BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

July 15, 2020

Mr. Samuel Savarino
Savarino Companies
500 Seneca Street, Suite 508
Buffalo, New York 14204

Re: Limited Phase II Site Investigation Report
Vacant Lot, 389 Manhattan Avenue, Buffalo, NY (Site)

Dear Mr. Savarino:

Benchmark Environmental Engineering and Science, PLLC (Benchmark) has prepared this letter to summarize the results of the Limited Phase II Environmental Investigation (Phase II) activities at the above referenced Site for Savarino Companies (see Figures 1 and 2). The primary purposes of the Phase II were to evaluate if historic and/or filling activities have impacted the Site prior to purchase; and to determine the depth to bedrock which will be a building design factor for redevelopment. The secondary purpose was to evaluate whether the Site may be eligible for admission to the New York Brownfield Cleanup Program (BCP).

The Site consists of one (1) parcel (SBL # 79.78-1-1.1) and is ±2.9 acres in size. Benchmark conducted a preliminary review of publicly available resources, including the City of Buffalo Geographic Information System, Sanborn maps available through the University at Buffalo, and New York State Department of Environmental Conservation (NYSDEC) databases to determine if past operations/use or historic records may be indicative of potential releases or impacts on the property.

The Site was owned by Buffalo Meter Company, Inc. from at approximately 1915 through 1971 when it was purchased by University at Buffalo in 1971 to house their Department of Art and Architecture Department. It was purchased in 2006 by Bethune Hall, LLC. The property is currently vacant.

Review of NYSDEC databases, did not identify petroleum releases, underground storage tanks, or other regulatory listings for the Site, but two (2) adjacent properties to the northwest, 2917 Main Street and 2929/2939 Main Street have been subject to remedial action, and the 2929/2939 Main Street property is a BCP Site (NYSDEC Site No. C915318).

In addition, properties in this area of the City of Buffalo have been subject to historic fill import due to the presence of the former rail lines and a portion of the former Buffalo Crushed Stone Company quarry adjacent to the east of the Site, which has been filled. The attached Sanborn map from 1935 (see Attachment 1) shows the former rail lines and quarry adjacent to the Site on the east as well as rail lines running through the Site which terminate at the adjacent former Buffalo Meter Co. manufacturing building and former McDougall Butler Company (paint manufacturing) buildings to the northwest of the Site.

Based on the presence of rail, historic filling activities in the area of the Site, and the remedial actions performed on adjacent properties, Benchmark recommended a limited Phase II investigation to determine if contamination is present on Site at levels which may complicate redevelopment. The Phase II approach and findings are discussed below.

## LIMITED PHASE II SOIL/FILL INVESTIGATION

The Phase II investigation activities consisted of 14 excavation test pits (TPs). The locations are shown on attached Figure 2. The TPs were advanced using a track-mounted excavator (Komatsu PC88). The TPs were advanced to depths ranging from 1.5 to 12 feet below ground surface (fbgs) to assess subsurface soil/fill conditions and the depth to bedrock. Bedrock refusal was encountered at the 14 TP locations at the depths shown on Table 2. The variability in depth to bedrock is due to the topography at the Site, as the northwestern portion of the Site is about 10 to 14 feet lower in elevation than the eastern and southern portions, respectively, as shown on Figure 2.

Benchmark personnel made visual and olfactory observations, and scanned soil/fill samples retrieved from the TPs for total volatile organic vapors with a photoionization detector (PID) that is capable of detecting the presence of contaminants that emit volatile organic compounds (VOCs) such as petroleum products and solvents. The soil/fill samples retained from the TPs were also headspace screened. PID headspace measurements were not detected above background (i.e., 0 ppm) at the TP locations.

Table 1 is a summary of the soil/fill samples submitted for to the laboratory along with the analysis completed. The soil/fill samples collected were placed in pre-cleaned laboratory provided sample jars, cooled to 4°C in the field, and transported under chain-of-custody to the laboratory for analysis for analysis which included USEPA Target Compound List (TCL) semi-volatile organic compounds (SVOCs) via EPA Method 8270, Resource Conservation and Recovery Act (RCRA) 8 metals via EPA Method 6010C/7471B, and polychlorinated biphenyls (PCBs) via EPA Method 8082.

## SURFACE AND SUBSURFACE CONDITIONS

The surface of the Site consists of gravel and visible urban fill such as broken brick and concrete in the northwestern and southern portions of the Site. The remainder of the Site is covered in grass, shrubs, and organic soil mixed with fill material. There were numerous soil/fill piles present which appear to be from dumping activities. The piles contained a range of materials such as sand, crusher run gravel, or urban fill consistent with Site-wide surface materials. Additional piles in the southern portion of the Site contained C&D debris (concrete, plastic pipes, metal, asphalt, etc.), wood, and general solid waste/household items (televisions, computer parts, plastic bottles, etc.). TP-10 was completed to assess one of the solid waste piles present at the Site in addition to the subsurface assessment. The various piles were opened up with the excavator to make visual, olfactory, and PID screening observations. No visual, olfactory, or PID evidence of impacts were noted.

The subsurface conditions encountered at the Site consist of soil/fill material over bedrock. Table 2 is a summary of the subsurface conditions encountered at the 14 investigation locations. Fill materials were encountered across the entire Site and varied from dark granular fill material to sandy soil containing man-made constituents (brick, cinders, ash, plastic debris, etc.). Native soil was not encountered. The fill material varies in thickness from 1.5 to 3.0 feet in the central and northwestern portion of the Site (TP-2, TP-3, TP-5, TP-7, TP-11, TP-12, TP-13, and TP-14) to 4 to 12 feet along the eastern and southern portions of the Site where the elevation is 10 to 14 feet higher (TP-1, TP-4, TP-6, TP-8, TP-9, TP-10).

Bedrock was encountered at the 14 test pit locations. Bedrock appears to be approximately 4 to 5 feet higher in elevation in the southern portion of the Site compared to the northern portion.

Saturated subsurface soils were encountered at TP-2, TP-3, and TP-4. These conditions were likely caused by nearby surface conditions (ponding water from recent rain events). Overburden groundwater was not encountered at the test pit locations and the first water bearing zone is likely present within the bedrock.

Photographs of the Site and select TP locations are included as Attachment 2.

## SOIL/FILL ANALYTICAL RESULTS

The results of the analytical samples collected and analyzed as part of the Phase II investigation are summarized on Table 3 and the laboratory report is included as Attachment 3.

Based on the planned redevelopment, the applicable soil cleanup objectives (SCOs) would be Part 375 Restricted-Residential Use Soil Cleanup Objectives (RRSCOs). As discussed below exceedances of RRSCOs, as well as Commercial SCOs (CSCOs) and Industrial SCOs (ISCOs) were noted.

*Semi-Volatile Organic Compounds*

SVOCs were detected at or above their respective Part 375 RRSCOs in four (4) of the six (6) samples submitted for SVOC analysis, TP-6, 5 to 6 fbgs, TP-7, 0.5 to 1.5 fbgs, TP-11, 0.5 to 1.5 fbgs and TP-13, 0.5 to 1.5 fbgs. Of the six (6) detected compounds above their respective RRSCOS, benzo(a)pyrene was also detected at TP-6, TP-7 and TP-11 in exceedance of its ISCO; benzo(b)fluoranthene was detected at TP-11 in exceedance of its ISCO; dibenzo(a,h)anthracene was detected at TP-6 in exceedance of its CSCO and at TP-11 in exceedance of its ISCO; and benzo(a)anthracene was detected at TP-11 in exceedance of its CSCO. The samples from TP-6, 5 to 6 fbgs, TP-7, 0.5 to 1.5 fbgs, and TP-11, 0.5 to 1.5 fbgs were from a black granular material encountered at those locations. This black granular material was also observed at TP-4, TP-8, and TP-14.

*Metal Analytes*

Metal analytes were detected above their respective RRSCOs in four (4) of the six (6) samples submitted for RCRA 8 metals analysis, TP-6, 5 to 6 fbgs, TP-7, 0.5 to 1.5 fbgs, TP-10, 6 to 7 fbgs, and TP-11, 0.5 to 1.5 fbgs.

- Arsenic exceeded its ISCO at TP-7 and TP-11.
- Lead exceeded its CSCO at TP-6.
- Mercury exceeded its CSCO TP-10.

As stated above, the samples from TP-6, TP-7, and TP-11 were from a black granular material encountered at those locations which was also observed at TP-4, TP-8, and TP-14.

## CONCLUSIONS

The contaminants detected, SVOCs and metals (arsenic, chromium, and lead) were detected at concentrations above their respective applicable SCOs (i.e., Restricted Residential) for the intended reuse of the property. The detected concentrations exceeding the applicable SCOs were detected in the fill material present at the Site. Fill material is present across the entire Site and varies in thickness due primarily to the difference in the surface elevation (western and southern portions of the Site are higher in elevation than the central and northwestern). The fill material with contamination above their respective RRSCOs and the other solid waste materials generated during the redevelopment of this Site will require landfill disposal.

Based on the existing data, which includes SVOC- and metals-contaminated soil/fill at multiple sample locations above applicable RRSCOs, as well as CSCOs/ISCOs, the Site is a candidate for the BCP. The Site meets the definition of a BCP site per the current BCP law which states a "brownfield site or site shall mean any real property where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria, or guidance adopted by the department that are applicable based on the reasonably anticipated use of the property, in accordance with applicable regulations."

We appreciate this opportunity to work with Savarino Company on this project. Please contact us if you have any questions or require additional information.

Sincerely,
Benchmark Environmental Engineering & Science, PLLC

Christopher Boron, P.G.
Sr. Project Manager

Thomas H. Forbes, P.E.
Principal Engineer

Attachments:
Table 1 – Summary of Sampling and Analysis Program
Table 2 – Summary of Subsurface Field Observations
Table 3 – Soil/Fill Sample Analytical Results
Figure 1 – Site Location & Vicinity Map
Figure 2 – Site Plan with Investigation Locations
Attachment 1 – 1935 Sanborn Map
Attachment 2 – Photographs
Attachment 3 – Analytical Report

# TABLES

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

**TABLE 1**

**SUMMARY OF SAMPLING AND ANALYSIS PROGRAM**
**LIMITED PHASE II INVESTGATION REPORT**
**389 MANHATTAN AVENUE, BUFFALO, NEW YORK**

| Sample Location | Sample Depth (fbgs) | Soil Type | Analysis | | | Sample Type |
|---|---|---|---|---|---|---|
| | | | TCL SVOCs | RCRA 8 Metals | TCL PCBs | |
| **Subsurface Soil/Fill Samples** | | | | | | |
| TP-1 | 3 to 4 | Fill | x | x | x | Grab |
| TP-6 | 5 to 6 | Fill | x | x | x | Grab |
| TP-7 | 0.5 to 1.5 | Fill | x | x | x | Grab |
| TP-10 | 6 to 7 | Fill | x | x | x | Grab |
| TP-11 | 0.5 to 1.5 | Fill | x | x | x | Grab |
| TP-13 | 0.5 to 1.5 | Fill | x | x | x | Grab |

Notes:
fbgs - feet below ground surface.
TCL - Target Compound List
SVOCs - Semivolatile Organic Compounds.
RCRA - Resource Conservation & Recovery Act.
PCBs - Polychlorinated Biphenyls

**TABLE 2**

**SUMMARY OF SUBSURFACE FIELD OBSERVATIONS**
**LIMITED PHASE II INVESTIGATION REPORT**
**389 MANHATTAN AVENUE**
**BUFFALO, NEW YORK**

| Location | Date | Fill Present | Odors | Depth of Fill (ft) | Depth to Bedrock (ft) | Ground Surface Elevation [2] | Bedrock Elevation | Sample Depth (ft) | Depth (fbgs) and Soil Description |
|---|---|---|---|---|---|---|---|---|---|
| ***Soil Boring Locations*** | | | | | | | | | |
| TP-1 | 03/04/20 | Yes | No | 4 | 4 | 656 | 652 | 3-4' | **0.0-2.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1].<br>**2.0-3.0 Sandy Clay Fill:** Dark brown, mostly medium plastic fines, some fine sand mixed with urban fill material[1].<br>**3.0-4.0 Black Sand Fill:** Black, mostly fine sands, some medium grained granular material, some cinders.<br>**Bedrock refusal at 4 fbgs.** |
| TP-2 | 03/04/20 | Yes | No | 2 | 2 | 655 | 653 | N/A | **0.0-2.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1].<br>**Bedrock refusal at 2 fbgs.** |
| TP-3 | 03/04/20 | Yes | No | 2 | 2 | 653.5 | 651.5 | N/A | **0.0-2.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1], trace black cinders.<br>**Bedrock refusal at 2 fbgs.** |
| TP-4 | 03/04/20 | Yes | No | 5 | 5 | 659 | 654 | N/A | **0.0-3.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1].<br>**3.0-4.0 Concrete Fill**<br>**4.0-5.0 Black Granular Fill:** Black, mostly medium grained granular material, some cinders.<br>**Bedrock refusal at 5 fbgs.** |
| TP-5 | 03/04/20 | Yes | No | 1.5 | 1.5 | 654.5 | 653 | N/A | **0.0-1.5 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1], some concrete with rebar.<br>**Bedrock refusal at 1.5 fbgs.** |
| TP-6 | 03/04/20 | Yes | No | 7 | 7 | 663 | 656 | 5-6' | **0.0-5.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1], layer of black sand from 0.5-1.5 fbgs.<br>**5.0-7.0 Black Granular and Sandy Fill:** Black, mostly medium grained granular material and sand with cinders, some white ash. Large concrete and red brick fragments from 6-7 fbgs.<br>**Bedrock refusal at 7 fbgs.** |
| TP-7 | 03/04/20 | Yes | No | 2.7 | 2.7 | 656 | 653.3 | 0.5-1.5' | **0.0-0.5 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1].<br>**0.5-1.0 Black Granular Fill:** Black, mostly medium grained granular material and cinders.<br>**1.0-1.5 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1].<br>**1.5-2.7 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1]. Large concrete and stone fragments surrounded by orange sandy material.<br>**Bedrock refusal at 2.7 fbgs.** |
| TP-8 | 03/04/20 | Yes | No | 12 | 12 | 666.5 | 654.5 | N/A | **0.0-2.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1].<br>**2.0-9.0 Sandy Clay Fill:** Grey, mostly medium plastic fines, some fine sand mixed with urban fill material[1].<br>**9.0-12.0 Black Granular and Sand Fill:** Black, mostly medium grained granular material and sand with cinders and coal, some large red and yeloow brick fragments.<br>**Bedrock refusal at 12 fbgs.** |
| TP-9 | 03/04/20 | Yes | No | 9.5 | 9.5 | 663 | 653.5 | N/A | **0.0-9.5 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1]. Black granular lens from 4-4.5 fbgs. Large rock fragments from 5-8 fbgs.<br>**Bedrock refusal at 9.5 fbgs.** |
| TP-10 | 03/04/20 | Yes | No | 12 | 12 | 669 | 657 | 6-7' | **0.0-9.5 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1]. Pockets of black sands with some granular material and cinders from 6-7fbgs.<br>**Bedrock refusal at 12 fbgs.** |
| TP-11 | 07/01/20 | Yes | No | 3 | 3 | 655.2 | 652.2 | 0.5-1.5' | **0.0-0.5 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1].<br>**0.5-1.5 Black Granular Fill:** Black, mostly medium grained granular material and cinders.<br>**1.5-3.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1]. Trace stone fragments surrounded by orange sandy material.<br>**Bedrock refusal at 3.0 fbgs.** |
| TP-12 | 07/01/20 | Yes | No | 2 | 2 | 653.5 | 651.5 | N/A | **0.0-2.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1], trace black cinders.<br>**Bedrock refusal at 2 fbgs.** |
| TP-13 | 07/01/20 | Yes | No | 2 | 2 | 653.5 | 651.5 | 0.5-1.5' | **0.0-2.0 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1], trace black cinders and coal.<br>**Bedrock refusal at 2 fbgs.** |
| TP-14 | 07/01/20 | Yes | No | 2.5 | 2.5 | 655 | 652.5 | N/A | **0.0-0.5 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1].<br>**0.5-1.5 Black Granular Fill:** Black, mostly medium grained granular material and cinders.<br>**1.5-2.5 Sandy Urban Fill:** Brown, mostly fine sand mixed with urban fill material[1]. Trace stone fragments surrounded by orange sandy material.<br>**Bedrock refusal at 2.5 fbgs.** |

