staining	2.5	0'-4'
Onsite	MW-07[1]	Strong odor.	720	15'-16'
Offsite	MW-08[1]	Minor staining; odor.	24.7	10'-11.5' and 15'-16.5'
* Note: SB-11 does not exist				
1. Soil from boring not collected or sampled.				

Based on the information presented in Tables 4 through 7 above, the subsurface soil samples that were collected to the east, west, and south of the on-site building structure exhibit some degree of petroleum contamination. Therefore, Area of Concern No. 1 (AOC-1) also encompasses the subsurface soils down to a depth of 15 feet below the ground surface. The estimated area and volume of impacted subsurface soil in AOC-1 is presented in the following table:

Table 8. Approximate Area of Petroleum-Impacted Subsurface Soil				
AOC	**Surface Area (ft^2)**	**Impacted Depth (fbg)**	**Soil Volume (ft^3)**	**Soil Volume (cy)**
1	30,000	15 ft.	450,000	16,667

2.3.3 Remaining Soil Vapor Impacts

Of the five on-site soil vapor monitoring points, two points (SV-3 and SV-5) exhibited a slight exceedance of the NYSDOH Air Guideline Value (AGV) for trichloroethene. Several low-level detections of various chlorinated and organic compounds were reported among the on-site soil vapor data. Total VOC detections among the on-site soil vapor points ranged from 123 ug/m3 at SV-1 to 1209 ug/m3 at SV-5. Off-site soil vapor monitoring point SV-6 did not exhibit any exceedances of the applicable AGVs. Similar to the on-site soil vapor points, several low-level detections of chlorinated and organic compounds were reported. The total concentration of VOCs detected in SV-6 was 494 ug/m3.

As noted on Figure 2, soil vapor monitoring points SV-3 and SV-5 are both located downgradient of the existing on-site building structure at distances of greater than 30 feet. The on-site building structure does not contain a basement. In addition, there are no building structures located downgradient of SV-3 and SV-5, and off-site soil vapor monitoring point SV-6, which is located further downgradient to the south of the Con-Rail railroad tracks, did not exhibit any exceedances of the applicable AGVs. Therefore, given the lack of building structures located downgradient of SV-3 and SV-5, the presence of trichloroethene at concentrations that barely exceeded the established AGV does not pose a significant concern with regards to the potential for soil vapor migration and intrusion into on-site or adjacent off-site building structures. Furthermore, soil vapor monitoring points SV-3 and SV-5 are located

within the limits of AOC-1, and therefore the remedial alternative that is selected to address the presence of contaminated surface soil, subsurface soil, and groundwater in AOC-1 will also address the aforementioned soil vapor impacts.

2.3.4 Remaining Groundwater Impacts

Groundwater samples were collected from the five of the six originally installed on-site monitoring wells (designated as MW-01 through MW-06) on February 23, 2010, and a summary of the monitoring well data is provided in the Draft RI Report dated August 2012. The flush-mounted protective steel casing at monitoring well location MW-06 was damaged by a snowplow shortly after installation, thereby compromising the integrity of this monitoring well. As a result, no groundwater sample was ever collected from monitoring well MW-6. Additional groundwater samples were collected from on-site monitoring well MW-07 and off-site monitoring well MW-08 on May 22, 2014. The monitoring well locations are depicted on Figure 3.

The seven collected groundwater samples were analyzed for the presence of VOCs by EPA Method 8260, SVOCs by EPA Method 8270, metals by EPA Method 6010B, and PCBs by EPA Method 8080. Widespread detections and frequent exceedances of the NYSDEC Part 703 Groundwater Standards were reported for several metals parameters, as summarized below. However, it is believed that the metals parameter exceedances are largely due to sediment-bound particles suspended in the procured groundwater samples, as evidenced by the elevated turbidity levels of the groundwater samples. PCBs were not detected in any of the groundwater samples collected at the Site.

As noted in Table 9 below, VOC parameter concentration exceedances of the NYSDEC Part 703 Groundwater Standards were reported as follows:

Table 9. Groundwater Sample Exceedances: VOCs (EPA Method 8260)
Area of Concern 2

Parameter	Part 703.5 Criteria (µg/l)	MW-1	MW-4	MW-5	MW-7
Ethylbenzene	5	-	**94**	-	**130**
Isopropylbenzene	5	-	**32**	-	**60**
Toluene	5	-	**5.2**	-	-
Trichloroethene	5	**11**		**10**	**-**
Xylene	5	-	**550 E**	-	**770**

Notes:

Items in bold exceed NYSDEC Part 703.5 Criteria.

- Not Detected

Qualifiers:

E - Concentration exceeds the calibration range and therefore result is semi-quantitative.

The VOCs analyses reported the presence of TICs, when detected. A total detected TICs concentration for the VOCs analysis of 65.3 µg/l was reported for the MW-1, 3,810 µg/l for MW-4, and 4,710 µg/l for MW-4RE groundwater sample results.

As noted in Table 10 below, SVOC parameter concentration exceedances of the NYSDEC Part 703 Groundwater Standards were reported as follows:

Table 10. Groundwater Sample Exceedances: SVOCs (EPA Method 8270)
Area of Concern 2

Parameter	Part 703.5 Criteria µg/l	MW-4	MW-5	MW-7
4-Nitroaniline	5	-	**6.7 J**	
Benzo(a)anthracene	0.002	**0.7 J**	-	-
bis(2-Ethylhexyl)phthalate	5	**9.6 J**	-	-
Chrysene	0.002	**0.57 J**	-	-
Naphthalene	10	**61**	-	**97**

Notes:

Items in bold exceed NYSDEC Part 703.5 Criteria.

- Not Detected

Qualifiers:

J – Concentration is estimated.

The SVOCs analyses reported the presence of TICs, when detected. SVOC TICs were detected at all monitoring well locations, with the total detectable concentration of TICs ranging from 449.2 µg/l at MW-5, to 2,575 µg/l at MW-4.

As indicated in Table 11 below, there were widespread detections and frequent exceedances of metals parameters as compared to the NYSDEC Part 703 Groundwater Standards. However, given the elevated sample turbidity that was observed at each of the monitoring well locations, it is likely that the metals parameter exceedances are largely due to sediment-bound particles suspended in the analyzed groundwater samples. However, there are no private water supply wells serving nearby residents (residents are on the City's public water supply), and as such, there are no complete exposure pathways for the ingestion of groundwater from the site.

Table 11. Groundwater Sample Exceedances: Metals Parameters (EPA Method 6010B) Area of Concern 2

Parameter	Part 703.5 Criteria µg/l	MW-1	MW-2	MW-3	MW-4	MW-5	MW-8 (off-site)
Arsenic	0.025	**0.0307**	**0.0281**	**0.0725**	-	**0.0568**	**-**
Chromium	0.05	**0.0737**	-	-	-	**0.0921**	**-**
Copper	0.2	-	-	**0.218**	-	**0.27**	**-**
Iron	-	**69.9**	**58.7**	**124**	**28.6**	**120**	**37.8**
Lead	-	**0.0348**	-	**0.0712**	**0.0354**	**0.0675**	**0.027**
Magnesium	-	**36**	**36.6**	-	-	**50.3**	**35.2**
Manganese	-	**4.36**	**3.12**	**8.13**	**3.07**	**10.5**	**2.7**
Nickel	0.1	-	-	-	-	**0.103**	**-**
Sodium	20	**217**	**113**	**172**	**158**	**82.1**	**193**

Notes:
Items in bold exceed NYSDEC Part 703.5 Criteria.
- Not Detected

2.3.5 General Response Actions and Treatment Technologies

2.3.5.1 Soil

Capping – The placement of a "cap" above an area of contaminated soil is a remedial method to contain and limit contact with the soil. A cap can be constructed of soil, asphalt pavement, clay, or a geomembrane synthetic. Depending on the material of construction, the cap may shed or limit water infiltration into the area of concern. For the project site, a cap may be an effective remedial option that can achieve a remedial objective of limiting a contaminant exposure pathway.

