GZA GeoEnvironmental of New York

Engineers and Scientists

November 12, 2012
File No.: 21.0056642.10

Jaspal Walia, P.E,
New York State Dept. of Environmental Conservation (NYSDEC)
Division of Environmental Remediation – Region 9
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Buffalo, New York 14203-2999

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11th Floor
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716-685-2300
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Re: REVISION #2
Imported Soil Source for 129 Holden Street Site (C915261)
Sampling Plan for Kaleida Health Medical Office Building Site (C915260)
1001 Main Street
Buffalo, NY 14094

Dear Jaspal:

On behalf of Strickler Development Group, LLC (Strickler), GZA GeoEnvironmental of New York (GZA) has prepared this revised sampling plan to assess a soil source for reuse at the 129 Holden Street Brownfield Cleanup Program (BCP) Site. Strickler's construction manager, LPCiminelli, is involved with the development of a medical office building (MOB) at 1001 Main Street (BCP Site C915260). There is approximately 74,000 cubic yards of soil that will be required to be removed from the 1001 Main Street Site in order to facilitate the remediation and development plan. There is approximately 50,000 cubic yards (cyd) of soil located at the 1001 Main Street Site that has not been impacted by previous use as a gasoline station and could be reused as backfill at 129 Holden Street. Approximately 30,000 cyd of soil is present from ground surface to 10 to 14 feet bgs and is identified as the shallow soil. There is approximately 20,000 cyd of soil present from 14 to 26 feet bgs in the northwestern and southeastern portions of the property and is identified as the deep soil.

The reuse of this soil would provide a significant benefit to both the 1001 Main Street Site and the 129 Holden Street Site, as 129 Holden Street will need soil to backfill remedial excavations and building basements after building demolition. Reuse of the soil from the 1001 Main Street project would significantly reduce disposal costs and consumed landfill airspace.

This sampling plan outlines Strickler's proposed plan to assess the shallow soils from a depth of ground surface to 10 to 14 feet bgs and the deep soil from 14 to 24 feet for reuse at the 129 Holden Street BCP Site.

The proposed redevelopment plan for 129 Holden Street is for residential use. Therefore, the soil to be brought to the 129 Holden Street Site for reuse will need to meet the requirements of 6 NYCRR 375-6.7 (d) Residential Soil Cleanup Objectives (RSCOs).

1001 MAIN STREET BACKGROUND

The following information was taken from the "Commercial Use Assessment Report" dated May 2012 and prepared by C&S Companies. A copy of the report is included in Attachment 1.

A gas station occupied the southwest corner of the 1001 Main Street property from approximately 1950 to the 1982. Leaking underground storage tanks (USTs) were removed from 1001 Main Street in 1981 (NYSDEC Spill #9500234). The petroleum release occurred in the area of the former USTs in the southwestern portion of the property. Contaminated soils have been identified from 10 to 20 feet bgs. Contaminated soils in the central and northern portions of the property also have been identified at a depth of approximately 32 to 35 feet bgs and consist of coarse sand and gravel lenses.

Over thirty-six (36) groundwater monitoring wells and multiple soil borings have been installed from 1981 to present in order delineate the extent and depth of soil and groundwater contamination. Based on the investigations, contaminates of concern are benzene, toluene, ethylbenzene and xylene (BTEX) compounds associated with leaking underground storage tanks.

The primary area of contamination is within the center to western boundary of the Site. Free product exists in this area and the shallowest depth of contamination is located at 10 feet bgs. Generally, the depth of contamination is from 20 feet bgs to 40 feet bgs in the central to northern portion of the property. The contamination has migrated from the center of the Site northeast following a five-foot thick coarse sand/gravel layer generally 30 to 35 feet bgs. The contamination within the coarse sand/gravel zone has migrated as the result of preferential groundwater flow.

Groundwater depth and contamination has been defined through quarterly monitoring well sampling. Groundwater investigations indicate the potentiometric depth to water between 25 to 27 feet bgs. Groundwater contamination, consisting mainly of BTEX compounds, extends from the southwest corner to the northeast corner of the property. The groundwater plume also extends off the property onto Main Street and the northern boundary onto Goodrich Street.

PURPOSE

Soil (fill, native and petroleum impacted) from 1001 Main Street will be removed from the property to 1) address petroleum impacted soil at depths of 10 to 35 feet bgs and 2) allow for the construction of a parking ramp structure on the property. Therefore, Strickler

would like to assess if the shallow soils from ground surface to approximately 10 to 14 feet bgs and deep soil from 14 to 26 feet bgs are suitable for reuse at the 129 Holden Street Site.

SHALLOW SOILS

Strickler provided GZA with a report "Test Pit Investigation Report of the Medical Office Building Site, Buffalo, New York" (TPI Report) dated October 30, 2012 completed by C&S Companies. This report has been included as Attachment 2 to this sampling plan. Twelve (12) test pits were completed in September 2012 to assess the shallow soils at 1001 Main Street. Based on the information in the TPI Report, it appears that fill material is present from ground surface to about 2 feet bgs and native soils are present below the fill material in the areas shown in yellow on Figure 1.

The areas shown in white and identified as Areas 2 contain deeper fill materials identified as refuse and urban waste and are NOT being considered for reuse as part of this plan. Strickler would like to assess the fill and native soils present in the areas outlined in red and blue, as shown on Figure 2, for reuse at the 129 Holden Street Site.

Analytical data included in the TPI Report and shown in Table 1, indicate that soil samples collected from TP-1, 2, 3, 4, 6, 7, 8, 9, and 12 (within the yellow shaded area) do not exceed the RSCOs. However, fill soil sampled from TP-5, 0 to 3 feet (see Figure 2 and Table 1) exceeded the RSCOs for three (3) semi-volatile organic compounds and mercury. Therefore, GZA is proposing a scope of work for the shallow soils to supplement the data generated as part of the TPI Report to provide data that will satisfy New York State Department of Environmental Conservation (NYSDEC) Division of Remediation (DER) guidelines outlined in DER-10[1] Table 5.4(e)10 and asses the 1001 Main Street soil for reuse.

DEEP SOILS

Strickler provided GZA with a report "Remedial Investigation/Interim Remedial Measures Work Plan for 1001 Main Street (Former Mobil Service Station 99-MST Site #C915260), City of Buffalo, Erie County, New York" (RI/IRM WP) dated August 2012 completed by C&S Companies. This report has been included as Attachment 3 to this sampling plan. The RI/IRM provides a summary of the previous investigation finding. The following information was taken from RI/IRM WP.

> The main area of contaminated soil is located in the middle of the Site (see Figure 3). The shallowest depth to the top of the contamination is about 10 feet bgs, and ranges in depth from 20 to 40 feet bgs. A thin layer (0.5 to 5 feet thick) of contamination extends north from the middle of the Site, to the northern property

[1] NYSDEC, Division of Remediation, DER-10/Technical Guidance for Site Investigation and Remediation, dated March 3, 2010.

boundary. The contaminated layer is associated with groundwater flow in the thin zone comprised of coarse sand and gravel lenses at a depth of 32 to 35 feet bgs.

The potentiometric top of groundwater has been measured at 25 feet bgs, the groundwater bearing layer (e.g., coarse sand and gravel lenses) are present at a depth of 32 to 35 feet bgs.

It appears previous investigations have not identified impacted soils in the area identified on Figure 3 from 14 to 26 feet bgs. Therefore, GZA is proposing a scope of work for evaluating the deep soils to satisfy New York State Department of Environmental Conservation (NYSDEC) Division of Remediation (DER) guidelines outlined in DER-10 Table 5.4(e)10.

SCOPE OF WORK

SHALLOW SOILS

GZA is proposing to complete 17 additional test pits to collect soil samples and verify the soil conditions observed during the previous investigation (see Figure 2). Of the 17 proposed test pits to be completed, three (3) will be used to further delineate the extents of SVOCs and mercury detected in the fill material at TP-5, as shown on Figure 2.

According to DER-10 Table 5.4(e)10, the sampling frequencies for approximately 31,000 cubic yards of soil would require 67 discrete volatile organic compounds (VOCs) samples and 32 composite samples for semi-volatile organic compounds (SVOCs), inorganics, polychlorinated biphenyls (PCBs) and pesticides, or consult with NYSDEC to establish a sampling plan.

We propose to collect 52 additional discrete VOC samples and 24 composite samples from the additional 17 test pits to supplement the data already collected. The composite sample analysis will include SVOCs, inorganics, PCBs and pesticides.

Two discrete VOC samples will be collected from each test pit completed. One sample will be collected from the sample interval with the highest organic vapor meter reading noted during field screening of the samples and the second sample will be collected from the last sample interval of each test pit. This will be 10 feet bgs in the areas shown in blue and 14 feet in the areas shown in red on Figure 2, to verify the depth of the soil material for reuse is acceptable.

Composite samples will be collected from each test pit completed. The depth of the composite samples will be from the proposed depths shown on Figure 2. Ten (10)of the 24 proposed composite samples will be collected directly from the fill material present at their respective locations in addition to the native soil sample depth interval shown on Figure 2. Fill samples will also be collected from the three (3) test pits to delineate the extents of SVOCs and mercury detected at TP-5. These samples will be placed on hold at the

laboratory pending the outcome of the other fill material samples. GZA offers the following scenarios based on the results of the fill sampling.

- If the results of the ten (10) proposed fill samples indicate that the fill material meets the RSCOs and is suitable for use at a residential site, the three (3) delineation samples will be analyzed for SVOCs, inorganics, PCBs and pesticides to delineate the fill material around TP-5 allowable for residential use.

- If the results of the ten (10) proposed fill samples indicate the fill material does not meet the RSCOs, the delineation samples will not be analyzed and the fill material will not be used at the 129 Holden Street Site.

- If the results of the ten (10) proposed fill samples show concentrations above and below the RSCOs, a determination will be made as to the value the additional sample results could provide in assessing the fill material at the Site. GZA/Strickler will consult with NYSDEC in assessing additional sampling.

The data to be generated for this work plan will supplement data previously collected as part of the TPI. In the soils considered for reuse, we note that SVOCs, PCBs, inorganics and pesticides were detected at one location, TP-5, in the fill material from 0 to 3 feet bgs. and are not considered contaminants of concern on the 1001 Main Street property. This property has been extensively investigated over the years and found to be impacted by BTEX compounds, as TPI sampling of the shallow soils did identify BTEX contaminants above the RSCOs.

DEEP SOILS

The deep soils assessment will occur after soils from ground surface to 14 feet bgs have been removed from the 1001 Main Street property. GZA is proposing to complete 14 test pits to collect soil samples and verify the soil conditions from 14 to 26 feet bgs (see Figure 3). According to DER-10 Table 5.4(e)10, the sampling frequencies for approximately 23,000 cubic yards of soil would require 46 discrete volatile organic compounds (VOCs) samples and 32 composite samples for semi-volatile organic compounds (SVOCs), inorganics, polychlorinated biphenyls (PCBs) and pesticides, or as determined in consultation with NYSDEC to establish a sampling plan. We propose to collect 46 discrete VOC samples and 14 composite samples from the 14 test pits.

Discrete VOC samples will be collected from each test pit completed. One sample will be collected from the sample interval with the highest organic vapor meter reading noted during field screening of the samples and another sample will be collected from the last sample interval of each test pit. This will be approximately 26 feet bgs in the areas shown in red on Figure 3, to verify the proposed excavation depth of the soil material designated for reuse is acceptable. Additional samples will be collected to achieve spacial distribution of VOCs samples at various depths between 14 and 26 feet bgs.

One composite sample will be collected from each test pit completed. The depth of the composite samples will from the depths shown on Figure 3.

REPORTING

The sampling to assess the shallow and deep soils will be completed in two phases. First phase will assess the shallow soils from ground surface to 10 to 14 feet bgs as shown on Figure 2. The second phase will assess the deep soils from 14 to 26 feet bgs as shown on Figure 3. The second phase of sampling will not occur until site remediation and development activities have removed the soil from ground surface to 14 feet bgs. Therefore, GZA will prepare two separate reports for submittal to NYSDEC.

The reports will contain a summary of the work completed, observations, analytical data, figures and conclusions relating to the reuse of the Site soil at the 129 Holden Street Site.

We would appreciate an expedited turn-around on the review of this work plan, as Site development and remedial activities at the 1001 Main Street property will begin soon and we would like to conduct our first phase of sampling in advance of this work. If you need additional information or would like to discuss the project, please contact Chris Boron (GZA Project Manager) at (716) 844-7046.

Respectfully,

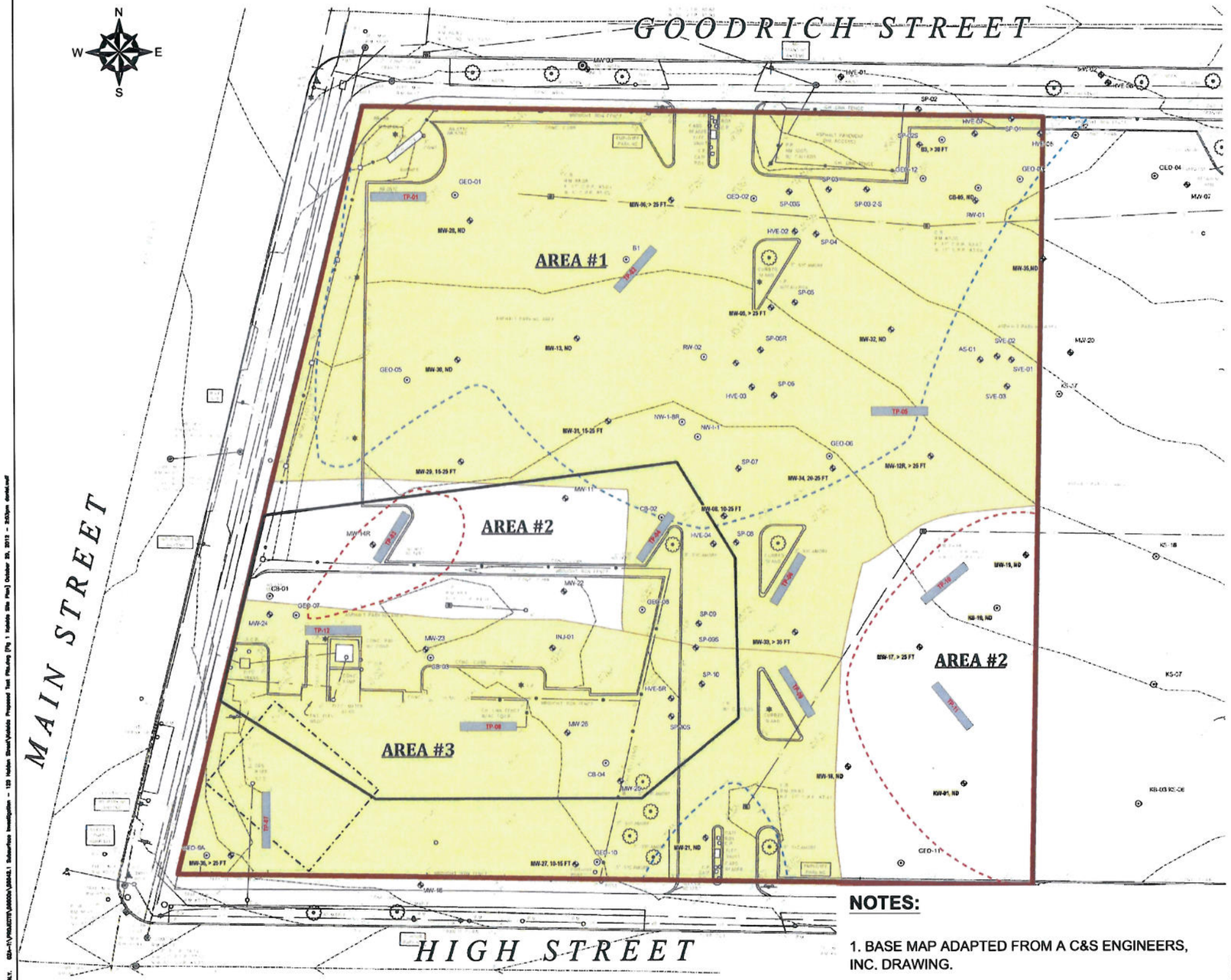
GZA GeoEnvironmental of New York

Christopher Boron
Senior Project Manager

Bart A. Klettke, P. E.
Associate Principal

Attachments
Figure 1
Figure 2
Figure 3
Table 1
Commercial Use Assessment Report
Test Pit Investigation Report of the Medical Office Building Site
Remedial Investigation/Interim Remedial Work Plan

cc: John Ciminelli (Strickler Development, electronic copy only)
Vince Kirsch (LPCiminelli, electronic copy only)
Danielle Zientek (LPCiminelli, electronic copy only)



LEGEND

- BCA Boundary
- Approximate Location of Test Pits
- Estimated Limits of Excavation to meet Commercial Use Criteria
- Approximate Location of Removed USTs

Approximate Extent of "Fill" and "Native" Material

- Deep Fill Material
- Native Soil / Shallow Fill

Approximate Fill Depth Contours (feet below ground surface)

- <2 feet
- >10 feet
- Geotechnical / Environmental Boring
- Monitoring Well
- MW-08, 10-25 FT — Depth to Contamination
  ND = Not Detected (See Note #5)

NOTES

1) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

2) The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities, either in service or abandoned. The surveyor has not physically located the underground utilities.

3) Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Ft
Projection: Transverse Mercator
Datum: North American 1983
Units: Foot US

4) Depths of contamination are based on PID readings greater than 50 ppm from past site investigations .

5) No detection is defined as no evidence of soil contamination either through PID or lab analysis .

FILL NOTE

1) Fill material is generally composed of clay, sand and silt with pieces of concrete and brick, some slag and gravel. Wood found in MW-29 and possible concrete foundation in CB-02. Black staining noted in KS-19.

TEST PIT NOTES

1) Two objectives for conducting test pit material and "native" material for offsite varability of fill across the site.

2) Between 2 to 4 samples will be colle be analyzed for VOCs and full parameti will be 10 to 20 ft long and is estimated grade.

NOTES:

1. BASE MAP ADAPTED FROM A C&S ENGINEERS, INC. DRAWING.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

C&S COMPANIES
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KALEIDA HEALTH
276 Exchange Street
Suite 200
Buffalo, New York 14210

N

0 20 40 80
SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

CENTRAL PARK PLAZA
129 HOLDEN STREET
BUFFALO, NEW YORK

KALEIDA HEALTH SITE

SITE PLAN

PREPARED BY:
GZA GeoEnvironmental of N.Y.
Engineers and Scientists
535 WASHINGTON STREET 11th FLOOR
BUFFALO, NEW YORK 14203
(716) 685-2300

PREPARED FOR:
LOUIS P. CIMINELLI CONSTRUCTION

PROJ MGR: CZB	REVIEWED BY:	CHECKED BY:	FIGURE 1
DESIGNED BY:	DRAWN BY: MDK	SCALE: AS SHOWN	
DATE OCTOBER 2012	PROJECT NO. 21.0056642.10	REVISION NO.	

B

MOB - BROWNFIELD CLEANUP PROGRAM

CITY OF BUFFALO, NY

AREA = 50,200 SQ. FT.
X 14 FT
= 26,000 CY

AREA = 12,300 SQ. FT.
X 10 FT
= 4,500 CY

TOTAL = 30,500 CY

GOODRICH STREET

MAIN STREET

HIGH STREET

AREA #1

AREA #2

AREA #3

FILL SAMPLE & 8'-12'

0'-4'

FILL SAMPLE & 10'-14'

7'
11'

8'
12'

4'-8'

FILL SAMPLE & 8'-12'

FILL SAMPLE & 4'-8'

FILL SAMPLE & 10'-14'

FILL SAMPLE & 8'-12'

TP-5: 0'-3'

ADDITIONAL TP-5 DELINEATION TEST PITS

FILL SAMPLE & 8'-12'

0'-4'

8'
14'

14'

6'
12'

7'
14'

6'-10'

0'
3'

0'-4'

6'
9.5'

FILL SAMPLE & 10'-14'

4'-8'

LEGEND

- BCA Boundary
- Approximate Location of Test Pits
- Estimated Limits of Excavation to meet Commercial Use Criteria
- Approximate Location of Removed USTs

Approximate Extent of "Fill" and "Native" Material

- Deep Fill Material
- Native Soil / Shallow Fill

Approximate Fill Depth Contours (feet below ground surface)

- <2 feet
- >10 feet
- Geotechnical / Environmental Boring
- Monitoring Well
- MW-08, 10-25 FT — Depth to Contamination
  ND = Not Detected (See Note #5)

NOTES

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TEST PIT NOTES

1) Two objectives for conducting test pit samplings: (1) delineate "fill" material and "native" material for offsite use; (2) to assess the potential varability of fill across the site

2) Between 2 to 4 samples w be analyzed for VOCs and full will be 10 to 20 ft long and is e grade.

0 20 40 80
SCALE IN FEET

LEGEND:

FILL SAMPLE & 8'-12' — PROPOSED COMPOSITE SAMPLE FROM EXISTING FILL INTERVAL & COMPOSITE SOIL SAMPLE FROM INDICATED INTERVAL

0' / 3' — PREVIOUS INVESTIGATION SAMPLE DEPTH(S) (TP-5 REPRESENTS SAMPLE INTERVAL)

AREA OF PROPOSED EXCAVATION TO 14 FEET

AREA OF PROPOSED EXCAVATION TO 10 FEET

NOTES:

1. BASE MAP ADAPTED FROM A C&S ENGINEERS, INC. DRAWING.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

C&S COMPANIES
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N

MOB - BROWNFIELD CLEANUP PROGRAM

NO.	ISSUE/DESCRIPTION	BY	DATE

CENTRAL PARK PLAZA
129 HOLDEN STREET
BUFFALO, NEW YORK

KALEIDA HEALTH SITE

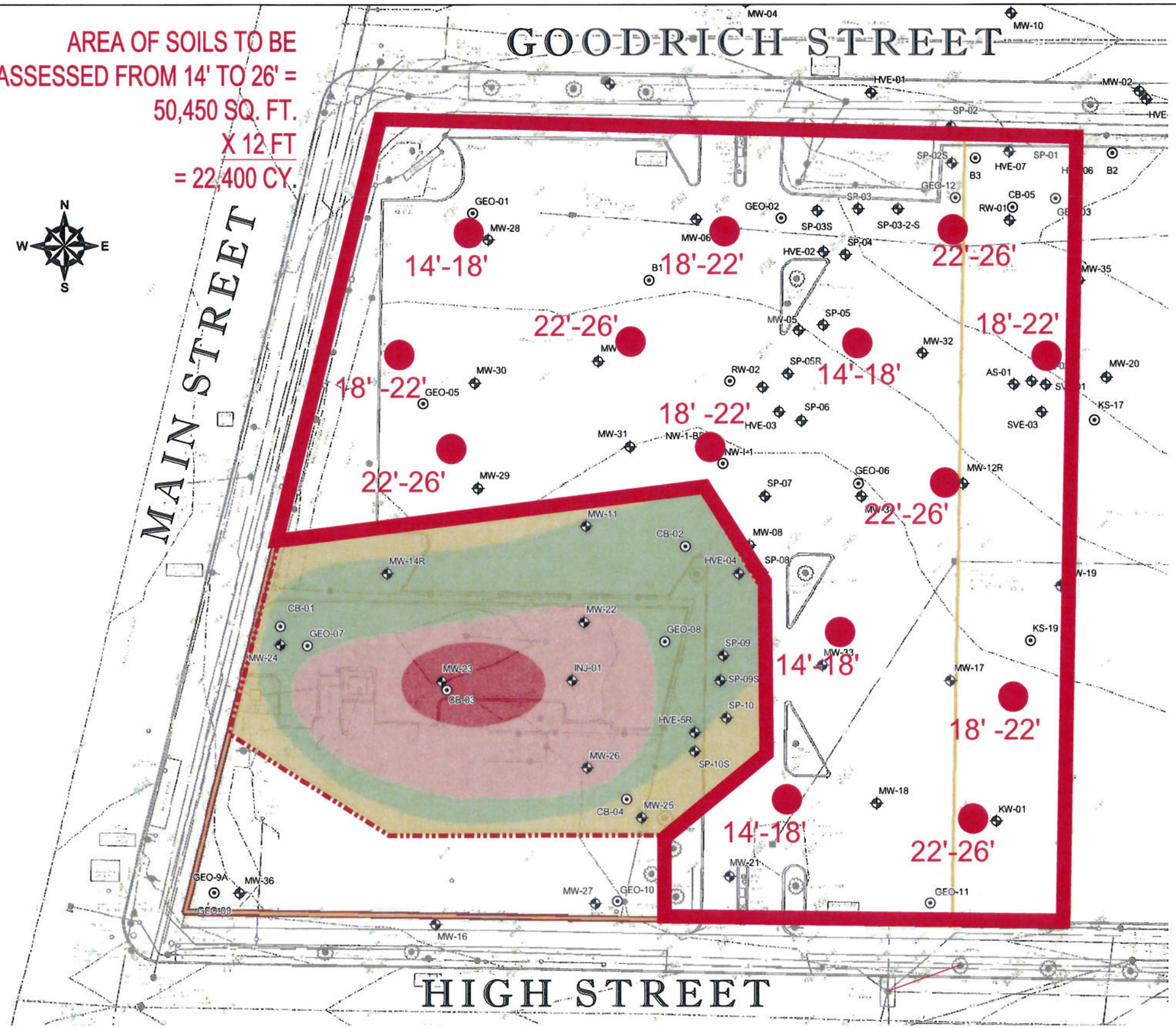
PROPOSED TEST PIT LOCATIONS

PREPARED BY:
GZA GeoEnvironmental of N.Y.
Engineers and Scientists
535 WASHINGTON STREET 11th FLOOR
BUFFALO, NEW YORK 14203
(716) 685-2300

PREPARED FOR:
LOUIS P. CIMINELLI CONSTRUCTION

PROJ MGR: CZB	REVIEWED BY:	CHECKED BY:	FIGURE 2
DESIGNED BY:	DRAWN BY: MDK	SCALE: AS SHOWN	
DATE OCTOBER 2012	PROJECT NO. 21.0056642.10	REVISION NO.	

AREA OF SOILS TO BE ASSESSED FROM 14' TO 26' = 50,450 SQ. FT. X 12 FT = 22,400 CY.



Legend

- Monitoring Well
- Soil Boring
- Proposed Medical Office Building Site
- Proposed BCA Boundary
- Proposed Limits of Excavation

Top of Contaminated Soil - Feet Below Ground Surface ("ftbgs")

- 10 ftbgs
- 15 ftbgs
- 20 ftbgs
- 30 ftbgs

Notes

1) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

2) The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities, either in service or abandoned. The surveyor has not physically located the underground utilities.

3) Groundwater sampling results from March 23, 2012 GES Monitoring Report.

4) Coordinate System: NAD 1983 StatePlane NY West FIPS 3103
Projection: Transverse Mercator
Datum: North American 1983
Units: Foot US

0 20 40 80
SCALE IN FEET

LEGEND:

AREA OF PROPOSED EXCAVATION 14 TO 26 FEET

14'-18' PROPOSED TEST PIT COMPOSITE SAMPLE DEPTH INTERVAL

NOTES:

1. BASE MAP ADAPTED FROM A C&S ENGINEERS, INC. FIGURE 2-2.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

NO.	ISSUE/DESCRIPTION	BY	DATE

CENTRAL PARK PLAZA
129 HOLDEN STREET
BUFFALO, NEW YORK

KALEIDA HEALTH SITE

PROPOSED AREA OF DEEP EXCAVATIONS

PREPARED BY:
GZA GeoEnvironmental of N.Y.
Engineers and Scientists
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BUFFALO, NEW YORK 14203
(716) 685-2300

PREPARED FOR:
LOUIS P. CIMINELLI CONSTRUCTION

PROJ MGR: CZB	REVIEWED BY:	CHECKED BY:	FIGURE
DESIGNED BY:	DRAWN BY: MDK	SCALE: AS SHOWN	3
DATE OCTOBER 2012	PROJECT NO. 21.0056642.10	REVISION NO.	