**Notes:**
1. Urban Fill: varying combinations of block, concrete, wood, plastic, and cinders.
2. Ground surface elevation data based on survey information by Millard, MacKay & Delles Land Surveyors, LLP dated 2/20/20 utilizing GPS datum: NAD83 (2011) Epoch 2010.0 datum.

**Definitions:**
fbgs = feet below ground surface
N/A = Non applicable

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

**TABLE 3**

**SOIL/FILL SAMPLE ANALYTICAL RESULTS**
**LIMITED PHASE II INVESTGATION REPORT**
**389 MANHATTAN AVENUE, BUFFALO, NEW YORK**

| PARAMETER[1] | Unrestricted Use SCOs[2] | Restricted Residential Use SCOs [3] | Commercial Use SCOs[4] | Industrial Use SCOs[5] | SAMPLE LOCATION (DEPTH) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | TP-1 (3-4') | TP-6 (5-6') | TP-7 (0.5-1.5') | TP-10 (6-7') | TP-11 (0.5-1.5') | TP-13 (0.5-1.5') |
| | | | | | 3/4/2020 | 3/4/2020 | 3/4/2020 | 3/4/2020 | 7/1/2020 | 7/1/2020 |
| ***Semi-Volatile Organic Compounds (SVOCs) - mg/Kg*** [6] | | | | | D | D | D | D | D | |
| 2-Methylnaphthalene | -- | -- | -- | -- | ND | 0.53 J | 8.7 | ND | 11 | 0.082 J |
| Acenaphthene | **20** | **100** | **500** | **1000** | ND | 0.46 J | ND | ND | 1 | 0.05 J |
| Acenaphthylene | **100** | **100** | **500** | **1000** | ND | ND | 0.32 J | ND | 0.63 J | 0.091 J |
| Acetophenone | -- | -- | -- | -- | ND | ND | 0.84 J | ND | ND | ND |
| Anthracene | **100** | **100** | **500** | **1000** | ND | 1.1 J | 0.79 J | ND | 2.4 | 0.23 |
| Benzo(a)anthracene | **1** | **1** | **5.6** | **11** | 0.31 J | **3.6** | **2.8** | 0.65 J | **9.8** | 0.78 |
| Benzo(a)pyrene | **1** | **1** | **1** | **1.1** | ND | **4** | **2.9** | 0.76 J | **7.8** | 0.81 |
| Benzo(b)fluoranthene | **1** | **1** | **5.6** | **11** | 0.42 J | **5.2** | **3.7** | 0.94 J | **12** | **1** |
| Benzo(ghi)perylene | **100** | **100** | **500** | **1000** | ND | 2 | 1.4 J | 0.42 J | 3.3 | 0.65 |
| Benzo(k)fluoranthene | **0.8** | **3.9** | **56** | **110** | ND | **1.6** | **1.3** | 0.33 J | **3.3** | 0.42 |
| Biphenyl | -- | -- | -- | -- | ND | ND | 0.58 J | ND | 0.81 J | ND |
| Butyl benzyl phthalate | -- | -- | -- | -- | ND | 0.8 J | ND | ND | ND | ND |
| Carbazole | -- | -- | -- | -- | ND | 0.72 J | 0.61 J | ND | 1.6 | 0.11 J |
| Chrysene | **1** | **3.9** | **56** | **110** | 0.31 J | **3.3** | **2.8** | 0.65 J | **10** | 0.83 |
| Dibenzofuran | **7** | **59** | **350** | **1000** | ND | 0.35 J | 1.8 J | ND | 2.9 | 0.047 J |
| Dibenzo (a,h)anthracene | **0.33** | **0.33** | **0.56** | **1.1** | ND | **0.58 J** | **0.41 J** | ND | **1.2** | 0.13 |
| Fluoranthene | **100** | **100** | **500** | **1000** | 0.58 J | 9.9 | 5.9 | 1.4 | 20 | 1.6 |
| Fluorene | **30** | **100** | **500** | **1000** | ND | 0.51 J | 0.52 J | ND | 1.2 | 0.059 J |
| Indeno(1,2,3-cd)pyrene | **0.5** | **0.5** | **5.6** | **11** | ND | **2.3** | **1.5** | 0.47 J | **4.2** | **0.61** |
| Naphthalene | **12** | **100** | **500** | **1000** | ND | 0.64 J | 7.1 | ND | 8.2 | 0.07 J |
| Phenanthrene | **100** | **100** | **500** | **1000** | 0.33 J | 4.9 | 5.4 | 0.78 J | 15 | 0.77 |
| Pyrene | **100** | **100** | **500** | **1000** | 0.52 J | 8.1 | 4.3 | 1.1 J | 17 | 1.3 |
| 2-Methylphenol | **0.33** | **100** | **500** | **1000** | ND | ND | ND | ND | 0.16 J | ND |
| 3-Methylphenol/4-Methylphenol | **0.33** | **100** | **500** | **1000** | ND | ND | ND | ND | 0.18 J | ND |
| ***Total PCBs - mg/Kg*** [6] | | | | | | | | | | |
| Aroclor 1254 | **0.1** | **1** | **1** | **25** | **0.415** | **0.11 P** | 0.0382 | 0.0262 | 0.106 | 0.00783 J |
| Aroclor 1260 | **0.1** | **1** | **1** | **25** | **0.266** | **0.186** | 0.0483 | 0.0208 | 0.0923 | ND |
| Total PCBs | **0.1** | **1** | **1** | **25** | **0.681** | **0.296** | 0.0865 | 0.047 | **0.198** | 0.00783 J |
| ***Total Metals - mg/Kg*** | | | | | | | | | | |
| Arsenic | **13** | **16** | **16** | **16** | 8.96 | **13.5** | **29** | 5.69 | **108** | 3.48 |
| Barium | **350** | **400** | **400** | **10000** | 159 | 259 | 53.2 | 48.1 | 76 | 54.4 |
| Cadmium | **2.5** | **4.3** | **9.3** | **60** | 0.83 | 3.55 | 0.169 J | 0.414 J | ND | 0.13 J |
| Chromium | **30** | **180** | **1500** | **6800** | 18.7 | 21.5 | 4.94 | 10 | 11.1 | 13.7 |
| Lead | **63** | **400** | **1000** | **3900** | **358** | **689** | **108** | **93.2** | **257** | 18.9 |
| Mercury | **0.18** | **0.81** | **2.8** | **5.7** | 0.085 | **0.378** | **0.284** | **0.837** | **0.354** | 0.05 J |
| Selenium | **30** | **180** | **1500** | **10000** | 0.598 J | 1.48 | 1.94 | 0.557 J | 4.17 | ND |
| Silver | **2** | **180** | **1500** | **6800** | 0.34 J | 0.562 | 0.159 J | ND | 0.251 J | 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 6NYCRR Part 375 Unrestricted Soil Cleanup Objectives (SCOs).
3. Values per 6NYCRR Part 375 Restricted-Residential Soil Cleanup Objectives (SCOs).
4. Values per 6NYCRR Part 375 Commercial Soil Cleanup Objectives (SCOs).
5. Values per 6NYCRR Part 375 Restricted-Residential Soil Cleanup Objectives (SCOs).
6. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparisons to SCOs

**Definitions:**

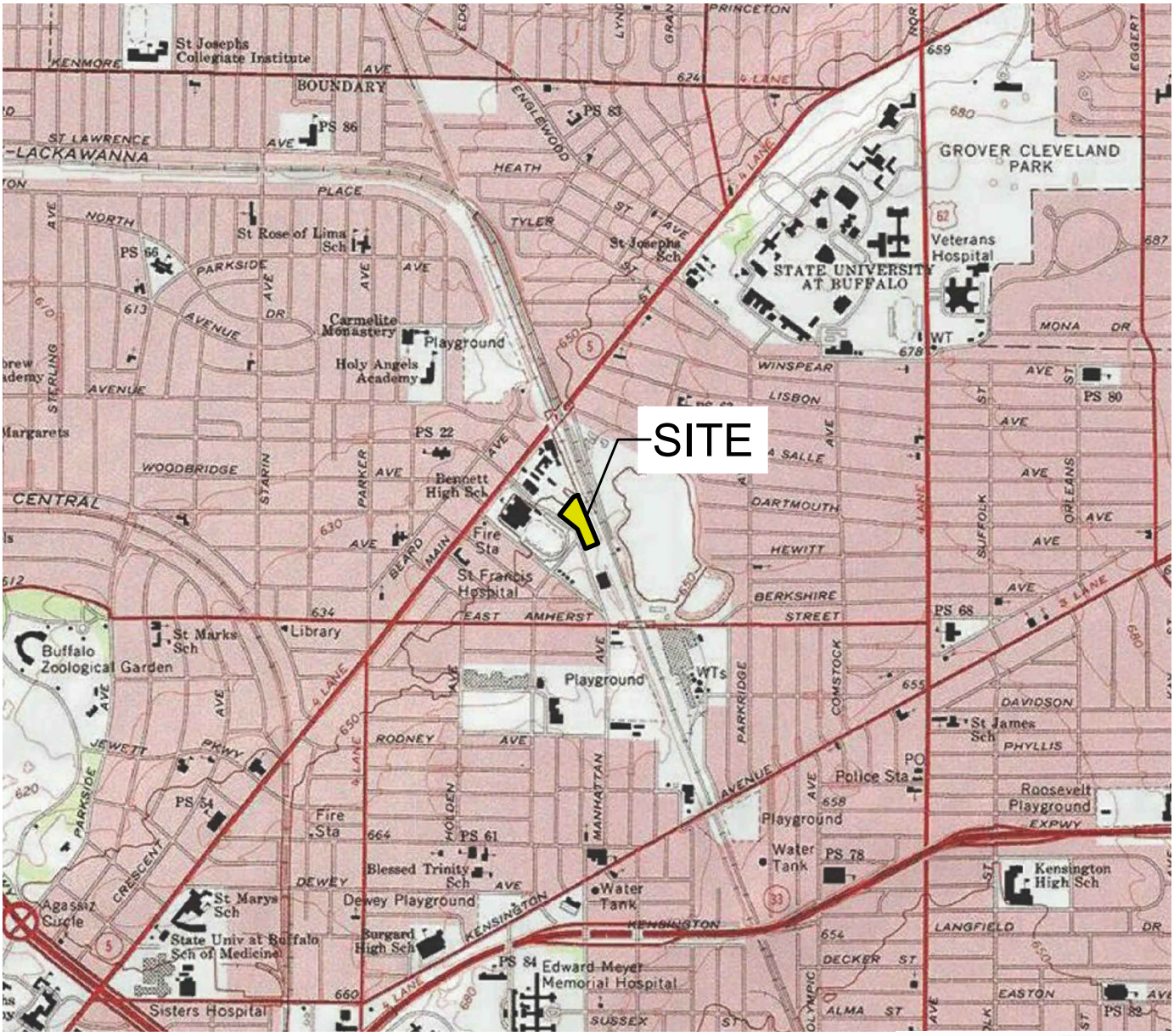
ND = Parameter not detected above laboratory detection limit.
"--" = No value available for the parameter, or the parameter was not analysed for.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
P = The RPD between the results for the two columns exceeds the method-specified criteria.
D = Compounds were identified in an analyisis at the secondary dilution factor.

| | |
|---|---|
| **BOLD** | = Result exceeds Unrestricted Use SCO's. |
| **BOLD** | = Result exceeds Restricted Residential Use SCO's. |
| **BOLD** | = Result exceeds Commercial Use SCOs |
| **BOLD** | = Result exceeds Industrial Use SCOs |

# FIGURES

F:\CAD\Benchmark\Savarino\389 Manhattan Ave\Figure 1 - Site Location and Vicinity Map.dwg

# FIGURE 1




2000' 0' 2000' 4000'

SCALE: 1 INCH = 2000 FEET
SCALE IN FEET
(approximate)