Monitored Natural Attenuation – Monitored natural attenuation (MNA) relies on dilution, adsorption, dispersion, and other naturally-occurring processes to reduce the contaminant load in the soil. This strategy is a remedial alternative that implements a periodic sampling and analysis plan to monitor the areas of contamination for a reduction of contaminant loading by natural processes. MNA requires prior delineation of the boundaries of the area of concern. Costs associated with delineating the boundaries of concern consist of additional subsurface investigation, including drilling, sampling, and laboratory costs. The costs associated with MNA include the ongoing sampling and laboratory costs.

The contaminants of concern in the soil are VOCs, SVOCs, PCBs, metals, and VOC and SVOC TICs, while the contaminant of concern in the soil vapor zone is VOCs. While VOCs and some SVOCs may respond to MNA, larger molecular weights are generally stable and will not readily decompose. The impact from these natural attenuation processes is typically minimal and would lead to a long-term remedial process.

Source Removal – The excavation of contaminated soils is an effective method to quickly and permanently remove areas of concern from a site. Source removal requires prior delineation of

the boundaries of the area of concern. This information has been provided as part of the ERP investigation. Following source removal, clearance sampling is conducted to verify that all contaminated soil was removed. In areas of high groundwater, groundwater control would be required to effectively complete the soil excavation. Source removal would require handling of clean overburden for staging as backfill, prior to excavation and removal of contaminated soils. Typical costs associated with source removal include capital costs for the excavation equipment, disposal costs for the treatment or disposal of contaminated media, laboratory costs for clearance sampling, costs for replacement backfill, and any costs associated with groundwater control and/or treatment. Source removal could be successful in the elimination of –the aforementioned contaminants of concern that are present in the surface and subsurface soils and soil vapor at the site in order to achieve Part 375 Unrestricted Use SCOs.

2.3.5.2 Groundwater

Capping - Contaminant isolation through "capping" of surface water recharge areas is an effective remedial option that has been used to close landfills, lagoons, and other areas where waste materials remain in the subsurface. Capping is not being considered as an alternative for this site due to the site's current cap formed by the parking lot and structure, as well as limited exposure pathways for groundwater.

Groundwater Extraction and Treatment Systems - The active extraction and treatment of groundwater has become a standard remedial option for dealing with petroleum and/or chemical releases. Active systems are typically the preferred alternative when site conditions include free product either as Light Non-Aqueous Phase Liquid (LNAPL) or Dense Non-Aqueous Phase Liquid (DNAPL). In addition, active systems are utilized to remove areas containing significant dissolved phase contamination and soil-sorbed contaminants within the saturated zones. Active treatment systems, however, tend to reach a lower level plateau concentration in which they become ineffective at removing the residual sorbed contaminant fringe. Continued operation of systems on sites with low level dissolved and soil-sorbed contaminants typically results in lengthy and costly remedial projects. For the purpose of developing remedial alternatives, an active groundwater treatment system will not be considered due to the relatively low contaminant concentrations above Part 375 standards, which would lead to a long-term remedial process.

In-Situ Groundwater Remediation Methods - In-situ groundwater remediation technologies are in widespread use as a finishing technique or a stand-alone remediation process. Among the more popular technologies are air-sparging, bioaugmentation/bioventing, oxygen or hydrogen releasing compound (ORC/HRC) injection, chemical oxidation, and a number of permutations. In-Situ Remediation is not being considered as an alternative for this site based on the nature and limited extent of contamination.

Monitored Natural Attenuation – MNA is typically used as a remedial process for organic compounds, as dilution, adsorption, dispersion, and other naturally-occurring processes (such as biodegradation) reduce the contaminant load in the groundwater. The contaminants of concern in the groundwater are VOCs, SVOCs, and metals. While VOCs typically respond well to MNA, SVOCs and metals are generally stable and will not readily decompose. Therefore, while the VOCs and SVOCs may respond to MNA, the only natural attenuation that will occur for

metals is from dilution and dispersion influenced by groundwater movement or surface water infiltration. The impact from these natural attenuation processes is typically minimal and would lead to a long-term remedial process.

2.4 Development of Remedial Alternatives

This section proposes the remedial alternatives for the Site which are subsequently evaluated against the ERP program criteria and DER-10. Three (3) remedial alternatives have been evaluated which include:

1. No Action,
2. Placement and Maintenance of Soil Cap for Exposure Reduction, and Development of Institutional Controls coupled with Monitored Natural Attenuation
3. Soil Excavation with Off-Site Disposal.

Each alternative is summarized below and is evaluated in detail against the nine ERP criteria.

Alternative 1 – Alternative 1 would result in No Action. This alternative does not require any additional remedial actions at the site. The existing exposure scenarios associated with the VOC, SVOC, PCB and metals-contaminated surface and subsurface soils and VOC-contaminated soil vapor at the site will preclude this option.

Alternative 2 – Since IRMs have already been conducted at the site, this alternative considers the placement and maintenance of a two-foot thick cap for exposure reduction and development of Institutional Controls coupled with Monitored Natural Attenuation. Specifically, an environmental easement would be put in place, and a Site Management Plan prepared. This restriction would limit the future uses of the property and prevent exposure to site soils. The Site Management Plan would identify the necessary procedures to be utilized if future site work were conducted within the property limits. The property owner would be required to submit a periodic certification of the engineering and institutional controls.

Alternative 2 would also include annual monitoring of groundwater at the site to evaluate natural attenuation of the site contaminants. Although low level concentrations of VOCs, SVOCs, PCBs, and metals were noted in the soil above NYSDEC cleanup criteria, and low level concentrations of trichloroethene were detected in the soil vapor above the NYSDOH-established AGV, there are limited exposure scenarios, and natural attenuation processes would continue to reduce the contaminant burden at the site. However, due to the potential long-term nature of this alternative and the contaminant concentrations present onsite, this option would not produce compliance with standards for an extended period of time.

Alternative 3 - Alternative 3 would include the source removal of the contaminated surface and subsurface soils in AOC-1 to a depth of 15 feet below the ground surface (bgs) in order to satisfy the requirements of Part 375-3.8(e)(2)(iii) for Unrestricted Residential Use. Upon removal of the contaminated soils, the excavation areas would be backfilled with clean soil. The excavation area would be covered with a soil cap that covers AOC-1. Confirmation soil sampling at the edges and bottom of the excavated area would be included in the alternative.