TABLE 1
SUMMARY OF TEST PIT INVESTIGATION SOIL DATA
SEPTEMBER 2012

Contaminant	Unrestricted Use	Protection of Public Health: Residential	Restricted-Residential	Commercial	Industrial	TP-01	TP-01	TP-02	TP-02	TP-03	TP-04	TP-05	TP-06	TP-07
Semivolatile organic compounds		**ppm=mg/kg**				7 ft	11 ft	8 ft	12 ft	6 ft	14 ft	0-3 ft	14 ft	6 ft
Acenaphthene	20	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	**.194 J**	--	<0.310
Acenapthylene [f]	100 [g]	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
Anthracene [f]	100 [g]	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
Benz(a)anthracene [f]	1[c]	1[f]	1[f]	5.6[f]	11	<0.295	--	<0.305	--	<0.330	--	**1.09**	--	<0.310
Benzo(a)pyrene	1[c]	1[f]	1[f]	1[f]	1.1	<0.295	--	<0.305	--	<0.330	--	**1**	--	<0.310
Benzo(b)fluoranthene[f]	1[c]	1[f]	1[f]	5.6[f]	11	<0.295	--	<0.305	--	<0.330	--	**0.942**	--	<0.310
Benzo(g,h,i)perylene [f]	100	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	**0.608**	--	<0.310
Benzo(k)fluoranthene[f]	0.8 [c]	1	3.9	56	110	<0.295	--	<0.305	--	<0.330	--	**0.702**	--	<0.310
Chrysene [f]	1[c]	1[f]	3.9	56	110	<0.295	--	<0.305	--	<0.330	--	**1.09**	--	<0.310
Dibenz(a,h)anthracene[f]	0.33 [g]	0.33[g]	0.33[g]	0.56[f]	1.1	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
Fluoranthene [f]	100 [g]	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	**0.233 J**	--	**2.3**	--	<0.310
Fluorene	30	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	**0.202**	--	<0.310
Indeno(1,2,3-cd)pyrene [f]	0.5 [c]	0.5[f]	0.5[f]	5.6[f]	11	<0.295	--	<0.305	--	<0.330	--	**0.67**	--	<0.310
m-Cresol [f]	0.33 [g]	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
Naphthalene [f]	12	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
o-Cresol [f]	0.33 [g]	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
p-Cresol [f]	0.33 [g]	34	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
Pentachlorophenol	0.8[c]	2.4	6.7	6.7	55	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
Phenanthrene [f]	100	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	**1.81**	--	<0.310
Phenol	0.33[g]	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.305	--	<0.330	--	<0.376	--	<0.310
Pyrene[f]	100	100[a]	100[a]	500[a]	1,000[a]	<0.295	--	<0.295	--	**0.194 J**	--	**1.94**	--	<0.310
# of Detections of Analytes with No Standards:						0	0	0	0	0	0	1	0	0
Volatile organic compounds		**ppm=mg/kg**												
1,1,1-Trichloroethane [f]	0.68	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
1,1-Dichloroethane [f]	0.27	19	26	240	480	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
1,1-Dichloroethene[f]	0.33	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
1,2-Dichlorobenzene[f]	1.1	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
1,2-Dichloroethane	0.02[c]	2.3	3.1	30	60	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
cis -1,2-Dichloroethene [f]	0.25	59	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
trans-1,2-Dichloroethene [f]	0.19	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
1,3-Dichlorobenzene[f]	2.4	17	49	280	560	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
1,4-Dichlorobenzene	1.8	9.8	13	130	250	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
1,4-Dioxane	0.1 [c]	9.8	13	130	250	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Acetone	0.05	100[a]	100[a]	500[a]	1,000[a]	<0.0172	<.0214	<.0170	<.0157	<.0227	**0.0243**	<.0208	<.0175	<.0168
Benzene	0.06	2.9	4.8	44	89	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	**1.79**	<.00336
n-Butylbenzene [f]	12	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Carbon tetrachloride [f]	0.76	1.4	2.4	22	44	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Chlorobenzene	1.1	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Chloroform	0.37	10	49	350	700	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Ethylbenzene[f]	1	30	41	390	780	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	**.0026 J**	<.00336
Hexachlorobenzene [f]	0.33[g]	0.33[g]	1.2	6	12	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Methyl ethyl ketone	0.12	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Methyl tert-butyl ether [f]	0.93	62	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Methylene chloride	0.05	51	100[a]	500[a]	1,000[a]	<0.00859	<.0107	<.00885	<.00787	<.0113	<.00985	<.0104	<.00876	<.00841
n - Propylbenzene [f]	3.9	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
sec-Butylbenzene [f]	11	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
tert-Butylbenzene[f]	5.9	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Tetrachloroethene	1.3	5.5	19	150	300	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Toluene	0.7	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	**0.0081**	<.00336
Trichloroethene	0.47	10	21	200	400	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
1,2,4-Trimethylbenzene [f]	3.6	47	52	190	380	<0.00859	<.0107	<.00706	**.00217 J**	<.0113	**0.00345 J**	<.0104	**0.0181**	<.00841
1,3,5-Trimethylbenzene[f]	8.4	47	52	190	380	<0.00859	<.0107	<.00885	<.00787	<.0113	**0.00257 J**	<.0104	**0.00719**	<.00841
Vinyl chloride[f]	0.02	0.21	0.9	13	27	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00394	<.00416	<.00350	<.00336
Xylene (mixed)	0.26	100[a]	100[a]	500[a]	1,000[a]	<0.00344	<.00429	<.00354	<.00315	<.00453	**0.00507 J**	<.00416	**0.0208**	<.00336
Naphthalene [f]	12	100[a]	100[a]	500[a]	1,000[a]	<0.00859	<.0107	<.00706	<.00787	<.0113	**0.01**	<.0104	**.00693 J**	<.00841
# of Detections of Analytes with No Standards:						0	0	0	0	0	0	0	0	0
Metals		**ppm=mg/kg**												
Arsenic	13 [c]	16[f]	16[f]	16[f]	16[f]	1.57	--	2.04	--	3.41	--	3.91	--	1.35
Barium	350 [g]	350[f]	400	400	10,000 [g]	<9.20	--	18.3	--	62.4	--	105	--	<10.4
Beryllium	7.2	14	72	590	2,700	<0.460	--	<0.527	--	0.421	--	<0.332 J	--	<0.520
Cadmium	2.5 [c]	2.5[f]	4.3	9.3	60	<0.460	--	<0.527	--	0.285	--	0.332	--	<0.520
Chromium, hexavalent [e]	1[b]	22	110	400	800	<1.0	--	<1.1	--	<1.1	--	<1.1	--	<0.12
Chromium, trivalent [e]	30 [c]	36	180	1,500	6,800	3.11	--	5.13	--	14.4	--	9.53	--	4.61
Copper	50	270	270	270	10,000 [g]	5.89	--	7.2	--	13	--	12.9	--	6.54
Total Cyanide [e, f]	27	27	27	27	10,000 [g]	<0.50	--	<0.53	--	<0.54	--	<0.54	--	.0067 J
Lead	63 [c]	400	400	1,000	3,900	5.22	--	8.27	--	27	--	**290**	--	7.29
Manganese	1600 [c]	2,000[f]	2,000[f]	10,000 [g]	10,000 [g]	205	--	266	--	577	--	304	--	223
Total Mercury	0.18 [c]	0.81[f]	0.81[f]	2.8[f]	5.7[f]	<0.0082	--	<0.0085	--	<0.0081	--	**4.41**	--	<0.00085
Nickel	30	140	310	310	10,000 [g]	<3.68	--	4.11	--	8.47	--	6.66	--	2.95
Selenium	3.9[c]	36	180	1,500	6,800	<0.920	--	<1.05	--	1.21	--	1.33	--	0.624
Silver	2	36	180	1,500	6,800	<0.920	--	<1.05	--	<1.14	--	0.959	--	<1.04
Zinc	109 [c]	2200	10,000 [g]	10,000 [g]	10,000 [g]	55.5	--	78.1	--	75	--	**150**	--	64.4
PCBs/Pesticides		**ppm=mg/kg**												
2,4,5-TP Acid (Silvex)[f]	3.8	58	100[a]	500[a]	1,000[a]	NA	--	NA	--	NA	--	NA	--	NA
4,4'-DDE	0.0033 [g]	1.8	8.9	62	120	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
4,4'-DDT	0.0033 [g]	1.7	7.9	47	94	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
4,4'-DDD	0.0033 [g]	2.6	13	92	180	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Aldrin	0.005 [c]	0.019	0.097	0.68	1.4	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
alpha-BHC	0.02	0.097	0.48	3.4	6.8	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
beta-BHC	0.036	0.072	0.36	3	14	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Chlordane (alpha)	0.094	0.91	4.2	24	47	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
delta-BHC [g]	0.04	100[a]	100[a]	500[a]	1,000[a]	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Dibenzofuran [f]	7	14	59	350	1,000[a]	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Dieldrin	0.005[c]	0.039	0.2	1.4	2.8	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Endosulfan I [d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Endosulfan II [d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Endosulfan sulfate [d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Endrin	0.014	2.2	11	89	410	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Heptachlor	0.042	0.42	2.1	15	29	<.00294	--	<.00304	--	<.00377	--	<.00334	--	<.00312
Lindane	0.1	0.28	1.3	9.2	23	NA	--	NA	--	NA	--	NA	--	NA
Polychlorinated biphenyls	0.1	1	1	1	25	<.0294	--	<.0304	--	<.00377	--	<.00334	--	<.00312

TABLE 1
SUMMARY OF TEST PIT INVESTIGATION SOIL DATA
SEPTEMBER 2012

Contaminant	Unrestricted Use	Protection of Public Health: Residential	Restricted-Residential	Commercial	Industrial	TP-07	TP-08	TP-08	TP-09	TP-10	TP-10	TP-10	TP-11	TP-12
Semivolatile organic compounds	ppm=mg/kg					9.5 ft	7 ft	14 ft	0-3 ft	0-2.5 ft	9 ft	10 ft	9.5 ft	6 ft
Acenaphthene	20	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	**0.445**	**19.5**	<0.362	<0.325	--
Acenapthylene [f]	100 [a]	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--
Anthracene [f]	100 [a]	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	**0.597**	**25.6**	<0.362	<0.325	--
Benz(a)anthracene [f]	1[a]	1[a]	1[a]	5.6	11	--	<0.325	--	<0.301	**1.48**	**48.6**	<0.362	<0.325	--
Benzo(a)pyrene	1[a]	1[a]	1[a]	1[a]	1.1	--	<0.325	--	<0.301	**1.28**	**39.3**	<0.362	<0.325	--
Benzo(b)fluoranthene[f]	1[a]	1[a]	1[a]	5.6	11	--	<0.325	--	<0.301	**1.32**	**38.1**	<0.362	<0.325	--
Benzo(g,h,i)perylene [f]	100	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	**0.745**	**20.3**	<0.362	<0.325	--
Benzo(k)fluoranthene[f]	0.8 [a]	1	3.9	56	110	--	<0.325	--	<0.301	**0.94**	**31.7**	<0.362	<0.325	--
Chrysene [f]	1[a]	1[a]	3.9	56	110	--	<0.325	--	<0.301	**1.55**	**48.6**	<0.362	<0.325	--
Dibenz(a,h)anthracene[f]	0.33 [a]	0.33[a]	0.33[a]	0.56	1.1	--	<0.325	--	<0.301	**0.217 J**	**5.8 J**	<0.362	<0.325	--
Fluoranthene [f]	100 [a]	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	**3.18**	**100**	<0.362	**0.196 J**	--
Fluorene	30	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	**.276 J**	**14.8**	<0.362	<0.325	--
Indeno(1,2,3-cd)pyrene [f]	0.5 [a]	0.5[a]	0.5[a]	5.6	11	--	<0.325	--	<0.301	**1.05**	**27.4**	<0.362	<0.325	--
m-Cresol [f]	0.33 [a]	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--
Naphthalene [f]	12	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	<0.338	**8.32**	<0.362	<0.325	--
o-Cresol [f]	0.33 [a]	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--
p-Cresol [f]	0.33 [a]	34	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--
Pentachlorophenol	0.8[a]	2.4	6.7	6.7	55	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--
Phenanthrene [f]	100	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	**2.03**	**96**	<0.362	<0.325	--
Phenol	0.33[a]	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--
Pyrene[f]	100	100[a]	100[a]	500[a]	1,000[a]	--	<0.325	--	<0.301	**2.61**	**80.6**	<0.362	<0.325	--
# of Detections of Analytes with No Standards:						0	0	0	0	3	3	0	0	0
Volatile organic compounds		ppm=mg/kg												
1,1,1-Trichloroethane [f]	0.68	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
1,1-Dichloroethane [f]	0.27	19	26	240	480	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
1,1-Dichloroethene[f]	0.33	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
1,2-Dichlorobenzene[f]	1.1	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
1,2-Dichloroethane	0.02[a]	2.3	3.1	30	60	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
cis -1,2-Dichloroethene [f]	0.25	59	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
trans-1,2-Dichloroethene [f]	0.19	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
1,3-Dichlorobenzene[f]	2.4	17	49	280	560	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
1,4-Dichlorobenzene	1.8	9.8	13	130	250	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
1,4-Dioxane	0.1 [a]	9.8	13	130	250	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Acetone	0.05	100[a]	100[a]	500[a]	1,000[a]	<.0197	<.0150	<.0231	<.0186	**0.105 B**	**0.128 B**	<.0210	**0.0161 J B**	<.0182
Benzene	0.06	2.9	4.8	44	89	**.00281 J**	<.00301	**0.0142**	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
n-Butylbenzene [f]	12	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Carbon tetrachloride [f]	0.76	1.4	2.4	22	44	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Chlorobenzene	1.1	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Chloroform	0.37	10	49	350	700	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Ethylbenzene[f]	1	30	41	390	780	**0.0538**	<.00301	**0.00322 J**	<.00371	<.00397	**0.0103**	<.00419	<.00496	<.00364
Hexachlorobenzene [f]	0.33[a]	0.33[a]	1.2	6	12	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Methyl ethyl ketone	0.12	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	**.0152 J**	**.0243 J**	<.00419	<.00496	<.00364
Methyl tert-butyl ether [f]	0.93	62	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Methylene chloride	0.05	51	100[a]	500[a]	1,000[a]	<.00987	<.00752	<.0115	<.00928	<.00992	<.0136	<0.0105	<.0124	<.0091
n - Propylbenzene [f]	3.9	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
sec-Butylbenzene [f]	11	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
tert-Butylbenzene[f]	5.9	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Tetrachloroethene	1.3	5.5	19	150	300	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Toluene	0.7	100[a]	100[a]	500[a]	1,000[a]	<.00395	<.00301	**0.0149**	<.00371	<.00397	**0.00797**	<.00419	<.00496	<.00364
Trichloroethene	0.47	10	21	200	400	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
1,2,4-Trimethylbenzene [f]	3.6	47	52	190	380	<.00987	<.00752	<.0115	<.00928	**.0033 J**	**0.0196**	<.00419	<.0124	<.0091
1,3,5-Trimethylbenzene[f]	8.4	47	52	190	380	<.00987	<.00752	<.0115	<.00928	<.00397	**0.0067**	<.00419	<.0124	<.0091
Vinyl chloride[f]	0.02	0.21	0.9	13	27	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364
Xylene (mixed)	0.26	100[a]	100[a]	500[a]	1,000[a]	**0.3778**	<.00301	**0.0212**	<.00371	<.00397	**0.01992**	<.00419	<.00496	<.00364
Naphthalene [f]	12	100[a]	100[a]	500[a]	1,000[a]	<.00987	<.00752	**0.0113 J**	<.00371	.00636 J	**0.533**	<0.0105	<.0124	<.0091
# of Detections of Analytes with No Standards:						0	0	0		1	3	0	0	0
Metals		ppm=mg/kg												
Arsenic	13 [a]	16[f]	16[f]	16[f]	16[f]	--	<1.03	--	1.31 D	5.81	3.11	4.29	4.54	--
Barium	350 [a]	350[f]	400	400	10,000 [a]	--	<10.3	--	13.4	86.2	113	83.6	140	--
Beryllium	7.2	14	72	590	2,700	--	<0.516	--	<0.485	0.384 J	0.59	0.478 J	0.887	--
Cadmium	2.5 [a]	2.5[f]	4.3	9.3	60	--	<0.516	--	<0.485	647	<0.660	<0.621	<0.635	--
Chromium, hexavalent [e]	1[b]	22	110	400	800	--	<1.2	--	<1.3	<1.2	<1.4	<1.3	<1.2	--
Chromium, trivalent [e]	30 [c]	36	180	1,500	6,800	--	4.42	--	3.56	15.8	**88.4**	15.2	27.7	--
Copper	50	270	270	270	10,000 [a]	--	6.73	--	8.36	34.1	43.6	15	21	--
Total Cyanide [e, f]	27	27	27	27	10,000 [a]	--	.0072 J	--	<0.061	.0069 J	.0081 J	.0074 J	<0.62	--
Lead	63 [a]	400	400	1,000	3,900	--	6.73	--	8.81 D	**158**	34	12.7	12.8	--
Manganese	1600 [a]	2,000[f]	2,000[f]	10,000 [a]	10,000 [a]	--	6.57	--	233	309	366	459	542	--
Total Mercury	0.18 [a]	0.81[f]	0.81[f]	2.8[f]	5.7[f]	--	242	--	0.0401	**0.242**	**2.11**	0.018	0.103	--
Nickel	30	140	310	310	10,000 [a]	--	2.95	--	2.67	11.5	18.1	16.4	29.2	--
Selenium	3.9[a]	36	180	1,500	6,800	--	<1.03	--	<0.970	0.933	1.51	1.7	2.16	--
Silver	2	36	180	1,500	6,800	--	<1.03	--	<0.970	<1.17	1.04	<1.24	<1.26	--
Zinc	109 [a]	2200	10,000 [a]	10,000 [a]	10,000 [a]	--	66.7	--	47.6	**197**	**168**	68.5	69.7	--
PCBs/Pesticides		ppm=mg/kg												
2,4,5-TP Acid (Silvex)[f]	3.8	58	100[a]	500[a]	1,000[a]	--	NA	--	NA	<.0058	<.0058	<.0064	NA	--
4,4'-DDE	0.0033 [a]	1.8	8.9	62	120	--	<.00323	--	<.00305	**.00338 C**	<.00411	<.00360	**0.00938**	--
4,4'-DDT	0.0033 [a]	1.7	7.9	47	94	--	<.00323	--	<.00305	**0.0113**	**0.0286**	<.00360	**0.00342 J**	--
4,4'-DDD	0.0033 [a]	2.6	13	92	180	--	<.00323	--	<.00305	**.0143 C**	<.00411	<.00360	<.00361	--
Aldrin	0.005 [a]	0.019	0.097	0.68	1.4	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
alpha-BHC	0.02	0.097	0.48	3.4	6.8	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
beta-BHC	0.036	0.072	0.36	3	14	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
Chlordane (alpha)	0.094	0.91	4.2	24	47	--	<.00323	--	<.00305	**.00154 C**	**.00448 C**	<.00360	<.00361	--
delta-BHC [g]	0.04	100[a]	100[a]	500[a]	1,000[a]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
Dibenzofuran [f]	7	14	59	350	1,000[a]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
Dieldrin	0.005[a]	0.039	0.2	1.4	2.8	--	<.00323	--	<.00305	**.00397 C**	**.0143 C**	<.00360	<.00361	--
Endosulfan I [d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
Endosulfan II [d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
Endosulfan sulfate [d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
Endrin	0.014	2.2	11	89	410	--	<.00323	--	<.00305	**.00684 C**	**6.84 C**	<.00360	<.00361	--
Heptachlor	0.042	0.42	2.1	15	29	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--
Lindane	0.1	0.28	1.3	9.2	23	--	NA	--	NA	<.00338	<.00411	<.00360	NA	--
Polychlorinated biphenyls	0.1	1	1	1	25	--	<.0323	--	<.0305	**0.0665**	**0.1805**	<0.036	<.0361	--

ATTACHMENT 1

COMMERCIAL USE ASSESSMENT REPORT

PROPOSED MEDICAL OFFICE BUILDING
1001 MAIN STREET
BUFFALO, NEW YORK 14203

Prepared by:

C&S ENGINEERS, INC.
90 BROADWAY
BUFFALO, NEW YORK 14203

Prepared for:

KALEIDA HEALTH
LARKIN BUILDING
726 EXCHANGE STREET, SUITE 200
BUFFALO, NY 14203

MAY 2012

TABLE OF CONTENTS

1.0 INTRODUCTION

C&S Engineers, Inc. has completed a Commercial Use Assessment on 1001 Main Street located in the City of Buffalo, Erie County, New York. This property is the proposed location of a Medical Office Building (MOB) and will be referenced as the "Site" in this report. This assessment included the advancement of five soil borings across the Site from April 24 to 26, 2012. The subsurface investigation and the lab analytical results are described in this report. The data collected from this investigation supplemented the data collected in the 2008 Groundwater Environmental Services, Inc. ("GES") study conducted for Exxon-Mobil.

As part of the ongoing remedial investigation of the Site, C&S Engineers, Inc. was contracted by Kaleida Health to determine the limits of excavation required to meet the Remedial Soil Cleanup Objectives for "Commercial Use" (per 6 NYCRRR 375-6.) The excavation limits will support Kaleida Health in assessing the viability of reaching Commercial Use soil standards as an option for remedial cleanup. The commercial use category, as defined in New York State Department of Environmental Conservation ("NYSDEC") DER-10, "restricts the use to commercial activities including the buying and/or selling of goods or services, or other uses identified in subparagraph iii below." Subparagraph iii defines additional appropriate site uses as, "(1) health care facilities, including hospitals, clinics etc.; or (2) college academic and administrative facilities…" The Commercial Use Soil Cleanup Objectives (SCOs) are presented in *6 NYCRR 375-6: Remedial Program Soil Cleanup Objectives.*

2.0 SITE DESCRIPTION

2.1 LOCATION AND DESCRIPTION

The Site is located in City of Buffalo, New York between High, Main and Goodrich Streets, and is within the Buffalo Niagara Medical Campus ("BNMC"). Currently, the Site is portion of an asphalt parking lot, approximately 1.9 acres, operated by Allpro Parking for visitors and staff coming to the BNMC. In addition, the Site includes the former Physician's Imaging building (now demolished) located at the southwestern corner, along Main and High Streets.

Figure 1 – Site Map is provided after the text with this report.

2.2 SITE CHARACTERISTICS

The southwestern corner of the Site was operated from 1950 to 1982 as an Exxon-Mobil gas station. In 1981, within the area of the former gas station one 4,000 gallon and one 3,000 gallon underground petroleum storage tanks were removed (NYSDEC Spill #9500234).

Over thirty-six groundwater monitoring wells and multiple soil borings were installed from 1981 to present in order delineate the extent and depth of soil and groundwater

contamination. Based on these investigations, contaminates of concern are benzene, toluene, ethylbenzene and xylene ("BTEX") compounds associated with the operations of the Exxon-Mobil gas station.

The main area of contamination exists within the center to western boundary of the Site. Free product still exists within this area and the depth of contamination is located at the shallowest 10 feet below ground surface ("ftbgs"). Generally, the depth of contamination exists within this area from 20 ftbgs to 40 ftbgs.

The contamination has migrated from the center of the Site northeast following a five foot coarse sand/gravel layer generally 30 to 35 ftbgs. The contamination within the coarse sand/gravel zone has migrated as the result of preferential groundwater flow.

Groundwater depth and contamination has been defined through quarterly monitoring well sampling. Groundwater investigations indicate the potentiometric depth to water between 25 to 27 ftbgs. Groundwater contamination consists primarily of BTEX compounds and the groundwater plume extends from the southwest corner to the northeast corner of the Site. In addition, the groundwater plume extends off-site past the western boundary onto Main Street and the northern boundary onto Goodrich Street.

Figure 2- Sample Locations shows the extent of soil and groundwater contamination.

3.0 ENVIRONMENTAL SITE ASSESSMENT OBJECTIVES AND METHODOLOGIES

3.1 OBJECTIVE

The objective of this Commercial Use Assessment is to determine the limits of excavation for reaching the Commercial Use SCOs as the remedial goal for the Site's participation in the NYSDEC Brownfield Cleanup Program ("BCP"). Previous BCP remedial scenarios analyzed the viability of meeting Unrestricted or Restricted Residential Use SCOs. Based on this study, the applicants will present the final SCO goal in the Alternatives Analysis Report, which is filed as part of the BCP process.

The sections below describe the methods used to determine the Commercial Use excavation limits.

3.2 METHODS

Subsurface Investigation

SJB, Inc was contracted to drill five soil borings from a depth of approximately 5 ftbgs to approximately 40 ftbgs using a truck mounted CME – 85 drilling unit. Boring locations were selected to delineate the vertical and horizontal limits of soils that exceeded Commercial Use SCOs. Each boring location was continuously sampled in accordance

with guidelines provided by ASTM D-1586 Standard Penetration Test using 140 lb. auto-hammer; driving a 24 inch long 2 inch wide split spoon. All sampling equipment was decontaminated between runs and between drill locations to avoid potential cross contamination of samples.

Figure 2- Sampling Locations shows the locations (CB-01 through CB-05) that were drilled for this assessment.

Blow counts, material description and physical evidence of petroleum contamination (staining or sheen) of each split spoon sample was recorded and organized into soil boring logs provided in Appendix A.

Field Screening and Sampling

A portion of each split spoon sample was collected and placed in a plastic zip lock bag. Head space readings for each sample were conducted using a Mini-Rae 2000 photo-ionization detector (PID) with an 11.7 volt lamp.

At each boring location 2 – 4 samples were selected for lab analysis based on staining, odor or PID readings. The PID head space readings for all samples and the depths of the selected lab analysis samples are recorded on the soil boring logs provided in Appendix A.

Analytical Testing

Soil samples were analyzed for volatile organic compounds ("VOC"). Paradigm Environmental Services, Inc was contracted to analyze soil samples for VOCs using Method 8260B Target Compound List ("TCL").

Data Usability Summary Report ("DUSR")

The DUSR was not conducted for this assessment. However, sample analysis was conducted as a "Category B" deliverable to allow for a DUSR review in the future.

4.0 FINDINGS

4.1 SUBSURFACE INVESTIGATION FINDINGS

Drilling started April 24, 2012 and continued through April 26, 2012. Five borings were advanced to approximately 40 ftbgs and total of 14 samples were taken for lab analysis. The table below summarizes the depth and number of samples taken for lab analysis for each boring.

Table 1: Boring Results

BORING ID	*BEGINNING DEPTH (ftbgs)*	*END DEPTH (ftbgs)*	*TOTAL SAMPLES COLLECTED*
CB-01	4	42	3
CB-02	8	44	2
CB-03	4	42	4
CB-04	4	44	3
CB-05	5	39	2

CB-01 is located along the western boundary of the Site parallel with Main Street. MW-24 is located approximately 7 ft south of CB-01. CB-01 was located in this area in order to determine the excavation limit within the western boundary of the free product zone. Strong petroleum and black stained sand / silty sand was encountered from 35 to 41 ftbgs. Samples were taken at three locations: 26-28 ftbgs; 36-38 ftbgs and 38-40 ftbgs.

CB-02 is located within the center of the Site adjacent to the former Physician's Imaging Center and north of the free product zone. Black stained sand was observed from 38 to 40 ftbgs. A buried concrete foundation was encountered from approximately 4 to 8 ftbgs, split spoon sampling began at 8 ftbgs. Strong petroleum odor and high PID readings were observed 26 to 42 ftbgs. Samples were taken at two locations 30-32 ftbgs and 40-42 ftbgs.

CB-03 is located within the former Physician's Imaging Center and within the center of the free product zone. MW-23 is located approximately 6 ft east of CB-03. Strong odor and high PID readings were observed from 6 to 38 ftbgs. Black stained sand was encountered from 37 to 41 ftbgs and sheen was observed 36-38 ftbgs. Samples were taken at four locations: 22-24 ftbgs; 36-38 ftbgs; 38-40 ftbgs and 40-42ftbgs.

CB-04 is located at the southeastern property corner of the former Physician's Imaging Center. CB-04 was located in this area in order to determine the excavation limit for the southern boundary of the free product zone. Black stained sand was observed only within the top 8 inches of the 38-40 ftbgs split spoon sample. Strong odor and high PID readings were found from 22 to 42 ftbgs. Samples were taken at three locations: 24-26 ftbgs; 30-32 ftbgs and 42-44 ftbgs.

CB-05 is located at the northeastern corner of the Site adjacent to Goodrich Street. CB-05 was located to determine whether the deep contamination soil layer is above Commercial Use SCOs. Black stained sand and high PID readings were observed from 31 to 35 ftbgs. Samples were collected at two locations 31-33 ftbgs and 37-39 ftbgs.

4.2 LAB ANALYTICAL FINDINGS

Soil samples were analyzed for VOC using Method 8260B TCL. Analytical results were compared with NYSDEC 6 NYCRR Part 375-6: Soil Cleanup Objective for Commercial Use.

Only one sample, CB-03 (22-24 ftbgs), exceeded a Commercial Use SCO (for total xylenes.) All other samples collected were below Commercial and Restricted Residential Use SCOs; except for CB-02 (30-32 ftbgs), which exceeded residential SCOs for ethyl benzene and total xylenes. Table 2 briefly details the analytical results.

A summary table of the detected VOCs is provided in Appendix B and soil analytical results are provided in Appendix C.

Table 2: Analytical Results

BORING ID	*SAMPLE DEPTH (ftbgs)*	*COMMENTS*
CB-01	26-28	A total of four VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
	38-40	A total of three VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
	40-42	A total of four VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
CB-02	30-32	A total of five VOCs were detected. Commercial Use SCOs were not exceeded. Ethyl benzene and total xylenes exceed Restricted Residential Use SCOs.
	40-42	A total of five VOCs were detected. None exceeded commercial or restricted residential SCOs.
CB-03	22-24	Four VOCs were detected. Total xylenes exceeded Commercial Use SCO.
	36-38	A total of five VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
	38-40	A total of five VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
	40-42	A total of five VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
CB-04	24-26	Four VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
	30-32	Four VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
	42-44	Four VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.
CB-05	31-33	Two VOCs were detected. None exceeded commercial or restricted residential SCOs.
	37-39	Five VOCs were detected. None exceeded Commercial or Restricted Residential Use SCOs.

4.3 GEOLOGIC CONDITIONS AND CONTAMINANTS

The subsurface geological environment of the Site is complex and variable. Glacial depositions have resulted in an environment that contains a mixed matrix of soil types and lenses across the Site. Petroleum contamination entered into the soil from leaking underground tanks; the present location of the contamination and its migration path has resulted from the geological conditions on the Site.

General Site Geology

Based on numerous subsurface studies conducted on the Site, the geologic conditions have been well defined. The most important data has been collected in four studies collected in the last 4 years:

- 2008 subsurface environmental investigation conducted by GES, on behalf of Exxon-Mobil;
- 2010 subsurface geotechnical investigation conducted by McMahon & Mann for Ciminelli development;
- 2012 subsurface geotechnical and hydro-geological investigation conducted by American Consulting Professionals of NY and McMahon & Mann on behalf of Kaleida Health and Ciminelli Development; and
- this 2012 subsurface environmental investigation conducted by C&S Engineers, Inc. on behalf of Kaleida Health and Ciminelli Development.

The soils beneath the site extend to approximately 95 ftbgs, and are underlain by limestone bedrock. Near surface soils that would be impacted by remediation or construction (50 ftbgs or less in depth) are generally more consistent in type. Till deposits consisting of a dense fine sand and silt with alternating concentrations clay is generally present. A large portion of the site contains a saturated layer of medium to coarse sand and gravel of varying thickness, generally found between 32 to 38 ftbgs. This layer is discontinuous (i.e. not uniformly present across the site) in deposition. Underlying this layer is dense fine sand-silt/clayey silt till.

Soil variability is most common at depth (greater than 50 ftbgs) with alternating deposits of silty-clays, clayey-silts and saturated sand and gravel deposits across the site. Large boulders are also present at depth (60 to 80 ftbgs).

Groundwater

Groundwater on-site is semi-confined. Layers of bedrock and soil at varying depths retard the upward movement of groundwater. As a result, groundwater is found at different depths across the Site. Generally, groundwater is found at the following depths:

- Top of bedrock (approximately 100 ftbgs)
- discontinuous lenses of sand and gravel encountered, with some areas of "running sands"; and (45 to 90 ftbgs)

- shallow sand and gravel layer (32 to 38 ftbgs)

Contaminant transport is influenced by the shallow sand and gravel layer which provides a preferential pathway for groundwater and contaminant flow to the west and northeast. This groundwater formation is semi-confined by dense silt and clay below and fine sand and silt above. While the formation is present 32 ftbgs or greater in depth, monitoring wells that are screened across the formation exhibit a groundwater elevation of approximately 25 ftbgs, a difference of at least 7-feet or more in formation depth compared to the potentiometric head.

Contamination

Contamination is sourced from the center of the site and is related to the former Mobil station operations. MW-22 and MW-23 are located within the area of the contamination source; shallow soils are impacted within this area between 10 to 12 ftbgs. Overtime underground tanks released gasoline into the shallow soils within the area of MW-22 and MW-23. Contamination further filtered through the subsurface and into the saturated sand and gravel formation at approximately 38 ftbgs. After entering into the sand and gravel layer the contamination migrated to the northeast; influenced by the groundwater flow direction and formational area of the sand and gravel deposits.

The depth to top of soil contamination increases with distance from this MW-22/MW-23 until it is limited to the sand and gravel formation at 32 ftbgs or greater. Contamination appears to be vertically limited in depth by the underlying clayey-silt till which limits the contamination to moving horizontally in the saturated sand and gravel layer above.

Separate phase product is present in the wells in and around the release area (MW22 and MW-23). Product moved vertically downward from the release area until it encountered the sand and gravel formation below 32 ftbgs. Product is present in this area and has spread laterally to the west and east/northeast (MW-24, MW-11, MW026 and HVE-04) within this semi-confined formation.

4.4 EXCAVATION AREA

The excavation area required to meet Commercial Use SCOs was based on the soil analytical results from the 2008 subsurface investigation, ongoing quarterly groundwater gauge and sample events and observations made during this investigation.

Soil sample analytical results from this study and the 2008 GES study were used to develop the vertical and horizontal extent of the soils that would exceed Commercial Use cleanup standards. The quarterly gauging events were used to assess the horizontal limit of the separate phase product contained within the sand

and gravel formation. The quarterly groundwater sampling results were used to help define soil excavation limits by relating groundwater VOC concentration contours to wells with both known soil and groundwater VOC concentrations.

While soil analysis indicated that some contaminated soils did not exceed Commercial Use SCOs, the soils were underlain by the sand and gravel formation that was preferentially transporting product east and west of the release area. Therefore, an excavation depth of 40-42 feet was assumed to remove this layer.

Based on VOC analysis in the soils, horizontal limits of the excavation are:

- North: between MW-14R/MW-11 and MW-29/MW-31;
- East: between MW-25/SP-10/HVE-04 and MW-27/MW-33/MW-34;
- South: between MW-25/MW-24 and MW-27/MW-36; and
- West: BCP boundary line (concurrent with western parcel line.)

The horizontal excavation limits are shown in ***Figure 3- Estimated Commercial Use Excavation Area***

The total volume of excavation materials was estimated using the assumptions above and calculations presented in Table 4.

Table 4: Estimated Soil Volumes for Commercial Use SCO

				Total Vertical Volume Moved[2]		***Total Volume Disposed[3]***	
Contamination Thickness[4] (ft)	*Median Range*	*Contaminated Area[1]*	*Median Total Depth*	*Volume (cu. ft.)*	*Volume (cu. yds.)*	*Volume (cu. ft.)*	*Volume (cu. yds.)*
20-25	22.5	12,542	40	501,680	18,581	282,195	10,452
25-30	27.5	5,534	42	232,448	8,609	152,198	5,637
			Total →	734,128	**27,190**	434,393	**16,089**

Notes:
1: *Contaminated Area* – as measured on map with GIS spatial analysis
2: *Total Vertical Volume Moved* -total volume of soil to be removed, including clean overburden (does not included benching or sloped sides)
3: *Total Volume Disposed* – volume of soil to be disposed off-site
4: *Contamination Thickness* – based on top of contamination depth and maximum depth of bottom of sand-gravel formation

5.0 SUMMARY

C&S Engineers, Inc completed a Commercial Use SCO Assessment for the proposed Medical Office Building located on 1001 Main Street Buffalo, New York. The primary objective of this assessment was to determine the limits of excavation to meet the Remedial Soil Cleanup Objectives for Commercial Use; based on the standards in 6 NYCRRR 375-6.

Petroleum contamination from a former Exxon-Mobil gas station has migrated into the soil and groundwater. Contamination has spread downward and laterally from the center

of the Site to the west and northeast following coarse sand/gravel formation present 30 to 35 ftbgs. The contamination within the coarse sand/gravel zone has migrated as the result of preferential groundwater flow.