BENCHMARK
ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599

PROJECT NO.: B0258-020-001

DATE: MARCH 2020

DRAFTED BY: CMS

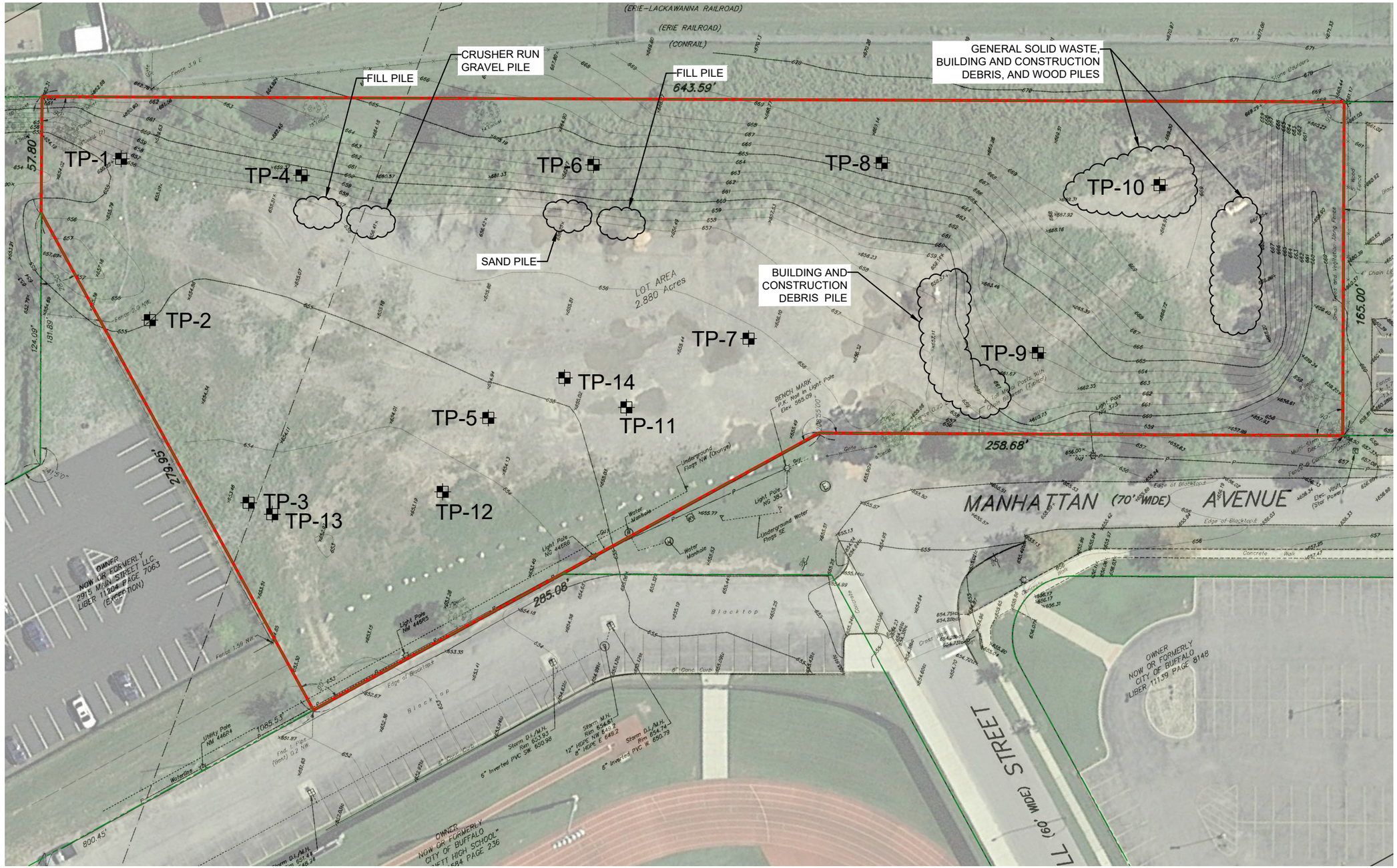
## SITE LOCATION AND VICINITY MAP

LIMITED PHASE II INVESTIGATION

VACANT LOT, 389 MANHATTAN AVENUE
BUFFALO, NEW YORK

PREPARED FOR
SAVARINO COMPANIES

F:\CAD\Benchmark\Savarino\389 Manhattan Ave\Phase II\Figure 2 - Site Plan with Investigation Locations.dwg




NOTE: IMAGE PER GOOGLE MAPS, SEPTEMBER 2018 AND DOES NOT REFLECT CURRENT SITE CONDITIONS.

50' 0' 50' 100'

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

LEGEND:

- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- TP-1 TEST PIT

DATE: MARCH 2020
DRAFTED BY: CMS


BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599


JOB NO.: B0258-020-001

# SITE PLAN WITH INVESTIGATION LOCATIONS

LIMITED PHASE II INVESTIGATION
VACANT LOT, 389 MANHATTAN AVENUE
BUFFALO, NEW YORK

PREPARED FOR
SAVARINO COMPANIES

**FIGURE 2**

# ATTACHMENT 1

## 1935 SANBORN MAP

# 925

(513-522-523 VOL. 5)

NY . . 036

927

972

923

926

924

913

914

LA SALLE AV.

NORTH MAIN LUMBER CO.

PLANING MILL

HEDSTROM-SPAULDING INC.

COAL & COKE YARD

COAL & COKE POCKET

SAND & GRAVEL PILES

SMITH VICTORY CORP.
MFRS OF WIRE HAIR PINS

Mc DOUGALL-BUTLER CO. INC.

2 Mc DOUGALL-BUTLER Co. INC.
PAINT MFRS.

BETTINGER COAL & COKE CORP.

BUFFALO METER CO.
MFRS. OF LIQUID METERS

BUFFALO CRUSHED STONE CO.
STONE QUARRY & CRUSHER

LEWIS J. BENNETT HIGH SCHOOL

ALL HIGH STADIUM

MAIN

MANHATTAN AV.

UNPAVED MANHATTAN AV.

MERCER AV.

HILL

PRESCOTT UNPAVED

MANHATTAN NOT OPENED AV.

E. MORRIS AV.

E. AMHERST NOT OPENED

CORDOVA AV.

HERTEL AV. 16" W.P.(M.)

HUNTINGTON AV.

QUARRY

D.L. & W. R.R.

EAGLE

Approximate Site Limits

SCALE 100 FT. TO ONE INCH
100 50 0 100 200

# ATTACHMENT 2

## PHOTOGRAPHS

# SITE PHOTOGRAPHS

**Photo 1:**

**Photo 2:**

**Photo 3:**

**Photo 4:**

Photo 1: View of the Site parking area – facing northwest

Photo 2: Typical fill material encountered throughout the Site.

Photo 3: View of TP-1.

Photo 4: Black sandy and granular fill material encountered at TP-1.

# SITE PHOTOGRAPHS

**Photo 5:**

**Photo 6:**

**Photo 7:**

**Photo 8:**

Photo 5: View of TP-6

Photo 6: Black granular and sandy fill material encountered at TP-6.

Photo 7: View of TP-7 (note: unknown orange sandy material).

Photo 8: Black granular fill material encountered at TP-7.

# SITE PHOTOGRAPHS

**Photo 9:**

**Photo 10:**

**Photo 11:**

**Photo 12:**

Photo 9: Location of TP-10 to investigate general debris pile.

Photo 10: View of TP-10 and fill material encountered.

Photo 11: Typical building and construction debris piles located in the southern portion of the Site.

Photo 12: Typical debris piles located on-Site.

# SITE PHOTOGRAPHS

**Photo 13:**

**Photo 14:**

Photo 13: View of TP-11.

Photo 14: Black granular fill material encountered at TP-11.

# ATTACHMENT 3

## ANALYTICAL REPORT

# ANALYTICAL REPORT

| | |
|---|---|
| Lab Number: | L2010060 |
| Client: | Benchmark & Turnkey Companies<br>2558 Hamburg Turnpike<br>Suite 300<br>Buffalo, NY 14218 |
| ATTN: | Chris Boron |
| Phone: | (716) 856-0599 |
| Project Name: | 389 MANHATTAN AVE |
| Project Number: | B0258-020-001 |
| Report Date: | 03/12/20 |



Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

**Lab Number:** L2010060
**Report Date:** 03/12/20

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|---|---|---|---|---|---|
| L2010060-01 | TP-1 3-4FT | SOIL | 389 MANHATTAN AVE | 03/04/20 09:00 | 03/05/20 |
| L2010060-02 | TP-6 5-6FT | SOIL | 389 MANHATTAN AVE | 03/04/20 11:30 | 03/05/20 |
| L2010060-03 | TP-7 0.5-1.5FT | SOIL | 389 MANHATTAN AVE | 03/04/20 12:00 | 03/05/20 |
| L2010060-04 | TP-10 6-7FT | SOIL | 389 MANHATTAN AVE | 03/04/20 14:00 | 03/05/20 |
| L2010060-05 | TP-3 0-2FT | SOIL | 389 MANHATTAN AVE | 03/04/20 10:00 | 03/05/20 |
| L2010060-06 | TP-7 1.5-2.7FT | SOIL | 389 MANHATTAN AVE | 03/04/20 12:05 | 03/05/20 |
| L2010060-07 | TP-8 9-11FT | SOIL | 389 MANHATTAN AVE | 03/04/20 12:30 | 03/05/20 |
| L2010060-08 | TP-9 4-5FT | SOIL | 389 MANHATTAN AVE | 03/04/20 13:00 | 03/05/20 |

| | | | |
|---|---|---|---|
| **Project Name:** | 389 MANHATTAN AVE | **Lab Number:** | L2010060 |
| **Project Number:** | B0258-020-001 | **Report Date:** | 03/12/20 |

## Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

**Project Name:** 389 MANHATTAN AVE **Lab Number:** L2010060
**Project Number:** B0258-020-001 **Report Date:** 03/12/20

**Case Narrative (continued)**

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Semivolatile Organics

L2010060-01, -02, -03, and -04: The sample has elevated detection limits due to the dilution required by the sample matrix.

Total Metals

The WG1349193-3 MS recovery, performed on L2010060-01, is outside the acceptance criteria for cadmium (67%). A post digestion spike was performed and yielded an unacceptable recovery for cadmium (62%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1349193-3 MS recovery for lead (216%), performed on L2010060-01, does not apply because the sample concentration is greater than four times the spike amount added.

The WG1349193-4 Laboratory Duplicate RPD for arsenic (29%), performed on L2010060-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 03/12/20

# ORGANICS

# SEMIVOLATILES

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-01 D
Client ID: TP-1 3-4FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 09:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 03/09/20 13:10
Analyst: JRW
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 03/08/20 01:46

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Acenaphthene | ND | | ug/kg | 1500 | 200 | 10 |
| Hexachlorobenzene | ND | | ug/kg | 1100 | 210 | 10 |
| Bis(2-chloroethyl)ether | ND | | ug/kg | 1700 | 260 | 10 |
| 2-Chloronaphthalene | ND | | ug/kg | 1900 | 190 | 10 |
| 3,3'-Dichlorobenzidine | ND | | ug/kg | 1900 | 500 | 10 |
| 2,4-Dinitrotoluene | ND | | ug/kg | 1900 | 380 | 10 |
| 2,6-Dinitrotoluene | ND | | ug/kg | 1900 | 320 | 10 |
| Fluoranthene | 580 | J | ug/kg | 1100 | 220 | 10 |
| 4-Chlorophenyl phenyl ether | ND | | ug/kg | 1900 | 200 | 10 |
| 4-Bromophenyl phenyl ether | ND | | ug/kg | 1900 | 290 | 10 |
| Bis(2-chloroisopropyl)ether | ND | | ug/kg | 2300 | 320 | 10 |
| Bis(2-chloroethoxy)methane | ND | | ug/kg | 2000 | 190 | 10 |
| Hexachlorobutadiene | ND | | ug/kg | 1900 | 280 | 10 |
| Hexachlorocyclopentadiene | ND | | ug/kg | 5400 | 1700 | 10 |
| Hexachloroethane | ND | | ug/kg | 1500 | 310 | 10 |
| Isophorone | ND | | ug/kg | 1700 | 240 | 10 |
| Naphthalene | ND | | ug/kg | 1900 | 230 | 10 |
| Nitrobenzene | ND | | ug/kg | 1700 | 280 | 10 |
| NDPA/DPA | ND | | ug/kg | 1500 | 220 | 10 |
| n-Nitrosodi-n-propylamine | ND | | ug/kg | 1900 | 290 | 10 |
| Bis(2-ethylhexyl)phthalate | ND | | ug/kg | 1900 | 660 | 10 |
| Butyl benzyl phthalate | ND | | ug/kg | 1900 | 480 | 10 |
| Di-n-butylphthalate | ND | | ug/kg | 1900 | 360 | 10 |
| Di-n-octylphthalate | ND | | ug/kg | 1900 | 640 | 10 |
| Diethyl phthalate | ND | | ug/kg | 1900 | 180 | 10 |
| Dimethyl phthalate | ND | | ug/kg | 1900 | 400 | 10 |
| Benzo(a)anthracene | 310 | J | ug/kg | 1100 | 210 | 10 |
| Benzo(a)pyrene | ND | | ug/kg | 1500 | 460 | 10 |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-01 D
Client ID: TP-1 3-4FT
Sample Location: 389 MANHATTAN AVE
Date Collected: 03/04/20 09:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Benzo(b)fluoranthene | 420 | J | ug/kg | 1100 | 320 | 10 |
| Benzo(k)fluoranthene | ND | | ug/kg | 1100 | 300 | 10 |
| Chrysene | 310 | J | ug/kg | 1100 | 200 | 10 |
| Acenaphthylene | ND | | ug/kg | 1500 | 290 | 10 |
| Anthracene | ND | | ug/kg | 1100 | 370 | 10 |
| Benzo(ghi)perylene | ND | | ug/kg | 1500 | 220 | 10 |
| Fluorene | ND | | ug/kg | 1900 | 180 | 10 |
| Phenanthrene | 330 | J | ug/kg | 1100 | 230 | 10 |
| Dibenzo(a,h)anthracene | ND | | ug/kg | 1100 | 220 | 10 |
| Indeno(1,2,3-cd)pyrene | ND | | ug/kg | 1500 | 260 | 10 |
| Pyrene | 520 | J | ug/kg | 1100 | 190 | 10 |
| Biphenyl | ND | | ug/kg | 4300 | 440 | 10 |
| 4-Chloroaniline | ND | | ug/kg | 1900 | 340 | 10 |
| 2-Nitroaniline | ND | | ug/kg | 1900 | 360 | 10 |
| 3-Nitroaniline | ND | | ug/kg | 1900 | 360 | 10 |
| 4-Nitroaniline | ND | | ug/kg | 1900 | 780 | 10 |
| Dibenzofuran | ND | | ug/kg | 1900 | 180 | 10 |
| 2-Methylnaphthalene | ND | | ug/kg | 2300 | 230 | 10 |
| 1,2,4,5-Tetrachlorobenzene | ND | | ug/kg | 1900 | 200 | 10 |
| Acetophenone | ND | | ug/kg | 1900 | 230 | 10 |
| 2,4,6-Trichlorophenol | ND | | ug/kg | 1100 | 360 | 10 |
| p-Chloro-m-cresol | ND | | ug/kg | 1900 | 280 | 10 |
| 2-Chlorophenol | ND | | ug/kg | 1900 | 220 | 10 |
| 2,4-Dichlorophenol | ND | | ug/kg | 1700 | 300 | 10 |
| 2,4-Dimethylphenol | ND | | ug/kg | 1900 | 620 | 10 |
| 2-Nitrophenol | ND | | ug/kg | 4100 | 710 | 10 |
| 4-Nitrophenol | ND | | ug/kg | 2600 | 770 | 10 |
| 2,4-Dinitrophenol | ND | | ug/kg | 9100 | 880 | 10 |
| 4,6-Dinitro-o-cresol | ND | | ug/kg | 4900 | 910 | 10 |
| Pentachlorophenol | ND | | ug/kg | 1500 | 420 | 10 |
| Phenol | ND | | ug/kg | 1900 | 280 | 10 |
| 2-Methylphenol | ND | | ug/kg | 1900 | 290 | 10 |
| 3-Methylphenol/4-Methylphenol | ND | | ug/kg | 2700 | 300 | 10 |
| 2,4,5-Trichlorophenol | ND | | ug/kg | 1900 | 360 | 10 |
| Carbazole | ND | | ug/kg | 1900 | 180 | 10 |
| Atrazine | ND | | ug/kg | 1500 | 660 | 10 |
| Benzaldehyde | ND | | ug/kg | 2500 | 510 | 10 |