2.5 Detailed Analysis of Remedial Alternatives

This section evaluates the feasibility and cost-effectiveness of the proposed remedial alternatives developed for the Site. A total of three (3) remedial alternatives were evaluated to address the contaminated surface soil and contaminated subsurface soil. Each alternative is evaluated against the ERP program criteria, including:

- Overall Protection of Public Health and the Environment;
- Compliance with Standards, Criteria, and Guidance (SCGs);
- Long-Term Effectiveness and Permanence;
- Reduction of Toxicity, Mobility or Volume;
- Short-term impact and effectiveness;
- Implementability;
- Cost effectiveness;
- Land use; and
- Community acceptance.

2.5.1 Alternative 1 – No Action

This alternative does not require any additional remedial actions at the site. Although residual contaminants were noted in the surface and subsurface soil above the NYSDEC Unrestricted Use soil cleanup criteria, there are limited exposure scenarios, and natural attenuation processes would continue to reduce the contaminant burden at the site. Again, compliance with the state standards would not be achieved for an extended period of time. This alternative will be accompanied with a deed restriction, and soil management plan.

This Alternative provides no protection of public health and the environment; will not meet compliance with standards, criteria, and guidance; has no long-term effectiveness and permanence; provides no reduction of toxicity, mobility or volume; and has no short-term impact and effectiveness. This option is fully implementable. This option is the most cost effective for the City of Rome. This option would not support the continued use of the site as an automobile maintenance and repair facility, and is not likely to be accepted by the community.

Given the existing exposure scenarios identified as part of the Baseline Risk Assessment, this option will not be further evaluated.

2.5.2 Alternative 2 –Placement of Cap for Exposure Reduction, Development of Institutional Controls, and Monitored Natural Attenuation

This alternative is includes the placement of a two-foot thick soil cap over AOC-1, and provides for the attenuation of site contamination through natural processes including dilution, absorption, and dispersion. This alternative will be accompanied with a deed restriction, soil management plan, and groundwater use restriction.

Prior to the installation of the two-foot thick layer of clean soil material, a demarcation layer (e.g., orange plastic construction fence) will be installed on top of the graded and compacted ground surface. The soil capped areas will be graded to match adjacent grade and seeded to

establish vegetation. Upon installation of the soil capping system, periodic maintenance in the form of mowing, erosion control, and repairing any compromised areas of the cap, will be necessary. This alternative will be accompanied with a deed restriction, soil management plan, and groundwater use restriction.

The installation of the two-foot thick soil cover layer at the site would eliminate the direct contact exposure pathway that exists due to the presence of VOC, SVOC, PCB, and metals-contaminated soils in AOC-1 at concentrations above the applicable Part 375 Unrestricted Use SCOs, and potentially eliminate the inhalation exposure pathway that exists due to the presence of VOC-contaminated soil vapors above the applicable AGVs established by the NYSDOH. However, there are future potential risks for human exposure to the contaminated soils on-site during the performance of site development activities that involve the excavation of subsurface soils. The appeal of this alternative is in its obvious cost-effectiveness. In time, the concentrations of VOCs, SVOCs, PCBs, and metals parameters in the soil may decrease due to natural attenuation processes. Similarly, it is expected that the concentrations of VOCs in the soil vapors at the site will decrease over time due to the process of natural attenuation.

The well casings of the six permanently installed groundwater monitoring wells located on-site will be extended through the two-foot thick soil layer to aid in future groundwater monitoring. The alternative assumes minimal current or future risks to human exposure and impacts to the environment. The only costs associated with monitored natural attenuation are annual groundwater monitoring. In time, the contaminants remaining in the subsurface soils and soil vapor zone will undergo further natural attenuation through dilution, adsorption, dispersion, and other mechanisms such as bioremediation. Compliance with State standards, however, would likely not be achieved.

2.5.2.1 Overall Protection of Public Health and the Environment

The contaminated soils present on-site would no longer pose a threat to human health and the environment under existing exposure scenarios due to the completed installation of the two-foot thick soil cap over AOC-1. Since this alternative does not utilize a technology to enhance reduction in contaminants, a reduction in the concentration of the VOC, SVOC, PCB, and metals parameters in the soil, and the VOC parameters in the soil gas, will be solely dependent on natural attenuation processes. Based on the contaminant concentrations, it is anticipated that residual contaminants would remain on-site for the long-term. Future on-site development that could create the possibility for direct contact with the VOC, SVOC, PCB, and metals-contaminated soils in AOC-1, including the inhalation of VOCs in the soil vapor, would need to incorporate engineering controls during construction. Maintenance of the two-foot thick soil cover layer would reduce exposure risks, while the implementation of Institutional Controls, including an environmental easement and Site Management Plan, would address future hypothetical exposure scenarios.

2.5.2.2 Compliance with Standards, Criteria and Guidance (SCG)

Since there are no actions associated with Alternative 2 which will cause an immediate reduction in residual contaminant concentrations, this alternative will not immediately comply with SCGs regarding soil quality.

2.5.2.3 Long-Term Effectiveness and Permanence

This option would allow site contaminants above the Part 375 Unrestricted Use SCOs to remain for the long-term. Although the degradation of contaminants at the site may not reach the ERP criteria, there are minimal existing human or environmental health concerns. This is due to the fact that the VOC, SVOC, PCB, and metals-contaminated soils present in AOC-1 would be completely covered with a two-foot thick layer of clean fill material. Other than during site construction, during which engineering controls may be employed if AOC-1 are to be disturbed, the installed two-foot thick soil cover layer will continue to prevent direct contact with the VOC, SVOC, PCB, and metals-contaminated soil.

2.5.2.4 Reduction of Toxicity, Mobility or Volume

This Alternative is based on natural attenuation processes for contaminant reduction. The concentration of VOC, SVOC, PCB, and metals-contaminated soil, and VOC-contaminated soil vapor, in AOC-1 will slowly decrease, but the time involved far exceeds other alternatives.

2.5.2.5 Short-Term Impact and Effectiveness

The remedial action of cap placement is of short duration, and utilizes standard construction techniques. Community Air Monitoring Plan (CAMP) requirements would be in effect, monitoring the ambient air for contaminants of concern.

The placement of a cap would take approximately 2 months to complete. Site restoration would be required following the completion of this Alternative, as the site is currently being used as an automobile maintenance and repair facility. There will be no short-term change in the concentration of residual contaminants. Since many of the residual contaminants are organic compounds, they would continue to degrade with time by natural attenuation mechanisms.

2.5.2.6 Implementability

The techniques described in this remedial alternative are commonly practiced among remediation contractors.

2.5.2.7 Cost Effectiveness

The estimated capital expenditure, cost of annual operations and maintenance, and laboratory costs associated with this alternative is approximately $147,917. With the inclusion of engineering, administration, bonds, insurance, a 15 percent contingency, and inflation, the estimated total for this remedial alternative is approximately $226,386.

Capital expenditures and engineering time associated with developing the environmental easement, Site Management Plan, the extension of the six (6) groundwater monitoring wells located on-site, and annual groundwater monitoring over approximately 10 years are associated with this Alternative. A detailed breakdown of the estimated costs to implement this alternative is presented in Appendix A**.** Table 6 (included as part of Section 3 – Analysis of Cost-Benefit Relationship) summarizes the estimated capital costs associated with each alternative.