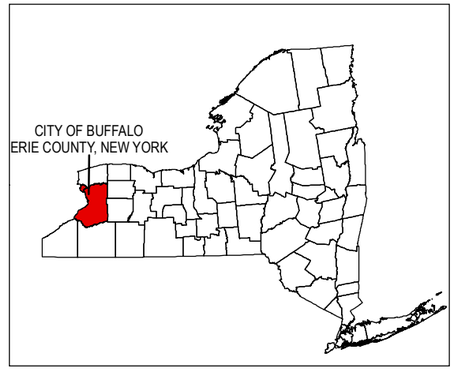
Soil samples were collected and analyzed for VOCs within the area of the former Exxon-Mobil gas station. The results of the lab analysis revealed only one sample location, CB-03 (24-26 ftbgs), located within the center of the free product zone, exceeded its Commercial Use SCO for total xylenes. All other samples were under Residential Use SCOs, except for CB-02 (30-32 ftbgs), which exceeded Residential Use SCOs for ethylbenzene and xylenes.

Revised excavation limits were determined based the current and past lab analytical data. The horizontal excavation limits are shown in ***Figure 3- Estimated Commercial Use Excavation Area***. However, due to the complex geology of the Site and the confined conditions of the contamination, the limits of excavation illustrated in Figure 3 should not be considered absolute.

F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\Reports\Final report\Commercial Use Assessment - May 23 2012\Commercial_Use_Assessment.doc

FIGURES

Location Map



Legend

- Medical Office Building (MOB) Parcel
- Parcels
- Commercial Use Sample Locations

Notes

1) 2011 High Resolution Digital Orthoimagery obtained from New York GIS Clearinghouse. Natural color 1ft resolution.

0 100 200 Feet

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NYSDEC
Brownfield Cleanup Program

N

MEDICAL OFFICE BUILDING
1001 MAIN STREET
CITY OF BUFFALO, NY

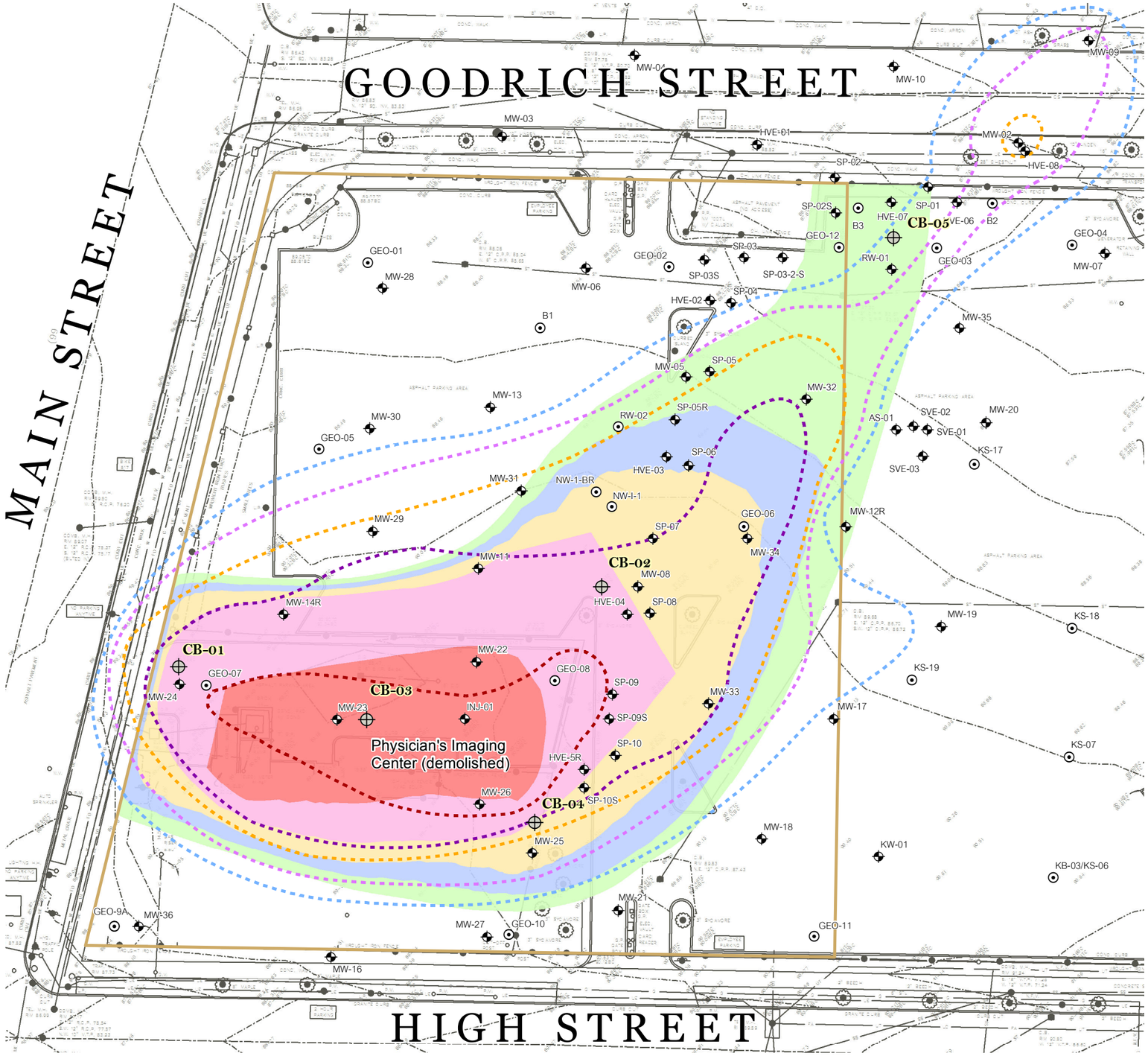
No.	DATE	REVISIONS

PROJECT NO:	K11.002.001
DATE:	May 23, 2012
SCALE:	1" = 100'
DRAWN BY:	CAM
DESIGNED BY:	CAM
CHECKED BY:	MJC

SITE MAP

FIGURE 1

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\GIS\Projects\Commercial_Cleanup_SiteMap.mxd



Legend

- MOB Parcel
- Commercial Use Sample Locations (April 2012)
- Geotechnical / Environmental Boring
- Monitoring Well

Approximate Thickness (feet)
Soils Exceeding Unrestricted Use SCO

- 5 - 10 ft
- 10 - 15 ft
- 15 - 20 ft
- 20 - 25 ft
- 25 - 30 ft

Total BTEX Isoconcentration Contours for Groundwater (ug/L)
February 2012

- >10
- 100 - 1,000
- 1,000 - 10,000
- 10,000 - 50,000
- >50,000

Notes

1) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

2) The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities, either in service or abandoned. The surveyor has not physically located the underground utilities.

3) NAD 83 State Plane New York West (feet).

0 40 80 Feet

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NYSDEC
Brownfield Cleanup Program

N

MEDICAL OFFICE BUILDING
1001 MAIN STREET
CITY OF BUFFALO, NY

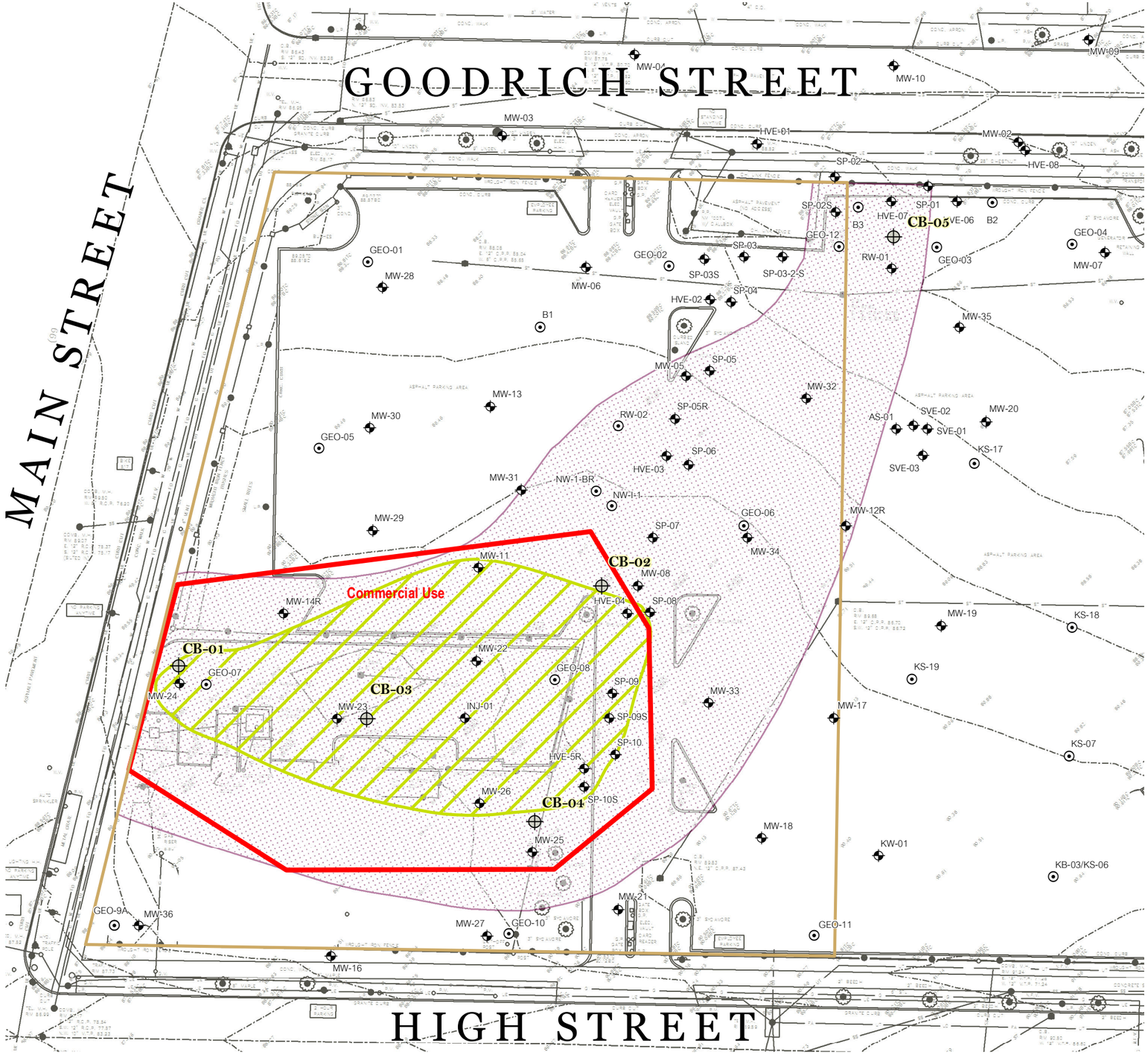
No.	DATE	REVISIONS

PROJECT NO:	K11.002.001
DATE:	May 23, 2012
SCALE:	1" = 40'
DRAWN BY:	CAM
DESIGNED BY:	CAM
CHECKED BY:	MJC

SAMPLE LOCATIONS

FIGURE 2

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\GIS\Projects\Commercial_Cleanup_Samples.mxd



Legend

- MOB Parcel
- Estimated Limits of Excavation to meet Commercial Use Criteria
- Separate Phase Hydrocarbon Plume ("Free Product Zone") February 2012 Max. Depth < 40 ftbgs
- Extent of Soil Contamination Above Unrestricted Use Criteria
- Commercial Use Sample Locations (April 2012)
- Geotechnical / Environmental Boring
- Monitoring Well

Notes

1) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

2) The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities, either in service or abandoned. The surveyor has not physically located the underground utilities.

3) NAD 83 State Plane New York West (feet).

0 40 80 Feet

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MEDICAL OFFICE BUILDING
1001 MAIN STREET
CITY OF BUFFALO, NY

No.	DATE	REVISIONS

PROJECT NO:	K11.002.001
DATE:	May 23, 2012
SCALE:	1" = 40'
DRAWN BY:	CAM
DESIGNED BY:	CAM
CHECKED BY:	MJC

ESTIMATED COMMERCIAL USE EXCAVATION AREA

FIGURE 3

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\GIS\Projects\Commercial_Cleanup_ExcavationArea.mxd

APPENDICIES

APPENDIX A

SOIL BORING LOGS

C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**BORING LOG**										**Boring No.**	**CB-01**
											Sheet 1 of:	2
											Project No.:	K11.002.001
Project Name:	MOB Commercial Use Assessment										**Surface Elev.:**	
Location:	MOB Site - Buffalo, NY										**Datum:**	Ground Surface
Client:	Kaleida Health										**Start Date:**	4/25/12
Drilling Firm:	SJB			**Driller:**	**Steven Gorski**						**Finish Date:**	4/25/12
Groundwater		**Depth**	**Date & Time**	**Drill Rig:**	CME-85						**Inspector:**	E. Daniel
	While Drilling:	30	04/25/12	**Casing:**		**Rock Core:**		**Undist:**				
	Before Casing Removal:			**Sampler:**	2" Split Spoon	**Other:**						
	After Casing Removal:			**Hammer:**	Auto							

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine	**MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%	**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1							
2					***Augered to 4 ftbg***		
3							
4			5	6"-	***CLAY (red brown)***		13" rec
			4	4"-	***SAND (tan - fine) with little Silt***		3.4 ppm
5			6	3"-	***CLAY (red)***		
			7				
6			7	16"-	***CLAY (red brown)***		16" rec
			7				4.1 ppm
7			5				
			6				
8			8	4"-	***fine Sandy SILT (fine - Brown)***		17" rec
			14	13"-	***Silty SAND (Brown - fine)***		4.8 ppm
9			17				
			14				
10			15	16"-	***Silty SAND (Brown - fine - dry)***		24" rec
			19	12"-	***Silty SAND (Tan - fine - dry)***		4.7 ppm
11			27				
			31				
12				8"-	***Silty SAND (Tan)***		22" rec
				14"-	***Sandy SILT (Brown - fine)***		3.1 ppm
13							
14							
			32				
15			13	24"-	***Silty SAND (Brown - fine)***		24" rec
			29				3.8 ppm
16			39				
			37				
17			27	24"-	***Silty SAND (Brown - fine)***		24" rec
			26				3.8 ppm
18			26				
			21				
19			20	6"-	***Silty SAND (Brown - fine)***		22" rec
			10	4"-	***Silty SAND (Brown - fine - wet)***		3.5 ppm
20			11	12"-	***Sandy SILT (Brown - fine - wet)***		
			10				
21			3	19"-	***Sandy SILT (Brown - fine - wet)***		19" rec
			4				2.6 ppm
22			5				
			6				
23			5	23"-	***Sandy SILT (Brown - fine - wet)***		23" rec
			7				4.6 ppm

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BORING LOG

Boring No.	**CB-01**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	4/25/12
Finish Date:	4/25/12
Inspector:	E. Daniel

Project Name: MOB Commercial Use Assessment
Location: MOB Site - Buffalo, NY
Client: Kaleida Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
			7		
24			6		
			WH	2"- ***Sandy SILT (Brown - moist - fine)***	24" rec
25			WH	22"- ***Silty CLAY (Brown - moist to wet)***	7.1 ppm
			WH		
26			2		15" rec
			2	4"- ***Silty CLAY (Brown - moist)***	7.5 ppm
27			3	2"- ***Silty SAND (Brown - moist)***	
	S-1		2	9"- ***Silty CLAY (Brown - wet)***	
28			3		
			8	10"- ***Silty CLAY (Brown)***	14" rec
29			5	2"- ***Sandy SILT(Brown - moist - fine)***	7.2 ppm
			6	2"- ***Silty CLAY (Brown - wet)***	
30	▼		5		
			3	10"- ***Silty SAND (staurated)***	10" rec
31			4		19.8 ppm
			5		odor
32			5		
			3	15"- ***Silty SAND (Brown - saturated)***	20" rec
33			5	2"- ***CLAY (Brown)***	47 ppm
			5	3"- ***Silty SAND (Gray - saturated)***	strong odor
34			7		
			5	4"- ***Silty SAND (Black - saturated)***	24" rec
35			11	18"- ***SAND (Black - med to coarse - little Silt - saturated)***	53 ppm
			3	2"- ***Silty SAND (Black - fine - saturated)***	strong odor; septic
36			24		
			20	6"- ***SAND (Black - med to coarse - little Silt - saturated)***	22" rec
37			19	2"- ***Silty SAND (Gray - saturated)***	strong odor
			23	6"- ***SAND (Gray - med - little Silt - saturated)***	
38			27	8"- ***SAND (Black - med - little Silt - saturated) w/ 2" Sand (Gray - little Silt)***	
			15		24" rec
39			25	19"- ***SAND (Black - saturated) w/ little Silt trace Gravel***	35 ppm
	S-2		16	5"- ***SAND (Black - fine - saturated) w/ little Silt***	strong odor
40			14		
			WH	14"- ***SAND (Black fine - saturated) w/ little Silt***	24" rec
41			2	10"- ***SILT and CLAY with some imbedded gravel (fine to coarse)***	42 ppm
	S-3		4		strong odor
42			8		
43				***SOIL SAMPLES COLLECTED FOR VOC ANALYSIS (METHOD 8260)***	
				S-1 = CB-01: 26-28'	
44				***S-2 = CB-01: 38-40'***	
				S-3 = CB-01: 40-42'	
45					
46					
47					
48					
49					

C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**BORING LOG**	**Boring No.**	**CB-02**
		Sheet 1 of:	2
		Project No.:	K11.002.003

Project Name:	MOB Commercial Use Assessment							**Surface Elev.:**	
Location:	MOB Site - Buffalo, NY							**Datum:**	Ground Surface
Client:	Kaleida Health							**Start Date:**	4/24/12
Drilling Firm:	SJB			**Driller:**	**Steven Gorski**			**Finish Date:**	4/24/12
Groundwater	**Depth**	**Date & Time**		**Drill Rig:**	CME-85; method - HSA			**Inspector:**	C. Martin
While Drilling:	29	04/24/12		**Casing:**		**Rock Core:**		**Undist:**	
	38.2	04/24/12		**Sampler:**	2" Spilt Spoon	**Other:**			
After Casing Removal:				**Hammer:**	Auto				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine	**MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%	**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					***Weather: cool; temperature ~40 F; windy; rain***		
2							
3							
4					***Hit buried foundation. Augered through to 8 ftbg. Sampling to begin at 8-10 ftbg.***		
5							
6							
7							
8							
9			3	24"-	***CLAY (Brown/red - med dense) w/thin beds of SAND (Brown -fine***		24" rec
			4		***to med)***		3.3 ppm
10			4				
			13				
11			17	12"-	***SAND (Brown - med -) w/ 1" bed of Clay (Brown)***		20" rec
			16	8"-	***Sandy SILT (Brown red - med - dense)***		2.5 ppm
12			29				
			34				
13			29	19"-	***SAND (Brown - fine to med - loose - dry to moist) w/ 1" beds of***		19" rec
			33		***CLAY (Brown red) trace 0-5% pea size Gravel (Grey - round)***		4.3 ppm
14			31				
			28				
15			19	24"	***SAND (Brown - fine to med - dry) w/ trace 0-5% Gravel(Grey -***		24" rec
			27		***angular)***		2.5 ppm
16			37				
			45				
17			32	24"-	***SAND (Brown- fine to coarse) w/ little 10-20% Gravel (Dark grey -***		24" rec
			28		***angular- 0.5" to 1" size)***		4.3 ppm
18			45				
			43				
19			14	10"-	***Sandy SILT (Brown red - fine to med)***		19" rec
			26	9"-	***SAND(Brown - dry - dense) w/ trace 0-1% Gravel (Grey-rounded)***		7.4 ppm
20			33				
			30				
21			8	13"-	***SAND (Fine, Brown - moist - dense) w/ trace 0-1% Gravel (Grey-***		22" rec
			18		***rounded)***		8.1 ppm
22			28	9"-	***SAND (Brown - fine to med - moist) w/ trace 0-1% Gravel (Grey -***		
			35		***0.5" to 1"- subrounded) 0.5" lens SILT (Red brown)***		
23			29	4"-	***SAND (Lt Brown -fine to med-dry) w/ 2" bed of CLAY (Red brown)***		21" rec
			27	5"-	***SAND (Brown - med - dense - dry to moist)***		27.3 ppm

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BORING LOG

Boring No.	**CB-02**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	4/24/12
Finish Date:	4/24/12
Inspector:	C. Martin

Project Name: MOB Commercial Use Assessment
Location: MOB Site - Buffalo, NY
Client: Kaleida Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and 35-50%, s - some 20-35%, l - little 10-20%, t - trace 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
			31	5"- ***Clayey SILT (Red brown) w/ Gravel (1" pieces to pea size)***	24" rec
24			29	2"- ***SAND (Lt Brown - fine to med -dry - loose)***	10.7 ppm
			25	4"- ***Sandy Clay SILT (Brown - moist) w/Gravel (Dark grey-subround-***	
25			34	***pea size)***	
			41	20"- ***SAND (Brown - med - dry to moist - dense)***	
26			58		
			35	4"- ***SAND (Lt Brown - med -dry)***	22" rec
27			36	8"- ***SAND (Brown - moist) w/ Clayey SILT***	714 ppm
			38	8"- ***SAND (Lt Brown - med -dry)***	
28			39		
			18	2"- ***SAND (Brown - fine - moist)***	19" rec
29	▼		24	17"- ***SAND (Lt Brown - med - moist to wet - odor)***	>1200 ppm
			29		strong odor
30			43		
			18	18"- ***SAND (Lt Brown - fine to med - loose - wet)***	18" rec
31			22		1634 ppm
	S-1		29		
32			38		
			27	24"- ***SAND (Lt Brown - fine - dense - moist) grades into SAND (Brown***	24" rec
33			31	***med - moist - dense)***	1780 ppm
			55		
34			51		
			15	24"- ***SAND (Brown - med - moist - dense)***	24" rec
35			33		1630 ppm
			45		
36			50		
			28	24"- ***SAND (Brown w/ slight stain - med) w/ Clayey SILT***	24" rec
37			34		1700 ppm
			41		
38	▼		31		
			29	5"- ***SAND (Brown w/ slight stain - med) w/ Clayey SAND***	24" rec
39			30	19"- ***SAND (Black stained - med)***	1700 ppm
			40		
40			32		
			8	16"- ***Clayey SILT (Red brown - dense)***	24" rec
41			10	8"- ***Clayey SILT (Red brown - dense)***	560 ppm
	S-2		17		odor
42			26		
			33	24"- ***Clayey SILT (Red brown - dense)***	24" rec
43			53		215 ppm
			55		
44			52		
				SAMPLES COLLECTED FOR VOC ANALYSIS (METHOD 8260)	
45				***S-1 = CB-02: 30-32'***	
				S-2 = CB-02: 40-41'	
46					
47					
48					
49					

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BORING LOG

Boring No.	**CB-03**
Sheet 1 of:	2
Project No.:	K11.002.001
Surface Elev.:	
Datum:	Ground Surface
Start Date:	4/26/12
Finish Date:	4/26/12
Inspector:	C. Martin

Project Name:	MOB Commercial Use Assessment								
Location:	MOB Site - Buffalo, NY								
Client:	Kaleida Health								
Drilling Firm:	SJB			**Driller:**	**Steven Gorski**				
Groundwater		**Depth**	**Date & Time**	**Drill Rig:**	CME -85; Method-HAS				
While Drilling:		33.5	04/26/12	**Casing:**		**Rock Core:**		**Undist:**	
Before Casing Removal:				**Sampler:**	2" Split Spoon	**Other:**			
After Casing Removal:				**Hammer:**	Auto				

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse, m - medium, f - fine	**MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%	**COMMENTS** (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					***Weather: sunny with increasing clouds; calm winds; temp ~50 F***		
2					***Augered to 4 ftbg***		
3							
			11	11"-	***SAND (Brown - moist - fine to med) some Silt***		15" rec
4			8	4"-	***Silty CLAY (Red brown - med dense)***		1.4 ppm
			7				
5			9				
			9	4"-	***SAND and GRAVEL (35-50% - dark grey - pea to 0.5" size)***		24" rec
6			7	4"-	***SAND (Brown - moist - fine to med)***		1685 ppm
			9	18"	***Silty CLAY (Red brown - soft to med dense)***		odor
7			10				
			8	5"-	***SAND (Brown - moist - fine to med - loose)***		24" rec
8			10	2.5"-	***CLAY (Red brown - soft to med dense) some Silt***		232 ppm
			14	5"-	***SAND (Brown - wet - fine to med - loose)***		
9			10	11"-	***Clayey SILT (Red brown - soft to med dense) w/ some grey layers***		
			WH	6"-	***SILT (Grey - moist) odor***		19" rec
10			4	7"-	***Clayey SILT (Red brown - soft to med dense)***		1702 ppm
			20	3"-	***Silty SAND (Lt Brown - fine Sand - dry)***		
11			30	5"-	***Silty SAND (Red - fine Sand - dry)***		
			25				
12			43	24"-	***Silty SAND (Red - fine Sand - dry)***		24" rec
			38				1915 ppm
13			47				
			21	21"-	***Sandy SILT (Lt Brown - dry - fine Sand) w/ 1-2" layers of Sandy***		21" rec
14			50		***SILT (med dense - red)***		1901 ppm
			52				
15			59				
			55	21"-	***SAND (Brown - dry to moist - fine) some Silt***		21" rec
16			56				1586 ppm
			50/3				
17							
			12	17"-	***SAND (Brown - moist - dense) w/ one 2" thick Sand (Black stain)***		17" rec
18			32				1666 ppm
			48				
19			50/3				
			24	16"-	***SAND (Brown - moist - loose - fine to med)***		16" rec
20			51				2170 ppm
			50/4				
21							
			25	13"-	***Same as pervious***		18" rec
22			55	5"-	***SILT (Brown red - loose) odor***		2219 ppm
	S-1		45				
23			50/2				

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BORING LOG

Boring No.	**CB-03**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	4/26/12
Finish Date:	4/25/12
Inspector:	C. Martin

Project Name: MOB Commercial Use Assessment
Location: MOB Site - Buffalo, NY
Client: Kaleida Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
			12	20.5"- ***SILT (Red brown- loose - moist) trace Sand***	20.5" rec
24			34		601 ppm
			22		
25			20		
			18	20.5"- ***Same as previous***	20.5" rec
26			15		327 ppm
			14		
27			15		
			27	24"- ***SILT (Red brown- loose - moist) trace imbedded Gravel (Dark***	24" rec
28			15	***grey - pea size - 0-1% - subrounded)***	1020 ppm
			15		
29			15		
			6	21"- ***SILT (Red brown - loose - moist) w/ 6" bed Clay (Brown red -***	21" rec
30			4	***med dense) Gravel (0-1% - round - smooth - 0.5-1" size)***	839 ppm
			9		
31			5		
			11	24"- ***Same as previous***	
32			9	***One 1" layer SAND (Brown - moist - loose)***	
			8		
33			9		
			2	17"- ***Silty CLAY (Brown - dense) w/ trace 0-1% Gravel (pea size - grey)***	17" rec
34			5		1000 ppm
			8		
35			8		
	▼		24	9"- ***SILT (Brown)***	24" rec
36			28	15"- ***SAND (Black stain - sheen - fine to med - saturated)***	1186 ppm
	S-2		25		
37			26		
			3	21"- ***SAND (Black stain - fine to med)***	23" rec
38			5	2"- ***GRAVEL/SAND/SILT/CLAY (Brown - med Sand - moist) w/ Gravel***	284 ppm
	S-3		20	***(mult. Colors - pea to coarse Sand size - subround)***	strong odor
39			20		
			4	9"- ***SAND (Black stain -med to coarse) layer of Gravel (0.5 to 1" size***	
40			13	***round to angular - multi color)***	
	S-4		16	4"- ***SAND/SILT/GRAVEL (Brown - med to coarse Sand)***	
41			18	12"- ***CLAY (dense massive -Brown) w/ trace of Gravel (pea size - dark***	
				grey)	
42					
				Split Spoon stuck in augers. All efforts to release SS fail;augers	
43				***and SS removed from hole. (41 feet depth)***	
44				***SOIL SAMPLES FOR VOC ANALYSIS (METHOD 8260)***	
				S-1 = CB-03: 22-24'	
45				***S-2 = CB-03: 35-37'***	
				S-3 = CB-03: 37-39'	
46				***S-4 = CB-03: 39-41'***	
47					
48					
49					

C&S Engineers, Inc.
90 Broadway
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

BORING LOG

Boring No.	**CB-04**
Sheet 1 of:	2
Project No.:	K11.002.001
Surface Elev.:	
Datum:	Ground Surface
Start Date:	4/25/12
Finish Date:	4/25/12
Inspector:	E. Daniel

Project Name:	MOB Commercial Use Assessment
Location:	MOB Site - Buffalo, NY
Client:	Kaleida Health
Drilling Firm:	SJB
Driller:	**Steven Gorski**
Drill Rig:	CME -85; Method HAS
Casing:	
Rock Core:	
Undist:	
Sampler:	2" Split Spoon
Other:	
Hammer:	Auto

Groundwater	**Depth**	**Date & Time**
While Drilling:	33.1	04/25/12
Before Casing Removal:		
After Casing Removal:		

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

c - coarse
m - medium
f - fine

a - and - 35-50%
s - some - 20-35%
l - little - 10-20%
t - trace - 0-10%

S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					
2				4"- ***GRAVEL***	
3					
			12	4"- ***GRAVEL (moist) grades down into Sandy SILT (moist)***	6.5 rec
4			15	***Bottom 2.5" Sand***	1.3 ppm
			16		
5			19		19" rec
			17	7"- ***SAND (Lt brown - fine - dense)***	3.4 ppm
6			14	2.5"- ***SAND (Dark brown - med)***	
			10	7.5"- ***Sandy SILT (Lt brown - moist)***	
7			9	2"- ***Silty CLAY (Redish brown)***	
			11	7"- ***Silty SAND (Lt brown - moist)***	13.5" rec
8			11	2"- ***Sandy SILT (Brown - moist)***	0.7 ppm
			10	2"- ***Sandy SILT (Lt brown - moist)***	
9			10	2.5"- ***Silty CLAY (Gray)***	
			4	2"- ***Silty SAND (Lt brown - moist)***	23.5" rec
10			6	2"- ***Silty SAND (Lt brown - saturated)***	10.4 ppm
			12	8.5"- ***SILT (Redish brown - dense)***	
11			20	5"- ***Sandy SILT (Lt brown - moist) / 6"- Sandy Silt (Lt Brown - moist)***	
			21	4"- ***Sandy SILT (Lt brown)***	24" rec
12			42	3"- ***Sandy SILT (Red brown - firm)***	13.1 ppm
			37	17"- ***Silty SAND (Brown - moist)***	
13			35		
			10	24"- ***Silty SAND (Brown - fine)***	24" rec
14			23		7.2 ppm
			30		odor
15			49		
			43	20"- ***Silty SAND (Brown - fine)***	20" rec
16			47		11.4 ppm
			50/4		odor
17					
			18	13"- ***Silty SAND (Lt brown - fine)***	13" rec
18			44		17.3 ppm
			50/4		odor
19					
			28	24"- ***Silty SAND (Brown - fine)***	24" rec
20			32		16 ppm
			52		odor
21			56		
			58	15"- ***Silty SAND (Brown - fine)***	15" rec
22			50/4		348 ppm
					odor
23					

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BORING LOG

Boring No.	**CB-04**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	4/25/12
Finish Date:	4/25/12
Inspector:	E. Daniel