**Project Name:** 389 MANHATTAN AVE
**Lab Number:** L2010060
**Project Number:** B0258-020-001
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-01 D
Client ID: TP-1 3-4FT
Sample Location: 389 MANHATTAN AVE
Date Collected: 03/04/20 09:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Caprolactam | ND | | ug/kg | 1900 | 580 | 10 |
| 2,3,4,6-Tetrachlorophenol | ND | | ug/kg | 1900 | 380 | 10 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|---|---|---|---|
| 2-Fluorophenol | 75 | | 25-120 |
| Phenol-d6 | 79 | | 10-120 |
| Nitrobenzene-d5 | 71 | | 23-120 |
| 2-Fluorobiphenyl | 70 | | 30-120 |
| 2,4,6-Tribromophenol | 46 | | 10-136 |
| 4-Terphenyl-d14 | 60 | | 18-120 |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-02 D
Client ID: TP-6 5-6FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 11:30
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 03/09/20 13:34
Analyst: WR
Percent Solids: 76%

Extraction Method: EPA 3546
Extraction Date: 03/08/20 01:46

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Acenaphthene | 460 | J | ug/kg | 1700 | 220 | 10 |
| Hexachlorobenzene | ND | | ug/kg | 1300 | 240 | 10 |
| Bis(2-chloroethyl)ether | ND | | ug/kg | 1900 | 290 | 10 |
| 2-Chloronaphthalene | ND | | ug/kg | 2200 | 210 | 10 |
| 3,3'-Dichlorobenzidine | ND | | ug/kg | 2200 | 580 | 10 |
| 2,4-Dinitrotoluene | ND | | ug/kg | 2200 | 430 | 10 |
| 2,6-Dinitrotoluene | ND | | ug/kg | 2200 | 370 | 10 |
| Fluoranthene | 9900 | | ug/kg | 1300 | 250 | 10 |
| 4-Chlorophenyl phenyl ether | ND | | ug/kg | 2200 | 230 | 10 |
| 4-Bromophenyl phenyl ether | ND | | ug/kg | 2200 | 330 | 10 |
| Bis(2-chloroisopropyl)ether | ND | | ug/kg | 2600 | 370 | 10 |
| Bis(2-chloroethoxy)methane | ND | | ug/kg | 2300 | 220 | 10 |
| Hexachlorobutadiene | ND | | ug/kg | 2200 | 320 | 10 |
| Hexachlorocyclopentadiene | ND | | ug/kg | 6200 | 2000 | 10 |
| Hexachloroethane | ND | | ug/kg | 1700 | 350 | 10 |
| Isophorone | ND | | ug/kg | 1900 | 280 | 10 |
| Naphthalene | 640 | J | ug/kg | 2200 | 260 | 10 |
| Nitrobenzene | ND | | ug/kg | 1900 | 320 | 10 |
| NDPA/DPA | ND | | ug/kg | 1700 | 250 | 10 |
| n-Nitrosodi-n-propylamine | ND | | ug/kg | 2200 | 330 | 10 |
| Bis(2-ethylhexyl)phthalate | ND | | ug/kg | 2200 | 750 | 10 |
| Butyl benzyl phthalate | 800 | J | ug/kg | 2200 | 540 | 10 |
| Di-n-butylphthalate | ND | | ug/kg | 2200 | 410 | 10 |
| Di-n-octylphthalate | ND | | ug/kg | 2200 | 740 | 10 |
| Diethyl phthalate | ND | | ug/kg | 2200 | 200 | 10 |
| Dimethyl phthalate | ND | | ug/kg | 2200 | 450 | 10 |
| Benzo(a)anthracene | 3600 | | ug/kg | 1300 | 240 | 10 |
| Benzo(a)pyrene | 4000 | | ug/kg | 1700 | 530 | 10 |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-02 D
Client ID: TP-6 5-6FT
Sample Location: 389 MANHATTAN AVE
Date Collected: 03/04/20 11:30
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Benzo(b)fluoranthene | 5200 | | ug/kg | 1300 | 360 | 10 |
| Benzo(k)fluoranthene | 1600 | | ug/kg | 1300 | 350 | 10 |
| Chrysene | 3300 | | ug/kg | 1300 | 220 | 10 |
| Acenaphthylene | ND | | ug/kg | 1700 | 330 | 10 |
| Anthracene | 1100 | J | ug/kg | 1300 | 420 | 10 |
| Benzo(ghi)perylene | 2000 | | ug/kg | 1700 | 250 | 10 |
| Fluorene | 510 | J | ug/kg | 2200 | 210 | 10 |
| Phenanthrene | 4900 | | ug/kg | 1300 | 260 | 10 |
| Dibenzo(a,h)anthracene | 580 | J | ug/kg | 1300 | 250 | 10 |
| Indeno(1,2,3-cd)pyrene | 2300 | | ug/kg | 1700 | 300 | 10 |
| Pyrene | 8100 | | ug/kg | 1300 | 220 | 10 |
| Biphenyl | ND | | ug/kg | 4900 | 500 | 10 |
| 4-Chloroaniline | ND | | ug/kg | 2200 | 390 | 10 |
| 2-Nitroaniline | ND | | ug/kg | 2200 | 420 | 10 |
| 3-Nitroaniline | ND | | ug/kg | 2200 | 410 | 10 |
| 4-Nitroaniline | ND | | ug/kg | 2200 | 900 | 10 |
| Dibenzofuran | 350 | J | ug/kg | 2200 | 200 | 10 |
| 2-Methylnaphthalene | 530 | J | ug/kg | 2600 | 260 | 10 |
| 1,2,4,5-Tetrachlorobenzene | ND | | ug/kg | 2200 | 220 | 10 |
| Acetophenone | ND | | ug/kg | 2200 | 270 | 10 |
| 2,4,6-Trichlorophenol | ND | | ug/kg | 1300 | 410 | 10 |
| p-Chloro-m-cresol | ND | | ug/kg | 2200 | 320 | 10 |
| 2-Chlorophenol | ND | | ug/kg | 2200 | 260 | 10 |
| 2,4-Dichlorophenol | ND | | ug/kg | 1900 | 350 | 10 |
| 2,4-Dimethylphenol | ND | | ug/kg | 2200 | 710 | 10 |
| 2-Nitrophenol | ND | | ug/kg | 4700 | 810 | 10 |
| 4-Nitrophenol | ND | | ug/kg | 3000 | 880 | 10 |
| 2,4-Dinitrophenol | ND | | ug/kg | 10000 | 1000 | 10 |
| 4,6-Dinitro-o-cresol | ND | | ug/kg | 5600 | 1000 | 10 |
| Pentachlorophenol | ND | | ug/kg | 1700 | 480 | 10 |
| Phenol | ND | | ug/kg | 2200 | 330 | 10 |
| 2-Methylphenol | ND | | ug/kg | 2200 | 340 | 10 |
| 3-Methylphenol/4-Methylphenol | ND | | ug/kg | 3100 | 340 | 10 |
| 2,4,5-Trichlorophenol | ND | | ug/kg | 2200 | 410 | 10 |
| Carbazole | 720 | J | ug/kg | 2200 | 210 | 10 |
| Atrazine | ND | | ug/kg | 1700 | 760 | 10 |
| Benzaldehyde | ND | | ug/kg | 2800 | 580 | 10 |

**Project Name:** 389 MANHATTAN AVE
**Lab Number:** L2010060
**Project Number:** B0258-020-001
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-02 D
Client ID: TP-6 5-6FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 11:30
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Caprolactam | ND | | ug/kg | 2200 | 660 | 10 |
| 2,3,4,6-Tetrachlorophenol | ND | | ug/kg | 2200 | 440 | 10 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|---|---|---|---|
| 2-Fluorophenol | 76 | | 25-120 |
| Phenol-d6 | 82 | | 10-120 |
| Nitrobenzene-d5 | 80 | | 23-120 |
| 2-Fluorobiphenyl | 57 | | 30-120 |
| 2,4,6-Tribromophenol | 73 | | 10-136 |
| 4-Terphenyl-d14 | 96 | | 18-120 |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-03 D
Client ID: TP-7 0.5-1.5FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 12:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 03/09/20 14:22
Analyst: JRW
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 03/08/20 01:46

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Acenaphthene | ND | | ug/kg | 1500 | 200 | 10 |
| Hexachlorobenzene | ND | | ug/kg | 1200 | 210 | 10 |
| Bis(2-chloroethyl)ether | ND | | ug/kg | 1700 | 260 | 10 |
| 2-Chloronaphthalene | ND | | ug/kg | 1900 | 190 | 10 |
| 3,3'-Dichlorobenzidine | ND | | ug/kg | 1900 | 510 | 10 |
| 2,4-Dinitrotoluene | ND | | ug/kg | 1900 | 380 | 10 |
| 2,6-Dinitrotoluene | ND | | ug/kg | 1900 | 330 | 10 |
| Fluoranthene | 5900 | | ug/kg | 1200 | 220 | 10 |
| 4-Chlorophenyl phenyl ether | ND | | ug/kg | 1900 | 200 | 10 |
| 4-Bromophenyl phenyl ether | ND | | ug/kg | 1900 | 290 | 10 |
| Bis(2-chloroisopropyl)ether | ND | | ug/kg | 2300 | 330 | 10 |
| Bis(2-chloroethoxy)methane | ND | | ug/kg | 2100 | 190 | 10 |
| Hexachlorobutadiene | ND | | ug/kg | 1900 | 280 | 10 |
| Hexachlorocyclopentadiene | ND | | ug/kg | 5500 | 1700 | 10 |
| Hexachloroethane | ND | | ug/kg | 1500 | 310 | 10 |
| Isophorone | ND | | ug/kg | 1700 | 250 | 10 |
| Naphthalene | 7100 | | ug/kg | 1900 | 230 | 10 |
| Nitrobenzene | ND | | ug/kg | 1700 | 280 | 10 |
| NDPA/DPA | ND | | ug/kg | 1500 | 220 | 10 |
| n-Nitrosodi-n-propylamine | ND | | ug/kg | 1900 | 300 | 10 |
| Bis(2-ethylhexyl)phthalate | ND | | ug/kg | 1900 | 660 | 10 |
| Butyl benzyl phthalate | ND | | ug/kg | 1900 | 480 | 10 |
| Di-n-butylphthalate | ND | | ug/kg | 1900 | 360 | 10 |
| Di-n-octylphthalate | ND | | ug/kg | 1900 | 650 | 10 |
| Diethyl phthalate | ND | | ug/kg | 1900 | 180 | 10 |
| Dimethyl phthalate | ND | | ug/kg | 1900 | 400 | 10 |
| Benzo(a)anthracene | 2800 | | ug/kg | 1200 | 220 | 10 |
| Benzo(a)pyrene | 2900 | | ug/kg | 1500 | 470 | 10 |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-03 D
Client ID: TP-7 0.5-1.5FT
Sample Location: 389 MANHATTAN AVE
Date Collected: 03/04/20 12:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Benzo(b)fluoranthene | 3700 | | ug/kg | 1200 | 320 | 10 |
| Benzo(k)fluoranthene | 1300 | | ug/kg | 1200 | 310 | 10 |
| Chrysene | 2800 | | ug/kg | 1200 | 200 | 10 |
| Acenaphthylene | 320 | J | ug/kg | 1500 | 300 | 10 |
| Anthracene | 790 | J | ug/kg | 1200 | 370 | 10 |
| Benzo(ghi)perylene | 1400 | J | ug/kg | 1500 | 220 | 10 |
| Fluorene | 520 | J | ug/kg | 1900 | 190 | 10 |
| Phenanthrene | 5400 | | ug/kg | 1200 | 230 | 10 |
| Dibenzo(a,h)anthracene | 410 | J | ug/kg | 1200 | 220 | 10 |
| Indeno(1,2,3-cd)pyrene | 1500 | | ug/kg | 1500 | 270 | 10 |
| Pyrene | 4300 | | ug/kg | 1200 | 190 | 10 |
| Biphenyl | 580 | J | ug/kg | 4400 | 440 | 10 |
| 4-Chloroaniline | ND | | ug/kg | 1900 | 350 | 10 |
| 2-Nitroaniline | ND | | ug/kg | 1900 | 370 | 10 |
| 3-Nitroaniline | ND | | ug/kg | 1900 | 360 | 10 |
| 4-Nitroaniline | ND | | ug/kg | 1900 | 790 | 10 |
| Dibenzofuran | 1800 | J | ug/kg | 1900 | 180 | 10 |
| 2-Methylnaphthalene | 8700 | | ug/kg | 2300 | 230 | 10 |
| 1,2,4,5-Tetrachlorobenzene | ND | | ug/kg | 1900 | 200 | 10 |
| Acetophenone | 840 | J | ug/kg | 1900 | 240 | 10 |
| 2,4,6-Trichlorophenol | ND | | ug/kg | 1200 | 360 | 10 |
| p-Chloro-m-cresol | ND | | ug/kg | 1900 | 280 | 10 |
| 2-Chlorophenol | ND | | ug/kg | 1900 | 230 | 10 |
| 2,4-Dichlorophenol | ND | | ug/kg | 1700 | 310 | 10 |
| 2,4-Dimethylphenol | ND | | ug/kg | 1900 | 630 | 10 |
| 2-Nitrophenol | ND | | ug/kg | 4100 | 720 | 10 |
| 4-Nitrophenol | ND | | ug/kg | 2700 | 780 | 10 |
| 2,4-Dinitrophenol | ND | | ug/kg | 9200 | 890 | 10 |
| 4,6-Dinitro-o-cresol | ND | | ug/kg | 5000 | 920 | 10 |
| Pentachlorophenol | ND | | ug/kg | 1500 | 420 | 10 |
| Phenol | ND | | ug/kg | 1900 | 290 | 10 |
| 2-Methylphenol | ND | | ug/kg | 1900 | 300 | 10 |
| 3-Methylphenol/4-Methylphenol | ND | | ug/kg | 2800 | 300 | 10 |
| 2,4,5-Trichlorophenol | ND | | ug/kg | 1900 | 370 | 10 |
| Carbazole | 610 | J | ug/kg | 1900 | 190 | 10 |
| Atrazine | ND | | ug/kg | 1500 | 670 | 10 |
| Benzaldehyde | ND | | ug/kg | 2500 | 520 | 10 |