The relative cost-benefit associated with this alternative is low initially, but has the potential to be high in the long term. This is indicative of the continued O&M costs with a termination date of approximately 10 years.

2.5.2.8 Land Use

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. DER-10 (Section 4.2 i) identifies 16 criteria that must be considered. The site is currently zoned E3-industrial, and an auto repair garage is a permitted use. Therefore, this Alternative is supportive of the intended future site use.

2.5.2.9 Community Acceptance

Given that the site is currently being utilized as an automobile maintenance and repair facility, the community acceptance of this Alternative is considered to be moderate, as the adjacent commercial and residential properties would be inconvenienced during the performance of remedial activities. An increase in truck traffic for the hauling of clean backfill materials will also have a temporary impact on traffic patterns within the City.

2.5.3 Alternative 3 – Soil Excavation with Off-Site Disposal

Alternative 3 includes the excavation, removal, and off-site disposal of VOC, SVOC, PCB, and metals-contaminated soil from AOC-1. In order to satisfy the requirements of Part 375-3.8(e)(2)(iii) for Unrestricted Residential Use, the soil in AOC-1 would be removed to a depth of 15 bgs. Therefore, the volume of contaminated soil above the Part 375 Unrestricted Use SCOs that may potentially exist within the limits of AOC-1 is estimated to be 450,000 cubic feet or 16,667 cubic yards. The actual horizontal and vertical limits of excavation would be based on the laboratory analysis of confirmatory soil samples that would be collected from the side walls and excavation pit bottom for verification that the affected soils are removed.

If groundwater is encountered while excavating, well points (or other groundwater suppression devices) will be installed, and the water level maintained at or below the bottom of the excavation. Water removed from the excavation will be tested prior to discharging/disposal. Upon removal of the contaminated soils, confirmatory soil samples will be collected from the outside perimeter and bottoms of the excavation. After confirmation sampling, the excavation pit will be backfilled with clean soil and vegetation will be established. This alternative will be accompanied with a deed restriction, soil management plan, and groundwater use restriction.

2.5.3.1 Overall Protection of Public Health and the Environment

This alternative would remove the remaining residual soil contaminants from AOC-1, and would therefore eliminate the exposure pathways associated with the VOC, SVOC, PCB, and metals-contaminated surface and subsurface soils, and the VOC-contaminated soil vapor. Alternative 4 is protective of human health and the environment.

2.5.3.2 Compliance with Standards, Criteria and Guidance (SCG)

The removal of the contaminated soil from AOC-1 will immediately result in accessible site soils meeting Part 375 Unrestricted Use SCOs. Clearance sampling of the excavation sidewalls and bottom will confirm that the objectives are met.

2.5.3.3 Long-Term Effectiveness and Permanence

The long-term effectiveness of Alternative 3 is excellent assuming all of the VOC, SVOC, PCB, and metals-contaminated soils are removed from AOC-1. The Alternative could be completed within 2 months of selection. Since the contaminants are removed from the site, there are no residual risks associated with this Alternative, and no further site controls would be required.

2.5.3.4 Reduction of Toxicity, Mobility or Volume

This Alternative would result in the removal of approximately 16,667 cubic yards (24,750 tons) of contaminated soils from the Site. The removal of the contaminants from AOC-1 is permanent.

2.5.3.5 Short-Term Impact and Effectiveness

This remedial action is of relatively short duration, and utilizes standard construction techniques. Since the Alternative would involve open excavation, the Contractor will employ construction barricades and signage to warn and prevent access by the public. Community Air Monitoring Plan (CAMP) requirements would be in effect, monitoring the ambient air for contaminants of concern. Since this alternative includes the removal of the residual contaminated soil, immediate site improvements are likely.

The field work for this Alternative could be completed in one month. Receipt and analysis of clearance soil sampling data will require approximately one month. Based on this timing, this Alternative would take approximately 2 months to complete. No site restoration would be required following the completion of this Alternative, as the site is currently vacant.

2.5.3.6 Implementability

The techniques described in this remedial alternative are commonly practiced among remediation contractors.

2.5.3.7 Cost Effectiveness

The estimated capital expenditure and laboratory costs associated with this alternative are approximately $1,973,682. With the inclusion of engineering, and a 15 percent contingency, the estimated total for this remedial alternative is approximately $2,496,708. The estimate includes soil excavation, transport and disposal, and site restoration.

Since the work involved under this alternative is intended to permanently remediate the soil contamination present within AOC-1, there is no post-remediation maintenance and operational costs once the work is complete. As a result, the relative cost-benefit associated with this

alternative is low. This is indicative of the high capital costs. A detailed breakdown of the estimated costs to implement this alternative is presented in Appendix A**.** Table 6 (included as part of Section 3 – Analysis of Cost-Benefit Relationship) summarizes the estimated capital costs associated with each

2.5.3.8 Land Use

The site is currently zoned E3-industrial, and an auto repair garage is a permitted use. Therefore, this Alternative is supportive of the intended future site use.

2.5.3.9 Community Acceptance

Given that the site is currently occupied by an active automobile maintenance and repair facility, the community acceptance of this Alternative is considered to be moderate, as the adjacent commercial and residential properties would be inconvenienced during the performance of remedial activities. An increase in truck traffic for the hauling of contaminated soils and clean backfill materials will also have a temporary impact on traffic patterns within the City.

3.0 Analysis of Cost-Benefit Relationship

The capital costs associated with each alternative are summarized below in Table 12. A detailed cost estimate for Alternative 3 is presented in Appendix A.

Alternative 1, "No Action," is not protective of human health and the environment since it does not address existing and potential future exposure scenarios. Although there is no capital cost associated with this alternative, the cost-benefit of Alternative 1 is low.

Alternative 2 (placement of a two-foot thick cap, institutional controls, and monitored natural attenuation) requires the expenditure of additional capital costs for the installation of the two-foot thick soil cover layer and operation and maintenance costs associated with monitored natural attenuation. Alternative 2 is fully protective of human health and the environment, as the installation of a two-foot thick soil cover layer at the site will eliminate the existing exposure pathway. Future exposure pathways would be addressed through institutional controls provided as part of this remedy. There are future capital expenditures required for this alternative, but this remedy represents the greatest cost-benefit scenario.

Alternative 3 (soil excavation and disposal) is the most costly remedy, though the alternative could be completed in approximately two months. Since the contaminants would be removed from the site, this Alternative is protective of human health and the environment since it addresses existing exposure scenarios. Since the work involved under this alternative is intended to permanently remediate the areas of contamination, there is no post-remediation maintenance and operational costs once the work is complete. As a result, the relative cost-benefit associated with this alternative is low.