Project Name: MOB Commercial Use Assessment
Location: MOB Site - Buffalo, NY
Client: Kaleida Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
			15	24"- ***Sandy SILT (Lt brown)***	24" rec
24	S-1		30		1780 ppm
			54		strong odor
25			50/3		
			37	8"- ***Sandy SILT (Lt Brown - fine)***	19" rec
26			35	7"- ***Silty SAND (Tan - fine)***	1461 ppm
			42	4"- ***Sandy SILT (Lt brown - fine)***	strong odor
27			54		
			48	24"- ***Sandy SILT (Brown - fine - moist to wet)***	24" rec
28			56		1276 ppm
			49		strong odor
29	▼		52		
			6	16"- ***Silty SAND (Brown - saturated)***	16" rec
30			10	***Top 8" strong odor. Bottom 8" little to no odor.***	1320 ppm
	S-2		11		strong odor
31			10		
			8	8"- ***Silty SAND (Brown)***	24" rec
32			8	12"- ***Silty SAND (fine - saturated)***	730 ppm
			8	4"- ***Silty SAND (Brownish gray - med to coarse)***	strong odor
33			13		
			WH	17"- ***Silty SAND (Brown - fine - saturated) water running out of***	17" rec
34			3	***sample***	1340 ppm
			8		strong odor
35			15		
			5	9"- ***Silty SAND (Brown - fine - saturated)***	24" rec
36			12	15"- ***SAND (Black stained - little Silt - med to coarse)***	1390 ppm
			14		strong odor; septic
37			32		
			17	8"- ***SAND (Black stained, med to coarse - little Silt)***	23" rec
38			24	15"- ***SAND (Tan - fine - little Silt - saturated)***	389 ppm
			29		strong odor; septic
39			32		
			WOH	24"- ***SAND (Tan - fine - little Silt - saturated) trace Gravel***	24" rec
40			9		1120 ppm
			19		no odor
41			37		
			25	22"- ***SAND (Tan - fine - little Silt - saturated) trace Gravel***	24" rec
42			41	2"- ***SILT and CLAY little imbedded Gravel***	1415 ppm
	S-3		50		little odor
43			53		
44				***SOIL SAMPLES COLLECTED FOR VOC ANALYSIS***	
				S-1 = CB-04: 23-25'	
45				***S-2 = CB-04: 29-31'***	
				S-3 = CB-04: 41-43'	
46					
47					
48					
49					

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BORING LOG

Boring No.	CB-05
Sheet 1 of:	2
Project No.:	K11.002.001
Surface Elev.:	
Datum:	Ground Surface
Start Date:	4/24/12
Finish Date:	4/24/12
Inspector:	C. Martin

Project Name:	MOB Commercial Use Assessment							
Location:	MOB Site - Buffalo, NY							
Client:	Kaleida Health							
Drilling Firm:	SJB			Driller:	Steven Gorski			
Groundwater	Depth	Date & Time		Drill Rig:	CME -85; method - HAS			
While Drilling:	27	04/24/12		Casing:		Rock Core:		Undist:
Before Casing Removal:				Sampler:	2" Split Spoon	Other:		
After Casing Removal:				Hammer:	Auto			

(N -- No. of blows to drive sampler 12" w/140 lb. hammer falling 30" ASTM D-1586, Standard Penetration Test)

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	c - coarse m - medium f - fine	MATERIAL DESCRIPTION S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%	COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1					***Weather: cool; temp ~40 F; windy; rain and snow***		
2					***Auger to 5 ftbg***		
3							
4							
			4		***No Recovery***		
5			3				
			2				
6			1				
			3	7"-	***SAND (Brown - fine to med - dry) w/ ashpalt and Gravel piceces***		14" rec
7			2	2"-	***SAND (Brown - fine to med - dry)***		0.1 ppm
			6	4"-	***SAND (Brown - fine to med) w/ Silt Sand laminations 0.25" thick***		
8			10	1"-	***SAND (Tan - fine to med)***		
			10				
9			20	15"-	***SAND (Tan to Lt brown - med - dry)***		15" rec
			23				0.5 ppm
10			22				
			18	17"-	***SAND (Tan to Lt brown - med - dry) laminated w/ Silty Sand (Br -***		17" rec
11			22		***med - dense)***		0.2 ppm
			21				
12			22				
			11	18"-	***SAND (Tan to Lt brown - med - moist) laminated w/ Silt Sand***		18" rec
13			6				0.1 ppm
			6				
14			6				
			6	13"-	***Same as previous***		13" rec
15			5				0.4 ppm
			5				
16			6				
			5	11.5"-	***Same as previous***		16.5" rec
17			2	5"-	***SAND (Brown - med - moist) w/ trace Clay and Silt***		0.4 ppm
			2				
18			1				
			2	7"-	***SAND (Brown - med - moist) w/ trace Clay and Silt***		13" rec
19			1	6"-	***SAND (Brown -loose - med - dry to moist) w/ trace of Clay & Silt***		0.2 ppm
			1				
20			1				
			1	8"-	***SAND (Brown - med - moist) w/ trace Clay and Silt***		17.5" rec
21			4		***grades into***		0.1 ppm
			7	9"-	***SAND (Tan - fine to med - dry to moist)***		
22			9				
			8	15"-	***SAND (Tan - moist - med - dense) w/ brown Silt laminates***		15" rec
23			22				0.6 ppm

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BORING LOG

Boring No.	**CB-05**
Sheet 2 of:	2
Project No.:	K11.002.001
Start Date:	4/24/12
Finish Date:	4/24/12
Inspector:	C. Martin

Project Name: MOB Commercial Use Assessment
Location: MOB Site - Buffalo, NY
Client: Kaleida Health

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and 35-50%, s - some 20-35%, l - little 10-20%, t - trace 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)	COMMENTS (e.g., N-value, recovery, moisture, core run, RQD, % recovered)
			26		
24			33		
			15	10"- ***SAND (Tan to Lt brown - med -moist)***	17" rec
25			21	7"- ***SAND (Brown - fine to med) w/ little 10-20% Silt dense***	0.6 ppm
			22		
26			20		
			13	11"- ***SAND (Brown - fine to med - moist)***	19" rec
27	▼		9	8"- ***Sandy SILT (Brown red - wet - dense)***	0.2 ppm
			5		
28			6		
			3	10"- ***Sandy SILT (Brown red - wet - dense)***	19" rec
29			10	9"- ***SAND (Brown - fine to med - dense) trace Silt***	0.3 ppm
			24		
30			29		
			23	15"- ***SAND (Tan - fine to med - wet - loose to med dense)***	24" rec
31	S-1		20	9"- ***SAND (Black stain - med -wet)***	1025 ppm
			28		strong odor
32			25		
			13	5"- ***SAND (Black stain - med -wet)***	20" rec
33			28	15"- ***SAND (Black stain - med to coarse -wet) w/ Gravel (pea size -***	418 ppm
			18	***rounded some angular piceces)***	strong odor
34			17		
			8	12"- ***Same as previous***	24" rec
35			12	12"- ***CLAY (Red brown - dense - some Silt)***	301 ppm
			13		
36			22		
			22	12"- ***CLAY (Red brown - dense - some Silt)***	12" rec
37			41		21.7 ppm
	S-2		39		
38			43		
				SOIL SAMPLES COLLECTED FOR VOC ANALYSIS	
39				***S-1 = CB-05: 31-33'***	
				S-2 = CB-05: 37-39'	
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					

APPENDIX B

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS

APPENDIX B

SUMMARY OF DETECTED VOLATILE ORGANIC COMPOUNDS

MOB - BUFFALO NY APRIL 2012 BORINGS

BORING NAME AND DEPTH	BENZENE	ETHYLBENZENE	TOLUENE	XYLENES	ACETONE
unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Restricted Residential Use SCO	4.8	**41**	**100**	**100**	100
Commercial Use SCO	44.0	390	500	**500**	500
CB-01					
26-28	0.0162	ND<.0035	0.0219	0.00285	.0173 JB
38-40	ND<.51	ND<.51	.379 J	0.0963	0.136 JB
40-42	ND<.0042	0.0106	0.0264	0.0622	.0145 JB
CB-02					
30-32	ND<3.18	25.2	60.0	**254.3**	39
40-42	0.0384	0.0564	0.104	0.426	ND<0.0407
CB-03					
22-24	ND<19.1	**46.0**	**145**	**516**	ND<95.3
36-38	0.984	0.35	2.08	2.232	ND<0.724
38-40	.0319 J	0.183	0.322	1.399	ND<0.274
40-42	0.00345	0.00624	0.0205	0.0512	0.197 J
CB-04					
24-26	ND<0.119	1.3	0.799	20.86	0.516 JB
30-32	ND<0.255	7.7	16.6	53.2	ND<1.270
42-44	ND<0.0751	0.845	1.73	6.46	0.47 B
CB-05					
31-33	ND<.0818	0.21	ND<.0818	0.32	ND<0.409
37-39	0.00727	0.0484	0.0149	1.289	ND<0.0224

Notes:

1) Analytical results in mg/kg = milligrams per Kilogram

2) EPA Data Qualifiers: J = Estimated value; B = Possible cross contamination of the blank

APPENDIX C

SOIL ANALYTICAL RESULTS

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB - Kaleida
Client Job Number: N/A
Field Location: CB-01 26-28'
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1779
Lab Sample Number: 12:1779-04
Date Sampled: 04/25/2012
Date Received: 04/26/2012
Date Analyzed: 04/26/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 3.54
Bromomethane	< 3.54
Bromoform	< 8.84
Carbon Tetrachloride	< 3.54
Chloroethane	< 3.54
Chloromethane	< 3.54
2-Chloroethyl vinyl Ether	< 17.7
Chloroform	< 3.54
Dibromochloromethane	< 3.54
1,1-Dichloroethane	< 3.54
1,2-Dichloroethane	< 3.54
1,1-Dichloroethene	< 3.54
cis-1,2-Dichloroethene	< 3.54
trans-1,2-Dichloroethene	< 3.54
1,2-Dichloropropane	< 3.54
cis-1,3-Dichloropropene	< 3.54
trans-1,3-Dichloropropene	< 3.54
Methylene chloride	< 8.84
1,1,2,2-Tetrachloroethane	< 3.54
Tetrachloroethene	< 3.54
1,1,1-Trichloroethane	< 3.54
1,1,2-Trichloroethane	< 3.54
Trichloroethene	< 3.54
Trichlorofluoromethane	< 3.54
Vinyl chloride	< 3.54

Aromatics	Results in ug / Kg
Benzene	16.2
Chlorobenzene	< 3.54
Ethylbenzene	< 3.54
Toluene	21.9
m,p-Xylene	J 2.85
o-Xylene	< 3.54
Styrene	< 8.84
1,2-Dichlorobenzene	< 3.54
1,3-Dichlorobenzene	< 3.54
1,4-Dichlorobenzene	< 3.54

Ketones	Results in ug / Kg
Acetone	J B 17.3
2-Butanone	< 17.7
2-Hexanone	< 8.84
4-Methyl-2-pentanone	< 8.84

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 3.54
Vinyl acetate	< 8.84

ELAP Number 10958 Method: EPA 8260B Data File: V96484.D

Comments: ug / Kg = microgram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB - Kaleida
Client Job Number: N/A
Field Location: CB-01 38-40'
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1779
Lab Sample Number: 12:1779-05
Date Sampled: 04/25/2012
Date Received: 04/26/2012
Date Analyzed: 04/26/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 51.0
Bromomethane	< 51.0
Bromoform	< 128
Carbon Tetrachloride	< 51.0
Chloroethane	< 51.0
Chloromethane	< 51.0
2-Chloroethyl vinyl Ether	< 255
Chloroform	< 51.0
Dibromochloromethane	< 51.0
1,1-Dichloroethane	< 51.0
1,2-Dichloroethane	< 51.0
1,1-Dichloroethene	< 51.0
cis-1,2-Dichloroethene	< 51.0
trans-1,2-Dichloroethene	< 51.0
1,2-Dichloropropane	< 51.0
cis-1,3-Dichloropropene	< 51.0
trans-1,3-Dichloropropene	< 51.0
Methylene chloride	< 128
1,1,2,2-Tetrachloroethane	< 51.0
Tetrachloroethene	< 51.0
1,1,1-Trichloroethane	< 51.0
1,1,2-Trichloroethane	< 51.0
Trichloroethene	< 51.0
Trichlorofluoromethane	< 51.0
Vinyl chloride	< 51.0

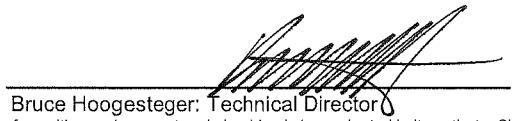
Aromatics	Results in ug / Kg
Benzene	< 51.0
Chlorobenzene	< 51.0
Ethylbenzene	< 51.0
Toluene	J 37.9
m,p-Xylene	65.5
o-Xylene	J 30.8
Styrene	< 128
1,2-Dichlorobenzene	< 51.0
1,3-Dichlorobenzene	< 51.0
1,4-Dichlorobenzene	< 51.0

Ketones	Results in ug / Kg
Acetone	J B 136
2-Butanone	< 255
2-Hexanone	< 128
4-Methyl-2-pentanone	< 128

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 51.0
Vinyl acetate	< 128

ELAP Number 10958 Method: EPA 8260B Data File: V96486.D

Comments: ug / Kg = microgram per Kilogram

Signature: 
Bruce Hoogesteger: Technical Director

PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB - Kaleida
Client Job Number: N/A
Field Location: CB-01 40-42'
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1779
Lab Sample Number: 12:1779-06
Date Sampled: 04/25/2012
Date Received: 04/26/2012
Date Analyzed: 04/26/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 4.22
Bromomethane	< 4.22
Bromoform	< 10.5
Carbon Tetrachloride	< 4.22
Chloroethane	< 4.22
Chloromethane	< 4.22
2-Chloroethyl vinyl Ether	< 21.1
Chloroform	< 4.22
Dibromochloromethane	< 4.22
1,1-Dichloroethane	< 4.22
1,2-Dichloroethane	< 4.22
1,1-Dichloroethene	< 4.22
cis-1,2-Dichloroethene	< 4.22
trans-1,2-Dichloroethene	< 4.22
1,2-Dichloropropane	< 4.22
cis-1,3-Dichloropropene	< 4.22
trans-1,3-Dichloropropene	< 4.22
Methylene chloride	< 10.5
1,1,2,2-Tetrachloroethane	< 4.22
Tetrachloroethene	< 4.22
1,1,1-Trichloroethane	< 4.22
1,1,2-Trichloroethane	< 4.22
Trichloroethene	< 4.22
Trichlorofluoromethane	< 4.22
Vinyl chloride	< 4.22

Aromatics	Results in ug / Kg
Benzene	< 4.22
Chlorobenzene	< 4.22
Ethylbenzene	10.6
Toluene	26.4
m,p-Xylene	45.5
o-Xylene	16.7
Styrene	< 10.5
1,2-Dichlorobenzene	< 4.22
1,3-Dichlorobenzene	< 4.22
1,4-Dichlorobenzene	< 4.22

Ketones	Results in ug / Kg
Acetone	J B 14.5
2-Butanone	< 21.1
2-Hexanone	< 10.5
4-Methyl-2-pentanone	< 10.5

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 4.22
Vinyl acetate	< 10.5

ELAP Number 10958 Method: EPA 8260B Data File: V96485.D

Comments: ug / Kg = microgram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site:	MOB Project Buffalo General Hospital	**Lab Project Number:**	12:1749
		Lab Sample Number:	12:1749-03
Client Job Number:	N/A		
Field Location:	CB-02 / 30-32	**Date Sampled:**	04/24/2012
Field ID Number:	N/A	**Date Received:**	04/25/2012
Sample Type:	Soil	**Date Analyzed:**	04/25/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 3,180
Bromomethane	< 3,180
Bromoform	< 7,960
Carbon Tetrachloride	< 3,180
Chloroethane	< 3,180
Chloromethane	< 3,180
2-Chloroethyl vinyl Ether	< 15,900
Chloroform	< 3,180
Dibromochloromethane	< 3,180
1,1-Dichloroethane	< 3,180
1,2-Dichloroethane	< 3,180
1,1-Dichloroethene	< 3,180
cis-1,2-Dichloroethene	< 3,180
trans-1,2-Dichloroethene	< 3,180
1,2-Dichloropropane	< 3,180
cis-1,3-Dichloropropene	< 3,180
trans-1,3-Dichloropropene	< 3,180
Methylene chloride	< 7,960
1,1,2,2-Tetrachloroethane	< 3,180
Tetrachloroethene	< 3,180
1,1,1-Trichloroethane	< 3,180
1,1,2-Trichloroethane	< 3,180
Trichloroethene	< 3,180
Trichlorofluoromethane	< 3,180
Vinyl chloride	< 3,180

Aromatics	Results in ug / Kg
Benzene	< 3,180
Chlorobenzene	< 3,180
Ethylbenzene	25,200
Toluene	60,000
m,p-Xylene	189,000
o-Xylene	65,300
Styrene	< 7,960
1,2-Dichlorobenzene	< 3,180
1,3-Dichlorobenzene	< 3,180
1,4-Dichlorobenzene	< 3,180

Ketones	Results in ug / Kg
Acetone	39,000
2-Butanone	< 15,900
2-Hexanone	< 7,960
4-Methyl-2-pentanone	< 7,960

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 3,180
Vinyl acetate	< 7,960

ELAP Number 10958 Method: EPA 8260B Data File: V96476.D

Comments: ug / Kg = microgram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site:	MOB Project Buffalo General Hospital	**Lab Project Number:**	12:1749
		Lab Sample Number:	12:1749-04
Client Job Number:	N/A		
Field Location:	CB-02 / 40-42	**Date Sampled:**	04/24/2012
Field ID Number:	N/A	**Date Received:**	04/25/2012
Sample Type:	Soil	**Date Analyzed:**	04/25/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 8.13
Bromomethane	< 8.13
Bromoform	< 20.3
Carbon Tetrachloride	< 8.13
Chloroethane	< 8.13
Chloromethane	< 8.13
2-Chloroethyl vinyl Ether	< 40.7
Chloroform	< 8.13
Dibromochloromethane	< 8.13
1,1-Dichloroethane	< 8.13
1,2-Dichloroethane	< 8.13
1,1-Dichloroethene	< 8.13
cis-1,2-Dichloroethene	< 8.13
trans-1,2-Dichloroethene	< 8.13
1,2-Dichloropropane	< 8.13
cis-1,3-Dichloropropene	< 8.13
trans-1,3-Dichloropropene	< 8.13
Methylene chloride	< 20.3
1,1,2,2-Tetrachloroethane	< 8.13
Tetrachloroethene	< 8.13
1,1,1-Trichloroethane	< 8.13
1,1,2-Trichloroethane	< 8.13
Trichloroethene	< 8.13
Trichlorofluoromethane	< 8.13
Vinyl chloride	< 8.13

Aromatics	Results in ug / Kg
Benzene	38.4
Chlorobenzene	< 8.13
Ethylbenzene	56.4
Toluene	104
m,p-Xylene	320
o-Xylene	106
Styrene	< 20.3
1,2-Dichlorobenzene	< 8.13
1,3-Dichlorobenzene	< 8.13
1,4-Dichlorobenzene	< 8.13

Ketones	Results in ug / Kg
Acetone	< 40.7
2-Butanone	< 40.7
2-Hexanone	< 20.3
4-Methyl-2-pentanone	< 20.3

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 8.13
Vinyl acetate	< 20.3

ELAP Number 10958 Method: EPA 8260B Data File: V96455.D

Comments: ug / Kg = microgram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

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179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB
Client Job Number: N/A
Field Location: CB-03/40-42
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1804
Lab Sample Number: 12:1804-01
Date Sampled: 04/26/2012
Date Received: 04/27/2012
Date Analyzed: 04/27/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 4.17
Bromomethane	< 4.17
Bromoform	< 10.4
Carbon Tetrachloride	< 4.17
Chloroethane	< 4.17
Chloromethane	< 4.17
2-Chloroethyl vinyl Ether	< 20.9
Chloroform	< 4.17
Dibromochloromethane	< 4.17
1,1-Dichloroethane	< 4.17
1,2-Dichloroethane	< 4.17
1,1-Dichloroethene	< 4.17
cis-1,2-Dichloroethene	< 4.17
trans-1,2-Dichloroethene	< 4.17
1,2-Dichloropropane	< 4.17
cis-1,3-Dichloropropene	< 4.17
trans-1,3-Dichloropropene	< 4.17
Methylene chloride	< 10.4
1,1,2,2-Tetrachloroethane	< 4.17
Tetrachloroethene	< 4.17
1,1,1-Trichloroethane	< 4.17
1,1,2-Trichloroethane	< 4.17
Trichloroethene	< 4.17
Trichlorofluoromethane	< 4.17
Vinyl chloride	< 4.17

Aromatics	Results in ug / Kg
Benzene	J 3.45
Chlorobenzene	< 4.17
Ethylbenzene	6.24
Toluene	20.5
m,p-Xylene	36.6
o-Xylene	14.6
Styrene	< 10.4
1,2-Dichlorobenzene	< 4.17
1,3-Dichlorobenzene	< 4.17
1,4-Dichlorobenzene	< 4.17

Ketones	Results in ug / Kg
Acetone	J 19.7
2-Butanone	< 20.9
2-Hexanone	< 10.4
4-Methyl-2-pentanone	< 10.4

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 4.17
Vinyl acetate	< 10.4

ELAP Number 10958 Method: EPA 8260B Data File: V96523.D

Comments: ug / Kg = microgram per Kilogram
Surrogate outliers indicate probable matrix interference

Signature: Val Mueller for

Bruce Hoogesteger: Technical Director

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Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB
Client Job Number: N/A
Field Location: CB-03/38-40
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1804
Lab Sample Number: 12:1804-02
Date Sampled: 04/26/2012
Date Received: 04/27/2012
Date Analyzed: 04/27/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 54.8
Bromomethane	< 54.8
Bromoform	< 137
Carbon Tetrachloride	< 54.8
Chloroethane	< 54.8
Chloromethane	< 54.8
2-Chloroethyl vinyl Ether	< 274
Chloroform	< 54.8
Dibromochloromethane	< 54.8
1,1-Dichloroethane	< 54.8
1,2-Dichloroethane	< 54.8
1,1-Dichloroethene	< 54.8
cis-1,2-Dichloroethene	< 54.8
trans-1,2-Dichloroethene	< 54.8
1,2-Dichloropropane	< 54.8
cis-1,3-Dichloropropene	< 54.8
trans-1,3-Dichloropropene	< 54.8
Methylene chloride	< 137
1,1,2,2-Tetrachloroethane	< 54.8
Tetrachloroethene	< 54.8
1,1,1-Trichloroethane	< 54.8
1,1,2-Trichloroethane	< 54.8
Trichloroethene	< 54.8
Trichlorofluoromethane	< 54.8
Vinyl chloride	< 54.8

Aromatics	Results in ug / Kg
Benzene	J 31.9
Chlorobenzene	< 54.8
Ethylbenzene	183
Toluene	322
m,p-Xylene	1,050
o-Xylene	349
Styrene	< 137
1,2-Dichlorobenzene	< 54.8
1,3-Dichlorobenzene	< 54.8
1,4-Dichlorobenzene	< 54.8

Ketones	Results in ug / Kg
Acetone	< 274
2-Butanone	< 274
2-Hexanone	< 137
4-Methyl-2-pentanone	< 137

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 54.8
Vinyl acetate	< 137

ELAP Number 10958 Method: EPA 8260B Data File: V96524.D

Comments: ug / Kg = microgram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

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Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB
Client Job Number: N/A
Field Location: CB-03/36-38
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1804
Lab Sample Number: 12:1804-03

Date Sampled: 04/26/2012
Date Received: 04/27/2012
Date Analyzed: 04/27/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 145
Bromomethane	< 145
Bromoform	< 362
Carbon Tetrachloride	< 145
Chloroethane	< 145
Chloromethane	< 145
2-Chloroethyl vinyl Ether	< 724
Chloroform	< 145
Dibromochloromethane	< 145
1,1-Dichloroethane	< 145
1,2-Dichloroethane	< 145
1,1-Dichloroethene	< 145
cis-1,2-Dichloroethene	< 145
trans-1,2-Dichloroethene	< 145
1,2-Dichloropropane	< 145
cis-1,3-Dichloropropene	< 145
trans-1,3-Dichloropropene	< 145
Methylene chloride	< 362
1,1,2,2-Tetrachloroethane	< 145
Tetrachloroethene	< 145
1,1,1-Trichloroethane	< 145
1,1,2-Trichloroethane	< 145
Trichloroethene	< 145
Trichlorofluoromethane	< 145
Vinyl chloride	< 145

Aromatics	Results in ug / Kg
Benzene	984
Chlorobenzene	< 145
Ethylbenzene	350
Toluene	2,080
m,p-Xylene	1,660
o-Xylene	572
Styrene	< 362
1,2-Dichlorobenzene	< 145
1,3-Dichlorobenzene	< 145
1,4-Dichlorobenzene	< 145

Ketones	Results in ug / Kg
Acetone	< 724
2-Butanone	< 724
2-Hexanone	< 362
4-Methyl-2-pentanone	< 362

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 145
Vinyl acetate	< 362

ELAP Number 10958 Method: EPA 8260B Data File: V96525.D

Comments: ug / Kg = microgram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

PARADIGM ENVIRONMENTAL SERVICES, INC.
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Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB
Client Job Number: N/A
Field Location: CB-03/22-24
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1804
Lab Sample Number: 12:1804-04

Date Sampled: 04/26/2012
Date Received: 04/27/2012
Date Analyzed: 04/28/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 19,100
Bromomethane	< 19,100
Bromoform	< 47,600
Carbon Tetrachloride	< 19,100
Chloroethane	< 19,100
Chloromethane	< 19,100
2-Chloroethyl vinyl Ether	< 95,300
Chloroform	< 19,100
Dibromochloromethane	< 19,100
1,1-Dichloroethane	< 19,100
1,2-Dichloroethane	< 19,100
1,1-Dichloroethene	< 19,100
cis-1,2-Dichloroethene	< 19,100
trans-1,2-Dichloroethene	< 19,100
1,2-Dichloropropane	< 19,100
cis-1,3-Dichloropropene	< 19,100
trans-1,3-Dichloropropene	< 19,100
Methylene chloride	< 47,600
1,1,2,2-Tetrachloroethane	< 19,100
Tetrachloroethene	< 19,100
1,1,1-Trichloroethane	< 19,100
1,1,2-Trichloroethane	< 19,100
Trichloroethene	< 19,100
Trichlorofluoromethane	< 19,100
Vinyl chloride	< 19,100

Aromatics	Results in ug / Kg
Benzene	< 19,100
Chlorobenzene	< 19,100
Ethylbenzene	46,000
Toluene	145,000
m,p-Xylene	377,000
o-Xylene	139,000
Styrene	< 47,600
1,2-Dichlorobenzene	< 19,100
1,3-Dichlorobenzene	< 19,100
1,4-Dichlorobenzene	< 19,100

Ketones	Results in ug / Kg
Acetone	< 95,300
2-Butanone	< 95,300
2-Hexanone	< 47,600
4-Methyl-2-pentanone	< 47,600

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 19,100
Vinyl acetate	< 47,600

ELAP Number 10958 Method: EPA 8260B Data File: V96557.D

Comments: ug / Kg = microgram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

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PARADIGM
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179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB - Kaleida
Client Job Number: N/A
Field Location: CB-04 24-26'
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1779
Lab Sample Number: 12:1779-01
Date Sampled: 04/25/2012
Date Received: 04/26/2012
Date Analyzed: 04/26/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 119
Bromomethane	< 119
Bromoform	< 297
Carbon Tetrachloride	< 119
Chloroethane	< 119
Chloromethane	< 119
2-Chloroethyl vinyl Ether	< 594
Chloroform	< 119
Dibromochloromethane	< 119
1,1-Dichloroethane	< 119
1,2-Dichloroethane	< 119
1,1-Dichloroethene	< 119
cis-1,2-Dichloroethene	< 119
trans-1,2-Dichloroethene	< 119
1,2-Dichloropropane	< 119
cis-1,3-Dichloropropene	< 119
trans-1,3-Dichloropropene	< 119
Methylene chloride	< 297
1,1,2,2-Tetrachloroethane	< 119
Tetrachloroethene	< 119
1,1,1-Trichloroethane	< 119
1,1,2-Trichloroethane	< 119
Trichloroethene	< 119
Trichlorofluoromethane	< 119
Vinyl chloride	< 119

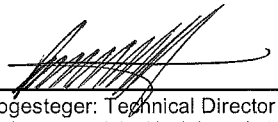
Aromatics	Results in ug / Kg
Benzene	< 119
Chlorobenzene	< 119
Ethylbenzene	1,340
Toluene	799
m,p-Xylene	14,800
o-Xylene	6,060
Styrene	< 297
1,2-Dichlorobenzene	< 119
1,3-Dichlorobenzene	< 119
1,4-Dichlorobenzene	< 119

Ketones	Results in ug / Kg
Acetone	J B 516
2-Butanone	< 594
2-Hexanone	< 297
4-Methyl-2-pentanone	< 297

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 119
Vinyl acetate	< 297

ELAP Number 10958 Method: EPA 8260B Data File: V96488.D

Comments: ug / Kg = microgram per Kilogram

Signature: 

Bruce Hoogesteger: Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB - Kaleida
Client Job Number: N/A
Field Location: CB-04 30-32'
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1779
Lab Sample Number: 12:1779-02
Date Sampled: 04/25/2012
Date Received: 04/26/2012
Date Analyzed: 04/26/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 255
Bromomethane	< 255
Bromoform	< 637
Carbon Tetrachloride	< 255
Chloroethane	< 255
Chloromethane	< 255
2-Chloroethyl vinyl Ether	< 1,270
Chloroform	< 255
Dibromochloromethane	< 255
1,1-Dichloroethane	< 255
1,2-Dichloroethane	< 255
1,1-Dichloroethene	< 255
cis-1,2-Dichloroethene	< 255
trans-1,2-Dichloroethene	< 255
1,2-Dichloropropane	< 255
cis-1,3-Dichloropropene	< 255
trans-1,3-Dichloropropene	< 255
Methylene chloride	< 637
1,1,2,2-Tetrachloroethane	< 255
Tetrachloroethene	< 255
1,1,1-Trichloroethane	< 255
1,1,2-Trichloroethane	< 255
Trichloroethene	< 255
Trichlorofluoromethane	< 255
Vinyl chloride	< 255

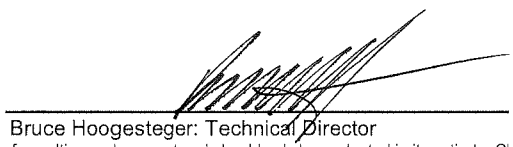
Aromatics	Results in ug / Kg
Benzene	< 255
Chlorobenzene	< 255
Ethylbenzene	7,690
Toluene	16,600
m,p-Xylene	38,700
o-Xylene	14,500
Styrene	< 637
1,2-Dichlorobenzene	< 255
1,3-Dichlorobenzene	< 255
1,4-Dichlorobenzene	< 255

Ketones	Results in ug / Kg
Acetone	< 1,270
2-Butanone	< 1,270
2-Hexanone	< 637
4-Methyl-2-pentanone	< 637

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 255
Vinyl acetate	< 637

ELAP Number 10958 Method: EPA 8260B Data File: V96489.D

Comments: ug / Kg = microgram per Kilogram

Signature: 

Bruce Hoogesteger: Technical Director

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ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site: MOB - Kaleida
Client Job Number: N/A
Field Location: CB-04 42-44'
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:1779
Lab Sample Number: 12:1779-03
Date Sampled: 04/25/2012
Date Received: 04/26/2012
Date Analyzed: 04/26/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 75.1
Bromomethane	< 75.1
Bromoform	< 188
Carbon Tetrachloride	< 75.1
Chloroethane	< 75.1
Chloromethane	< 75.1
2-Chloroethyl vinyl Ether	< 376
Chloroform	< 75.1
Dibromochloromethane	< 75.1
1,1-Dichloroethane	< 75.1
1,2-Dichloroethane	< 75.1
1,1-Dichloroethene	< 75.1
cis-1,2-Dichloroethene	< 75.1
trans-1,2-Dichloroethene	< 75.1
1,2-Dichloropropane	< 75.1
cis-1,3-Dichloropropene	< 75.1
trans-1,3-Dichloropropene	< 75.1
Methylene chloride	< 188
1,1,2,2-Tetrachloroethane	< 75.1
Tetrachloroethene	< 75.1
1,1,1-Trichloroethane	< 75.1
1,1,2-Trichloroethane	< 75.1
Trichloroethene	< 75.1
Trichlorofluoromethane	< 75.1
Vinyl chloride	< 75.1

Aromatics	Results in ug / Kg
Benzene	< 75.1
Chlorobenzene	< 75.1
Ethylbenzene	845
Toluene	1,730
m,p-Xylene	4,610
o-Xylene	1,850
Styrene	< 188
1,2-Dichlorobenzene	< 75.1
1,3-Dichlorobenzene	< 75.1
1,4-Dichlorobenzene	< 75.1

Ketones	Results in ug / Kg
Acetone	B 470
2-Butanone	< 376
2-Hexanone	< 188
4-Methyl-2-pentanone	< 188