**Project Name:** 389 MANHATTAN AVE
**Lab Number:** L2010060
**Project Number:** B0258-020-001
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-03 D
Client ID: TP-7 0.5-1.5FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 12:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Caprolactam | ND | | ug/kg | 1900 | 580 | 10 |
| 2,3,4,6-Tetrachlorophenol | ND | | ug/kg | 1900 | 390 | 10 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|---|---|---|---|
| 2-Fluorophenol | 68 | | 25-120 |
| Phenol-d6 | 73 | | 10-120 |
| Nitrobenzene-d5 | 105 | | 23-120 |
| 2-Fluorobiphenyl | 72 | | 30-120 |
| 2,4,6-Tribromophenol | 68 | | 10-136 |
| 4-Terphenyl-d14 | 81 | | 18-120 |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-04 D
Client ID: TP-10 6-7FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 14:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 03/09/20 14:46
Analyst: WR
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 03/08/20 01:46

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Acenaphthene | ND | | ug/kg | 1600 | 200 | 10 |
| Hexachlorobenzene | ND | | ug/kg | 1200 | 220 | 10 |
| Bis(2-chloroethyl)ether | ND | | ug/kg | 1700 | 260 | 10 |
| 2-Chloronaphthalene | ND | | ug/kg | 1900 | 190 | 10 |
| 3,3'-Dichlorobenzidine | ND | | ug/kg | 1900 | 520 | 10 |
| 2,4-Dinitrotoluene | ND | | ug/kg | 1900 | 390 | 10 |
| 2,6-Dinitrotoluene | ND | | ug/kg | 1900 | 330 | 10 |
| Fluoranthene | 1400 | | ug/kg | 1200 | 220 | 10 |
| 4-Chlorophenyl phenyl ether | ND | | ug/kg | 1900 | 210 | 10 |
| 4-Bromophenyl phenyl ether | ND | | ug/kg | 1900 | 300 | 10 |
| Bis(2-chloroisopropyl)ether | ND | | ug/kg | 2300 | 330 | 10 |
| Bis(2-chloroethoxy)methane | ND | | ug/kg | 2100 | 190 | 10 |
| Hexachlorobutadiene | ND | | ug/kg | 1900 | 280 | 10 |
| Hexachlorocyclopentadiene | ND | | ug/kg | 5600 | 1800 | 10 |
| Hexachloroethane | ND | | ug/kg | 1600 | 310 | 10 |
| Isophorone | ND | | ug/kg | 1700 | 250 | 10 |
| Naphthalene | ND | | ug/kg | 1900 | 240 | 10 |
| Nitrobenzene | ND | | ug/kg | 1700 | 290 | 10 |
| NDPA/DPA | ND | | ug/kg | 1600 | 220 | 10 |
| n-Nitrosodi-n-propylamine | ND | | ug/kg | 1900 | 300 | 10 |
| Bis(2-ethylhexyl)phthalate | ND | | ug/kg | 1900 | 670 | 10 |
| Butyl benzyl phthalate | ND | | ug/kg | 1900 | 490 | 10 |
| Di-n-butylphthalate | ND | | ug/kg | 1900 | 370 | 10 |
| Di-n-octylphthalate | ND | | ug/kg | 1900 | 660 | 10 |
| Diethyl phthalate | ND | | ug/kg | 1900 | 180 | 10 |
| Dimethyl phthalate | ND | | ug/kg | 1900 | 410 | 10 |
| Benzo(a)anthracene | 650 | J | ug/kg | 1200 | 220 | 10 |
| Benzo(a)pyrene | 760 | J | ug/kg | 1600 | 470 | 10 |

**Project Name:** 389 MANHATTAN AVE **Lab Number:** L2010060

**Project Number:** B0258-020-001 **Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-04 D
Client ID: TP-10 6-7FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 14:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Benzo(b)fluoranthene | 940 | J | ug/kg | 1200 | 330 | 10 |
| Benzo(k)fluoranthene | 330 | J | ug/kg | 1200 | 310 | 10 |
| Chrysene | 650 | J | ug/kg | 1200 | 200 | 10 |
| Acenaphthylene | ND | | ug/kg | 1600 | 300 | 10 |
| Anthracene | ND | | ug/kg | 1200 | 380 | 10 |
| Benzo(ghi)perylene | 420 | J | ug/kg | 1600 | 230 | 10 |
| Fluorene | ND | | ug/kg | 1900 | 190 | 10 |
| Phenanthrene | 780 | J | ug/kg | 1200 | 240 | 10 |
| Dibenzo(a,h)anthracene | ND | | ug/kg | 1200 | 220 | 10 |
| Indeno(1,2,3-cd)pyrene | 470 | J | ug/kg | 1600 | 270 | 10 |
| Pyrene | 1100 | J | ug/kg | 1200 | 190 | 10 |
| Biphenyl | ND | | ug/kg | 4400 | 450 | 10 |
| 4-Chloroaniline | ND | | ug/kg | 1900 | 350 | 10 |
| 2-Nitroaniline | ND | | ug/kg | 1900 | 370 | 10 |
| 3-Nitroaniline | ND | | ug/kg | 1900 | 370 | 10 |
| 4-Nitroaniline | ND | | ug/kg | 1900 | 800 | 10 |
| Dibenzofuran | ND | | ug/kg | 1900 | 180 | 10 |
| 2-Methylnaphthalene | ND | | ug/kg | 2300 | 230 | 10 |
| 1,2,4,5-Tetrachlorobenzene | ND | | ug/kg | 1900 | 200 | 10 |
| Acetophenone | ND | | ug/kg | 1900 | 240 | 10 |
| 2,4,6-Trichlorophenol | ND | | ug/kg | 1200 | 370 | 10 |
| p-Chloro-m-cresol | ND | | ug/kg | 1900 | 290 | 10 |
| 2-Chlorophenol | ND | | ug/kg | 1900 | 230 | 10 |
| 2,4-Dichlorophenol | ND | | ug/kg | 1700 | 310 | 10 |
| 2,4-Dimethylphenol | ND | | ug/kg | 1900 | 640 | 10 |
| 2-Nitrophenol | ND | | ug/kg | 4200 | 730 | 10 |
| 4-Nitrophenol | ND | | ug/kg | 2700 | 790 | 10 |
| 2,4-Dinitrophenol | ND | | ug/kg | 9300 | 900 | 10 |
| 4,6-Dinitro-o-cresol | ND | | ug/kg | 5000 | 930 | 10 |
| Pentachlorophenol | ND | | ug/kg | 1600 | 430 | 10 |
| Phenol | ND | | ug/kg | 1900 | 290 | 10 |
| 2-Methylphenol | ND | | ug/kg | 1900 | 300 | 10 |
| 3-Methylphenol/4-Methylphenol | ND | | ug/kg | 2800 | 300 | 10 |
| 2,4,5-Trichlorophenol | ND | | ug/kg | 1900 | 370 | 10 |
| Carbazole | ND | | ug/kg | 1900 | 190 | 10 |
| Atrazine | ND | | ug/kg | 1600 | 680 | 10 |
| Benzaldehyde | ND | | ug/kg | 2600 | 520 | 10 |

**Project Name:** 389 MANHATTAN AVE
**Lab Number:** L2010060
**Project Number:** B0258-020-001
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-04 D
Client ID: TP-10 6-7FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 14:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|---|---|---|---|---|---|
| **Semivolatile Organics by GC/MS - Westborough Lab** | | | | | | |
| Caprolactam | ND | | ug/kg | 1900 | 590 | 10 |
| 2,3,4,6-Tetrachlorophenol | ND | | ug/kg | 1900 | 390 | 10 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|---|---|---|---|
| 2-Fluorophenol | 96 | | 25-120 |
| Phenol-d6 | 95 | | 10-120 |
| Nitrobenzene-d5 | 97 | | 23-120 |
| 2-Fluorobiphenyl | 73 | | 30-120 |
| 2,4,6-Tribromophenol | 75 | | 10-136 |
| 4-Terphenyl-d14 | 70 | | 18-120 |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

# Method Blank Analysis
## Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 03/09/20 11:33
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 03/08/20 01:46

| Parameter | Result | Qualifier | Units | RL | MDL |
|---|---|---|---|---|---|
| Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1348475-1 | | | | | |
| Acenaphthene | ND | | ug/kg | 130 | 17. |
| Hexachlorobenzene | ND | | ug/kg | 99 | 18. |
| Bis(2-chloroethyl)ether | ND | | ug/kg | 150 | 22. |
| 2-Chloronaphthalene | ND | | ug/kg | 160 | 16. |
| 3,3'-Dichlorobenzidine | ND | | ug/kg | 160 | 44. |
| 2,4-Dinitrotoluene | ND | | ug/kg | 160 | 33. |
| 2,6-Dinitrotoluene | ND | | ug/kg | 160 | 28. |
| Fluoranthene | ND | | ug/kg | 99 | 19. |
| 4-Chlorophenyl phenyl ether | ND | | ug/kg | 160 | 18. |
| 4-Bromophenyl phenyl ether | ND | | ug/kg | 160 | 25. |
| Bis(2-chloroisopropyl)ether | ND | | ug/kg | 200 | 28. |
| Bis(2-chloroethoxy)methane | ND | | ug/kg | 180 | 17. |
| Hexachlorobutadiene | ND | | ug/kg | 160 | 24. |
| Hexachlorocyclopentadiene | ND | | ug/kg | 470 | 150 |
| Hexachloroethane | ND | | ug/kg | 130 | 27. |
| Isophorone | ND | | ug/kg | 150 | 22. |
| Naphthalene | ND | | ug/kg | 160 | 20. |
| Nitrobenzene | ND | | ug/kg | 150 | 24. |
| NDPA/DPA | ND | | ug/kg | 130 | 19. |
| n-Nitrosodi-n-propylamine | ND | | ug/kg | 160 | 26. |
| Bis(2-ethylhexyl)phthalate | ND | | ug/kg | 160 | 57. |
| Butyl benzyl phthalate | ND | | ug/kg | 160 | 42. |
| Di-n-butylphthalate | ND | | ug/kg | 160 | 31. |
| Di-n-octylphthalate | ND | | ug/kg | 160 | 56. |
| Diethyl phthalate | ND | | ug/kg | 160 | 15. |
| Dimethyl phthalate | ND | | ug/kg | 160 | 35. |
| Benzo(a)anthracene | ND | | ug/kg | 99 | 19. |
| Benzo(a)pyrene | ND | | ug/kg | 130 | 40. |
| Benzo(b)fluoranthene | ND | | ug/kg | 99 | 28. |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