The implementation of remedial Alternative 2 (placement of cap, institutional controls, and monitored natural attenuation) was recommended for the following reasons:

- The risk analysis identified an exposure pathway that is attributable to the VOC, SVOC, PCB, and metals-contaminated soils on the property. The installation of a two-foot thick soil cover layer at the site will eliminate the existing exposure pathway. However, there are hypothetical future exposure scenarios associated with the performance of on-site construction activities involving the excavation of subsurface soils.
- Monitored natural attenuation (MNA) has been recognized by USEPA as an effective means of addressing residual contamination, particularly after application of remedial measures addressing contaminant source areas (USEPA, 1999). Active remedial measures can provide minimal or no incremental benefit relative to natural processes, such as biodegradation, sorption, dispersion, volatilization and dilution. It should be recognized that MNA is not a "walk away" or "do nothing" remedy; it entails a careful examination of site data to verify that active remedies been applied to the extent feasible and development/implementation of a monitoring program to verify MNA processes are at work and that the residual contamination is no longer a threat to human health and the environment.
- The above conditions preclude Alternative 1 (No Action) from being selected.

- Alternative 3 was not selected due to the extensive capital cost and is no more protective of human health and the environment than Alternative 2.

Alternative 2 (placement of a cap, institutional controls, and monitored natural attenuation) is recommended, and the NYSDEC Central Office staff involved in this ERP project concur with this recommendation. This approach would be protective of human health and the environment, and has the highest cost-benefit.

Table 12. Summary of Remedial Alternative Costs

Remedial Alternatives	Capital Costs	Engineering, Administration, & Contingency Costs	Annual Operation & Maintenance	Estimated Number of Years of Operation	Total Estimated Costs
Alternative 1 – "No Action"	$0	$0	$3,000	0	$3,000
Alternative 2 – Placement of a Cap with IC and MNA (Soil Cover Layer, Site Mgmt. Plan)	$54,717	$55,469	$116,200	10	$226,386
Alternative 3 – Soil Excavation and Off-Site Disposal	$1,794,256	$702,452	$3,000	0	$2,499,708

Notes:

IC – Institutional Controls

MNA- Monitored Natural Attenuation

Annual Operation & Maintenance assumes groundwater monitoring twice within the first year, then annually for the duration of Alternative 2

Based on the analysis conducted above, the Alternative 2 remedy including the placement of a cap, development of institutional controls, and monitored natural attenuation was recommended to address the existing and future hypothetical exposure scenarios. The estimated cost associated with Alternative 2 is $238,313.

3.1 Summary of Remedial Alternatives Evaluation

Three remedial alternatives were evaluated to address the remedial objectives at the site. The contaminants of concern in the soil are VOCs, SVOCs, PCBs, metals, and VOC and SVOC TICs, while the contaminant of concern in the soil vapor zone is VOCs. Areas and contaminants of concern include TICs, metals, and VOCs in the surface and subsurface soil above applicable State standards.

Alternative 1 (No Action) would not require any additional remedial actions at the site. This alternative is not protective of human health and the environment under existing and hypothetical future conditions.

Alternative 2 relies on the placement of a cap, the development of institutional controls, and monitored natural attenuation. The total cost of this alternative is estimated at $238,313. This option would be protective of human health and environment and addresses future hypothetical exposure scenarios.

Alternative 3 includes the excavation of residual contamination above State standards. This alternative would permanently remediate the area of contamination with no post-remediation maintenance or operational costs. The total cost of Alternative 3 is estimated at $2,499,708, which is estimated to cost an additional $2,273,322 than Alternative 2 and is no more protective of human health and the environment.

A key factor in the analysis of possible remedial alternatives was to determine if the resulting benefit to potential human health exposures and impacts to the environment warranted additional capital expenditures. Given the current exposure scenarios associated with the presence of VOC, SVOC, PCB, and metals-contaminated soil, and VOC-contaminated soil vapor, additional measures are warranted.

Alternative 2 relies on the placement of a cap, the development of institutional controls, and monitored natural attenuation, would address all future exposure scenarios. This approach is recommended, as it would be effective in protecting human health and the environment, along with addressing all future hypothetical exposure scenarios.

4.0 References

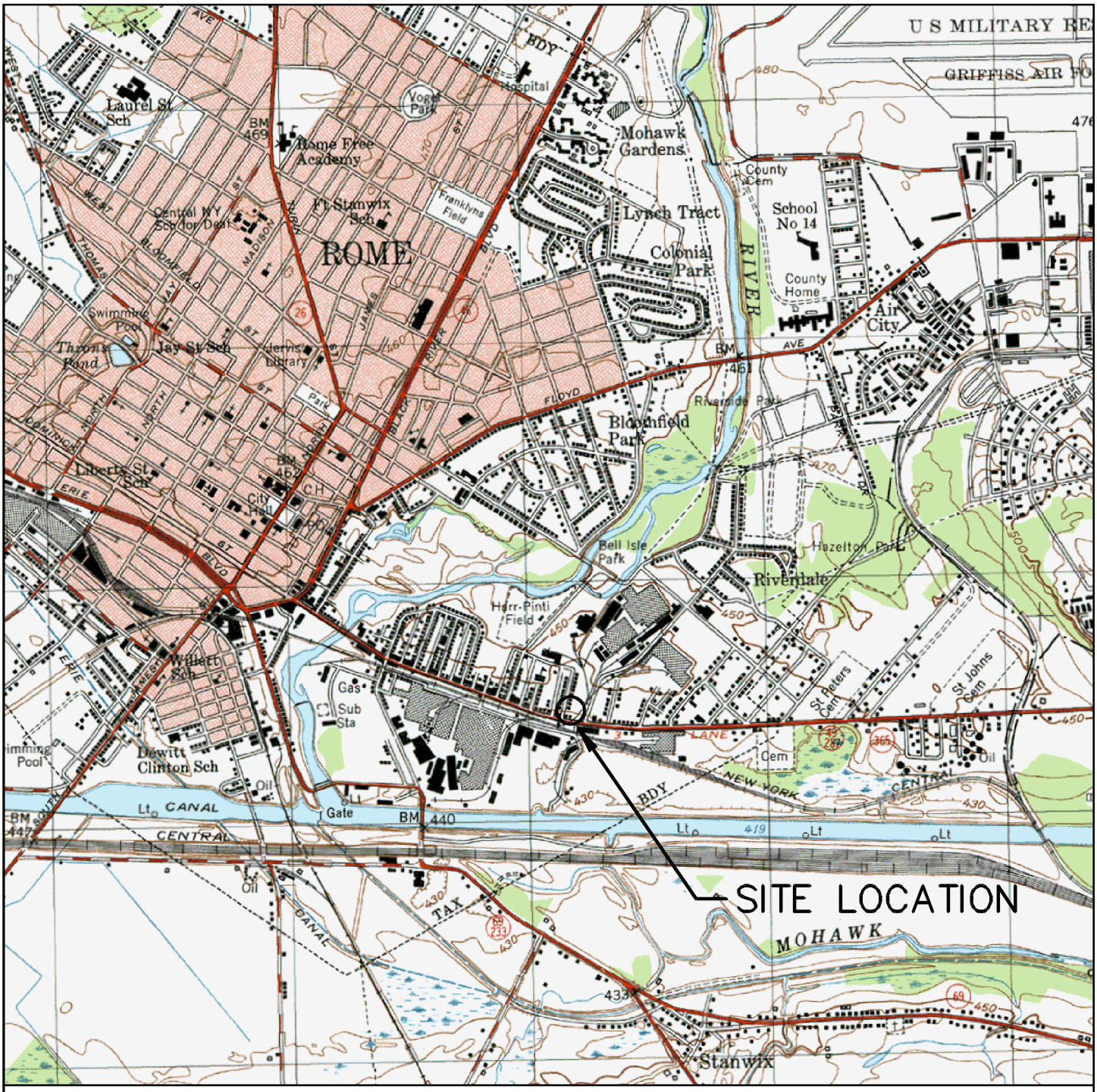
New York State Department of Environmental Conservation, May 2010. DER-10 / Technical Guidance for Site Investigation and Remediation. DEC Program Policy, Office of Remediation and Materials Management.