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 75.1
Vinyl acetate	< 188

ELAP Number 10958 Method: EPA 8260B Data File: V96487.D

Comments: ug / Kg = microgram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site:	MOB Project Buffalo General Hospital	**Lab Project Number:**	12:1749
		Lab Sample Number:	12:1749-01
Client Job Number:	N/A		
Field Location:	CB-05 / 31-33	**Date Sampled:**	04/24/2012
Field ID Number:	N/A	**Date Received:**	04/25/2012
Sample Type:	Soil	**Date Analyzed:**	04/25/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 81.8
Bromomethane	< 81.8
Bromoform	< 204
Carbon Tetrachloride	< 81.8
Chloroethane	< 81.8
Chloromethane	< 81.8
2-Chloroethyl vinyl Ether	< 409
Chloroform	< 81.8
Dibromochloromethane	< 81.8
1,1-Dichloroethane	< 81.8
1,2-Dichloroethane	< 81.8
1,1-Dichloroethene	< 81.8
cis-1,2-Dichloroethene	< 81.8
trans-1,2-Dichloroethene	< 81.8
1,2-Dichloropropane	< 81.8
cis-1,3-Dichloropropene	< 81.8
trans-1,3-Dichloropropene	< 81.8
Methylene chloride	< 204
1,1,2,2-Tetrachloroethane	< 81.8
Tetrachloroethene	< 81.8
1,1,1-Trichloroethane	< 81.8
1,1,2-Trichloroethane	< 81.8
Trichloroethene	< 81.8
Trichlorofluoromethane	< 81.8
Vinyl chloride	< 81.8

Aromatics	Results in ug / Kg
Benzene	< 81.8
Chlorobenzene	< 81.8
Ethylbenzene	210
Toluene	< 81.8
m,p-Xylene	320
o-Xylene	< 81.8
Styrene	< 204
1,2-Dichlorobenzene	< 81.8
1,3-Dichlorobenzene	< 81.8
1,4-Dichlorobenzene	< 81.8

Ketones	Results in ug / Kg
Acetone	< 409
2-Butanone	< 409
2-Hexanone	< 204
4-Methyl-2-pentanone	< 204

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 81.8
Vinyl acetate	< 204

ELAP Number 10958 Method: EPA 8260B Data File: V96452.D

Comments: ug / Kg = microgram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

PARADIGM
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179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: C&S Engineers

Client Job Site:	MOB Project Buffalo General Hospital	**Lab Project Number:**	12:1749
		Lab Sample Number:	12:1749-02
Client Job Number:	N/A		
Field Location:	CB-05 / 37-39	**Date Sampled:**	04/24/2012
Field ID Number:	N/A	**Date Received:**	04/25/2012
Sample Type:	Soil	**Date Analyzed:**	04/25/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 4.48
Bromomethane	< 4.48
Bromoform	< 11.2
Carbon Tetrachloride	< 4.48
Chloroethane	< 4.48
Chloromethane	< 4.48
2-Chloroethyl vinyl Ether	< 22.4
Chloroform	< 4.48
Dibromochloromethane	< 4.48
1,1-Dichloroethane	< 4.48
1,2-Dichloroethane	< 4.48
1,1-Dichloroethene	< 4.48
cis-1,2-Dichloroethene	< 4.48
trans-1,2-Dichloroethene	< 4.48
1,2-Dichloropropane	< 4.48
cis-1,3-Dichloropropene	< 4.48
trans-1,3-Dichloropropene	< 4.48
Methylene chloride	< 11.2
1,1,2,2-Tetrachloroethane	< 4.48
Tetrachloroethene	< 4.48
1,1,1-Trichloroethane	< 4.48
1,1,2-Trichloroethane	< 4.48
Trichloroethene	< 4.48
Trichlorofluoromethane	< 4.48
Vinyl chloride	< 4.48

Aromatics	Results in ug / Kg
Benzene	7.27
Chlorobenzene	< 4.48
Ethylbenzene	48.4
Toluene	14.9
m,p-Xylene	99.9
o-Xylene	29.0
Styrene	< 11.2
1,2-Dichlorobenzene	< 4.48
1,3-Dichlorobenzene	< 4.48
1,4-Dichlorobenzene	< 4.48

Ketones	Results in ug / Kg
Acetone	< 22.4
2-Butanone	< 22.4
2-Hexanone	< 11.2
4-Methyl-2-pentanone	< 11.2

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 4.48
Vinyl acetate	< 11.2

ELAP Number 10958 Method: EPA 8260B Data File: V96453.D

Comments: ug / Kg = microgram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

APPENDIX D

SUMMARY OF COMMERCIAL USE SOIL CLEANUP OBJECTIVES

SUMMARY OF COMMERCIAL USE
SOIL CLEANUP OBJECTIVES

CONTAMINANT	CAS NUMBER	COMMERCIAL USE SCO
Arsenic	7440-38-2	16
Barium	7440-39-3	400
Beryllium	7440-41-7	590
Cadmium	7440-43-9	9.3
Chromium, hexavalent	18540-29-9	400
Chromium, trivalent	16065-83-1	1,500
Copper	7440-50-8	270
Total Cyanide		27
Lead	7439-92-1	1,000
Manganese	7439-96-5	10,000
Total Mercury		2.8
Nickel	7440-02-0	310
Selenium	7782-49-2	1,500
Silver	7440-22-4	1,500
Zinc	7440-66-6	10,000
2,4,5-TP Acid (Silvex)	93-72-1	500
4,4'-DDE	72-55-9	62
4,4'-DDT	50-29-3	47
4,4'-DDD	72-54-8	92
Aldrin	309-00-2	0.68
alpha-BHC	319-84-6	3.4
beta-BHC	319-85-7	3
Chlordane (alpha)	5103-71-9	24
delta-BHC	319-86-8	500
Dibenzofuran	132-64-9	350
Dieldrin	60-57-1	1.4
Endosulfan I	959-98-8	200
Endosulfan II	33213-65-9	200
Endosulfan sulfate	1031-07-8	200
Endrin	72-20-8	89
Heptachlor	76-44-8	15
Lindane	58-89-9	9.2
Polychlorinated biphenyls	1336-36-3	1
Acenaphthene	83-32-9	500
Acenapthylene	208-96-8	500
Anthracene	120-12-7	500
Benz(a)anthracene	56-55-3	5.6
Benzo(a)pyrene	50-32-8	1
Benzo(b)fluoranthene	205-99-2	5.6
Benzo(g,h,i)perylene	191-24-2	500
Benzo(k)fluoranthene	207-08-9	56
Chrysene	218-01-9	56

Dibenz(a,h)anthracene	53-70-3	0.56
Fluoranthene	206-44-0	500
Fluorene	86-73-7	500
Indeno(1,2,3-cd)pyrene	193-39-5	5.6
m-Cresol	108-39-4	500
Naphthalene	91-20-3	500
o-Cresol	95-48-7	500
p-Cresol	106-44-5	500
Pentachlorophenol	87-86-5	6.7
Phenanthrene	85-01-8	500
Phenol	108-95-2	500
Pyrene	129-00-0	500
1,1,1-Trichloroethane	71-55-6	500
1,1-Dichloroethane	75-34-3	240
1,1-Dichloroethene	75-35-4	500
1,2-Dichlorobenzene	95-50-1	500
1,2-Dichloroethane	107-06-2	30
cis-1,2-Dichloroethene	156-59-2	500
trans-1,2-Dichloroethene	156-60-5	500
1,3-Dichlorobenzene	541-73-1	280
1,4-Dichlorobenzene	106-46-7	130
1,4-Dioxane	123-91-1	130
Acetone	67-64-1	500
Benzene	71-43-2	44
Butylbenzene	104-51-8	500
Carbon tetrachloride	56-23-5	22
Chlorobenzene	108-90-7	500
Chloroform	67-66-3	350
Ethylbenzene	100-41-4	390
Hexachlorobenzene	118-74-1	6
Methyl ethyl ketone	78-93-3	500
Methyl tert-butyl ether	1634-04-4	500
Methylene chloride	75-09-2	500
n-Propylbenzene	103-65-1	500
sec-Butylbenzene	135-98-8	500
tert-Butylbenzene	98-06-6	500
Tetrachloroethene	127-18-4	150
Toluene	108-88-3	500
Trichloroethene	79-01-6	200
1,2,4-Trimethylbenzene	95-63-6	190
1,3,5- Trimethylbenzene	108-67-8	190
Vinyl chloride	75-01-4	13
Xylene (mixed)	1330-20-7	500

Notes:

1) Adapted from 6 NYCRR Part 375: Remedial Program Soil Cleanup Objectives

2) Units in ppm = parts per million

ATTACHMENT 2

C&S Companies
90 Broadway
Buffalo, NY 14203
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www.cscos.com

October 17, 2012

Mr. Robert Bragg
Vice President, Project Management Services
Kaleida Properties
Larkin Building, Suite 200
726 Exchange Street
Buffalo, New York 14210

Re: *Revised October 30, 2012*
Test Pit Investigation Report of the Medical Office Building Site
Buffalo, New York

Dear Mr.Bragg:

In preparation for the remediation and construction on the Medical Office Building ("MOB"), Kaleida Properties requested C&S Engineers, Inc ("C&S") to assess the composition of the native soil and fill material that will be removed from the MOB during construction. The following letter report provides a summary of test pit investigations conducted from September 24 through 26, 2012 at the MOB Brownfield Cleanup ("BCP") site located at 1001 Main Street and 818 Ellicott Street in the City of Buffalo, New York ("Site").

I. INTRODUCTION

The southwest corner of the Site was operated as a gasoline station for over 30 years. Leaking underground tanks spilled petroleum into the subsurface soils and groundwater. The Main Release Area is located in the approximate area of the former leaking underground tanks on the western portion of the Site; contaminated soils were observed from 10 feet below grade and extend to 20 feet below grade. Contaminated soils were observed throughout the rest of the Site from approximately 32 to 35 feet below grade and generally confined within a coarse sand and gravel lens.

Historic soil boring information from multiple site investigations has described the major soil material that underlies the Site. The following is a list of the major soil types and their approximate depths below grade:

Table 1-1: Generalized Soil Types

Soil Material	*Depth (feet)*
Fill	2 - 11
Sandy Silt	11 - 35
Coarse Sand and Gravel	32 - 35
Silt and Inter-bedded Sand	35 - 42

For the purposes of this letter report the generic term "fill" is defined as anthropogeneric sources of any one, or mixture, of the material re-worked to build a site to a defined grade. This material can include:

Rock Lumber

Sand	Ash/Cinders
Silt	Ceramics
Clay	Bricks
Plastics	Metal
Construction Debris	

In order to better characterize fill deposits above the main areas of contamination, test pits were excavated at various locations. Test pits provide much more detail than soil borings. Test pits provide the observer a view of the in situ material within an excavation that is several feet wide, deep and long. Test pits also provide a view of materials that would not normally be recovered in a soil boring sample.

Test pits for this investigation are intended to collect sufficient information of native soil and fill deposits to allow LP Ciminelli to determine the potential off-site re-use options of the spoils prior to construction. The number of test pits and sampling frequency was developed generally following guidelines outlined in DER-10 Table 5.4(e) 10. Soil sampling was preformed to provide sufficient data to reach a reasonable and defensible understanding of the nature of the subsurface materials to be removed from the Site.

For construction spoils to be used for unrestricted purposes off-site, exported soils must achieve the most restrictive guidelines as outlined in NYSDEC's DER-10 – Appendix 5. Soil samples were compared to the guidelines provided in DER-10 – Appendix 5 and the results are provided in this letter report.

The objectives of this test pit investigation and sampling are as follows:

- Collect data to assist in identifying the nature, and delineating the extent of, various types of fill deposits; and
- Collect data to assess the potential off-site re-use options for native soil and fill deposits.

II. METHODS

Test pit locations were selected based on boring logs from previous geotechnical and environmental investigations. Boring logs indicated three areas of fill and native material. The Site was divided into three "Areas" based on previous site borings.

Area #1 occupies the northern section of the Site; this area is composed generally of native soil with less than 2 feet of "fill."

Area #2 is composed of a variety of "fill" types across the center of the Site ranging in depth from 5 feet to over 10 feet. Area #2 contains a large portion of the contaminated soils that will be excavated and removed.

Area #3 consists of native soil with less than 2 feet of "fill" within the southern to southwestern portion of the Site.

Test pits were excavated in each of the three areas to further evaluate soil conditions. C&S designed a test pit layout and sampling plan based on available historic geotechnical and

environmental investigations. However, note that since fill material was limited to the top 10 ft from grade, excavation depths did not exceed 14 ft below grade. In addition, the test pits also assessed the volatile organic compound ("VOC") concentrations in areas near the known contaminated soil horizons (approximately 12 – 14 ft below grade).

Figure 1 shows the test pit locations and Areas.

A. Test Pits

Test pits were excavated using a track mounted John Deere Excavator operated by LP Ciminelli staff. Test pit excavation typically was 10 feet long, 2 to 4 feet wide and 11 to 14 feet below grade. Test pits were excavated in approximately 3 to 4 foot increments to aid in accurately determining the depth of discrete layers of fill and native material. The soil type and depth of "fill and native" material was visually identified and recorded and provided in a Test Pit Log attached with this letter report. Each test pit was backfilled with excavated material, restored to best match the pre-existing grade and asphalt patch placed on top of the excavation.

B. Sampling

Samples were collected as grab samples from the excavator bucket, placed in plastic zip lock bags and screened with a MiniRAE 3000 Photo-ionization Detector ("PID"). Results of the PID headspace readings are provided in the Test Pit Logs. Samples selected for laboratory analysis was based on visual appearance of the material, petroleum odor or staining and PID readings. Sampling frequency was determined for each test pit based on the guidelines in DER-10 Table 5.4(e) 10. Samples were analyzed for the following parameters:

Table 2-2: VOC Only Analysis

Parameter(s)	*EPA Method*
Volatiles (TCL List)	8260B

Table 2-3: Full Analysis (DER-10 List)

Parameter(s)	*EPA Method*
Volatiles (TCL List)	8260B
Semi-volatiles	8270
Metals Analysis	7470/7471 & 6010
Pesticides	8082
Herbicides (Silvex)	8151
Cyanide	9012A
Hex Chrome	7196
PCB	8082

Representative samples from two test pits were collected for waste characterization using the Toxicity Characterization Leaching Procedure ("TCLP").

Table 2-4: TCLP Analysis

Parameter(s)	*EPA Method*
Volatiles	8260
Semi-volatiles	8270
Metals Analysis	7470/7471 & 6010
Pesticides	8082
Ignitability	1010
pH	9040
Reactivity	SW-846, 7.3
PCB	8082

A total of 22 samples were collected and analyzed. The following table summarizes the samples collected from each test pit.

Table 2-5: Sample Collection

Test Pit	*Sample Depth*	*Analysis*	*Material Type*
TP-01	7 ft	Full	Native
	11 ft	VOC Only	Native
TP-02	8 ft	Full	Native
	12 ft	VOC Only	Native
TP-03	6 ft	Full	Fill
TP-04	8 ft	Full	Native
	14 ft	VOC Only	Native
TP-05	0-3 ft	Full	Fill
TP-06	14 ft	VOC Only	Native
TP-07	6 ft	Full	Native
	9.5 ft	VOC Only	Native
TP-08	7 ft	Full	Native
	14 ft	VOC Only	Native
TP-09	0-3 ft	Full	Fill
TP-10	0-2.5 ft	Full	Fill
	9 ft	Full	Fill
	10 ft	Full	Native

	4-9 ft	TCLP	Fill
TP-11	9.5 ft	Full	Fill
	0-13 ft	TCLP	Fill/Native
TP-12	6 ft	VOC Only	Native
	12 ft	VOC Only	Native

Full Analysis	12
VOC Only Analysis	8
TCLP Analysis	2
Total Sampling	**22**

III. FIELD INVESTIGATION

Excavation was conducted by LP Ciminelli on September 24 through 26, 2012. During test pit excavations, C&S observed three different fill types across the Site. Site fill materials were generally defined as follows:

- Earthen Fill: including topsoil that may contain some waste (e.g. plastics and metal) but generally contain a mixture of sand, silt, clay, root matter and gravel.
- Refuse Fill: soil intermixed with some construction and demolition debris such as metal, broken glass, concrete and bricks.
- Urban Waste Fill: black silt and sand intermixed with ash/cinders and large amounts of debris. This fill contains significant amounts of construction and demolition debris including: wood fragments; plastics; tile; insulation; concrete and bricks.

Table 3-1: Area 1 – Summarized Observations

Test Pit	*Summarized Observations*
TP-01	Subsurface material predominately consists of sand. Fill material consists of three to six inches of sand and gravel beneath the asphalt. No elevated PID readings. Sampled at 7 ft and 11ft.
TP-02	Predominately native material. Fill material consists of three to six inches of sand and gravel beneath the asphalt. No elevated PID readings. Sampled at 8 ft and 12 ft.
TP-04	Predominately native material. Fill material consists of three to six inches of sand and gravel beneath the asphalt. PID reading of 403 parts per million ("ppm") at 14 ft. Sampled at 8 ft and 14 ft.
TP-05	Predominately native material. Fill material consists of three to six inches of sand and gravel beneath the asphalt. The top three feet were primarily sand and silt with occasional bricks. Below three feet was apparently undisturbed native soil. No elevated PID readings. Sampled at 0-3 ft.
TP-06	Predominately native material. Fill material consists of three to six inches of sand and gravel beneath the asphalt. No elevated PID readings. Sampled at 14 ft.

Table 3-2: Area 2 – Summarized Observations

Test Pit	*Summarized Observations*
TP-03	Earthen fill overlaying silty clay intermixed with refuse fill from 3 ft to 10 ft below grade. Concrete basement was encountered at 10 ft. After breaking through basement material consists of silty sand with a trace of petroleum odor. Sampled at 6 ft.
TP-10	Urban Waste fill from ground surface to 10 ft below grade. Possible asbestos containing material was collected for testing. TCLP sample from 4-9 ft collected for waste characterization. Concrete basement at 10 ft below grade; after breaking basement native material was observed. Sampled at 0-2.5 ft, 9 ft, 10 ft and TCLP sample 4-9 ft.
TP-11	Urban Waste fill from ground surface to 10 ft below grade. TCLP sample from 0-13 ft collected for waste characterization. Concrete basement at 10 ft below grade; after breaking basement native material was observed. Sampled at 9.5 ft and TCLP sample 0-13 ft.

Table 3-3: Area 3 – Summarized Observations

Test Pit	*Summarized Observations*
TP-07	Earthen fill overlaying native material. PID reading of 200 ppm at 9.5 ft. Sampled at 6 ft and 9.5 ft.
TP-08	Earthen fill to 3 ft below grade. Subsurface predominately native material consisting of sandy silt and silty clay. Strong fresh petroleum odor was observed after 9 ft. PID reading of 15,000 ppm at 14 ft. Sampled at 7 ft and 14 ft.
TP-09	Refuse fill from ground surface to 3 ft below grade. Subsurface predominately native material consisting of sandy silt and silty clay. Sampled at 0-3 ft.
TP-12	Earthen fill to 4 ft below grade. Subsurface predominately native material consisting of sandy silt. Strong petroleum odor and black stained sand was observed after 12 ft. PID reading of 160 ppm at 12 ft. Sampled at 6 ft and 12 ft.

IV. RESULTS

A. Test Pit Observations

Area 1:
Soils within this Area are comprised of 1 foot layer of fill related to the asphalt parking lot overlaying primarily native materials. The one exception includes TP-05 were a refuse fill layer was observed from 0-3 ft below grade.

Area 2:
As suspected by previous subsurface investigations deep fill is present within this Area. TP-03, on the western end of Area 2, contained a mixture of sand (native material), silt, brick and concrete. A concrete foundation floor was encountered at 10 ft below grade.

On the eastern end of Area 2, a mixture of silty clay, large C&D material, black ash/cinders and waste was encountered in TP-10 and TP-11. During excavation concrete basement floors were encountered at 10 ft below grade.

Both the western and eastern ends of Area 2 are likely old building foundations and it is presumed these foundations extend to the street edge. Native materials were encountered below each foundation slab.

Area 3:
Similar to Area 1, Area 3 is composed of predominately native materials. TP-07 was excavated in the area of a former tank pit. Elevated PID readings were encountered from 8 – 10 ft below grade.

Note that soils in the area of the main release source show signs of elevated PID readings generally starting at 14 ft.

B. Analytical Results

A total of 22 samples were collected for analysis. From the 22 samples 14 samples had no detections or had detections below unrestricted residential criteria. These samples include:

Table 4-1: Detections below Unrestricted Residential Criteria

Test Pit	*Sample Depth*	*Analysis*
TP-01	7 ft	Full
	11 ft	VOC Only
TP-02	8 ft	Full
	12 ft	VOC Only
TP-03	6 ft	Full
TP-04	8 ft	Full
	14 ft	VOC Only
TP-07	6 ft	Full
TP-08	7 ft	Full
	14 ft	VOC Only
TP-09	0-3 ft	Full
TP-10	10 ft	Full
TP-12	6 ft	VOC Only
	12 ft	VOC Only

Analytical results are presented in Tables 4-2 and 4-3.

Area 1:
With the exception of the top 3 ft in TP-05, analytical results of the material found in this Area were shown to qualify for unrestricted use. This included samples from TP-01, TP-02, TP-04, TP-05 and TP-06. Material observed in TP-05 below a depth of 3 ft appeared similar to the native material in TP-01 and TP-02; therefore material below 3 ft was not sampled.

Due to its proximity to the main release source, TP-06 was sampled for VOCs at 14 ft below grade. Analytical results indicate the material at that depth slightly exceeded unrestricted criteria for benzene; however concentrations were below residential criteria.

Area 2:
The Urban Waste fill in TP-10 and TP-11, located on the eastern portion of Area 2, exceeded industrial and commercial use standards for SVOCs and unrestricted and residential standards for metals, PCBs and pesticides.

Refuse fill found in TP-03, located on the western portion of Area 2, contained constituents in concentrations below unrestricted use standards.

Area 3:
Area 3 contains predominately native material or re-worked native material. Material sampled in TP-08, TP-07 and TP-12 contained constituents below unrestricted use standards.

Note that a deeper sample 9.5 ft from TP-07 was collected for VOCs due to elevated PID readings from 9-10 ft. This sample exceeded unrestricted use standards for xylenes.

Waste Characterization
Samples from Urban Waste fill in TP-10 and TP-11 were collected for waste characterization analysis. The results confirm the fill material is a non-hazardous waste.

V. SUMMARY

The proposed construction depth (excluding Brownfield remediation) is 25 ft below grade. This assessment was conducted to assess the quality of spoils that will be removed for construction.

Native material in Area 1 and Area 3 is below unrestricted use standards. However, in Area 3 and in the eastern portion of Area 1 material at depth (generally 14 ft and below) may be impacted by the presence of the petroleum plume. While concentrations at these depths (between 14 – 25 ft) may be below Site remedial goals of "Commercial Use" soil cleanup objectives, some of these soils at depth may exceed Unrestricted Use standards (therefore limiting off-site use). This situation was encountered in TP-06 at 14 ft below grade. Therefore, native soils removed at depth need to be closely monitored for VOC concentrations.

Area 2 contains two distinct fill types (Refuse and Urban Waste fill) deposited in old foundations. Material in TP-03 was found to be below unrestricted use standards. The material is generally silty sand matrix with a 10-20% mixture of brick and concrete.

Material found in TP-10 and TP-11 was found to be more of a C&D deposit. Analytical results show that the material should be disposed as a regulated non-hazardous waste.

Native material was present below all of the foundations and chemical analysis demonstrated this material is below unrestricted use standards.

Sincerely,

C&S ENGINEERS, INC.

Mark Colmerauer
Regional Environmental Service Manager

cc: D. Elia, LP Ciminelli

Table 4-3
TEST PIT INVESTIGATION SUMMARY - MOB SITE
TEST PIT ASSESSMENT SEPTEMBER 2012

Location	*Test Pit*	*Fill Type*	*Pit Depth*	*Sample Depth*	*Exceeded Unrestricted Use*	*Contaminant*
Area 1	TP-01	Native	0-11 ft	7 ft	N	
				11 ft	N	
Area 1	TP-02	Native	0-12 ft	8 ft	N	
				12 ft	N	
Area 2	TP-03	Earthen Fill	0-3 ft	6 ft	N	
		Refuse Fill	3-11 ft			
Area 1	TP-04	Native	0-14 ft	8 ft	N	
				14 ft	N	
Area 1	TP-05	Fill	0-3 ft	0-3 ft	Y	SVOC AND Metals
		Native	3-14 ft			
Area 1	TP-06	Native	0-14 ft	14 ft	Y	VOC
Area 3	TP-07	Earthen Fill	0-3 ft	6 ft	N	
		Native	3-14 ft	9.5 ft	Y	VOC
Area 3	TP-08	Earthen Fill	0-3 ft	7 ft	N	
		Native	3-14 ft	14 ft	N	
Area 2	TP-09	Refuse Fill	0-10 ft	0-3 ft	N	
		Native	10-11 ft			
Area 2	TP-10	Urban Waste Fill	0-9 ft	0-2.5 ft	Y	SVOC, Metals and Pesticides
		Native	9-10 ft	9 ft	Y	SVOC, Metals, Pesticides and PCB
				10 ft	N	
Area 2	TP-11	Urban Waste Fill	0-10 ft	9.5 ft	Y	Pesticides
		Native	10-13 ft			
Area 3	TP-12	Earthen Fill	0-4 ft	6 ft	N	
		Native	4-12 ft	12 ft	N	

Notes:
1. Site fill materials were generally defined as follows:
Earthen Fill: including topsoil that may contain some waste (e.g. plastics and metal) but generally contain a mixture of sand, silt, clay, root matter and gravel.

Refuse Fill: soil intermixed with some construction and demolition debris such as metal, broken glass, concrete and bricks.

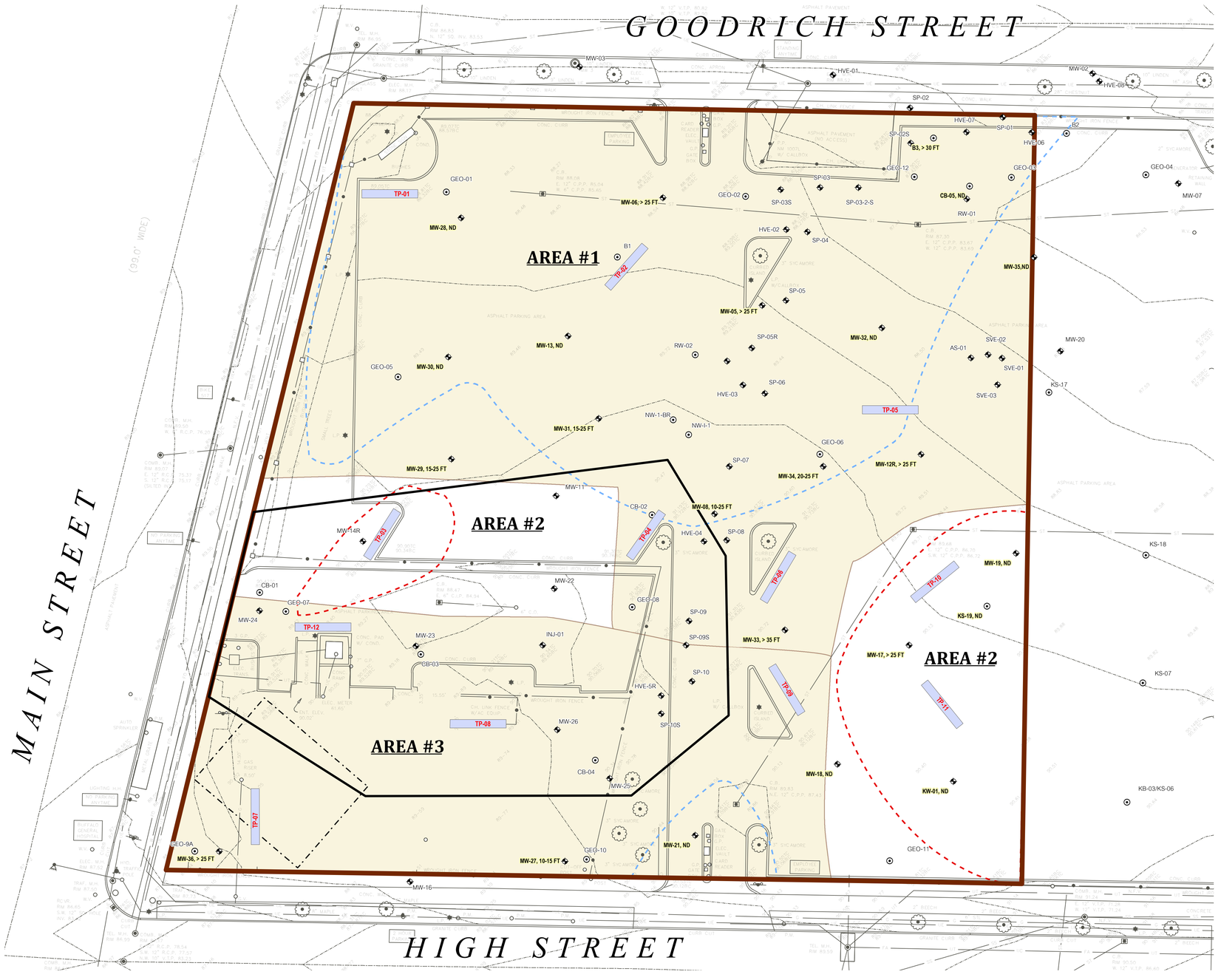
Urban Waste Fill: black silt and sand intermixed with ash/cinders. This fill contains significant amounts of construction and demolition debris including: wood fragments; plastics; tile; insulation; concrete and bricks.