# Method Blank Analysis
## Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 03/09/20 11:33
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 03/08/20 01:46

| Parameter | Result | Qualifier | Units | RL | MDL |
|---|---|---|---|---|---|
| Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1348475-1 | | | | | |
| Benzo(k)fluoranthene | ND | | ug/kg | 99 | 26. |
| Chrysene | ND | | ug/kg | 99 | 17. |
| Acenaphthylene | ND | | ug/kg | 130 | 26. |
| Anthracene | ND | | ug/kg | 99 | 32. |
| Benzo(ghi)perylene | ND | | ug/kg | 130 | 19. |
| Fluorene | ND | | ug/kg | 160 | 16. |
| Phenanthrene | ND | | ug/kg | 99 | 20. |
| Dibenzo(a,h)anthracene | ND | | ug/kg | 99 | 19. |
| Indeno(1,2,3-cd)pyrene | ND | | ug/kg | 130 | 23. |
| Pyrene | ND | | ug/kg | 99 | 16. |
| Biphenyl | ND | | ug/kg | 380 | 38. |
| 4-Chloroaniline | ND | | ug/kg | 160 | 30. |
| 2-Nitroaniline | ND | | ug/kg | 160 | 32. |
| 3-Nitroaniline | ND | | ug/kg | 160 | 31. |
| 4-Nitroaniline | ND | | ug/kg | 160 | 68. |
| Dibenzofuran | ND | | ug/kg | 160 | 16. |
| 2-Methylnaphthalene | ND | | ug/kg | 200 | 20. |
| 1,2,4,5-Tetrachlorobenzene | ND | | ug/kg | 160 | 17. |
| Acetophenone | ND | | ug/kg | 160 | 20. |
| 2,4,6-Trichlorophenol | ND | | ug/kg | 99 | 31. |
| p-Chloro-m-cresol | ND | | ug/kg | 160 | 25. |
| 2-Chlorophenol | ND | | ug/kg | 160 | 20. |
| 2,4-Dichlorophenol | ND | | ug/kg | 150 | 27. |
| 2,4-Dimethylphenol | ND | | ug/kg | 160 | 55. |
| 2-Nitrophenol | ND | | ug/kg | 360 | 62. |
| 4-Nitrophenol | ND | | ug/kg | 230 | 68. |
| 2,4-Dinitrophenol | ND | | ug/kg | 800 | 77. |
| 4,6-Dinitro-o-cresol | ND | | ug/kg | 430 | 80. |
| Pentachlorophenol | ND | | ug/kg | 130 | 36. |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

# Method Blank Analysis
## Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 03/09/20 11:33
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 03/08/20 01:46

| Parameter | Result | Qualifier | Units | RL | MDL |
|---|---|---|---|---|---|
| Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1348475-1 | | | | | |
| Phenol | ND | | ug/kg | 160 | 25. |
| 2-Methylphenol | ND | | ug/kg | 160 | 26. |
| 3-Methylphenol/4-Methylphenol | ND | | ug/kg | 240 | 26. |
| 2,4,5-Trichlorophenol | ND | | ug/kg | 160 | 32. |
| Carbazole | ND | | ug/kg | 160 | 16. |
| Atrazine | ND | | ug/kg | 130 | 58. |
| Benzaldehyde | ND | | ug/kg | 220 | 45. |
| Caprolactam | ND | | ug/kg | 160 | 50. |
| 2,3,4,6-Tetrachlorophenol | ND | | ug/kg | 160 | 33. |

| Surrogate | %Recovery | Qualifier | Acceptance Criteria |
|---|---|---|---|
| 2-Fluorophenol | 68 | | 25-120 |
| Phenol-d6 | 75 | | 10-120 |
| Nitrobenzene-d5 | 67 | | 23-120 |
| 2-Fluorobiphenyl | 62 | | 30-120 |
| 2,4,6-Tribromophenol | 60 | | 10-136 |
| 4-Terphenyl-d14 | 81 | | 18-120 |

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** 389 MANHATTAN AVE

**Project Number:** B0258-020-001

**Lab Number:** L2010060

**Report Date:** 03/12/20

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|---|---|
| Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1348475-2 WG1348475-3 | | | | | | | | |
| Acenaphthene | 94 | | 81 | | 31-137 | 15 | | 50 |
| Hexachlorobenzene | 100 | | 84 | | 40-140 | 17 | | 50 |
| Bis(2-chloroethyl)ether | 85 | | 84 | | 40-140 | 1 | | 50 |
| 2-Chloronaphthalene | 94 | | 65 | | 40-140 | 36 | | 50 |
| 3,3'-Dichlorobenzidine | 69 | | 60 | | 40-140 | 14 | | 50 |
| 2,4-Dinitrotoluene | 98 | | 83 | | 40-132 | 17 | | 50 |
| 2,6-Dinitrotoluene | 96 | | 64 | | 40-140 | 40 | | 50 |
| Fluoranthene | 121 | | 75 | | 40-140 | 47 | | 50 |
| 4-Chlorophenyl phenyl ether | 93 | | 76 | | 40-140 | 20 | | 50 |
| 4-Bromophenyl phenyl ether | 94 | | 78 | | 40-140 | 19 | | 50 |
| Bis(2-chloroisopropyl)ether | 90 | | 81 | | 40-140 | 11 | | 50 |
| Bis(2-chloroethoxy)methane | 70 | | 82 | | 40-117 | 16 | | 50 |
| Hexachlorobutadiene | 93 | | 75 | | 40-140 | 21 | | 50 |
| Hexachlorocyclopentadiene | 83 | | 63 | | 40-140 | 27 | | 50 |
| Hexachloroethane | 89 | | 76 | | 40-140 | 16 | | 50 |
| Isophorone | 78 | | 82 | | 40-140 | 5 | | 50 |
| Naphthalene | 92 | | 83 | | 40-140 | 10 | | 50 |
| Nitrobenzene | 98 | | 89 | | 40-140 | 10 | | 50 |
| NDPA/DPA | 96 | | 81 | | 36-157 | 17 | | 50 |
| n-Nitrosodi-n-propylamine | 104 | | 88 | | 32-121 | 17 | | 50 |
| Bis(2-ethylhexyl)phthalate | 95 | | 79 | | 40-140 | 18 | | 50 |
| Butyl benzyl phthalate | 121 | | 73 | | 40-140 | 49 | | 50 |
| Di-n-butylphthalate | 92 | | 72 | | 40-140 | 24 | | 50 |

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** 389 MANHATTAN AVE

**Project Number:** B0258-020-001

**Lab Number:** L2010060

**Report Date:** 03/12/20

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|---|---|
| Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1348475-2 WG1348475-3 | | | | | | | | |
| Di-n-octylphthalate | 74 | | 75 | | 40-140 | 1 | | 50 |
| Diethyl phthalate | 90 | | 75 | | 40-140 | 18 | | 50 |
| Dimethyl phthalate | 90 | | 60 | | 40-140 | 40 | | 50 |
| Benzo(a)anthracene | 98 | | 82 | | 40-140 | 18 | | 50 |
| Benzo(a)pyrene | 93 | | 97 | | 40-140 | 4 | | 50 |
| Benzo(b)fluoranthene | 88 | | 91 | | 40-140 | 3 | | 50 |
| Benzo(k)fluoranthene | 86 | | 87 | | 40-140 | 1 | | 50 |
| Chrysene | 96 | | 82 | | 40-140 | 16 | | 50 |
| Acenaphthylene | 92 | | 63 | | 40-140 | 37 | | 50 |
| Anthracene | 98 | | 83 | | 40-140 | 17 | | 50 |
| Benzo(ghi)perylene | 99 | | 80 | | 40-140 | 21 | | 50 |
| Fluorene | 95 | | 81 | | 40-140 | 16 | | 50 |
| Phenanthrene | 95 | | 80 | | 40-140 | 17 | | 50 |
| Dibenzo(a,h)anthracene | 102 | | 83 | | 40-140 | 21 | | 50 |
| Indeno(1,2,3-cd)pyrene | 105 | | 84 | | 40-140 | 22 | | 50 |
| Pyrene | 124 | | 75 | | 35-142 | 49 | | 50 |
| Biphenyl | 89 | | 62 | | 37-127 | 36 | | 50 |
| 4-Chloroaniline | 82 | | 78 | | 40-140 | 5 | | 50 |
| 2-Nitroaniline | 98 | | 67 | | 47-134 | 38 | | 50 |
| 3-Nitroaniline | 70 | | 60 | | 26-129 | 15 | | 50 |
| 4-Nitroaniline | 93 | | 78 | | 41-125 | 18 | | 50 |
| Dibenzofuran | 95 | | 80 | | 40-140 | 17 | | 50 |
| 2-Methylnaphthalene | 92 | | 80 | | 40-140 | 14 | | 50 |

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** 389 MANHATTAN AVE

**Project Number:** B0258-020-001

**Lab Number:** L2010060

**Report Date:** 03/12/20

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|---|---|
| Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1348475-2 WG1348475-3 | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 91 | | 72 | | 40-117 | 23 | | 50 |
| Acetophenone | 98 | | 83 | | 14-144 | 17 | | 50 |
| 2,4,6-Trichlorophenol | 98 | | 67 | | 30-130 | 38 | | 50 |
| p-Chloro-m-cresol | 98 | | 87 | | 26-103 | 12 | | 50 |
| 2-Chlorophenol | 90 | | 90 | | 25-102 | 0 | | 50 |
| 2,4-Dichlorophenol | 74 | | 83 | | 30-130 | 11 | | 50 |
| 2,4-Dimethylphenol | 76 | | 83 | | 30-130 | 9 | | 50 |
| 2-Nitrophenol | 73 | | 84 | | 30-130 | 14 | | 50 |
| 4-Nitrophenol | 101 | | 87 | | 11-114 | 15 | | 50 |
| 2,4-Dinitrophenol | 88 | | 72 | | 4-130 | 20 | | 50 |
| 4,6-Dinitro-o-cresol | 95 | | 79 | | 10-130 | 18 | | 50 |
| Pentachlorophenol | 91 | | 76 | | 17-109 | 18 | | 50 |
| Phenol | **94** | Q | 86 | | 26-90 | 9 | | 50 |
| 2-Methylphenol | 99 | | 84 | | 30-130. | 16 | | 50 |
| 3-Methylphenol/4-Methylphenol | 104 | | 86 | | 30-130 | 19 | | 50 |
| 2,4,5-Trichlorophenol | 101 | | 64 | | 30-130 | 45 | | 50 |
| Carbazole | 100 | | 79 | | 54-128 | 23 | | 50 |
| Atrazine | 99 | | 86 | | 40-140 | 14 | | 50 |
| Benzaldehyde | 84 | | 74 | | 40-140 | 13 | | 50 |
| Caprolactam | 91 | | 92 | | 15-130 | 1 | | 50 |
| 2,3,4,6-Tetrachlorophenol | 98 | | 81 | | 40-140 | 19 | | 50 |

# Lab Control Sample Analysis
## Batch Quality Control

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

**Lab Number:** L2010060
**Report Date:** 03/12/20

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|---|---|
| Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1348475-2 WG1348475-3 | | | | | | | | |

| Surrogate | LCS %Recovery | Qual | LCSD %Recovery | Qual | Acceptance Criteria |
|---|---|---|---|---|---|
| 2-Fluorophenol | 103 | | 87 | | 25-120 |
| Phenol-d6 | 98 | | 88 | | 10-120 |
| Nitrobenzene-d5 | 95 | | 89 | | 23-120 |
| 2-Fluorobiphenyl | 87 | | 59 | | 30-120 |
| 2,4,6-Tribromophenol | 96 | | 79 | | 10-136 |
| 4-Terphenyl-d14 | **123** | Q | 78 | | 18-120 |

# PCBS

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-01
Client ID: TP-1 3-4FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 09:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 03/09/20 12:18
Analyst: HT
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 03/07/20 20:16
Cleanup Method: EPA 3665A
Cleanup Date: 03/08/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/08/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|---|---|---|---|---|---|---|---|
| **Polychlorinated Biphenyls by GC - Westborough Lab** | | | | | | | |
| Aroclor 1016 | ND | | ug/kg | 37.4 | 3.32 | 1 | A |
| Aroclor 1221 | ND | | ug/kg | 37.4 | 3.75 | 1 | A |
| Aroclor 1232 | ND | | ug/kg | 37.4 | 7.94 | 1 | A |
| Aroclor 1242 | ND | | ug/kg | 37.4 | 5.05 | 1 | A |
| Aroclor 1248 | ND | | ug/kg | 37.4 | 5.62 | 1 | A |
| Aroclor 1254 | 415 | | ug/kg | 37.4 | 4.10 | 1 | B |
| Aroclor 1260 | 266 | | ug/kg | 37.4 | 6.92 | 1 | B |
| Aroclor 1262 | ND | | ug/kg | 37.4 | 4.76 | 1 | A |
| Aroclor 1268 | ND | | ug/kg | 37.4 | 3.88 | 1 | A |
| PCBs, Total | 681 | | ug/kg | 37.4 | 3.32 | 1 | B |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|---|---|---|---|---|
| 2,4,5,6-Tetrachloro-m-xylene | 55 | | 30-150 | A |
| Decachlorobiphenyl | 65 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 54 | | 30-150 | B |
| Decachlorobiphenyl | 70 | | 30-150 | B |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-02
Client ID: TP-6 5-6FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 11:30
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 03/09/20 12:30
Analyst: HT
Percent Solids: 76%