New York State Department of Environmental Conservation, December 2006. 6 NYCRR PART 375, Environmental Remediation Programs, Subparts 375-1 to 375- 4 & 375-6. Division of Environmental Remediation.

New York State Department of Environmental Conservation, 1998. "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations', Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. Reissued June 1998.

Figure 1

Site Location Map



SOURCE: ROME, NEW YORK U.S.G.S. QUADRANGLE MAPS, DATE 1984.

QUADRANGLE LOCATION

2000' 0 2000'

1"=2000'

N

Barton & Loguidice, P.C.

CITY OF ROME

SITE INVESTIGATION REPORT
1030 EAST DOMINICK STREET

SITE LOCATION PLAN

Figure Number
1

Project Number
245.005

Date
SEPTEMBER, 2011

Scale
1" = 2000'

CITY OF ROME ONEIDA COUNTY, NEW YORK

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Figure 2

Area of Concern and Remedial Investigation Soil Data Exceedances

N

EAST DOMINICK STREET

CAREY STREET

RIM:437.35

RIM:437.33

RIM:437.90

TC:437.74

RIM:438.09

WV

LP

CP 1092
N: 1169678.43
E: 1125365.34
Z: 438.08

CP 24
MAG NAIL
N: 1169671.70
E: 1125251.33
Z: 437.4

CP 23
MAG NAIL Elev. 440.29
N: 1169667.62
E: 1125488.17
Z: 438.2

BM Bench Tie In
Utility Pole

Albert J. Tahan &
Bernadette A. Quenneville
Liber 2856 Page 362
TM #243.069-1-42

Benjamin D. Juliano
Instr. No. 2005-021643
TM #243.069-1-40

C.J. Associates
Liber 2348 Page 271
TM #243.070-1-46.2

CON-RAIL CORP.
(reputed owner)

CP 21
SPIKE w/ DR.
N: 1169445.88
E: 1125578.61
Z: 430.61

GRAVEL/DIRT AREA

DRIVEWAY

AREA OF CONCERN 1 (AOC-1)

SB-1 SB-2 SB-3 SB-4 SB-5 SB-6 SB-7 SB-8 SB-9 SB-10 SB-12 SB-13 SB-14 SB-15 SB-16 SB-17 SB-18 SB-19 SB-20 SB-21

MW-01 (PVC EL. 438.28' GRND EL. 438.4')

MW-02 (PVC EL. 437.28' GRND EL. 437.7')

MW-03 (PVC EL. 438.36' GRND EL. 435.9')

MW-04 (PVC EL. 439.06' GRND EL. 436.0')

MW-05 (PVC EL. 438.00' GRND EL. 435.6')

MW-06 (PVC EL. 437.64' GRND EL. 437.9')

MW-07

MW-08

SS-01 SS-02 SS-03 SS-04 SS-05 SS-06 SS-07 SS-08

SV-1 SV-2 SV-3 SV-4 SV-5 SV-6

TP-1 TP-2 TP-3 TP-4 TP-5 TP-6 TP-7

1030ED-SB-02 (12-15)

Chromium	5.92 mg/kg

1030ED-MW-02 (8-13.9)

4-Methylphenol	1900 U,UJ µg/Kg
Chromium	10.3 mg/kg

1030ED-MW-01 (21-22.9)

Chromium	6.36 mg/kg

1030ED-MW-01 (12-16.2)

Chromium	20.7 mg/kg

1030ED-SB-01 (12-16)

Chromium	11.8 mg/kg

1030ED-MW-06 (12-16)

Chromium	22.5 mg/kg

1030ED-SS-01

Chromium	11.8 mg/kg
Copper	77.2 B mg/kg
Zinc	154 B,J mg/kg

1030ED-SB-03 (12-16)

Chromium	6.71 mg/kg

1030ED-SB-04 (12-17)

Acetone	120 J,UJ µg/Kg
Xylene	2500 E µg/Kg
Chromium	6.52 mg/kg

1030ED-SB-10 (6-11.2)

Chromium	11.6 mg/kg

1030ED-SB-09 (8-9.5)

Chromium	14.4 mg/kg
Copper	54.3 mg/kg

1030ED-SB-12 (8-14.2)

Chromium	11.8 mg/kg

1030ED-MW-03 (12-15.9)

Chromium	6.84 mg/kg

1030ED-SS-03

Chromium	12.9 mg/kg
Copper	142 B mg/kg
Lead	72.6 J mg/kg
Zinc	126 B,J mg/kg

1030ED-SB-05 (12-16.8)

Xylene	1500 E µg/Kg
4-Methylphenol	360 U,UJ µg/Kg
Chromium	8.98 mg/kg
Total PCBs	259 µg/Kg

1030ED-SS-07

Indeno(1,2,3-cd)pyrene	1400 J µg/kg

1030ED-SB-07 (8-12)

Chromium	8.76 mg/kg
Copper	57.3 mg/kg

1030ED-SB-06 (12-16)

Chromium	8.5 mg/kg

1030ED-SS-02

4-Methylphenol	1100U,UJ µg/Kg
Benzo(a)anthracene	6100 J µg/Kg
Benzo(a)pyrene	5400 J µg/Kg
Benzo(b)fluoranthene	5700 J µg/Kg
Benzo(k)fluoranthene	2000 J µg/Kg
Chrysene	6200 J µg/Kg
Indeno(1,2,3-cd)pyrene	3000 J µg/Kg
Chromium	11.6 mg/kg
Copper	342 B mg/kg
Lead	157 J mg/kg
Zinc	215 B,J mg/kg

1030ED-SB-18

Ethylbenzene	1100 µg/kg

1030ED-MW-04 (13-15)

2-Butanone	470 U,UJ µg/Kg
Acetone	470 U,UJ µg/Kg
Ethylbenzene	2100 µg/Kg
Xylene	11000 µg/Kg
4-Methylphenol	1800 U,UJ µg/Kg
Chromium	7.58 mg/kg

1030ED-SS-04

Chromium	12.9 mg/kg
Copper	193 B mg/kg
Lead	241 J mg/kg
Total Mercury	0.264 J,UJ mg/kg
Zinc	251 B,J mg/kg

1030ED-SB-08 (14.5-17.7)

4-Methylphenol	360 U,UJ µg/Kg
Chromium	12.7 mg/kg

1030ED-SB-08 (22.5-26.5)

4-Methylphenol	360 U,UJ µg/Kg
Chromium	7.76 mg/kg

1030ED-MW-05 (8-12)

Chromium	9.61 mg/kg
Copper	55.9 mg/kg

NOTE:
SB LOCATIONS ARE APPROXIMATE.