TABLE 4-2
SUMMARY LABORATORY DATA - MOB SITE
TEST PIT ASSESSMENT SEPTEMBER 2012

Contaminant	Unrestricted Use	Protection of Public Health: Residential	Restricted-Residential	Commercial	Industrial	TP-01 7 ft	TP-01 11 ft	TP-02 8 ft	TP-02 12 ft	TP-03 6 ft	TP-04 8 ft	TP-04 14 ft	TP-05 0-3 ft	TP-06 14 ft	TP-07 6 ft
Semivolatile organic compounds		ppm=mg/kg													
Acenaphthene	20	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	**.194 J**	--	<0.310
Acenapthylene [f]	100 [a]	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
Anthracene [f]	100 [a]	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
Benz(a)anthracene [f]	1[c]	1[f]	1[f]	5.6	11	<0.295	--	<0.305	--	<0.330	<0.376	--	**1.09**	--	<0.310
Benzo(a)pyrene	1[c]	1[f]	1[f]	1[f]	1.1	<0.295	--	<0.305	--	<0.330	<0.376	--	**1**	--	<0.310
Benzo(b)fluoranthene[f]	1[c]	1[f]	1[f]	5.6	11	<0.295	--	<0.305	--	<0.330	<0.376	--	**0.942**	--	<0.310
Benzo(g,h,i)perylene [f]	100	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	**0.608**	--	<0.310
Benzo(k)fluoranthene[f]	0.8 [c]	1	3.9	56	110	<0.295	--	<0.305	--	<0.330	<0.376	--	**0.702**	--	<0.310
Chrysene [f]	1[c]	1[f]	3.9	56	110	<0.295	--	<0.305	--	<0.330	<0.376	--	**1.09**	--	<0.310
Dibenz(a,h)anthracene[f]	0.33 [b]	0.33[e]	0.33[e]	0.56	1.1	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
Fluoranthene [f]	100 [a]	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	**0.233 J**	<0.376	--	**2.3**	--	<0.310
Fluorene	30	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	**0.202**	--	<0.310
Indeno(1,2,3-cd)pyrene [f]	0.5 [c]	0.5[f]	0.5[f]	5.6	11	<0.295	--	<0.305	--	<0.330	<0.376	--	**0.67**	--	<0.310
m-Cresol [f]	0.33 [b]	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
Naphthalene [f]	12	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
o-Cresol [f]	0.33 [b]	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
p-Cresol [f]	0.33 [b]	34	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
Pentachlorophenol	0.8[b]	2.4	6.7	6.7	55	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
Phenanthrene [f]	100	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	**1.81**	--	<0.310
Phenol	0.33[b]	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.305	--	<0.330	<0.376	--	<0.376	--	<0.310
Pyrene[f]	100	100[a]	100[a]	500[b]	1,000[c]	<0.295	--	<0.295	--	**0.194 J**	<0.376	--	**1.94**	--	<0.310
# of Detections of Analytes with No Standards:						0	0	0	0	0	0	0	**1**	0	0
Volatile organic compounds		ppm=mg/kg													
1,1,1-Trichloroethane [f]	0.68	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
1,1-Dichloroethane [f]	0.27	19	26	240	480	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
1,1-Dichloroethene[f]	0.33	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
1,2-Dichlorobenzene[f]	1.1	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
1,2-Dichloroethane	0.02[c]	2.3	3.1	30	60	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
cis -1,2-Dichloroethene [f]	0.25	59	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
trans-1,2-Dichloroethene [f]	0.19	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
1,3-Dichlorobenzene[f]	2.4	17	49	280	560	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
1,4-Dichlorobenzene	1.8	9.8	13	130	250	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
1,4-Dioxane	0.1 [b]	9.8	13	130	250	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Acetone	0.05	100[a]	100[b]	500[b]	1,000[c]	<0.0172	<.0214	<.0170	<.0157	<.0227	<.0227	**0.0243**	<.0208	<.0175	<.0168
Benzene	0.06	2.9	4.8	44	89	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	**1.79**	<.00336
n-Butylbenzene [f]	12	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Carbon tetrachloride [f]	0.76	1.4	2.4	22	44	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Chlorobenzene	1.1	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Chloroform	0.37	10	49	350	700	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Ethylbenzene[f]	1	30	41	390	780	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	**.0026 J**	<.00336
Hexachlorobenzene [f]	0.33[b]	0.33[e]	1.2	6	12	<0.00344	<.00429	<.00354	<.00315	<.00453	<0.376	<.00394	<.00416	<.00350	<.00336
Methyl ethyl ketone	0.12	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Methyl tert-butyl ether [f]	0.93	62	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Methylene chloride	0.05	51	100[a]	500[b]	1,000[c]	<0.00859	<.0107	<.00885	<.00787	<.0113	<.00453	<.00985	<.0104	<.00876	<.00841
n - Propylbenzene [f]	3.9	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
sec-Butylbenzene [f]	11	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
tert-Butylbenzene[f]	5.9	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Tetrachloroethene	1.3	5.5	19	150	300	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Toluene	0.7	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	**0.0081**	<.00336
Trichloroethene	0.47	10	21	200	400	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
1,2,4-Trimethylbenzene [f]	3.6	47	52	190	380	<0.00859	<.0107	<.00706	**.00217 J**	<.0113	<.0113	**0.00345 J**	<.0104	**0.0181**	<.00841
1,3,5-Trimethylbenzene[f]	8.4	47	52	190	380	<0.00859	<.0107	<.00885	<.00787	<.0113	<.0113	**0.00257 J**	<.0104	**0.00719**	<.00841
Vinyl chloride[f]	0.02	0.21	0.9	13	27	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	<.00394	<.00416	<.00350	<.00336
Xylene (mixed)	0.26	100[a]	100[a]	500[b]	1,000[c]	<0.00344	<.00429	<.00354	<.00315	<.00453	<.00453	**0.00507 J**	<.00416	**0.0208**	<.00336
Naphthalene [f]	12	100[a]	100[a]	500[b]	1,000[c]	<0.00859	<.0107	<.00706	<.00787	<.0113	<0.376	**0.01**	<.0104	**.00693 J**	<.00841
# of Detections of Analytes with No Standards:						0	0	0	0	0	0	0	0	0	0
Metals		ppm=mg/kg													
Arsenic	13 [c]	16[f]	16[f]	16[f]	16[f]	**1.57**	--	**2.04**	--	**3.41**	**6.87**	--	**3.91**	--	**1.35**
Barium	350 [c]	350[f]	400	400	10,000 [d]	<9.20	--	**18.3**	--	**62.4**	**91.6**	--	**105**	--	<10.4
Beryllium	7.2	14	72	590	2700	<0.460	--	<0.527	--	**0.421**	**0.677**	--	<0.332 J	--	<0.520
Cadmium	2.5 [c]	2.5[f]	4.3	9.3	60	<0.460	--	<0.527	--	**0.285**	**0.36 J**	--	**0.332**	--	<0.520
Chromium, hexavalent [e]	1[b]	22	110	400	800	<1.0	--	<1.1	--	<1.1	< 1.3	--	<1.1	--	<0.12
Chromium, trivalent [e]	30 [c]	36	180	1,500	6,800	**3.11**	--	**5.13**	--	**14.4**	**21.1**	--	**9.53**	--	**4.61**
Copper	50	270	270	270	10,000 [d]	**5.89**	--	**7.2**	--	13	**19.3**	--	**12.9**	--	**6.54**
Total Cyanide [e, f]	27	27	27	27	10,000 [d]	<0.50	--	<0.53	--	<0.54	< 0.61	--	<0.54	--	**.0067 J**
Lead	63 [c]	400	400	1,000	3,900	**5.22**	--	**8.27**	--	**27**	**10.4**	--	**290**	--	**7.29**
Manganese	1600 [c]	2,000[f]	2,000[f]	10,000 [d]	10,000 [d]	**205**	--	**266**	--	**577**	**460**	--	**304**	--	**223**
Total Mercury	0.18 [c]	0.81[f]	0.81[f]	2.8[f]	5.7[f]	<0.0082	--	<0.0085	--	<0.0081	0.0087 J	--	**4.41**	--	<0.00085
Nickel	30	140	310	310	10,000 [d]	<3.68	--	**4.11**	--	**8.47**	**23.7**	--	**6.66**	--	**2.95**
Selenium	3.9[c]	36	180	1500	6800	<0.920	--	<1.05	--	**1.21**	**1.42**	--	**1.33**	--	**0.624**
Silver	2	36	180	1500	6800	<0.920	--	<1.05	--	<1.14	< 1.33	--	**0.959**	--	<1.04
Zinc	109 [c]	2200	10,000 [d]	10,000 [d]	10,000 [d]	**55.5**	--	**78.1**	--	**75**	**76.3**	--	**150**	--	**64.4**
PCBs/Pesticides		ppm=mg/kg													
2,4,5-TP Acid (Silvex)[f]	3.8	58	100[a]	500[b]	1,000[c]	< 5.1	--	<5.4	--	< 5.6	<6.3	--	< 5.5	--	NA
4,4'-DDE	0.0033 [b]	1.8	8.9	62	120	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
4,4'-DDT	0.0033 [b]	1.7	7.9	47	94	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
4,4'-DDD	0.0033 [b]	2.6	13	92	180	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Aldrin	0.005 [c]	0.019	0.097	0.68	1.4	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
alpha-BHC	0.02	0.097	0.48	3.4	6.8	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
beta-BHC	0.036	0.072	0.36	3	14	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Chlordane (alpha)	0.094	0.91	4.2	24	47	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
delta-BHC [g]	0.04	100[a]	100[a]	500[b]	1,000[c]	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Dibenzofuran [f]	7	14	59	350	1,000[c]	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Dieldrin	0.005[c]	0.039	0.2	1.4	2.8	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Endosulfan I[d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Endosulfan II[d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Endosulfan sulfate[d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Endrin	0.014	2.2	11	89	410	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Heptachlor	0.042	0.42	2.1	15	29	<.00294	--	<.00304	--	<.00377	<.00377	--	<.00334	--	<.00312
Lindane	0.1	0.28	1.3	9.2	23	NA	--	NA	--	NA	<.00377	--	NA	--	NA
Polychlorinated biphenyls	0.1	1	1	1	25	<.0294	--	<.0304	--	<.00377	<.00377	--	<.00334	--	<.00312

TABLE 4-2
SUMMARY LABORATORY DATA - MOB SITE
TEST PIT ASSESSMENT SEPTEMBER 2012

Contaminant	Unrestricted Use	Protection of Public Health: Residential	Restricted-Residential	Commercial	Industrial	TP-07 9.5 ft	TP-08 7 ft	TP-08 14 ft	TP-09 0-3 ft	TP-10 0-2.5 ft	TP-10 9 ft	TP-10 10 ft	TP-11 9.5 ft	TP-12 6 ft	TP-12 12 ft
Semivolatile organic compounds		ppm=mg/kg													
Acenaphthene	20	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	**0.445**	**19.5**	<0.362	<0.325	--	--
Acenapthylene [f]	100 [a]	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--	--
Anthracene [f]	100 [a]	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	**0.597**	**25.6**	<0.362	<0.325	--	--
Benz(a)anthracene [f]	1[c]	1[f]	1[f]	5.6	11	--	<0.325	--	<0.301	**1.48**	**48.6**	<0.362	<0.325	--	--
Benzo(a)pyrene	1[c]	1[f]	1[f]	1[f]	1.1	--	<0.325	--	<0.301	**1.28**	**39.3**	<0.362	<0.325	--	--
Benzo(b)fluoranthene[f]	1[c]	1[f]	1[f]	5.6	11	--	<0.325	--	<0.301	**1.32**	**38.1**	<0.362	<0.325	--	--
Benzo(g,h,i)perylene [f]	100	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	**0.745**	**20.3**	<0.362	<0.325	--	--
Benzo(k)fluoranthene[f]	0.8 [c]	1	3.9	56	110	--	<0.325	--	<0.301	**0.94**	**31.7**	<0.362	<0.325	--	--
Chrysene [f]	1[c]	1[f]	3.9	56	110	--	<0.325	--	<0.301	**1.55**	**48.6**	<0.362	<0.325	--	--
Dibenz(a,h)anthracene[f]	0.33 [b]	0.33[e]	0.33[e]	0.56	1.1	--	<0.325	--	<0.301	**0.217 J**	**5.8 J**	<0.362	<0.325	--	--
Fluoranthene [f]	100 [a]	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	**3.18**	**100**	<0.362	**0.196 J**	--	--
Fluorene	30	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	**.276 J**	**14.8**	<0.362	<0.325	--	--
Indeno(1,2,3-cd)pyrene [f]	0.5 [c]	0.5[f]	0.5[f]	5.6	11	--	<0.325	--	<0.301	**1.05**	**27.4**	<0.362	<0.325	--	--
m-Cresol [f]	0.33 [b]	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--	--
Naphthalene [f]	12	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	<0.338	**8.32**	<0.362	<0.325	--	--
o-Cresol [f]	0.33 [b]	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--	--
p-Cresol [f]	0.33 [b]	34	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--	--
Pentachlorophenol	0.8[b]	2.4	6.7	6.7	55	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--	--
Phenanthrene [f]	100	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	**2.03**	**96**	<0.362	<0.325	--	--
Phenol	0.33[b]	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	<0.338	<7.93	<0.362	<0.325	--	--
Pyrene[f]	100	100[a]	100[a]	500[b]	1,000[c]	--	<0.325	--	<0.301	**2.61**	**80.6**	<0.362	<0.325	--	--
# of Detections of Analytes with No Standards:						0	0	0	0	**3**	**3**	0	0	0	0
Volatile organic compounds		ppm=mg/kg													
1,1,1-Trichloroethane [f]	0.68	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
1,1-Dichloroethane [f]	0.27	19	26	240	480	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
1,1-Dichloroethene[f]	0.33	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
1,2-Dichlorobenzene[f]	1.1	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
1,2-Dichloroethane	0.02[c]	2.3	3.1	30	60	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
cis -1,2-Dichloroethene [f]	0.25	59	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
trans-1,2-Dichloroethene [f]	0.19	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
1,3-Dichlorobenzene[f]	2.4	17	49	280	560	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
1,4-Dichlorobenzene	1.8	9.8	13	130	250	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
1,4-Dioxane	0.1 [b]	9.8	13	130	250	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Acetone	0.05	100[a]	100[b]	500[b]	1,000[c]	<.0197	<.0150	<.0231	<.0186	**0.105 B**	**0.128 B**	<.0210	**0.0161 J B**	<.0182	<.0260
Benzene	0.06	2.9	4.8	44	89	**.00281 J**	<.00301	**0.0142**	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
n-Butylbenzene [f]	12	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	**0.0138**
Carbon tetrachloride [f]	0.76	1.4	2.4	22	44	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Chlorobenzene	1.1	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Chloroform	0.37	10	49	350	700	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Ethylbenzene[f]	1	30	41	390	780	**0.0538**	<.00301	**0.00322 J**	<.00371	<.00397	**0.0103**	<.00419	<.00496	<.00364	<.00423
Hexachlorobenzene [f]	0.33[b]	0.33[e]	1.2	6	12	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Methyl ethyl ketone	0.12	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	**.0152 J**	**.0243 J**	<.00419	<.00496	<.00364	<.00423
Methyl tert-butyl ether [f]	0.93	62	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Methylene chloride	0.05	51	100[a]	500[b]	1,000[c]	<.00987	<.00752	<.0115	<.00928	<.00992	<.0136	<0.0105	<.0124	<.0091	<.0106
n - Propylbenzene [f]	3.9	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	**0.0186**
sec-Butylbenzene [f]	11	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	**0.0394**
tert-Butylbenzene[f]	5.9	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Tetrachloroethene	1.3	5.5	19	150	300	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Toluene	0.7	100[a]	100[a]	500[b]	1,000[c]	<.00395	<.00301	**0.0149**	<.00371	<.00397	**0.00797**	<.00419	<.00496	<.00364	<.00423
Trichloroethene	0.47	10	21	200	400	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
1,2,4-Trimethylbenzene [f]	3.6	47	52	190	380	<.00987	<.00752	<.0115	<.00928	**.0033 J**	**0.0196**	<.00419	<.0124	<.0091	**0.0173**
1,3,5-Trimethylbenzene[f]	8.4	47	52	190	380	<.00987	<.00752	<.0115	<.00928	<.00397	**0.0067**	<.00419	<.0124	<.0091	**0.00431**
Vinyl chloride[f]	0.02	0.21	0.9	13	27	<.00395	<.00301	<.00462	<.00371	<.00397	<.00543	<.00419	<.00496	<.00364	<.00423
Xylene (mixed)	0.26	100[a]	100[a]	500[b]	1,000[c]	**0.3778**	<.00301	**0.0212**	<.00371	<.00397	**0.01992**	<.00419	<.00496	<.00364	<.00423
Naphthalene [f]	12	100[a]	100[a]	500[b]	1,000[c]	<.00987	<.00752	**0.0113 J**	<.00371	.00636 J	**0.533**	<0.0105	<.0124	<.0091	<.0106
# of Detections of Analytes with No Standards:						0	0	0		1	**3**	0	0	0	0
Metals		ppm=mg/kg													
Arsenic	13 [c]	16[f]	16[f]	16[f]	16[f]	--	<1.03	--	**1.31 D**	**5.81**	**3.11**	**4.29**	**4.54**	--	--
Barium	350 [c]	350[f]	400	400	10,000 [d]	--	<10.3	--	**13.4**	**86.2**	**113**	**83.6**	**140**	--	--
Beryllium	7.2	14	72	590	2700	--	<0.516	--	<0.485	**0.384 J**	**0.59**	**0.478 J**	**0.887**	--	--
Cadmium	2.5 [c]	2.5[f]	4.3	9.3	60	--	<0.516	--	<0.485	**0.647**	<0.660	<0.621	<0.635	--	--
Chromium, hexavalent [e]	1[b]	22	110	400	800	--	<1.2	--	<1.3	<1.2	<1.4	<1.3	<1.2	--	--
Chromium, trivalent [e]	30 [c]	36	180	1,500	6,800	--	**4.42**	--	**3.56**	**15.8**	**88.4**	**15.2**	**27.7**	--	--
Copper	50	270	270	270	10,000 [d]	--	**6.73**	--	**8.36**	**34.1**	**43.6**	**15**	**21**	--	--
Total Cyanide [e, f]	27	27	27	27	10,000 [d]	--	**.0072 J**	--	<0.061	**.0069 J**	**.0081 J**	**.0074 J**	<0.62	--	--
Lead	63 [c]	400	400	1,000	3,900	--	**6.73**	--	**8.81 D**	**158**	**34**	**12.7**	**12.8**	--	--
Manganese	1600 [c]	2,000[f]	2,000[f]	10,000 [d]	10,000 [d]	--	**6.57**	--	**233**	**309**	**366**	**459**	**542**	--	--
Total Mercury	0.18 [c]	0.81[f]	0.81[f]	2.8[f]	5.7[f]	--	**242**	--	**0.0401**	**0.242**	**2.11**	**0.018**	**0.103**	--	--
Nickel	30	140	310	310	10,000 [d]	--	**2.95**	--	**2.67**	**11.5**	**18.1**	**16.4**	**29.2**	--	--
Selenium	3.9[c]	36	180	1500	6800	--	<1.03	--	<0.970	**0.933**	**1.51**	**1.7**	**2.16**	--	--
Silver	2	36	180	1500	6800	--	<1.03	--	<0.970	<1.17	**1.04**	<1.24	<1.26	--	--
Zinc	109 [c]	2200	10,000 [d]	10,000 [d]	10,000 [d]	--	**66.7**	--	**47.6**	**197**	**168**	**68.5**	**69.7**	--	--
PCBs/Pesticides		ppm=mg/kg													
2,4,5-TP Acid (Silvex)[f]	3.8	58	100[a]	500[b]	1,000[c]	--	NA	--	< 6.2	<.0058	<.0058	<.0064	NA	--	--
4,4'-DDE	0.0033 [b]	1.8	8.9	62	120	--	<.00323	--	<.00305	**.00338 C**	<.00411	<.00360	**0.00938**	--	--
4,4'-DDT	0.0033 [b]	1.7	7.9	47	94	--	<.00323	--	<.00305	**0.0113**	**0.0286**	<.00360	**0.00342 J**	--	--
4,4'-DDD	0.0033 [b]	2.6	13	92	180	--	<.00323	--	<.00305	**.0143 C**	<.00411	<.00360	<.00361	--	--
Aldrin	0.005 [c]	0.019	0.097	0.68	1.4	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
alpha-BHC	0.02	0.097	0.48	3.4	6.8	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
beta-BHC	0.036	0.072	0.36	3	14	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
Chlordane (alpha)	0.094	0.91	4.2	24	47	--	<.00323	--	<.00305	**.00154 C**	**.00448 C**	<.00360	<.00361	--	--
delta-BHC [g]	0.04	100[a]	100[a]	500[b]	1,000[c]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
Dibenzofuran [f]	7	14	59	350	1,000[c]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
Dieldrin	0.005[c]	0.039	0.2	1.4	2.8	--	<.00323	--	<.00305	**.00397 C**	**.0143 C**	<.00360	<.00361	--	--
Endosulfan I[d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
Endosulfan II[d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
Endosulfan sulfate[d, f]	2.4	4.8[f]	24[f]	200[f]	920[f]	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
Endrin	0.014	2.2	11	89	410	--	<.00323	--	<.00305	**.00684 C**	**6.84 C**	<.00360	<.00361	--	--
Heptachlor	0.042	0.42	2.1	15	29	--	<.00323	--	<.00305	<.00338	<.00411	<.00360	<.00361	--	--
Lindane	0.1	0.28	1.3	9.2	23	--	NA	--	NA	<.00338	<.00411	<.00360	NA	--	--
Polychlorinated biphenyls	0.1	1	1	1	25	--	<.0323	--	<.0305	**0.0665**	**0.1805**	<0.036	<.0361	--	--



LEGEND

- BCA Boundary
- Approximate Location of Test Pits
- Estimated Limits of Excavation to meet Commercial Use Criteria
- Approximate Location of Removed USTs

Approximate Extent of "Fill" and "Native" Material

- Deep Fill Material
- Native Soil / Shallow Fill

Approximate Fill Depth Contours (feet below ground surface)

- <2 feet
- >10 feet

- Geotechnical / Environmental Boring
- Monitoring Well
- MW-08, 10-25 FT — Depth to Contamination
  ND = Not Detected (See Note #5)

NOTES

1) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

2) The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities, either in service or abandoned. The surveyor has not physically located the underground utilities.

3) Coordinate System: NAD 1983 StatePlane New York West FIPS 3103 Ft
Projection: Transverse Mercator
Datum: North American 1983
Units: Foot US

4) Depths of contamination are based on PID readings greater than 50 ppm from past site investigations .

5) No detection is defined as no evidence of soil contamination either through PID or lab analysis .

FILL NOTE

1) Fill material is generally composed of clay, sand and silt with pieces of concrete and brick, some slag and gravel. Wood found in MW-29 and possible concrete foundation in CB-02. Black staining noted in KS-19.

TEST PIT NOTES

1) Two objectives for conducting test pit samplings: (1) delineate "fill" material and "native" material for offsite use; (2) to assess the potential varability of fill across the site.

2) Between 2 to 4 samples will be collected at each test pit. Soil samples will be analyzed for VOCs and full parameters outlined in DER-10. Each test pit will be 10 to 20 ft long and is estimated to end approximately 10 ft below grade.

0 10 20 40 Feet

C&S COMPANIES®
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KALEIDA HEALTH
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Suite 200
Buffalo, New York 14210

N

MOB - BROWNFIELD CLEANUP PROGRAM

CITY OF BUFFALO, NY

PROJECT NO:	K11.002.001
DATE:	OCTOBER 15, 2012
SCALE:	1 IN = 20 FT
DRAWN BY:	CAM
DESIGNED BY:	CAM
CHECKED BY:	MJC

TEST PIT LAYOUT AND APPROX. DEPTH OF FILL

FIGURE 1

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-01**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/24/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/24/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Exc. Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 8:39 AM
				Asphalt and Binder Surface	
1					
				SAND (brown - med - dry to moist - no Silt)	0 ppm
2			**0-3.0**		
				NATIVE	
3					
4					
5				***SAND (brown - med - dry to moist - no Silt)***	0 ppm
6				***NATIVE***	
7	S-1		**7.0**		
8					
9				***SAND (brown - med - dry to moist - no Silt)***	0 ppm
10				***NATIVE***	
11	S-2		**11.0**		
12				***Samples collected for the following analysis:***	Backfill - 8:52 AM
13				***1. VOC (EPA Method 8260)***	
14				***2. SVOC (EPA Method 8270)***	
15				***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
16				***4. PCB (EPA Method 8082)***	
17				***5. Pesticides (EPA Method 8082)***	
18				***6. Herbicides (EPA Method 8151)***	
19				***7. Cyanide (EPA Method 9012A)***	
20				***8. Hex Chome (EPA Method 7196)***	
21				***Samples collected for TP-01 include:***	
22				***S-1: 7.0 ft***	
23				***S-1: 11.0 ft (VOC Only)***	
24					
25					

C&S COMPANIES	**C&S Engineers, Inc.** 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**		***Test Pit No.***	**TP-02**
				Sheet 1 of:	1
				Project No.:	K11.002.001
Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/24/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/24/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 8:00 AM
				Asphalt and Binder Surface	
1					
				Silty SAND (some 20-35% Silt - brown - dry)	0 ppm
2			**0-3.0**		
				NATIVE	
3					
4					
5				***Clay SILT (little 10-20% Clay - reddish brown - moist - low to med plasticity***	0 ppm
6					
7			**7.5**	***NATIVE***	
8	S-1		**8.0**	***Sandy SILT with chunks of Silt (brown to reddish - trace 0-10% Clay - moist) NATIVE***	0 ppm
9				***Sandy SILT with chunks of Silt (brown to reddish - trace 0-10% Clay - moist) Sand (brown - fine - dry)***	0 ppm
10			**10.0**	***NATIVE***	
11				***SAND (lt brown - dry - med)***	0 ppm
12	S-2		**12.0**	***NATIVE***	
13					Backfill - 8:22 AM
14				***Samples collected for the following analysis:*** ***1. VOC (EPA Method 8260)***	
15				***2. SVOC (EPA Method 8270)*** ***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
16				***4. PCB (EPA Method 8082)*** ***5. Pesticides (EPA Method 8082)***	
17				***6. Herbicides (EPA Method 8151)*** ***7. Cyanide (EPA Method 9012A)***	
18				***8. Hex Chome (EPA Method 7196)***	
19				***Samples collected for TP-02 include:*** ***S-1: 8.0 ft***	
20				***S-2: 12.0 ft (VOC Only)***	
21					
22					
23					
24					
25					

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-03**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/24/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/24/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 9:00 AM
				Top Soil	
1					0 ppm
2			**0-3.0**	***Asphalt pavement @ 2 ft. Disconnected pipes and hoses.***	
3				***Clay SILT (little 10-20% Clay - brown - moist to wet - low plasticity) w/0.25" Gravel (black - subrounded) FILL***	
4				**"EARTHEN FILL"**	
5				***Same as previous w/ crushed C&D 0.125" and smaller - wet***	0 ppm
6	S-1		**6.0**	***w/larger red bricks and concrete piceces FILL***	
7					unstable sidewalls
8					
9			**9.0**	***Silty CLAY (brown - 0.125" to 0.25" C&D - wet - med plasticity FILL***	0 ppm
10				***10:00 AM broke through 4" concrete basement floor @ 10 ft NATIVE***	
11			**11.0**	***Silty SAND (fine Sand - brown - moist - some 20-35% Clay)***	8.0 ppm
				Clay (moist - soft - high plasticity - red brown) No C&D	petroleum odor
12					
13					Backfill - 9:45 AM
14				***Samples collected for the following analysis:***	
15				***1. VOC (EPA Method 8260)***	
16				***2. SVOC (EPA Method 8270)***	
17				***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
18				***4. PCB (EPA Method 8082)***	
19				***5. Pesticides (EPA Method 8082)***	
20				***6. Herbicides (EPA Method 8151)***	
21				***7. Cyanide (EPA Method 9012A)***	
22				***8. Hex Chome (EPA Method 7196)***	
23				***Samples collected for TP-03 include:***	
24				***S-1: 6.0 ft***	
25					

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-04**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/24/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/24/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 10:30 AM
				Asphalt and Binder Surface	
1					
2					
3			**0-5.0**	***Sandy SILT (trace fine Sand 0-1% - moist - brown)***	0.7 ppm
4				***NATIVE***	
5					
6					
7				***NATIVE***	
8	S-1		**8.0**	***Silty CLAY (reddish brown - soft - moist - high plasicity)***	5.7 ppm
9					
10				***NATIVE***	
11			**11.0**	***Same as previous w/ trace black coarse Sand and Gravel***	5.8 ppm
12					
13				***NATIVE***	
14	S-2		**14.0**	***Silty CLAY (brown - moist - some Clay mixed with black coarse Sand and Gravel)***	403 ppm
15					Backfill - 10:50 AM
16				***Samples collected for the following analysis:***	
17				***1. VOC (EPA Method 8260)***	
18				***2. SVOC (EPA Method 8270)***	
19				***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
20				***4. PCB (EPA Method 8082)***	
21				***5. Pesticides (EPA Method 8082)***	
22				***6. Herbicides (EPA Method 8151)***	
23				***7. Cyanide (EPA Method 9012A)***	
24				***8. Hex Chome (EPA Method 7196)***	
25					
				Samples collected for TP-04 include:	
				S-1: 8.0 ft	
				S-2: 14.0 ft (VOC Only)	

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-05**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/24/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/24/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 1:10 PM
				Asphalt and Binder Surface	
1					
				Sandy SILT (trace 0-1% Sand - dk brown - moist) w/ Clay	
2	S-1		**0-3.0**	***(brown - moist - soft - high plasticity)***	
3				***FILL***	
4				***NATIVE***	
5					
			6.0	***Sandy SILT (trace 0-1% fine Sand - brown - moist) w/ Clay***	
6				***(brown - moist - soft - high plasticity)***	
7				***NATIVE***	
			8.0	***Sandy SILT (trace 0-1% fine Sand - brown - moist) w/ Clay***	
8				***(brown - moist - soft - high plasticity)***	
9					
10					
11				***NATIVE***	
12					
13					
			14.0	***Sandy SILT (trace fine Sand - brown - moist - no Clay)***	
14					
15					Backfill - 1:22 PM
16				***Samples collected for the following analysis:***	
17				***1. VOC (EPA Method 8260)***	
				2. SVOC (EPA Method 8270)	
18				***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
19				***4. PCB (EPA Method 8082)***	
				5. Pesticides (EPA Method 8082)	
20				***6. Herbicides (EPA Method 8151)***	
21				***7. Cyanide (EPA Method 9012A)***	
				8. Hex Chome (EPA Method 7196)	
22				***Samples collected for TP-05 include:***	
23				***S-1: 0-3 ft***	
24					
25					

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-06**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/24/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/24/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 12:30 PM
				Asphalt and Binder Surface	
1					
				Silty SAND (fine - trace Silt - moist) w/ trace Gravel	0 ppm
2			**0-3.0**	***(dk grey - angular - 1")***	
3				***NATIVE***	
4					
5				***NATIVE***	
6					
7			**7.0**	***CLAY (reddish brown - dry - soft - high plasticity)***	0 ppm
8					
9				***NATIVE***	
10					
11			**11.0**	***CLAY (brown - moist - soft - high plasticity)***	0 ppm
12					
13				***NATIVE***	
14	S-1		**14.0**	***Silty SAND (trace Silt - dry - brown)***	0 ppm
15					Backfill - 1:00 PM
				Samples collected for the following analysis:	
16				***1. VOC (EPA Method 8260)***	
				2. SVOC (EPA Method 8270)	
17				***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
				4. PCB (EPA Method 8082)	
18				***5. Pesticides (EPA Method 8082)***	
				6. Herbicides (EPA Method 8151)	
19				***7. Cyanide (EPA Method 9012A)***	
				8. Hex Chome (EPA Method 7196)	
20					
				Samples collected for TP-06 include:	
21				***S-1: 14 ft (VOC Only)***	
22					
23					
24					
25					

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-07**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/26/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/26/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 10:00 AM
1				***Silty SAND (brown - fine to coarse - moist - some Clay) w/***	0 ppm
2			**0-3.0**	***trace Gravel 1-4" - subangular***	
3				***"EARTHEN FILL"***	
4				***NATIVE***	
5				***Sandy SILT (brown - moist - med Sand) grades into…***	0 ppm
6	S-1		**6.0**	***Silty CLAY (35-50% Clay - grey - soft - high plasticity - trace fine Sand - moist)***	
7					
8				***NATIVE***	
9	S-2		**9.5**	***Silty CLAY (reddish brown - dry - crumbes with pressure - high plasticity when moistened***	200 ppm
10					
11					
12				***NATIVE***	
13					
14			**14.0**	***Same as previous***	34 ppm
15					Backfill - 10:30 AM
16				***Samples collected for the following analysis:***	
				1. VOC (EPA Method 8260)	
17				***2. SVOC (EPA Method 8270)***	
				3. TAL Metals (EPA Method 6010, 7470, 7471)	
18				***4. PCB (EPA Method 8082)***	
				5. Pesticides (EPA Method 8082)	
19				***6. Herbicides (EPA Method 8151)***	
				7. Cyanide (EPA Method 9012A)	
20				***8. Hex Chome (EPA Method 7196)***	
21				***Samples collected for TP-07 include:***	
				S-1: 6 ft	
22				***S-2: 9.5 ft (VOC Only)***	
23					
24					
25					

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-08**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/26/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/26/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 8:15 AM
1				***Coarse SAND, SILT and GRAVEL (saturated - brown) Gravel***	0 ppm
2			**0-3.0**	***0.5" & smaller - grey to dy grey - subrounded***	
				"EARTHEN FILL"	
3				***Hit foundation drain. Water pouring into hole and causing unstable sidewalls. Vapor barrier @ 3.0 ft***	
4				***Sandy SILT (fine Sand - lt brown - trace Gravel (2" -***	0 ppm
5			**5.0**	***subangular - moist)***	
				NATIVE	
6					
7	S-1		**7.0**	***Sandy SILT (little 10-20% fine Sand - brown - moist)***	0 ppm
				NATIVE	
8			**8.0-9.0**	***Silty CLAY (reddish brown - soft - dry - some Silt)***	8.9 ppm
9				***NATIVE***	
10				***Strong fresh petroluem odor***	
11				***NATIVE***	
12					
13				***Sandy SILT (little 10-20% fine Sand - brown - moist)***	15,000 ppm
				with 7" of Silty CLAY (reddish brown - soft - dry - some Silt)	
14	S-2		**14.0**	***at bottom of bucket***	
				Fine brown Sand between layers	
15					Backfill - 8:45 AM
16				***Samples collected for the following analysis:***	
				1. VOC (EPA Method 8260)	
17				***2. SVOC (EPA Method 8270)***	
				3. TAL Metals (EPA Method 6010, 7470, 7471)	
18				***4. PCB (EPA Method 8082)***	
				5. Pesticides (EPA Method 8082)	
19				***6. Herbicides (EPA Method 8151)***	
				7. Cyanide (EPA Method 9012A)	
20				***8. Hex Chome (EPA Method 7196)***	
21				***Samples collected for TP-08 include:***	
				S-1: 7 ft	
22				***S-2: 14 ft (VOC Only)***	
23					
24					
25					