Extraction Method: EPA 3546
Extraction Date: 03/07/20 20:16
Cleanup Method: EPA 3665A
Cleanup Date: 03/08/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/08/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|---|---|---|---|---|---|---|---|
| **Polychlorinated Biphenyls by GC - Westborough Lab** | | | | | | | |
| Aroclor 1016 | ND | | ug/kg | 43.5 | 3.86 | 1 | A |
| Aroclor 1221 | ND | | ug/kg | 43.5 | 4.36 | 1 | A |
| Aroclor 1232 | ND | | ug/kg | 43.5 | 9.22 | 1 | A |
| Aroclor 1242 | ND | | ug/kg | 43.5 | 5.86 | 1 | A |
| Aroclor 1248 | ND | | ug/kg | 43.5 | 6.53 | 1 | A |
| Aroclor 1254 | 110 | P | ug/kg | 43.5 | 4.76 | 1 | B |
| Aroclor 1260 | 186 | | ug/kg | 43.5 | 8.04 | 1 | A |
| Aroclor 1262 | ND | | ug/kg | 43.5 | 5.52 | 1 | A |
| Aroclor 1268 | ND | | ug/kg | 43.5 | 4.51 | 1 | A |
| PCBs, Total | 296 | | ug/kg | 43.5 | 3.86 | 1 | A |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|---|---|---|---|---|
| 2,4,5,6-Tetrachloro-m-xylene | 59 | | 30-150 | A |
| Decachlorobiphenyl | 83 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 61 | | 30-150 | B |
| Decachlorobiphenyl | 106 | | 30-150 | B |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-03
Client ID: TP-7 0.5-1.5FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 12:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 03/09/20 12:43
Analyst: HT
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 03/07/20 20:16
Cleanup Method: EPA 3665A
Cleanup Date: 03/08/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/08/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|---|---|---|---|---|---|---|---|
| **Polychlorinated Biphenyls by GC - Westborough Lab** | | | | | | | |
| Aroclor 1016 | ND | | ug/kg | 37.6 | 3.34 | 1 | A |
| Aroclor 1221 | ND | | ug/kg | 37.6 | 3.77 | 1 | A |
| Aroclor 1232 | ND | | ug/kg | 37.6 | 7.98 | 1 | A |
| Aroclor 1242 | ND | | ug/kg | 37.6 | 5.07 | 1 | A |
| Aroclor 1248 | ND | | ug/kg | 37.6 | 5.64 | 1 | A |
| Aroclor 1254 | 38.2 | | ug/kg | 37.6 | 4.12 | 1 | B |
| Aroclor 1260 | 48.3 | | ug/kg | 37.6 | 6.95 | 1 | B |
| Aroclor 1262 | ND | | ug/kg | 37.6 | 4.78 | 1 | A |
| Aroclor 1268 | ND | | ug/kg | 37.6 | 3.90 | 1 | A |
| PCBs, Total | 86.5 | | ug/kg | 37.6 | 3.34 | 1 | B |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|---|---|---|---|---|
| 2,4,5,6-Tetrachloro-m-xylene | 38 | | 30-150 | A |
| Decachlorobiphenyl | 53 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 37 | | 30-150 | B |
| Decachlorobiphenyl | 64 | | 30-150 | B |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-04
Client ID: TP-10 6-7FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 14:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 03/09/20 12:55
Analyst: HT
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 03/07/20 20:16
Cleanup Method: EPA 3665A
Cleanup Date: 03/08/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/08/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Column |
|---|---|---|---|---|---|---|---|
| **Polychlorinated Biphenyls by GC - Westborough Lab** | | | | | | | |
| Aroclor 1016 | ND | | ug/kg | 37.7 | 3.35 | 1 | A |
| Aroclor 1221 | ND | | ug/kg | 37.7 | 3.78 | 1 | A |
| Aroclor 1232 | ND | | ug/kg | 37.7 | 7.99 | 1 | A |
| Aroclor 1242 | ND | | ug/kg | 37.7 | 5.08 | 1 | A |
| Aroclor 1248 | ND | | ug/kg | 37.7 | 5.65 | 1 | A |
| Aroclor 1254 | 26.2 | J | ug/kg | 37.7 | 4.12 | 1 | B |
| Aroclor 1260 | 20.8 | J | ug/kg | 37.7 | 6.96 | 1 | A |
| Aroclor 1262 | ND | | ug/kg | 37.7 | 4.79 | 1 | A |
| Aroclor 1268 | ND | | ug/kg | 37.7 | 3.90 | 1 | A |
| PCBs, Total | 47.0 | J | ug/kg | 37.7 | 3.35 | 1 | B |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria | Column |
|---|---|---|---|---|
| 2,4,5,6-Tetrachloro-m-xylene | 66 | | 30-150 | A |
| Decachlorobiphenyl | 68 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 65 | | 30-150 | B |
| Decachlorobiphenyl | 75 | | 30-150 | B |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

# Method Blank Analysis
## Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 03/09/20 11:29
Analyst: HT

Extraction Method: EPA 3546
Extraction Date: 03/07/20 20:16
Cleanup Method: EPA 3665A
Cleanup Date: 03/08/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/08/20

| Parameter | Result | Qualifier | Units | RL | MDL | Column |
|---|---|---|---|---|---|---|
| Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-04 Batch: WG1348459-1 | | | | | | |
| Aroclor 1016 | ND | | ug/kg | 31.5 | 2.80 | A |
| Aroclor 1221 | ND | | ug/kg | 31.5 | 3.16 | A |
| Aroclor 1232 | ND | | ug/kg | 31.5 | 6.69 | A |
| Aroclor 1242 | ND | | ug/kg | 31.5 | 4.25 | A |
| Aroclor 1248 | ND | | ug/kg | 31.5 | 4.73 | A |
| Aroclor 1254 | ND | | ug/kg | 31.5 | 3.45 | A |
| Aroclor 1260 | ND | | ug/kg | 31.5 | 5.83 | A |
| Aroclor 1262 | ND | | ug/kg | 31.5 | 4.01 | A |
| Aroclor 1268 | ND | | ug/kg | 31.5 | 3.27 | A |
| PCBs, Total | ND | | ug/kg | 31.5 | 2.80 | A |

| Surrogate | %Recovery | Qualifier | Acceptance Criteria | Column |
|---|---|---|---|---|
| 2,4,5,6-Tetrachloro-m-xylene | 78 | | 30-150 | A |
| Decachlorobiphenyl | 90 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 80 | | 30-150 | B |
| Decachlorobiphenyl | 94 | | 30-150 | B |

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** 389 MANHATTAN AVE

**Project Number:** B0258-020-001

**Lab Number:** L2010060

**Report Date:** 03/12/20

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits | Column |
|---|---|---|---|---|---|---|---|---|---|
| Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-04 Batch: WG1348459-2 WG1348459-3 | | | | | | | | | |
| Aroclor 1016 | 81 | | 78 | | 40-140 | 4 | | 50 | A |
| Aroclor 1260 | 78 | | 76 | | 40-140 | 3 | | 50 | A |

| Surrogate | LCS %Recovery | Qual | LCSD %Recovery | Qual | Acceptance Criteria | Column |
|---|---|---|---|---|---|---|
| 2,4,5,6-Tetrachloro-m-xylene | 79 | | 76 | | 30-150 | A |
| Decachlorobiphenyl | 93 | | 87 | | 30-150 | A |
| 2,4,5,6-Tetrachloro-m-xylene | 79 | | 76 | | 30-150 | B |
| Decachlorobiphenyl | 96 | | 90 | | 30-150 | B |

# METALS

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-01
Client ID: TP-1 3-4FT
Sample Location: 389 MANHATTAN AVE
Date Collected: 03/04/20 09:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Metals - Mansfield Lab** | | | | | | | | | | | |
| Arsenic, Total | 8.96 | | mg/kg | 0.437 | 0.091 | 1 | 03/10/20 18:36 | 03/12/20 15:21 | EPA 3050B | 1,6010D | BV |
| Barium, Total | 159 | | mg/kg | 0.437 | 0.076 | 1 | 03/10/20 18:36 | 03/12/20 15:21 | EPA 3050B | 1,6010D | BV |
| Cadmium, Total | 0.830 | | mg/kg | 0.437 | 0.043 | 1 | 03/10/20 18:36 | 03/12/20 15:21 | EPA 3050B | 1,6010D | BV |
| Chromium, Total | 18.7 | | mg/kg | 0.437 | 0.042 | 1 | 03/10/20 18:36 | 03/12/20 15:21 | EPA 3050B | 1,6010D | BV |
| Lead, Total | 358 | | mg/kg | 2.18 | 0.117 | 1 | 03/10/20 18:36 | 03/12/20 15:21 | EPA 3050B | 1,6010D | BV |
| Mercury, Total | 0.085 | | mg/kg | 0.073 | 0.047 | 1 | 03/10/20 08:00 | 03/10/20 13:09 | EPA 7471B | 1,7471B | GD |
| Selenium, Total | 0.598 | J | mg/kg | 0.873 | 0.113 | 1 | 03/10/20 18:36 | 03/12/20 15:21 | EPA 3050B | 1,6010D | BV |
| Silver, Total | 0.340 | J | mg/kg | 0.437 | 0.124 | 1 | 03/10/20 18:36 | 03/12/20 15:21 | EPA 3050B | 1,6010D | BV |

**Project Name:** 389 MANHATTAN AVE
**Lab Number:** L2010060
**Project Number:** B0258-020-001
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-02
Client ID: TP-6 5-6FT
Sample Location: 389 MANHATTAN AVE
Date Collected: 03/04/20 11:30
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Metals - Mansfield Lab** | | | | | | | | | | | |
| Arsenic, Total | 13.5 | | mg/kg | 0.516 | 0.107 | 1 | 03/10/20 18:36 | 03/12/20 15:37 | EPA 3050B | 1,6010D | BV |
| Barium, Total | 259 | | mg/kg | 0.516 | 0.090 | 1 | 03/10/20 18:36 | 03/12/20 15:37 | EPA 3050B | 1,6010D | BV |
| Cadmium, Total | 3.55 | | mg/kg | 0.516 | 0.051 | 1 | 03/10/20 18:36 | 03/12/20 15:37 | EPA 3050B | 1,6010D | BV |
| Chromium, Total | 21.5 | | mg/kg | 0.516 | 0.050 | 1 | 03/10/20 18:36 | 03/12/20 15:37 | EPA 3050B | 1,6010D | BV |
| Lead, Total | 689 | | mg/kg | 2.58 | 0.138 | 1 | 03/10/20 18:36 | 03/12/20 15:37 | EPA 3050B | 1,6010D | BV |
| Mercury, Total | 0.378 | | mg/kg | 0.083 | 0.054 | 1 | 03/10/20 08:00 | 03/10/20 13:12 | EPA 7471B | 1,7471B | GD |
| Selenium, Total | 1.48 | | mg/kg | 1.03 | 0.133 | 1 | 03/10/20 18:36 | 03/12/20 15:37 | EPA 3050B | 1,6010D | BV |
| Silver, Total | 0.562 | | mg/kg | 0.516 | 0.146 | 1 | 03/10/20 18:36 | 03/12/20 15:37 | EPA 3050B | 1,6010D | BV |

**Project Name:** 389 MANHATTAN AVE
**Lab Number:** L2010060
**Project Number:** B0258-020-001
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-03
Client ID: TP-7 0.5-1.5FT
Sample Location: 389 MANHATTAN AVE
Date Collected: 03/04/20 12:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Metals - Mansfield Lab** | | | | | | | | | | | |
| Arsenic, Total | 29.0 | | mg/kg | 0.469 | 0.098 | 1 | 03/10/20 18:36 | 03/12/20 15:42 | EPA 3050B | 1,6010D | BV |
| Barium, Total | 53.2 | | mg/kg | 0.469 | 0.082 | 1 | 03/10/20 18:36 | 03/12/20 15:42 | EPA 3050B | 1,6010D | BV |
| Cadmium, Total | 0.169 | J | mg/kg | 0.469 | 0.046 | 1 | 03/10/20 18:36 | 03/12/20 15:42 | EPA 3050B | 1,6010D | BV |
| Chromium, Total | 4.94 | | mg/kg | 0.469 | 0.045 | 1 | 03/10/20 18:36 | 03/12/20 15:42 | EPA 3050B | 1,6010D | BV |
| Lead, Total | 108 | | mg/kg | 2.34 | 0.126 | 1 | 03/10/20 18:36 | 03/12/20 15:42 | EPA 3050B | 1,6010D | BV |
| Mercury, Total | 0.284 | | mg/kg | 0.074 | 0.048 | 1 | 03/10/20 08:00 | 03/10/20 13:15 | EPA 7471B | 1,7471B | GD |
| Selenium, Total | 1.94 | | mg/kg | 0.938 | 0.121 | 1 | 03/10/20 18:36 | 03/12/20 15:42 | EPA 3050B | 1,6010D | BV |
| Silver, Total | 0.159 | J | mg/kg | 0.469 | 0.133 | 1 | 03/10/20 18:36 | 03/12/20 15:42 | EPA 3050B | 1,6010D | BV |

**Project Name:** 389 MANHATTAN AVE
**Lab Number:** L2010060
**Project Number:** B0258-020-001
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-04
Client ID: TP-10 6-7FT
Sample Location: 389 MANHATTAN AVE
Date Collected: 03/04/20 14:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total Metals - Mansfield Lab** | | | | | | | | | | | |
| Arsenic, Total | 5.69 | | mg/kg | 0.460 | 0.096 | 1 | 03/10/20 18:36 | 03/12/20 15:47 | EPA 3050B | 1,6010D | BV |
| Barium, Total | 48.1 | | mg/kg | 0.460 | 0.080 | 1 | 03/10/20 18:36 | 03/12/20 15:47 | EPA 3050B | 1,6010D | BV |
| Cadmium, Total | 0.414 | J | mg/kg | 0.460 | 0.045 | 1 | 03/10/20 18:36 | 03/12/20 15:47 | EPA 3050B | 1,6010D | BV |
| Chromium, Total | 10.0 | | mg/kg | 0.460 | 0.044 | 1 | 03/10/20 18:36 | 03/12/20 15:47 | EPA 3050B | 1,6010D | BV |
| Lead, Total | 93.2 | | mg/kg | 2.30 | 0.123 | 1 | 03/10/20 18:36 | 03/12/20 15:47 | EPA 3050B | 1,6010D | BV |
| Mercury, Total | 0.837 | | mg/kg | 0.074 | 0.048 | 1 | 03/10/20 08:00 | 03/10/20 13:19 | EPA 7471B | 1,7471B | GD |
| Selenium, Total | 0.557 | J | mg/kg | 0.920 | 0.119 | 1 | 03/10/20 18:36 | 03/12/20 15:47 | EPA 3050B | 1,6010D | BV |
| Silver, Total | ND | | mg/kg | 0.460 | 0.130 | 1 | 03/10/20 18:36 | 03/12/20 15:47 | EPA 3050B | 1,6010D | BV |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001
**Lab Number:** L2010060
**Report Date:** 03/12/20

# Method Blank Analysis
# Batch Quality Control

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1349107-1 | | | | | | | | | | |
| Mercury, Total | ND | | mg/kg | 0.083 | 0.054 | 1 | 03/10/20 08:00 | 03/10/20 11:53 | 1,7471B | GD |