LEGEND

- TREE LINE
- PROPERTY LINE
- MW-# MONITORING WELL LOCATION
- SB-# SOIL BORING LOCATION
- SS-# SURFACE SOIL SAMPLE LOCATION
- SV-# SOIL VAPOR SAMPLE LOCATION
- AREA OF CONCERN

1"=20' (20' 0 20' 40')

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

AREA OF CONCERN AND REMEDIAL INVESTIGATION SOIL DATA EXCEEDANCES

CITY OF ROME
ALTERNATIVE ANALYSIS REPORT
1030 EAST DOMINICK STREET
ONEIDEA COUNTY, NEW YORK

Barton & Loguidice, D.P.C.

Date
OCTOBER, 2015

Scale
AS SHOWN

Sheet Number
2

File Number
245.005

Checked by _____ Drawn by JGS Designed by RJM In charge of SDN

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I:\Shared\200\245005-S\SR FIGURES\1030 E DOM\245005_SR_FIG 2 - Soil Exceedances tables Rev 100715.dwg

Figure 3

Area of Concern and Remedial Investigation Groundwater Data Exceedances

N

EAST DOMINICK STREET

CAREY STREET

EAST DOMINICK STREET

425

425

424.5

424.5

RIM:437.35

RIM:437.33

RIM:438.09

CP 24
MAG NAIL
N: 1169671.70
E: 1125251.33
Z: 437.4

CP 1092
N: 1169678.43
E: 1125365.34
Z: 438.09

CP 23
MAG NAIL
N: 1169687.82
E: 1125488.17
Z: 458.2

BM- Bench Tie In
Utility Pole
Elev. 440.29

MW-1	
Trichloroethene	11 µg/L
Arsenic	0.0307 µg/L
Chromium	0.0737 µg/L
Iron	69.9 µg/L
Lead	0.0348 µg/L
Magnesium	36 µg/L
Manganese	4.36 µg/L
Sodium	217 µg/L

MW-2	
Arsenic	0.0281 µg/L
Iron	58.7 µg/L
Magnesium	36.6 µg/L
Manganese	3.12 µg/L
Sodium	113 µg/L

MW-3	
Arsenic	0.0725 µg/L
Copper	0.218 µg/L
Iron	124 µg/L
Lead	0.0712 µg/L
Manganese	8.13 µg/L
Sodium	172 µg/L

MW-4	
Ethylbenzene	94 µg/L
Isopropylbenzene	32 µg/L
Toluene	5.2 µg/L
Xylene	550 E µg/L
Benzo(a)anthracene	0.7 J µg/L
bis(2-Ethylhexyl)phthalate	9.6 J µg/L
Chrysene	0.57 J µg/L
Naphthalene	61 µg/L
Iron	28.6 µg/L
Lead	0.0354 µg/L
Manganese	3.07 µg/L
Sodium	158 µg/L

MW-5	
Trichloroethene	10 µg/L
4-Nitroaniline	6.7 J µg/L
Arsenic	0.0568 µg/L
Chromium	0.0921 µg/L
Copper	0.27 µg/L
Iron	120 µg/L
Lead	0.0675 µg/L
Magnesium	50.3 µg/L
Manganese	10.5 µg/L
Nickel	0.103 µg/L
Sodium	82.1 µg/L

MW-7	
Ethylbenzene	130 µg/L
Isopropylbenzene	60 µg/L
Xylene	770 µg/L
Naphthalene	97 µg/L
Iron	37.8 µg/L
Lead	0.027 µg/L
Magnesium	35.2 µg/L
Manganese	2.7 µg/L
Sodium	193 µg/L

MW-01 (PVC EL. 438.28' GRND EL. 438.4')

MW-02 (PVC EL. 437.28' GRND EL. 437.7')

MW-03 (PVC EL. 438.36' GRND EL. 435.9')

MW-04 (PVC EL. 439.06' GRND EL. 436.0')

MW-05 (PVC EL. 438.00' GRND EL. 435.6')

MW-06 (PVC EL. 437.64' GRND EL. 437.9')

MW-07

SB-1 SB-2 SB-3 SB-4 SB-5 SB-6 SB-7 SB-8 SB-9 SB-10 SB-12 SB-13

SS-01 SS-02 SS-03 SS-04

TP-1 TP-2 TP-3 TP-4 TP-5 TP-6 TP-7 TP-8

AREA OF CONCERN 1 (AOC-1)

Albert J. Tahan & Bernadette A. Quenneville
Liber 2856 Page 362
TM #243.069-1-42

Benjamin D. Juliano
Instr. No. 2005-021643
TM #243.069-1-40

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(reputed owner)

C.J. Associates
Liber 2348 Page 271
TM #243.070-1-46.2

CP 21
SPIKE w/ DH.
N: 1169445.88
E: 1125378.61
Z: 430.61

NOTE:
SB LOCATIONS ARE APPROXIMATE.

LEGEND

- MW-# MONITORING WELL LOCATION
- SB-# SOIL BORING LOCATION
- SS-# SURFACE SOIL SAMPLE LOCATION
- AREA OF CONCERN

20' 0 20' 40'
1"=20'

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

CITY OF ROME
ALTERNATIVE ANALYSIS REPORT
1030 EAST DOMINICK STREET
ONEIDEA COUNTY, NEW YORK

AREA OF CONCERN AND REMEDIAL INVESTIGATION GROUND WATER DATA EXCEEDANCES

CITY OF ROME

Barton & Loguidice, D.P.C.

Date
OCTOBER 2015

Scale
AS SHOWN

Sheet Number
3

File Number
245.005

Plotted: Oct 12, 2015 – 12:17PM By: jag2
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Checked by _____ Drawn by JGS Designed by ICT/SBL In charge of SDN

Appendix A

Remedial Alternative Cost Estimates

City of Rome Environmental Restoration Project
1030 East Dominick Street - Remedial Alternatives
Alternative 2 - Capping the Entire Site and Monitored Natural Attenuation

Item	Unit cost	Unit	Quantity	Cost
Placement of Soil Cap				
Demarcation layer	$2.25	sy	3,333	$7,499
Placement and compaction of clean fill material	$13.00	cy	2,222	$28,886
Six-inch layer of topsoil, seeding, and stabilization	$5.50	sy	3,333	$18,332
Annual Groundwater Monitoring (10 Years)				
Sampling (6 wells)	$2,500.00	lump sum	6	$15,000
Sampling/Laboratory Services	$7,200.00	lump sum	6	$43,200
Annual Report	$3,500.00	lump sum	10	$35,000

Subtotal Remedial Work	$147,917
Administration, Bonds, Insurance (10%)	$14,792
Project Subtotal	**$162,708**
Engineering (10%)	$16,271
Contingency (15%)	$24,406
Inflation (4%/yr)	$23,000
Opinion of Probable Costs	**$226,386**

Prelimary Estimate for On-Site Soil Excavation
City of Rome Environmental Restoration Project
1030 East Dominick Street - Remedial Alternatives
Option 3 - Excavate and Remove 15' of Soil Over the Entire Site