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-09**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/24/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/24/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 11:00 AM
				Asphalt and Binder Surface	
1				***Large grey limestone riprap on northern sidewall. Pea gravel***	
				and red tape found on east sidewall, excavation moved west.	
2	S-1		**0-3.0**		
				SAND (brown - fine - trace Silt) w/ 10-20% Gravel - 0.125"	0 ppm
3				***& smaller - angular - trace C&D - moist)***	
				"REFUSE FILL"	
4					
5					
			6.0	***Sandy SILT (trace fine Sand - brown - moist to wet)***	0 ppm
6				***NATIVE***	
7					
				NATIVE	
8					
			9.0	***Same as previous w/ Silty CLAY (reddish brown - dry - easily***	0 ppm
9				***molded - layered)***	
10				***NATIVE***	
			11.0	***Little Clay as previous described w/ Sandy SILT (brown - little***	0 ppm
11				***fine Sand - moist)***	
12					
13					Backfill - 11:30 AM
				Samples collected for the following analysis:	
14				***1. VOC (EPA Method 8260)***	
15				***2. SVOC (EPA Method 8270)***	
				3. TAL Metals (EPA Method 6010, 7470, 7471)	
16				***4. PCB (EPA Method 8082)***	
				5. Pesticides (EPA Method 8082)	
17				***6. Herbicides (EPA Method 8151)***	
				7. Cyanide (EPA Method 9012A)	
18				***8. Hex Chome (EPA Method 7196)***	
19				***Samples collected for TP-09 include:***	
				S-1: 0-3 ft	
20					
21					
22					
23					
24					
25					

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-10**
			Sheet 1 of:	1
			Project No.:	K11.002.001
Project Name:	Test Pit Investigation - MOB Site		***Start Date:***	9/25/12
Location:	MOB - 1001 Main Street	***Operator:*** LP Ciminelli	***Finish Date:***	9/25/12
Client:	Kaleida Properties	***Equipment:*** Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	c - coarse m - medium f - fine **MATERIAL DESCRIPTION** S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey a - and - 35-50% s - some - 20-35% l - little - 10-20% t - trace - 0-10%	**COMMENTS** (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 12:00 PM
				Asphalt and Binder Surface	
1					
				Reworked SAND, SILT, CLAY (trace fine Sand - trace Silt)	2.0 ppm
2	S-1		**0-2.5**	***35-50% Clay (reddish brown - med plasticity - moist) w/***	
				organic matter - dk brown - 1" & smaller C&D	
3				***FILL***	
				FILL	
4			**4.5**	***Clay LOAM (dk brown - reworked) w/ C&D 1" & larger***	41.1 ppm
				4" concrete piceces	
5					
6				***"URBAN WASTE" FILL***	
7					
			8.0	***Same as previous mostly concrete piceces, fiberous***	13.2 ppm
8				***material, tile and metal***	
	S-2		**9.0**	***Same as previous - collected sample of black material from***	14.2 ppm
9				***pile at depth recorded PID = 17.1 ppm FILL***	
	S-3		**10.0**	******* ***4" thick concrete basement*** **********	
10				***SILT (brown/tan - dry mixed with Silty CLAY (little Silt - soft -***	0.4 ppm
				high plasticity - moist)	
11				***NATIVE***	Backfill - 1:00 PM
12					
13					
				Samples collected for the following analysis:	
14				***1. VOC (EPA Method 8260)***	
				2. SVOC (EPA Method 8270)	
15				***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
				4. PCB (EPA Method 8082)	
16				***5. Pesticides (EPA Method 8082)***	
				6. Herbicides (EPA Method 8151)	
17				***7. Cyanide (EPA Method 9012A)***	
				8. Hex Chome (EPA Method 7196)	
18					
19				***Samples collected for TP-10 include:***	
				S-1: 0-2.5 ft	
20				***S-2: 9 ft***	
				S-3: 10 ft	
21					
				TCLP Sample Collected from 4 - 9 ft	
22					
23					
24					
25					

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-11**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/26/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/26/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 7:00 AM
				Asphalt and Binder Surface	7:30 AM - Hit utility line for emergency phone
1				***Reworked SAND, SILT, CLAY - mostly Clay (reddish brown -***	0.8 ppm
2			**0-3.0**	***soft) - trace Sand - some 20-35% Silt crumb structure [loam]***	
3				***FILL***	
4					
5				***"URBAN WASTE" FILL***	
6					
7			**7.0**	***Same as previous with trace of med Sand and CLAY***	0 ppm
8				***(reddish brown and dk grey) w/ C&S 1.5" & larger - moist***	
9	S-1		**9.5**	***FILL***	
10			**10.0**	***Reworked SAND, SILT, CLAY - mostly Clay (reddish brown -***	6.2 ppm
11				******* ***Broke through 4" concrete basement floor @ 10 ft **********	
12				***NATIVE***	
13			**13.0**	***Silty SAND (tan/brown - fine - moist)***	0 ppm
14					Backfill - 8:00 AM
15				***Samples collected for the following analysis:***	
16				***1. VOC (EPA Method 8260)***	
17				***2. SVOC (EPA Method 8270)***	
18				***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
19				***4. PCB (EPA Method 8082)***	
20				***5. Pesticides (EPA Method 8082)***	
21				***6. Herbicides (EPA Method 8151)***	
22				***7. Cyanide (EPA Method 9012A)***	
23				***8. Hex Chome (EPA Method 7196)***	
24				***Samples collected for TP-11 include:***	
25				***S-1: 9.5 ft***	
				TCLP Sample Collected from 0 - 13 ft	

C&S COMPANIES	C&S Engineers, Inc. 90 Broadway Buffalo, New York 14203 Phone: 716-847-1630 Fax: 716-847-1454 www.cscos.com	**TEST PIT**	***Test Pit No.***	**TP-12**
			Sheet 1 of:	1
			Project No.:	K11.002.001

Project Name:	Test Pit Investigation - MOB Site			***Start Date:***	9/26/12
Location:	MOB - 1001 Main Street	***Operator:***	LP Ciminelli	***Finish Date:***	9/26/12
Client:	Kaleida Properties	***Equipment:***	Track mounted Exc.	***Inspector:***	C. Martin

Depth (ft)	Sample No.	Symbol	Sample Depth	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey	COMMENTS (e.g., caving of sidewalls, excavation difficulties, PID readings)
					Start- 10:30 AM
				Asphalt and Binder Surface	
1					
2				***Silty SAND (med Sand - trace Silt) with 0-1% Gravel - dk grey***	1.7 ppm
3			**0-4.0**	***subangular - 2" & smaller - moist***	
4				***"EARTHEN FILL"***	
5				***NATIVE***	
6	S-1		**6.0**	***Silty SAND (fine Sand - some Silt - moist) w/ 0-1% Gravel***	4 ppm
7				***0.5" & smaller - dk grey - subangular***	
8				***NATIVE***	
9					
10			**10.0**	***Sandy SILT (dk brown - moist - some Clay - low to med***	74 ppm
11				***plasticity) w/ little Gravel (0.125" - subangular)***	
12	S-2		**12.0**	***NATIVE*** ***Same as previous some Clay pieces (soft - high plasticity -*** ***moist - reddish brown) Gravel (0-1% - 3" - subangular -*** ***dk grey) Black stained Sand***	160 ppm strong petroluem odor
13					
14					Backfill - 10:48 AM
15				***Samples collected for the following analysis:***	
16				***1. VOC (EPA Method 8260)*** ***2. SVOC (EPA Method 8270)*** ***3. TAL Metals (EPA Method 6010, 7470, 7471)***	
17				***4. PCB (EPA Method 8082)*** ***5. Pesticides (EPA Method 8082)***	
18				***6. Herbicides (EPA Method 8151)*** ***7. Cyanide (EPA Method 9012A)***	
19				***8. Hex Chome (EPA Method 7196)***	
20				***Samples collected for TP-12 include:*** ***S-1: 6 ft (VOC Only)***	
21				***S-1: 12 ft (VOC Only)***	
22					
23					
24					
25					

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
1	9/24/2012

Description:

Looking southeast at TP-02.

MOB Site - Test Pit Investigation

Exhibit:	Date:
2	9/24/2012

Description:

View of excavation spoils from TP-01.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
3	9/24/2012

Description:

View of TP-01. Note - less than 2 feet of fill and subsurface soils consists of native material.

MOB Site - Test Pit Investigation

Exhibit:	Date:
4	9/24/2012

Description:

View of excavation soils from TP-03 at approximately 3 ft deep.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
5	9/24/2012

Description:

Excavation spoils from TP-03 at approximately 9 ft deep.

MOB Site - Test Pit Investigation

Exhibit:	Date:
6	9/24/2012

Description:

View of western side wall of TP-03.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
7	9/24/2012

Description:

Looking at TP-04. Excavation revealed less than 2 ft of fill, subsurface was predominately native material.

MOB Site - Test Pit Investigation

Exhibit:	Date:
8	9/24/2012

Description:

Excavation spoils from TP-04.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
9	9/24/2012

Description:

View of eastern sidewall of TP-09. Note - Grey limestone riprap.

MOB Site - Test Pit Investigation

Exhibit:	Date:
10	9/24/2012

Description:

Looking northeast at TP-09. Note - Less than 2 ft of fill, subsurface predominately native material.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
11	9/24/2012

Description:

Looking southwest at TP-06.

MOB Site - Test Pit Investigation

Exhibit:	Date:
12	9/24/2012

Description:

View of TP-05 and excavated spoils. Note - Less than 2 ft of fill with the subsurface consisting predominately of native material.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
13	9/25/2012

Description:

View northeast of TP-10.

MOB Site - Test Pit Investigation

Exhibit:	Date:
14	9/25/2012

Description:

Excavated spoils from TP-10.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
15	9/26/2012

Description:

TP-11 excavated to approximately 3 ft.

MOB Site - Test Pit Investigation

Exhibit:	Date:
16	9/26/2012

Description:

View of excavated spoils from TP-11.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
17	9/26/2012

Description:

View of southern sidewall from TP-11.

MOB Site - Test Pit Investigation

Exhibit:	Date:
18	9/26/2012

Description:

Hit utility line for emergency phones.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
19	9/26/2012

Description:

Looking east at TP-08 and excavation spoils.

MOB Site - Test Pit Investigation

Exhibit:	Date:
20	9/26/2012

Description:

View of TP-07.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
21	9/26/2012

Description:

Looking at TP-07 excavated to 14 ft.

MOB Site - Test Pit Investigation

Exhibit:	Date:
22	9/26/2012

Description:

View north at TP-12.

MOB Site - Test Pit Investigation

PHOTOGRAPHIC LOG

ATTACHMENT

Exhibit:	Date:
23	9/26/2012

Description:

View of the northern sidewall at TP-12. Note - less than 2 ft of fill and subsurface consisting predominately of native material.

MOB Site - Test Pit Investigation

ATTACHMENT 3

REMEDIAL INVESTIGATION/

INTERIM REMEDIAL MEASURE WORK PLAN

FOR
1001 MAIN STREET
(FORMER MOBIL SERVICE STATION 99-MST SITE # C915260)
CITY OF BUFFALO, ERIE COUNTY, NEW YORK

Prepared by:

C&S ENGINEERS, INC.
90 BROADWAY
BUFFALO, NEW YORK 14203

Prepared on Behalf of:

KALEIDA PROPERTIES
726 EXCHANGE STREET
LARKIN BUILDING
BUFFALO, NEW YORK 14210

F.L.C 50 HIGH STREET PROPERTIES
CENTERPOINTE CORPORATE PARK
350 ESSJAY ROAD, WILLIAMSVILLE, NEW YORK 14221

AUGUST 2012

TABLE OF CONTENTS

FIGURES

APPENDICIES

EXECUTIVE SUMMARY

This document presents the Remedial Investigations summary and Interim Remedial Measures work plan for the Brownfield Cleanup Program site located at 979-1001 Main Street, Buffalo, NY. The project details are summarized below:

Contaminant Source and Constituents

The contamination is sourced from a petroleum release from underground storage tanks associated with a former retail gasoline station. The station operated from approximately 1950 to 1982. The site is currently used for surface parking. Constituents requiring remediation are volatile organic compounds associated with gasoline; in particular benzene, toluene, ethyl-benzene and xylenes.

Extent of Contamination

Soil and groundwater have been impacted by the release of gasoline. Soil contamination generally extends from 10 feet below grade to 40 feet below grade, increasing in depth, and decreasing in thickness with distance from the release area. The contamination extends across approximately ½ of the site.

The shallowest site-wide formation for groundwater is generally found within a coarse sand and gravel layer that ranges from ½ to 5-feet thick and is found from 32 to 35 feet below grade. This zone is the main transport layer for contamination beneath the site and is semi-confined by a fine – medium sand and silt above and silt and clay below. Light non-aqueous phase liquid (i.e. residual gasoline product) is also present in this formation in the central area of the site.

Interim Remedy

Numerous studies and remedial activities have occurred on the site over the past ten years. Soil vapor extraction and total fluids removal (high vacuum extraction) have had limited effect. To facilitate the development of the site for a large scale office building, **the project has set a goal of meeting Commercial Use Soil Cleanup Objectives** for the site. To achieve this, the project developers will complete the following interim remedial measures:

1. Installation of both permanent and temporary lag and pile steel sheeting shoring to achieve and excavation depth of up to 42 feet.

2. Removal of approximately 16,000 cu.yds. of contaminated soil for off-site disposal or treatment and a regulated facility. Removal of approximately 11,000 cu.yds. of uncontaminated urban fill/soil for offsite reuse.

3. Dewatering of the excavation area; removal of product for off-site disposal; and on-site treatment of contaminated groundwater for discharge into the sanitary sewer system (under permit from the Buffalo Sewer Authority).

4. Confirmatory soil sampling of the excavation walls (where exposed) and bottom to show compliance with the Commercial Use Soil Cleanup Objective.

1 INTRODUCTION

This Remedial Investigation/ Interim Remedial Measures ("IRM") Work Plan provides a summary of nature and extent of contamination and a description of the procedures that will be implemented for the remediation of contaminated soil and groundwater under the assigned New York State Department of Environmental Conservation ("NYSDEC") Site #C915260. This IRM has been prepared in accordance with Division of Environmental Remediation ("DER")-10 "Technical Guidance for Site Investigation and Remediation." The remedial activities described in the IRM are in accordance with accepted remedies outlined in DER-15 "Presumptive/Proven Remedial Technologies" that will protect both the environment and the health of the local community. To effectively describe the environmental conditions and remedial activities this IRM will cover the following:

- Description of the current and historic site conditions;
- Summary of contaminants of concern and the extent of the contamination;
- Description and sequence of the remedial activities;
- Quality controls and protocols for analytical sampling;
- Description of the health and safety procedures to protect site workers and the local community and
- Description of community participation activities.

C&S Engineers, Inc ("C&S") has prepared this IRM on behalf of the co-applicants of the BCP Kaleida Health, Kaleida Properties and F.L.C 50 High Street Properties. This IRM presents the remedial activities on petroleum-impacted soil, light non-aqueous phase liquids ("LNAPL"), and groundwater covered under the NYS DEC Site #C915260.

This spill is located on four parcels and a portion of a fifth parcel. The BCP applicants have submitted a subdivision application to the City of Buffalo to combine the block bounded by Main, High, Goodrich and Ellicott Streets into two parcels (1001 Main Street and 818 Ellicott Street). The western parcel (addressed as 1001 Main Street) is planned to be re-developed by F.L.C 50 High Street Properties as a medical office building ("MOB") and totals 1.4 acres.

The Brownfield Cleanup Agreement signed by the co-applicants on June 15, 2012 outlines the extent of the remedial activities to be covered under the BCP. In order to effectively remediate the spill, the area covered under the BCP, the BCP Project Area ("Site") includes the entire western parcel (1001 Main Street) and extends approximately 40 feet east onto the adjacent eastern parcel (818 Ellicott Street). Total acreage of the BCP Project Area "Site" is 1.7-acres. The intent of this IRM is to remediate the subsurface soils to meet Commercial Use Soil Cleanup Objectives ("SCO") standards as defined in NYCRR Part 375-6 and petroleum-impacted groundwater greater than 10,000 micrograms per liter ("ug/L") through excavation of soils and dewatering.

1.1 Site Description

The Site is located at 979- 1001 Main Street in the City of Buffalo, New York. The Site is primarily used as a parking lot for Buffalo General Medical Center ("BGMC"). The Site boundary is bordered by the following streets:

North-	Goodrich Street
East-	Approximately 315 ft from Ellicott Street (adjoining parking lot)
South-	High Street
West-	Main Street

The BCP boundary runs concurrently with the Site boundary to the north, south and west and totals 1.7 acres. The eastern border of the BCP boundary has been extended approximately 40 ft to the east. Figure 1-1 shows the boundaries of both the parcels and the Site.

1.2 Site History

Sanborn Maps of the area from 1889 to 1986 were reviewed for this project. From 1889 to 1986 the property has been used for numerous residential and commercial properties including:

- The University at Buffalo Medical and Dental School on the eastern portion of the property;
- A restaurant and hotel on the eastern portion of the property after the medical school left; and
- From 1950 to 1982 an Exxon-Mobil gas station was located at the southwestern corner of the property.

Petroleum releases from underground storage tanks associated with the former retail gasoline station were discovered on site in 1981. Significant site investigation, groundwater monitoring and remedial activities related to the gasoline release have been ongoing since 1996. Site remedial activities that have been implemented in the last 10 years include soil vapor extraction and total fluids removal (high vacuum extraction). These remedies have had limited effect in the overall reduction of contamination across the site.

The site is currently used for surface parking. Constituents that requiring remediation are volatile organic compounds associated with gasoline, in particular benzene, toluene, ethyl-benzene and xylenes.

2 SUMMARY OF ENVIRONMENTAL CONDITIONS

2.1 Nature and Extent of Contamination

Site fill, subsurface soil and groundwater have been impacted by petroleum hydrocarbons from the former Exxon-Mobil Service Station at the corner Main and High Streets. The nature and extent of these contaminants have been clearly defined as a result of more than 30 years of investigative and remedial activities at the Site. The majority of the data collected in the site investigations was provided in the BCP Application. Additional data collected to support the IRM approach since the submission of the IRM is summarized and provided as an attachment to this document.

2.1.1 Groundwater

Groundwater sampling has occurred quarterly or semi-annually since 1997, although a majority of the wells were installed in 2008. The sampling has shown that the dissolved BTEX contaminant plume has generally remained on-site, with the exception of VOCs present along the Goodrich Street right of way in the area of MW-02. However, sampling has also shown that since the cessation of remedial actions in 2008, the LNAPL plume has moved from the eastern side of the Site, to the central and western side of the Site (Figure 2-1).

To confirm that S ite contaminants are limited to petroleum hydrocarbons, a groundwater sampling event was completed in the fall of 2011. Groundwater samples were collected from selected monitoring wells across the Site as well as off-site along Goodrich Street. The samples were subsequently analyzed for full target compound list and target analytic list set of parameters to evaluate the potential presence for COCs other than petroleum hydrocarbons at the Site. Analytical results indicated that the Site COCs are limited to petroleum hydrocarbons.

Appendix A provides a summary of the analytical results from the fall 2011 sampling event.

The shallowest site-wide formation for groundwater is generally found within a coarse sand and gravel layer that ranges from ½ to 5-feet thick and is found from 32 to 35 feet below grade. This zone is the main transport layer for contamination beneath the site and is semi-confined by fine – medium sand and silt above and silt and clay below. LNAPL (i.e. residual gasoline product) is also present in this formation in the central area of the site.

In January – February of 2012, hydrology studies were completed for the Site to establish potential subsurface flow conditions that may affect dewatering to the site during remediation. These studies identified several conditions with the site hydrology:

1. While previous studies had established areas of saturated soil and had identified the contaminant transport zone to be in the coarse sand and gravel layer between 32 and 35 feet, deeper borings and wells established the this zone is semi confined, and that deeper zones of groundwater are present below 50 feet of depth and within the bedrock fracture system (approximately 100 feet depth). Wells screened within these discrete zones showed independent groundwater levels, indicating communication of groundwater between these zones is minimal.

2. Pumping rates within the formations both within the groundwater transport zone and below were very low. Maximum removal rates were approximately 1 quart per minute.

This indicates that while the dense sand and silt soils have porosity, its conductivity (ability to transmit water) is restricted.

Data from the 2012 hydrology studies is presented in Appendix B.

2.1.2 Soils

The extent of soil contamination has been studied over the last ten years in support of design for on-site remediation systems. The most significant data was collected during Exxon-Mobil's 2008 Supplemental Subsurface Investigation. The investigation consisted of the installation of 24 borings, 19 of which were converted to monitoring wells. This investigation provided significant data to delineate the vertical and horizontal limits of the contamination. This data was supplemented by PID screening data collected during the 2010 geotechnical investigation conducted in support of the current proposed Site development and a supplemental Commercial Cleanup Evaluation Investigation in April of 2012 (Appendix C). The data from these three investigations, along with previous studies, has resulted in the following determination of Site conditions:

1. The Site surface contains urban fill of variable thickness (two to 11 feet), which is in turn underlain by sand and a sand silt formation in the top 25 to 35 feet BGS. Below the sand and silt layers is a laterally discontinuous coarse sand and gravel lens one to five feet in thickness, which can act as a preferential pathway for groundwater flow. Beneath this coarse sand and gravel lens(s) are silt and inter-bedded sand beds to a depth of approximately 42 feet BGS.

2. An area of free product (LNAPL) is in the area of groundwater monitoring wells MW-11, MW-22, MW-26, MW-23 and MW-24.

3. The main zone of contaminated soil is in the middle of the Site. The shallowest depth of contamination is approximately 10 feet BGS, although in general the depth ranges from approximately 20 feet BGS (top of contaminated zone) to approximately 40 feet BGS (bottom of contaminated zone).

4. A thin zone of contamination extends northward across the northern property boundary, within the discontinuous coarse sand/gravel lens. This contaminant zone appears to be associated with preferential groundwater flow in that zone. The coarse sand/gravel lens ranges from ½ to five feet in thickness and ranges in depth between 32 to 35 feet BGS.

Based on the assumed remediation goal of Commercial Use, Figures 2-2 and 2-3 respectively show the horizontal limits of soil contamination, the depth of the top of excavation of contaminated soils and the depth of the bottom of excavation.

Based on the nature and extent of the soil and groundwater contamination, the following sections present the estimated volumes of contaminated soil, groundwater and free product that are likely present on-site.

2.1.3 Area and Volume of Contaminated Soil

Contaminated soil is expected to exist on-site from a depth of approximately 10 feet (15 feet above groundwater) to a depth of approximately 40 feet BGS. In the area of the Site where free product is present, contaminated soils may be present to a depth to 42 feet BGS.

Potential volume of contaminated soils that exceed Commercial Use SCOs is approximately 430,000 cubic feet; or approximately 16,000 cubic yards. The calculation is presented in the table below:

Table 2-1: Estimate of Contaminated Soil to be Removed

				TOTAL VOLUME	
CONT. THICKNESS	**MEDIAN RANGE**	**CONTAMINATED AREA (sq ft)**	**MEDIAN TOTAL DEPTH**	**VOLUME (cu ft)**	**VOLUME (cu yds)**
5-10	0	0		-	-
10-15	0	0		-	-
15-20	0	0		-	-
20-25	22.5	12,542	40	282,195	10,452
25-30	27.5	5,534	42	152,198	5,637
				434,393	16,089

2.1.4 Area and Volume of LNAPL

Data collected during the February 2012 groundwater sampling event indicates that there is an area of LNAPL free product located in the central portion of the Site. The area of the free product is approximately 0.15 acres. Assuming an overall average thickness of ½ -inch of free product within the 0.15 acres and an average soil porosity of 30% [1], approximately 586 gallons of free product is estimated to be on the Site (See Figure 2-1). The calculation is presented in the table below:

Table 2-2: Estimate of LNAPL to be Removed

				TOTAL VOLUME	
LNAPL THICKNESS (ft)[1]	**AREA (ft)[2]**	**VOLUME (cu ft)**	**AVG POROSITY[3]**	**VOLUME (cu ft)**	**VOLUME (gal)[4]**
0.04	6,534	261	30%	78	586

1: 1-inch = 0.08 feet

2: 0.15 acres = 6,534 sq ft

3: Based on average for a medium sand matrix

4: 1 cu ft LNAPL = 7.48 gal

2.1.5 Area and Volume of Contaminated Groundwater

Calculation of the volume of contaminated groundwater on-site is represented by the area on-site where BTEX contamination in groundwater exceeds 10.0 ug/L, as represented on Figure 2-1. This occurs in a total area of approximately 1.02 acres.

While the potentiometric top of the water table (25 feet BGS), the groundwater bearing zoning is generally confined in from a depth of 32-35 feet BGS, with a maximum thickness of 5 feet. Assuming a saturated zone of 5 feet, this is a volumetric area of approximately 85,000cubic feet. Using an average interstitial total porosity of 39% (for coarse sands[1]) and 7.48 gallons of water per cubic foot, approximately 635,000 gallons of contaminated groundwater exceeding 10 ug/L can be expected to be in place in this area of the Site. Using an effective porosity of 30%, approximately 147,000 gallons will remain entrained in the soil if full dewatering of the soil layer were to occur. The calculation is presented in the table below:

Table 2-3: Estimate of Contaminated Groundwater Volume

				TOTAL VOLUMES	
Water bearing Zone Thickness (ft)[1]	**AREA (ft)[2]**	**VOLUME (cu ft)**	**AVG POROSITY[3]**	**VOLUME (cu ft)**	**VOLUME (gal)[4]**
5.0	43,560	217,800	39%	84,942	635,366
5.0	43,560	217,800	30%	65,340	488,743
				Gallons Entrained	**146,623**

1: Based on coarse sand and gravel layer max. thickness

2: Area Rounded to 1 acre

3: Based on average porosity for a coarse sand matrix (39%) and effective porosity (30%)

4: 1 cu ft water = 7.48 gal

Of the remaining groundwater entrained in the soil, an area of approximately 18,076 sq. ft will be removed and disposed during remediation. With an assumed saturate thickness of 5 feet, a total of approximately 61,000 gallons of entrained contaminated water will be removed through excavation. The calculation is presented in the table below:

[1] Argonne National Laboratories (http://web.ead.anl.gov/resrad/datacoll/porosity.htm)

Table 2-4: Estimate of Contaminated Groundwater Volume in Excavated Soils

				TOTAL VOLUME	
Water bearing Zone Thickness (ft)[1]	**AREA (ft)[2]**	**VOLUME (cu ft)**	**AVG POROSITY[3]**	**VOLUME (cu ft)**	**VOLUME (gal)[4]**
5.0	18,076	90,380	9%	8,134	60,844
				Less total gal. of contaminated water entrained	146,623
				Entrained Gallons Remaining	**85,779**

1: Based on coarse sand and gravel layer max. thickness

2: Area Rounded to 1 acre

3: Based on 9% difference between porsity (39%) and effective porosity (30%) of onsite soils

4: 1 cu ft water = 7.48 gal

Of the estimated 635,000 gallons of contaminated water beneath the Site, approximately 86,000 gallons will remain after the IRM dewatering and excavation is completed.

3 IRM WORK PLAN

The remedial action will be comprised of three main tasks:

- The construction of the shoring system;
- Soil excavation and removal and
- Groundwater collection and treatment.

This remedial action has been determined to be appropriate for the cleanup of contaminated soil to achieve specific soil cleanup standards outlined in NYCRR Part 375-6.

3.1 IRM Cleanup Objectives

The remedial work planned for the Site is intended to remediate soil contamination to meet Commercial Use Soil Cleanup Objectives ("SCO") as specified in NYCRR Part 375-6. Soil contamination is variable throughout the Site. The highest concentration of contamination is located in the surrounding soils of the release source. The remedial action will target removing these soils, and associated groundwater and LNAPL, for attaining compliance with the Commercial Use SCO.

3.2 Phasing of Remedial Activities

To ensure efficient use of the resources required for the remediation of the Site, it is essential that the sequence of Site activities be well defined. The IRM work at the Site will be conducted in the following sequence:

- Waste Characterization
- Site Preparation
- Installation of shoring system
- Placement of groundwater collection and treatment system
- Excavation of petroleum contaminated soils
- Sampling and analysis of soil to confirm Commercial SCO has been completed
- Construction of sub-grade facilities

Work is proposed to begin in September of 2012. It is estimated that remedial activities will last approximately 4 months. All sampling activities will be conducted in accordance with NYSDEC quality assurance protocols outlined in **Section 5: Quality Assurance and Quality Control Protocols.** The Citizen Participation Plan ("CPP") that informs the public on the proposed remediation is included in Appendix D. The public health of the local community will be monitored during construction activities as outlined in the Community Air Monitoring Plan ("CAMP") provided in Appendix E. C&S will provide oversight, air monitoring, soil screening, GPS data and photographic and other documentation during the IRM activities. The following sections define the work required to complete each of the tasks comprising the remedial activities of the IRM.

3.2.1 Waste Characterization

Waste characterization of the soils was conducted in October, 2010. Waste characterization activities took place before construction; composite samples were collected at ten boring locations throughout the Site. Composite samples were sent to a laboratory and were analyzed for the following contaminates:

- TCLP VOCs
- TCLP SVOCs
- TCLP Metals
- PCBs
- Pesticides
- Ignitability

- Flash Point

The results of the sampling determined the soil was not a hazardous waste. A letter summarizing the results was transmitted to the NYSDEC in December 2010.

3.2.2 Site Preparation

Public Exclusion Areas

A public exclusion area will be clearly marked out around the Site by the temporary construction fencing.

To the north, fencing will be extended across Goodrich Street, and extended eastward to provide Site security and to complete the "exclusion zone". Fencing will also be installed north-south along the eastern Site boundary, except where entry in and out of the excavation will take place. Additionally, to allow for dedicated pedestrian access through this area during construction, jersey barriers will be placed along Main Street, between High and Goodrich Streets. Figure 3-1 shows the general construction layout of the site.

3.2.3 Shoring System

Site Shoring

The perimeter of the Site will be permanently shored with lag and pile sheet metal wall system. This system creates a water tight seal using overlapping, interconnected steel plates. Shoring will be installed to a depth of 40 feet BGS, in certain areas along Main Street, where excavation may be deeper to reach contamination; shoring will be installed to a depth of 50 feet.

Shoring along the perimeter will utilize tie-backs into the surrounding soil to maintain structural integrity during excavation. Where excavation does not extend all the way to the Site perimeter, excavation walls will use a combination of temporary shoring and soil benching to maintain wall integrity. Figure 3-2 shows the plan view of the shoring system, Figure 3-3 shows a typical section design of the shoring system.

3.2.4 Groundwater Collection and Treatment System

An industrial discharge permit will be secured from the Buffalo Sewer Authority ("BSA") to discharge groundwater into the sanitary sewer system. The BSA permit allows treated water to be discharged into the BSA sanitary sewer system. The discharge is limited only to periods where no rain or snow melt are occurring.

Groundwater collected as part of Site de-watering activities will be pumped into on-site settling tanks. From the tanks, it will subsequently pass through an activated carbon treatment vessel for treatment of VOCs prior to discharge to the BSA sewer system. In addition to carbon treatment, the system will also contain an oil-water separation chamber to collect LNAPL that may enter the dewatering system. Figure 3-4 shows a schematic of the treatment system.

Once excavation begins, several sumps may be utilized to maintain the water level in the excavation. In addition, in several areas where free-phase petroleum is known to exist, sumps may be used to temporarily collect product. The product will be removed by periodically vacuuming the LNAPL.

Pre- and post-treatment samples of collected water will be periodically sampled per permit requirements to verify treatment system performance. Samples will be analyzed on a 48 hour turnaround time. The flow of water through the treatment system will be monitored with a flow meter to record total volume treated and discharged to the BSA.

Treatment system operational records including daily volumes, product recovered, influent and effluent analytical results, times of operation and permit discharge monitoring reports will be kept on-site and will also be included in the final engineering report.