**Prep Information**

Digestion Method: EPA 7471B

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1349193-1 | | | | | | | | | | |
| Arsenic, Total | ND | | mg/kg | 0.400 | 0.083 | 1 | 03/10/20 18:36 | 03/12/20 15:12 | 1,6010D | BV |
| Barium, Total | ND | | mg/kg | 0.400 | 0.070 | 1 | 03/10/20 18:36 | 03/12/20 15:12 | 1,6010D | BV |
| Cadmium, Total | ND | | mg/kg | 0.400 | 0.039 | 1 | 03/10/20 18:36 | 03/12/20 15:12 | 1,6010D | BV |
| Chromium, Total | ND | | mg/kg | 0.400 | 0.038 | 1 | 03/10/20 18:36 | 03/12/20 15:12 | 1,6010D | BV |
| Lead, Total | ND | | mg/kg | 2.00 | 0.107 | 1 | 03/10/20 18:36 | 03/12/20 15:12 | 1,6010D | BV |
| Selenium, Total | ND | | mg/kg | 0.800 | 0.103 | 1 | 03/10/20 18:36 | 03/12/20 15:12 | 1,6010D | BV |
| Silver, Total | ND | | mg/kg | 0.400 | 0.113 | 1 | 03/10/20 18:36 | 03/12/20 15:12 | 1,6010D | BV |

**Prep Information**

Digestion Method: EPA 3050B

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** 389 MANHATTAN AVE

**Project Number:** B0258-020-001

**Lab Number:** L2010060

**Report Date:** 03/12/20

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|---|---|
| Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1349107-2 SRM Lot Number: D105-540 | | | | | | | | |
| Mercury, Total | 102 | | - | | 60-141 | - | | |
| Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1349193-2 SRM Lot Number: D105-540 | | | | | | | | |
| Arsenic, Total | 96 | | - | | 70-130 | - | | |
| Barium, Total | 101 | | - | | 75-125 | - | | |
| Cadmium, Total | 94 | | - | | 75-125 | - | | |
| Chromium, Total | 95 | | - | | 70-130 | - | | |
| Lead, Total | 91 | | - | | 71-128 | - | | |
| Selenium, Total | 95 | | - | | 63-137 | - | | |
| Silver, Total | 92 | | - | | 69-131 | - | | |

# Matrix Spike Analysis
## Batch Quality Control

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

**Lab Number:** L2010060
**Report Date:** 03/12/20

| Parameter | Native Sample | MS Added | MS Found | MS %Recovery | Qual | MSD Found | MSD %Recovery | Qual | Recovery Limits | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1349107-3 QC Sample: L2010478-01 Client ID: MS Sample | | | | | | | | | | | | |
| Mercury, Total | ND | 0.136 | 0.145 | 107 | | - | - | | 80-120 | - | | 20 |
| Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1349193-3 QC Sample: L2010060-01 Client ID: TP-1 3-4FT | | | | | | | | | | | | |
| Arsenic, Total | 8.96 | 10.8 | 18.2 | 86 | | - | - | | 75-125 | - | | 20 |
| Barium, Total | 159 | 180 | 302 | 80 | | - | - | | 75-125 | - | | 20 |
| Cadmium, Total | 0.830 | 4.58 | 3.89 | **67** | Q | - | - | | 75-125 | - | | 20 |
| Chromium, Total | 18.7 | 18 | 32.2 | 75 | | - | - | | 75-125 | - | | 20 |
| Lead, Total | 358 | 45.8 | 457 | **216** | Q | - | - | | 75-125 | - | | 20 |
| Selenium, Total | 0.598J | 10.8 | 9.09 | 84 | | - | - | | 75-125 | - | | 20 |
| Silver, Total | 0.340J | 26.9 | 21.0 | 78 | | - | - | | 75-125 | - | | 20 |

# Lab Duplicate Analysis
*Batch Quality Control*

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

***Lab Number:*** L2010060
***Report Date:*** 03/12/20

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|
| Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1349107-4 QC Sample: L2010478-01 Client ID: DUP Sample | | | | | | |
| Mercury, Total | ND | ND | mg/kg | NC | | 20 |
| Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1349193-4 QC Sample: L2010060-01 Client ID: TP-1 3-4FT | | | | | | |
| Arsenic, Total | 8.96 | 12.0 | mg/kg | **29** | Q | 20 |
| Barium, Total | 159 | 193 | mg/kg | 19 | | 20 |
| Cadmium, Total | 0.830 | 0.692 | mg/kg | 18 | | 20 |
| Chromium, Total | 18.7 | 22.7 | mg/kg | 19 | | 20 |
| Lead, Total | 358 | 390 | mg/kg | 9 | | 20 |
| Selenium, Total | 0.598J | 0.925 | mg/kg | NC | | 20 |
| Silver, Total | 0.340J | 0.346J | mg/kg | NC | | 20 |

# INORGANICS
# &
# MISCELLANEOUS

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-01
Client ID: TP-1 3-4FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 09:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Solids, Total | 86.3 | | % | 0.100 | NA | 1 | - | 03/06/20 11:10 | 121,2540G | RI |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-02
Client ID: TP-6 5-6FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 11:30
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Solids, Total | 76.0 | | % | 0.100 | NA | 1 | - | 03/06/20 11:10 | 121,2540G | RI |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-03
Client ID: TP-7 0.5-1.5FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 12:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Solids, Total | 84.6 | | % | 0.100 | NA | 1 | - | 03/06/20 11:10 | 121,2540G | RI |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

**Lab Number:** L2010060
**Report Date:** 03/12/20

## SAMPLE RESULTS

Lab ID: L2010060-04
Client ID: TP-10 6-7FT
Sample Location: 389 MANHATTAN AVE

Date Collected: 03/04/20 14:00
Date Received: 03/05/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|---|---|---|---|---|---|---|---|---|---|
| **General Chemistry - Westborough Lab** | | | | | | | | | | |
| Solids, Total | 84.6 | | % | 0.100 | NA | 1 | - | 03/06/20 11:10 | 121,2540G | RI |

# Lab Duplicate Analysis

***Batch Quality Control***

**Project Name:** 389 MANHATTAN AVE

**Project Number:** B0258-020-001

***Lab Number:*** L2010060

***Report Date:*** 03/12/20

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|---|---|---|---|---|---|---|
| General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG1348052-1 QC Sample: L2008805-09 Client ID: DUP Sample | | | | | | |
| Solids, Total | 79.9 | 79.1 | % | 1 | | 20 |

**Project Name:** 389 MANHATTAN AVE
**Project Number:** B0258-020-001

**Lab Number:** L2010060
**Report Date:** 03/12/20

## Sample Receipt and Container Information

Were project specific reporting limits specified? YES

### Cooler Information

| Cooler | Custody Seal |
|---|---|
| A | Absent |

### Container Information

| Container ID | Container Type | Cooler | Initial pH | Final pH | Temp deg C | Pres | Seal | Frozen Date/Time | Analysis(*) |
|---|---|---|---|---|---|---|---|---|---|
| L2010060-01A | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),PB-TI(180),SE-TI(180),HG-T(28),CD-TI(180) |
| L2010060-01B | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | NYTCL-8270(14),TS(7),NYTCL-8082(14) |
| L2010060-02A | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),PB-TI(180),SE-TI(180),HG-T(28),CD-TI(180) |
| L2010060-02B | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | NYTCL-8270(14),TS(7),NYTCL-8082(14) |
| L2010060-03A | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),PB-TI(180),SE-TI(180),HG-T(28),CD-TI(180) |
| L2010060-03B | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | NYTCL-8270(14),TS(7),NYTCL-8082(14) |
| L2010060-04A | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | AS-TI(180),BA-TI(180),AG-TI(180),CR-TI(180),PB-TI(180),SE-TI(180),HG-T(28),CD-TI(180) |
| L2010060-04B | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | NYTCL-8270(14),TS(7),NYTCL-8082(14) |
| L2010060-05A | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | HOLD-METAL(180),HOLD-HG(28) |
| L2010060-05B | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | HOLD-8270(14),HOLD-8082(14) |
| L2010060-06A | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | HOLD-METAL(180),HOLD-HG(28) |
| L2010060-06B | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | HOLD-8270(14),HOLD-8082(14) |
| L2010060-07A | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | HOLD-METAL(180),HOLD-HG(28) |
| L2010060-07B | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | HOLD-8270(14),HOLD-8082(14) |
| L2010060-08A | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | HOLD-METAL(180),HOLD-HG(28) |
| L2010060-08B | Glass 120ml/4oz unpreserved | A | NA | | 2.7 | Y | Absent | | HOLD-8270(14),HOLD-8082(14) |



*Values in parentheses indicate holding time in days

| | | | |
|---|---|---|---|
| **Project Name:** | 389 MANHATTAN AVE | **Lab Number:** | L2010060 |
| **Project Number:** | B0258-020-001 | **Report Date:** | 03/12/20 |

## GLOSSARY

***Acronyms***

| | |
|---|---|
| DL | - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) |
| EDL | - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME). |
| EMPC | - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration. |
| EPA | - Environmental Protection Agency. |
| LCS | - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. |
| LCSD | - Laboratory Control Sample Duplicate: Refer to LCS. |
| LFB | - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. |
| LOD | - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) |
| LOQ | - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)<br><br>Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) |
| MDL | - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. |
| MS | - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values. |
| MSD | - Matrix Spike Sample Duplicate: Refer to MS. |
| NA | - Not Applicable. |
| NC | - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit. |
| NDPA/DPA | - N-Nitrosodiphenylamine/Diphenylamine. |
| NI | - Not Ignitable. |
| NP | - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil. |
| RL | - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable. |
| RPD | - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report. |
| SRM | - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples. |
| STLP | - Semi-dynamic Tank Leaching Procedure per EPA Method 1315. |
| TEF | - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD. |
| TEQ | - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values. |
| TIC | - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations. |

***Footnotes***

*Report Format: DU Report with 'J' Qualifiers*

| | | | |
|---|---|---|---|
| **Project Name:** | 389 MANHATTAN AVE | **Lab Number:** | L2010060 |
| **Project Number:** | B0258-020-001 | **Report Date:** | 03/12/20 |

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

***Terms***

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

***Data Qualifiers***

**A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

**B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

**C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

**D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

**E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

**G** - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

**H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

**I** - The lower value for the two columns has been reported due to obvious interference.

**J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

**M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

**ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

**NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

**P** - The RPD between the results for the two columns exceeds the method-specified criteria.

**Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

*Report Format: DU Report with 'J' Qualifiers*

| | | | |
|---|---|---|---|
| **Project Name:** | 389 MANHATTAN AVE | **Lab Number:** | L2010060 |
| **Project Number:** | B0258-020-001 | **Report Date:** | 03/12/20 |

***Data Qualifiers***

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

**R** - Analytical results are from sample re-analysis.

**RE** - Analytical results are from sample re-extraction.

**S** - Analytical results are from modified screening analysis.

*Report Format: DU Report with 'J' Qualifiers*

| | | | |
|---|---|---|---|
| **Project Name:** | 389 MANHATTAN AVE | **Lab Number:** | L2010060 |
| **Project Number:** | B0258-020-001 | **Report Date:** | 03/12/20 |

## REFERENCES


1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.


## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

# Certification Information

**The following analytes are not included in our Primary NELAP Scope of Accreditation:**

**Westborough Facility**
**EPA 624/624.1:** m/p-xylene, o-xylene
**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
**EPA 8270D:** NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
**SM4500**: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

**Mansfield Facility**
**SM 2540D:** TSS
**EPA 8082A:** NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
**EPA TO-12** Non-methane organics
**EPA 3C** Fixed gases
**Biological Tissue Matrix:** EPA 3050B

**The following analytes are included in our Massachusetts DEP Scope of Accreditation**

**Westborough Facility:**

***Drinking Water***
**EPA 300.0**: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
**EPA 332**: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
**Microbiology**: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

***Non-Potable Water***
**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
**EPA 624.1**: Volatile Halocarbons & Aromatics,
**EPA 608.3**: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
**EPA 625.1**: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
**Microbiology**: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

**Mansfield Facility:**

***Drinking Water***
**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
**EPA 522.**

***Non-Potable Water***
**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
**EPA 200.8:** Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
**EPA 245.1** Hg.
**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

# NEW YORK CHAIN OF CUSTODY

**Service Centers**
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 3/6/20

ALPHA Job #: L2010060

**Client Information**
Client: BONCHMARK ENV. ENG. & SCI
Address: 2558 HAMBURG TPKE
BUFFALO, NY 14218
Phone: 716-856-0599
Fax:
Email: cboron@bm-tk.com

**Project Information**
Project Name: 389 MANHATTAN AVE
Project Location: 389 MANHATTAN AVE
Project #: B0258-020-001
(Use Project name as Project #): ☐
Project Manager: CHRIS BORON
ALPHAQuote #:

**Turn-Around Time**
Standard: ☒ Due Date:
Rush (only if pre approved): ☐ # of Days:

**Deliverables**
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

**Regulatory Requirement**
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

**Billing Information**
☒ Same as Client Info
PO #

**Disposal Site Information**
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☒ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

**Other project specific requirements/comments:**

**Please specify Metals or TAL.**

**ANALYSIS**

**Sample Filtration**
☐ Done
☐ Lab to do
*Preservation*
☐ Lab to do
*(Please Specify below)*

| ALPHA Lab ID (Lab Use Only) | Sample ID | Collection Date | Collection Time | Sample Matrix | Sampler's Initials | TCL SVOC | RCRA METAL | PCB | Sample Specific Comments | Total Bottle |
|---|---|---|---|---|---|---|---|---|---|---|
| L2010060-01 | TP-1 3-4 ft | 3/4/2020 | 900 | SOIL | CS | X | X | X | | 2 |
| -02 | TP-6 5-6 ft | | 1130 | | | X | X | X | | 2 |
| -03 | TP-7 0.5-1.5 ft | | 1200 | | | X | X | X | | 2 |
| -04 | TP-10 6-7 ft | | 1400 | | | X | X | X | | 2 |
| -05 | TP-3 0-2 ft | | 1000 | | | X | X | X | HOLD | 2 |
| -06 | TP-7 1.5-2.7 ft | | 1205 | | | X | X | X | HOLD | 2 |
| -07 | TP-8 9-11 ft | | 1230 | | | X | X | X | HOLD | 2 |
| -08 | TP-9 4-5 ft | | 1300 | | | X | X | X | HOLD | 2 |

Container Type: G
Preservative: A

Preservative Code:
A = None
B = HCl
C = $HNO_3$
D = $H_2SO_4$
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

| Relinquished By: | Date/Time | Received By: | Date/Time |
|---|---|---|---|
| Chad M Adams | 3/5/2020 1130 | | 3/6/20 1600 |
| | 3/5/20 1640 | | 3/6/20 01:00 |

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)