Item	Unit cost	Unit	Quantity	Cost
General and Site Preparation				
Mobilization	$5,000.00	ls	1	$5,000
Clear, grub, removal of debris	$5,850.00	ls	1	$5,850
Silt fence and stormwater control	$1,800.00	ls	1	$1,800
Excavation				
Excavate and stockpile clean materials (overburden)	$5.00	cy	0	$0
Contaminated soil excavation, transport, & disposal (including backfill and compaction)	$68.00	ton	24,750	$1,683,000
Clearance sampling (VOCs, SVOCs, metals)	$400.00	sample	56	$22,400
Dewatering				
Pump, treat and discharge to sanitary sewer (onsite connection) including all treatment equipment	$0.25	gallon	179,544	$44,886
Restoration				
Backfill and compaction of clean overburden	$2.00	cy	0	$0
Density testing (nuclear method)	$39.00	ea	333	$12,987
Topsoil, seeding, and stabilization	$5.50	sy	3,333	$18,333
			Subtotal Remedial Work	$1,794,256
			Administration, Bonds, Insurance (10%)	$179,426
			Engineering (10%)	$197,368
			Contingency (15%)	$325,658
			Opinion of Probable Costs	**$2,496,708**

Appendix B

Part 375 Land Use Considerations

Remedial Alternatives Analysis Land Use Factors

I. CURRENT USE AND HISTORICAL AND/OR RECENT DEVELOPMENT PATTERNS

The site has historically been utilized for commercial purposes. The property is currently leased to Mr. Michael Burth, who operates an automobile maintenance and repair shop. A single, one-story, concrete block building with a wood-framed mezzanine level is present at the site. The site is currently zoned E3-industrial, and an auto repair garage is a permitted use. The surrounding parcels are mixed commercial, residential, and industrial. The intended future use of the site is commercial/industrial.

II. CONSISTENCY OF PROPOSED USE WITH APPLICABLE ZONING LAWS AND MAPS

Proposed use is consistent with City of Rome zoning designation.

III. BROWNFIELD OPPORTUNITY AREAS

The site is located within a designated Brownfield Opportunity Area.

IV. CONSISTENCY OF PROPOSED USE WITH APPLICABLE COMPREHENSIVE COMMUNITY MASTER PLANS, LOCAL WATERFRONT REVITALIZATION PLANS AS PROVIDED FOR IN ARTICLE 42 OF THE EXECUTIVE LAW OR ANY OTHER APPLICABLE LAND-USE PLAN FORMALLY ADOPTED BY A MUNICIPALITY

Proposed commercial/industrial use is consistent with local land use.

V. PROXIMITY TO REAL PROPERTY CURRENTLY USED FOR RESIDENTIAL USE AND TO URBAN, COMMERCIAL, INDUSTRIAL, AGRICULTURAL AND RECREATIONAL AREAS

East Dominick Street constitutes the immediate northern site boundary of the property, with residences located on the opposite (north) side of East Dominick Street, as well as both sides of Carey Street. Located still farther to the north is the East Rome Business Park, an industrial area that has been the subject of significant remedial efforts. The property is bordered to the south by active railroad tracks and to the west by Tehan's Furniture Warehouse. Bordering the site immediately to the east is single family residence, with a Firestone Auto Center located just to the east of the residence.

VI. ANY WRITTEN AND ORAL COMMENTS SUBMITTED BY MEMBERS OF THE PUBLIC ON THE PROPOSED USE AS PART OF CITIZEN PARTICIPATION ACTIVITIES

To date there have been no written or oral comments submitted by the public.

VII. ENVIRONMENTAL JUSTICE CONCERNS, WHICH FOR PURPOSES OF THIS EVALUATION, 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

The proposed use for the site is not changing.

VIII. FEDERAL OR STATE LAND-USE DESIGNATIONS RELATING TO THE PROPERTY

N/A

IX. WHETHER THE POPULATION GROWTH PATTERNS AND PROJECTIONS SUPPORT THE PROPOSED USE

The proposed use is consistent with historical and current use of the property.

X. ACCESSIBILITY TO EXISTING INFRASTRUCTURE; XI. PROXIMITY OF THE SITE TO IMPORTANT CULTURAL RESOURCES, INCLUDING FEDERAL OR STATE HISTORIC OR HERITAGE SITES OR NATIVE AMERICAN RELIGIOUS SITES

The site is connected to the City's public water supply and sanitary sewer system. The site is serviced by electric and gas utilities. There are no known important cultural resources adjacent to the site.

XI. 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 site is not adjacent to known Federal, State or Local wildlife refuges, wetlands or critical habitats.

XII. POTENTIAL VULNERABILITY OF GROUNDWATER TO CONTAMINATION THAT MIGHT MIGRATE FROM THE SITE, INCLUDING PROXIMITY TO WELLHEAD PROTECTION AND GROUNDWATER RECHARGE AREAS AND OTHER AREAS IDENTIFIED BY THE STATE COMPREHENSIVE GROUNDWATER REMEDIATION AND PROTECTION PROGRAM

The site and adjacent properties are serviced by a public water supply. There are no known downgradient public wellheads or groundwater recharge areas.

XIII. PROXIMITY TO FLOODPLAINS

The site is not adjacent to floodplains.

XIV. GEOGRAPHY AND GEOLOGY

A. The general topography over most of the site is generally flat, with a gentle slope to the north. A steep slope exists along the southern portion of the site, where the general site grade slopes down to the grade of the adjoining railroad property and properties further to the south, which slope gently to the south toward the Erie Canal. It is apparent that the majority of the site has been raised with historic fill material. According to the site survey by Cornerstone Land Surveying in 2008, there is an approximate 2-foot change in grade across the site, with the exception of the eastern end of the site where the grade change is 5 feet.

East Dominick Street constitutes the immediate northern site boundary of the property, with residences located on the opposite (north) side of East Dominick Street, as well as both sides of Carey Street. Located still farther to the north is the East Rome Business Park, an industrial area that has been the subject of significant remedial efforts. The property is bordered to the south by active railroad tracks and to the west by Tehan's Furniture Warehouse. Bordering the site immediately to the east is single family residence, with a Firestone Auto Center located just to the east of the residence.

B. The site is located near the boundary of the Hudson-Mohawk Lowlands, which is characterized by low elevation and relief, and the Tug Hill Plateau, a remnant of the Alleghany Plateau, which is higher in elevation with low relief. The soils of the site consist of mixed fill and native material consisting of cobble, gravel, and sand. The United States Department of Agriculture's (USDA) Soil Survey for Oneida County maps this area of East Dominick Street as Alton-Urban land complex. The Alton complex parent material is described as gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits. The Site is mapped on the New York Surficial Geology Map – Hudson-Mohawk Sheet (Cadwell, et al., 1987) along a boundary between lacustrine sand and alluvium. According to the New York State Museum and Science Service's Geologic Map of New York dated 1970, the site is underlain by the Ordovician age Utica Shale. The Tug Hill Plateau is composed of younger Ordovician sedimentary strata such as shale and sandstone.

The subsurface investigation revealed some fill material and apparent alluvial sand, gravel, and cobble at all of the boring locations. An overall relatively finer-grained lacustrine sand unit with some silt was encountered throughout the site typically at a depth of 12 ft below ground surface (bgs). Groundwater was typically encountered at a depth of 12-16 ft bgs. Bedrock was not encountered during the subsurface investigation.

XV. CURRENT INSTITUTIONAL CONTROLS APPLICABLE TO THE SITE

There are no current institutional controls applicable to the site.