3.2.5 Excavation

Soils within the shoring wall area will be excavated at various depths across the Site, Figures 2-2 and 2-3 show the estimated depths of excavation. Contaminated soil within the release source ranges from 10 ft BGS to 42 ft BGS; excavation will remove contaminated soils to the level required to met Commercial SCO. The following lists the type of equipment to be used during excavation (Note that this list is subject to change as needed by the contractor as excavation conditions and needs change.):

- Caterpillar 312BL Backhoe
- Komatsu PC200LC Backhoe
- John Deere 240 D LC Backhoe
- Komatsu D68 Dozer
- Komatsu WA180 Front Loader
- Dump Trucks

Soil/Fill Management

Excavation will remove both contaminated and non-contaminated soils. Excavated soils will be inspected for staining or discoloration and screened for the presence of VOCs on-site into "clean soil" and "contaminated soil" using a photo-ionization detector ("PID"). Impacted material will be directly loaded into trucks and shipped to a licensed disposal or treatment facility.

Contaminated soils removed from areas of known petroleum impacts, based on previous records of soil analytical results and PID readings, will be segregated for disposal/recycling at a NYSDEC approved facility. Excavated soils will be continuously screened with PID during remediation activities; soils that exceed 10 ppm or contain a petroleum odor will be segregated for additional testing. Sampling parameters of excavated soils will be generally based on guidance provided DER-10 Table 5.4(e)10; or in coordination with the NYSDEC field representative. Results of the excavated soil testing will be reported to the NYSDEC. Excavated soils that are below residential criteria in Appendix 5 will be sent for offsite reuse.

Once the excavation nears the target depths and horizontal limits, soil samples will be collected to assess whether the Commercial Use SCO has been met.

Soil Tracking Prevention

Trucks and equipment leaving the Site will be broom-cleaned to remove clumped soil and prevent soil tracking off-site. Standard construction protocols will be utilized, including stone aprons and periodic sweeping of the construction exit areas. Adjacent roads in the designated truck route will be inspected daily to ensure the prevention of soils migration. Roads that have any soils accumulation will be mechanically scraped rather than mechanically broom swept to reduce fugitive dust emissions. Excavation on-site will occur in a manner which minimizes the tracking of on-road haul trucks from moving through contaminated soils. On-site stone haul roads may be constructed as necessary to reduce the amount of soils tracked onto the stone apron areas. The use of water to clean truck tires will be avoided to prevent the generation of potentially impacted water.

3.2.6 Closure Sampling Plan

Soil sampling will be performed to assess whether cleanup standards have been achieved. As outlined in **Section 3.1: IRM Cleanup Objectives;** remediation will be deemed complete when soil analytical results from the excavation limits demonstrate that VOC concentration are below the Commercial Use. Samples will be taken after horizontal and vertical excavation limits have been completed. Since BTEX and related petroleum compounds have been verified as the only Site COCs, closure soil sample analysis will be limited to VOCs using EPA Method 8260B.

If requested by the NSYDEC, approximately 10% of the closure samples will be analyzed for TAL Metals, SVOC, PCB and Pesticides**.**

Prior to excavation, the Site will be divided into excavation sectors. These sectors will be used to systematically excavate the hole and provide sufficient entrance and egress. Once field monitoring indicates that remediation objectives have likely been met (based on estimated excavation limits, soil vapor readings, odor and visual concurrence), closure samples of the bottom and sidewalls of the excavation will be collected for VOC analysis on a 24-hour turnaround basis. If sampling indicates that targeted remedial goals have not been met, excavation in that area will resume and the process will be repeated. If analytical results indicate that the remedial goals have been met, the results will be transmitted to the NYSDEC and excavation will cease in that sector.

One sidewall sample will be collected for each 30 linear feet by 20 vertical feet of excavated sidewall and one sample will be collected from the bottom of each 225 square feet (15 by 15 feet) of excavated bottom. Category B deliverable package will be requested to validate analytical results by a third-party expert.

All sampling locations will be given a discrete identifying number, its depth will be recorded (based on construction surveying crew data) and its horizontal location will be recorded using a survey quality hand held GPS, with an approximate accuracy of 2 foot. Post excavation soil samples will be collected in concurrence with the NYSDEC field representative.

3.2.7 Sub-grade facilities

Once the sampling and analysis has confirmed the soil remedial objectives have been met, construction of the MOB will begin. The MOB will have two floors of sub-grade parking. The shoring system will be left in place and will become the walls for the sub-grade parking. Once the parking decks are in place, construction of the above-grade portion of the MOB will commence.

4 REMEDIAL INVESTIGATION

This section describes the activities to determine if the IRM was successful in achieving Commercial Cleanup standards.

4.1 Environmental Conditions

Site fill, subsurface soil and groundwater have been impacted by petroleum products that were released from USTs from the former Exxon-Mobil Service Station. Over thirty years of investigations on the Site has concluded that the COCs are primarily BTEX compounds. The following summarizes what is known about the extent of contamination across the Site:

1. The main contaminated zone exists in the middle of the Site where the former USTs were located. Soils within the main contaminated zone is impacted from 10 ft BGS to 40 ft BGS.

2. An area of free product (LNAPL) is in the area of groundwater monitoring wells MW-11, MW-22, MW-26, MW-23 and MW-24. These wells are within the estimated extent of the release area.

3. Groundwater exists as a semi-confined aquifer, with a coarse sand/gravel lens between 32 and 35 feet BGS and ranges between ½ to five feet in thickness. This coarse sand/gravel zone acts serves as the method contaminant transport to the north across the Site.

4. Contaminated soil has expanded from the release area northward across the northern property boundary, with preferential groundwater flow in the discontinuous coarse sand/gravel lens.

Further detail can be found in **Section 2.1 Nature and Extent of Contamination**.

4.2 Remedial Investigation Rationale

The IRM as described in the previous section (**3 IRM Work Plan**) allows for a comprehensive view of subsurface conditions. Implementing the IRM will enhance the understanding of fate and transport of contamination. The remedial investigation will follow the source removal and Site dewatering that was accomplished in the IRM. This investigation will assess the remaining conditions after the IRM has been employed.

4.2.1 Soils

Soil sampling will assess whether Commercial Cleanup SCOs have been achieved. Soil sampling will be preformed after horizontal and vertical limits have been completed. One sidewall sample will be collected for each 30 linear feet by 20 vertical feet of excavated sidewall and one sample will be collected from the bottom of each 225 square feet (15 by 15 feet) of excavated bottom. Based on these guidelines, approximately 80 bottom samples and 36 sidewall samples will be collected.

All sampling locations will be given a discrete identifying number, its depth will be recorded (based on construction surveying crew data) and its horizontal location will be recorded using a survey quality hand held GPS, with an approximate accuracy of 2 foot. Post excavation soil samples will be collected in concurrence with the NYSDEC field representative.

Closure sampling is further discussed in **Section 3.2.6 Closure Sampling Plan**.

Samples will be collected as grab samples from both the excavation floor and side walls. Samples will be collected as outlined in DER-10 for grab samples and discussed in **Section 5.1.1 Sampling Methods** in this IRM.

4.2.2 Groundwater

Post-remediation groundwater monitoring wells will be installed after the Site has been backfilled. The number and final location of the monitoring wells will be determined in concordance with the NYSDEC field representative, however it is anticipated that at least four wells will be placed on Site.

Monitoring wells will be advanced to approximately 35 ft BGS (as determined from curb elevation). Wells will be constructed using a 2-inch inside diameter flush-joint Schedule 40 PVC pipe and 0.010-inch slotted well screen. Subsequent to installation of the pipe and well screen, a sand pack will be constructed from the base of the well to one foot above the top of the well screen. A bentonite clay seal will then be installed on top of the sand pack. Installation will be completed after the wells have been grouted to ground surface or to the top of the lowest parking garage floor.

After installation, two to three rounds of sampling over six months will be conducted. Prior to sample collection, water levels will be measured and recorded from all monitoring wells. Following water level measurements, all monitoring wells will be purged using a polyethylene bailer. Samples will be taken subsequent to purging and after fresh groundwater has re-filled the wells; samples will be collected using polyethylene bailer and collected in the appropriate sample bottles provided by the analytical laboratory. Groundwater samples will be analyzed for VOCs in accordance with EPA SW-846/Method 8260 methodology. Category B deliverable package will be requested to validate analytical results by a third-party expert.

4.3 Reporting

Based on the results of the remedial investigation a Remedial Investigation / Alternative Analysis Report ("RI/AAR") will be submitted to the NYSDEC. The RI/AAR will assess the effectiveness of the IRM in comparison with other remedial options in achieving site cleanup levels.

5 QUALITY ASSURANCE AND QUALITY CONTROL PROTOCOLS

To ensure that suitable and verifiable data results are obtained from the information collected at the Site, quality assurance procedures are detailed in this section.

5.1 Sampling Methods, Analytical Procedures and Documentation

5.1.1 Sampling Methods

Sampling procedures will be conducted in accordance with the NYSDEC *Sampling Guidelines and Protocols Manual*. Collecting of representative samples will include the following procedures:

- Ensuring that the sample taken is representative of the material being sampled;
- Using proper sampling, handling and preservation techniques;
- Properly identifying the collected samples and documenting their collection in field records;
- Maintaining chain-of-custody; and
- Properly preserving samples after collection.

Soil Sampling

Soil sampling will be performed using two methods: (1) field screening using a PID and (2) grab samples.

Several discrete samples will be taken from each soil pile and placed into individual zip-lock bags. Soil samples will be allowed to sit in sealed zip-lock bag for a short period of time (minimum of five minutes). Head space measurements will then be taken from each zip-lock bag. To prevent cross contamination zip-lock bags will not be reused and will be properly disposed. Calibration of all electronic field screening equipment will be completed daily and will be done to manufacture's specifications.

Contaminates of concern during excavation are BTEX and petroleum related compounds; only analysis of VOCs will be sampled using the grab method. As detailed in the *Sampling Guidelines and Protocols Manual*, grab samples will be placed in 8oz wide mouth glass jars. Sample jars will immediately be placed on ice in a cooler.

Soil sample frequency will be based on the guidance with DER-10. Confirmatory bottom soil samples will be collected on a 15 by 15 foot square grid (225 sq ft). Based on the estimated excavation area of 18,000 sq. ft., approximately 80 confirmatory bottom samples will be collected. Confirmatory side wall samples will also be collected, because of the estimated depth of the excavation, sidewall samples will be collected on a 30 by 20 foot grid. Based on the estimated limits and depths of excavation (560 linear feet of wall to a maximum depth of 40 feet), approximately 36 side-wall samples will be collected. Note that this area does not include side-wall samples from the western property boundary that will consist of a permanent shoring

face. Final number of samples will be verified once field excavation limits are achieved. Sampling frequency will be established in concurrence with the NYSDEC field representative.

An estimated total of 120 confirmatory samples will be collected from both the walls and bottom. As stated in DER-10, if conditions warrant (discrete layers of staining, etc.), additional samples may also be collected. Table 4-1 presents a summary of the number of samples scheduled for collection.

Confirmatory samples will be collected in a timely manner, based on the following DER guidance:

- Within 24 hours of excavation, samples should be collected from the zero to six-inch depth interval;
- After 24 hours, samples should be collected at six to twelve inches depth interval at the excavation floor; and
- No water should be present in the excavation bottom where bottom samples are collected.

Water Sampling

Water sampling will be conducted on the de-watering treatment system to demonstrate compliance with the BSA temporary Industrial Discharge permit. Effluent samples will be collected as required to show that discharge limits are being met, as well as to track the effectiveness of the carbon filtration media and estimate the timing for carbon replacement. Additionally, influent samples will be collected in order to track the general VOC concentrations that are entering the treatment system, and to correlate the concentration of VOCs in groundwater remaining in the ground. It is estimated that 20 influent samples will be collected during site activities.

Samples will be collected in 40 ml glass jars and immediately placed on ice. The water will be analyzed for VOCs on a 24-hour turnaround time.

QA/QC Sampling

Duplicate samples will be collected from a minimum of 10% of the locations, selected randomly. Based on an estimate of 120 confirmatory soil samples and 20 water influent samples, 12 duplicate soil and 2 water samples will be collected .

Matrix Spike /Matrix Spike Duplicates ("MS/MSD") will also be collected on a 10% allocation. Therefore an additional 12 soil and 2 water samples will be collected for MS/MSD analysis.

Table 4-1: Summary of Estimated Sampling

Sample Type	Matrix	Est. #	Purpose
Excavation Bottom	Soil	80	Confirmatory
Excavation Wall	Soil	40	Confirmatory

Groundwater Influent	Water	20	Confirmatory
Duplicate Soil	Soil	12	QA/QC
Duplicate Influent	Water	2	QA/QC
MS/MSD –So.	Soil	12	QA/QC
MS/MSD –Aq.	Water	2	QA/QC
	Total	**168**	

5.1.2 Analytical Procedures

Laboratory Analysis

Laboratory analysis will be conducted by a third-party laboratory that is accredited by the NYSDOH Environmental Laboratory Accreditation Program ("ELAP"). Laboratory analytical methods will include the most current NYSDEC Analytical Services Protocol ("ASP").

Remedial investigations have concluded that the Site is impacted by petroleum compounds which are primarily BTEX. Soil samples sent to a certified laboratory will be tested for Total Compound List VOCs using the U.S. EPA Method 8260B. To fill in data gaps from previous investigations approximately 10% of post excavation soil samples, in addition to VOC, will be analyzed for the following contaminates:

- Target Analyte List for Metals and Cyanide (EPA Method 6010C);
- Target Compound List for Semi-volatile Compounds (EPA Method 8270);
- Target Compound List for Pesticides/Aroclors (EPA Method 8081A); and
- Polychlorinated biphenyls (EPA Method 8082)

Category B deliverable will be requested to be used in a third-party data validation.

Data Usability

Data Usability Summary Report ("DUSR") will be performed by a third-party data consultant using the most recent methods and criteria from the U.S. EPA. The DUSR will assess all sample analytical data, blanks, duplicates and laboratory control samples and evaluate the completeness of the data package.

5.1.3 Documentation

Custody Procedures

As outlined in NYSDEC *Sampling Guidelines and Protocols,* a sample is under the following conditions:

- It is in your actual possession;

- It is in your view after being in your physical possession;
- It was in your possession and then you locked or sealed it up to prevent tampering; or
- It is in a secure area

The environmental professional will maintain all chain-of-custody documents that will be completed for all samples that will leave the Site to be tested in the laboratory.

Soil Manifests

All soil being removed from the Site will be tracked by bills-of-lading forms.

Truckloads of contaminated soil will be tracked using bills-of-lading provided by the respective disposal or recycling facility.

Records of truck loads will be kept on-site during construction and recording sheets and copies of the bills of lading documenting the final total trucked tonnage will be provided in the Final Engineering Report.

Water Sampling Results

Treatment influent and effluent analytical results will be included in the Final Engineering Report. The final influent sampling results from each dewatering sump will provide documentation of the remaining groundwater conditions.

Air Monitoring Records

Air monitoring will be conducted for both community air protection and for in-hole construction activities. Air monitoring will be conducted continuously during active excavation periods. The monitoring will include particulate and VOC screening. All records will be kept on-site during construction and will be made available for regulatory inspection. A daily air monitoring log, including discrete and time-weighted average meter readings, will be maintained through the end of remedial field activities. The specifics of the air monitoring procedures and criteria are detailed in the CAMP (community perimeter monitoring) and HASP (in-hole activities).

6 HEALTH AND SAFETY

To assure the safety of the workers and the local community, monitoring practices of the work environment will be in place during all phases of IRM activities. A Health and Safety Plan ("HASP") was prepared that details procedures for maintaining safe working conditions and minimizing the potential for exposure to hazardous material. The HASP is provided in Appendix F.

Air monitoring during active construction will be conducted using PID and a aerosol particle meter. Details on air monitoring are provided in the Community Air Monitoring Plan ("CAMP"). The CAMP is provided in Appendix E.

7 REPORTING

An environmental professional from C&S will be on-site on a full-time basis to document IRM activities. Documentation will include the following parts:

- Daily reports of remedial activities;
- CAMP results; and
- Photographs and fieldwork maps.

7.1 Construction Monitoring

Reporting procedures will include a daily report. Information that may be included on the daily report includes:

- Processes and location of construction under way;
- Equipment and personnel working in the area;
- Number and type of truckloads of soil/fill removed from the Site;
- A description of off-site materials received;
- Approximate verification sampling locations and sample designations; and
- Problem identification and corrective measures.

The NYSDEC will be notified of problems requiring modifications to this IRM prior to proceeding. Photographic documentation of the IRM activities will be prepared by C&S throughout the duration of the remediation as necessary.

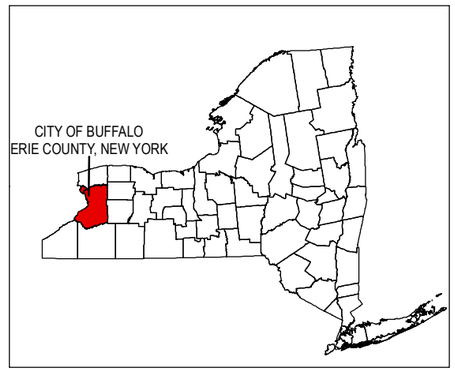
A summary of the IRM activities will be submitted to the NYSDEC as monthly progress reports and will be included in the Final Engineering Report. All data submitted to the NYSDEC will be in approved electronic data deliverable ("EDD") format.

8 SCHEDULE

It is assumed that NYSDEC will promptly review this IRM followed by a 30 day comment period. An approved IRM by mid-September would start remedial activities by mid-October, 2012. Site preparation is planned to begin in September of 2012. IRM activities are anticipated to last 4 months.

FIGURES

Location Map



Legend

- Proposed Medical Office Building Site
- Proposed BCA Boundary

Notes

1) Digital Orthophoto from NYS GIS Clearinghouse. Buffalo 2011 1 ft resolution.

2) Coordinate System: NAD 1983 StatePlane NY West FIPS 3103
Projection: Transverse Mercator
Datum: North American 1983
Units: Foot US

0 100 200 Feet

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CITY OF BUFFALO, NY

No.	DATE	REVISIONS

PROJECT NO:	K11.002.001
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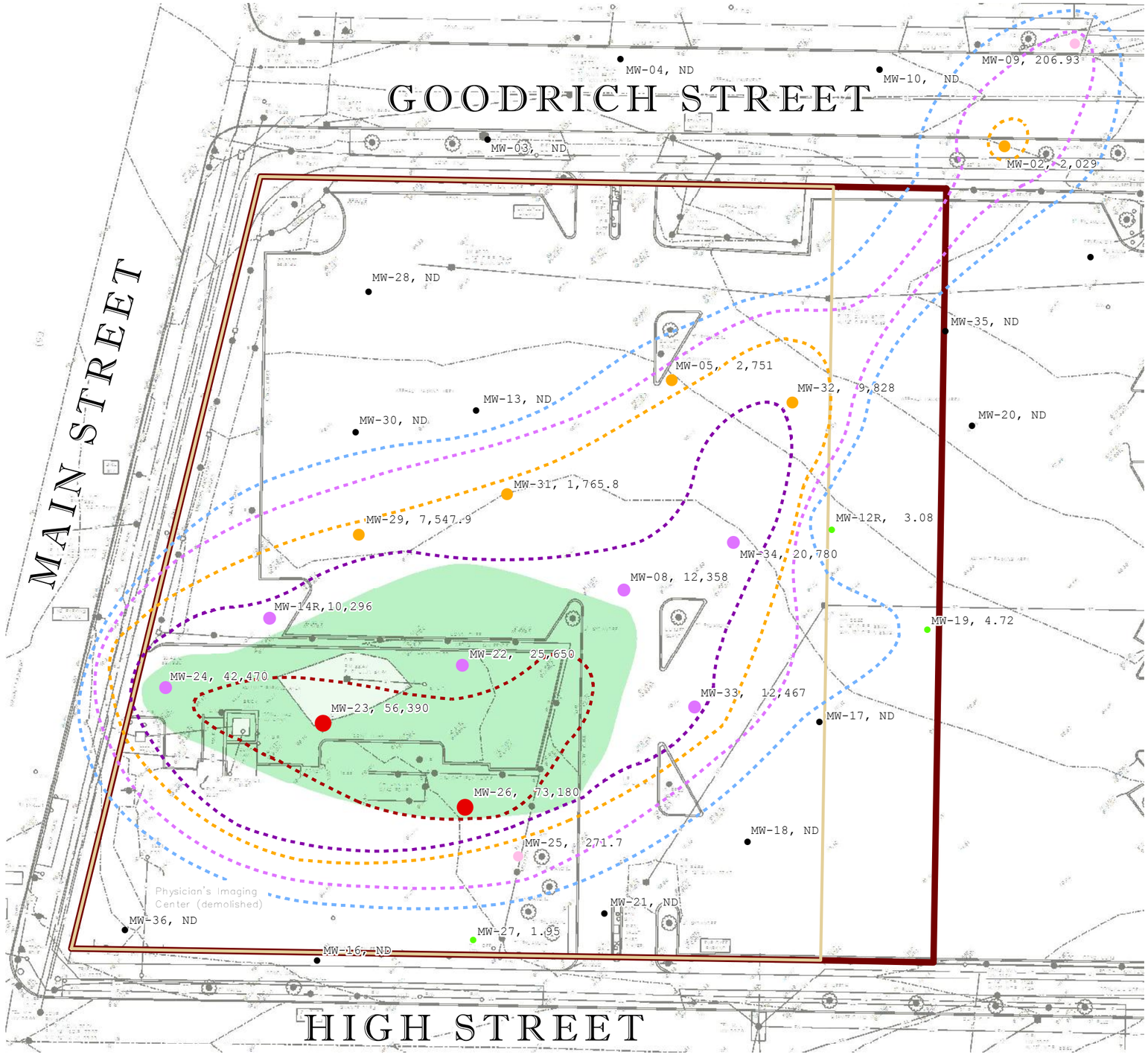
DRAWN BY:	CAM
DESIGNED BY:	CAM
CHECKED BY:	MJC

SITE PLAN

FIGURE 1-1

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\GIS\Projects\IRM_FIGURE_1-1_SITE_LOCATION.mxd



Legend

- Proposed Medical Office Building Site
- Proposed BCA Boundary
- Separate Phase Hydrocarbon Plume ("Free Product Zone") February 2012

Total BTEX Concentration (ug/L) February 2012

- Not Detected
- <10
- 10 - 100
- 100 - 1,000
- 1,000 - 10,000
- 10,000 - 50,000
- >50,000

Location Identifier — Concentration ug/L
MW-24, 42,470
ND = Not Detected

Total BTEX Isoconcentration Contours (ug/L) February 2012

- <10
- 100 - 1,000
- 1,000 - 10,000
- 10,000 - 50,000
- >50, 000

Notes

1) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

2) The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities, either in service or abandoned. The surveyor has not physically located the underground utilities.

3) Groundwater sampling results from February 16, 2012 GES Monitoring Report.

4) Coordinate System: NAD 1983 StatePlane NY West FIPS 3103
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0 40 80 Feet

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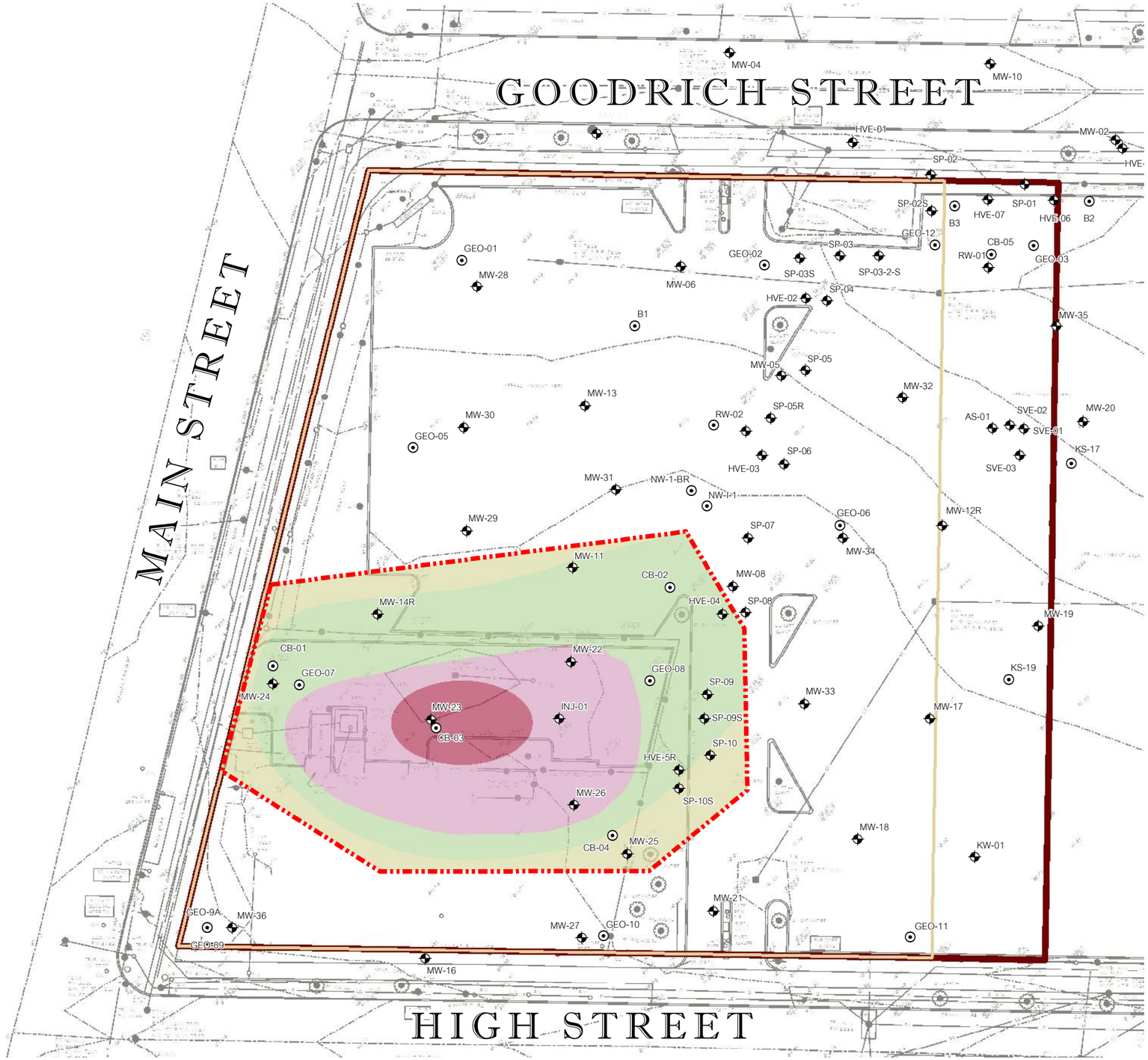
GROUNDWATER CONTAMINANT PLUME

FIGURE 2-1

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\GIS\Projects\IRM_FIGURE_2-1_GW_CONTAMINATION.mxd



Legend

- Monitoring Well
- Soil Boring
- Proposed Medical Office Building Site
- Proposed BCA Boundary
- Proposed Limits of Excavation

Top of Contaminated Soil - Feet Below Ground Surface ("ftbgs")

- 10 ftbgs
- 15 ftbgs
- 20 ftbgs
- 30 ftbgs

Notes

1) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

2) The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities, either in service or abandoned. The surveyor has not physically located the underground utilities.

3) Groundwater sampling results from March 23, 2012 GES Monitoring Report.

4) Coordinate System: NAD 1983 StatePlane NY West FIPS 3103
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SOIL EXCAVATION LIMTS
TOP OF CONTAMINATION

FIGURE 2-2

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\GIS\Projects\IRM_FIGURE_2-2_TOP_CONTAMINATION.mxd

Legend

- Monitoring Well
- Soil Boring
- Proposed Medical Office Building Site
- Proposed BCA Boundary
- Proposed Limits of Excavation

Bottom of Contaminated Soil - Feet Below Ground Surface ("ftbgs")

- 35 ftbgs
- 40 ftbgs

Notes

1) Survey data from McIntosh & McIntosh P.C. "Topographical Map of Part of Lot-29, TWP.-11, R.-8, Holland Purchase" Job No. 7669-B(2) September 24, 2008.

2) The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities, either in service or abandoned. The surveyor has not physically located the underground utilities.

3) Groundwater sampling results from March 23, 2012 GES Monitoring Report.

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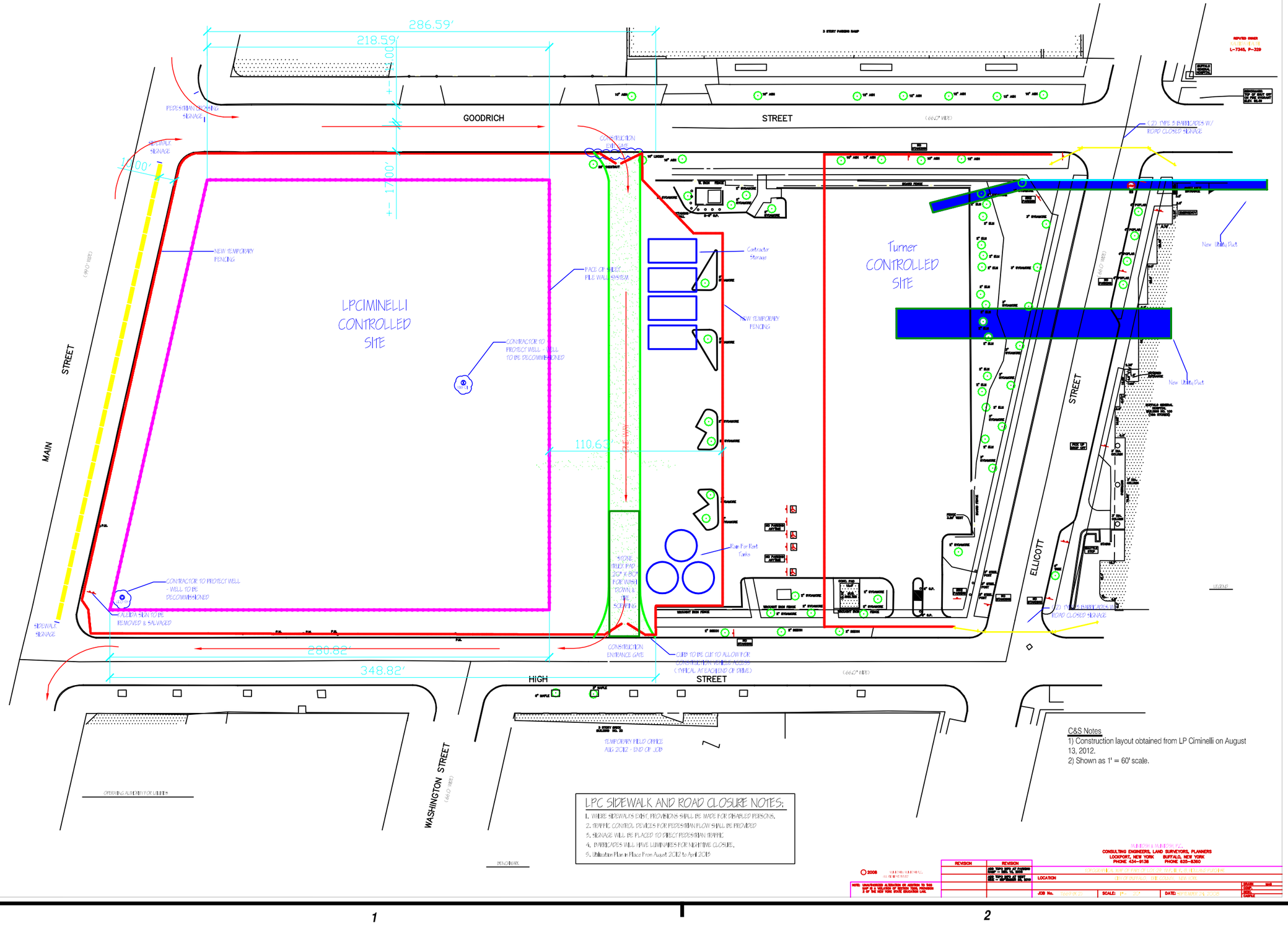
SOIL EXCAVATION LIMTS
BOTTOM OF CONTAMINATION

FIGURE 2-3

Path: F:\Project\K11-Kaleida Health\K11.002.001 - MOB Brownfield Cleanup Program\Environmental-study\CADD-GIS\GIS\Projects\IRM_FIGURE_2-3_BOTTOM_CONTAMINATION.mxd



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DESIGNED BY:	LP Ciminelli
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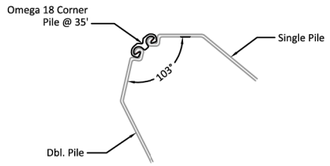
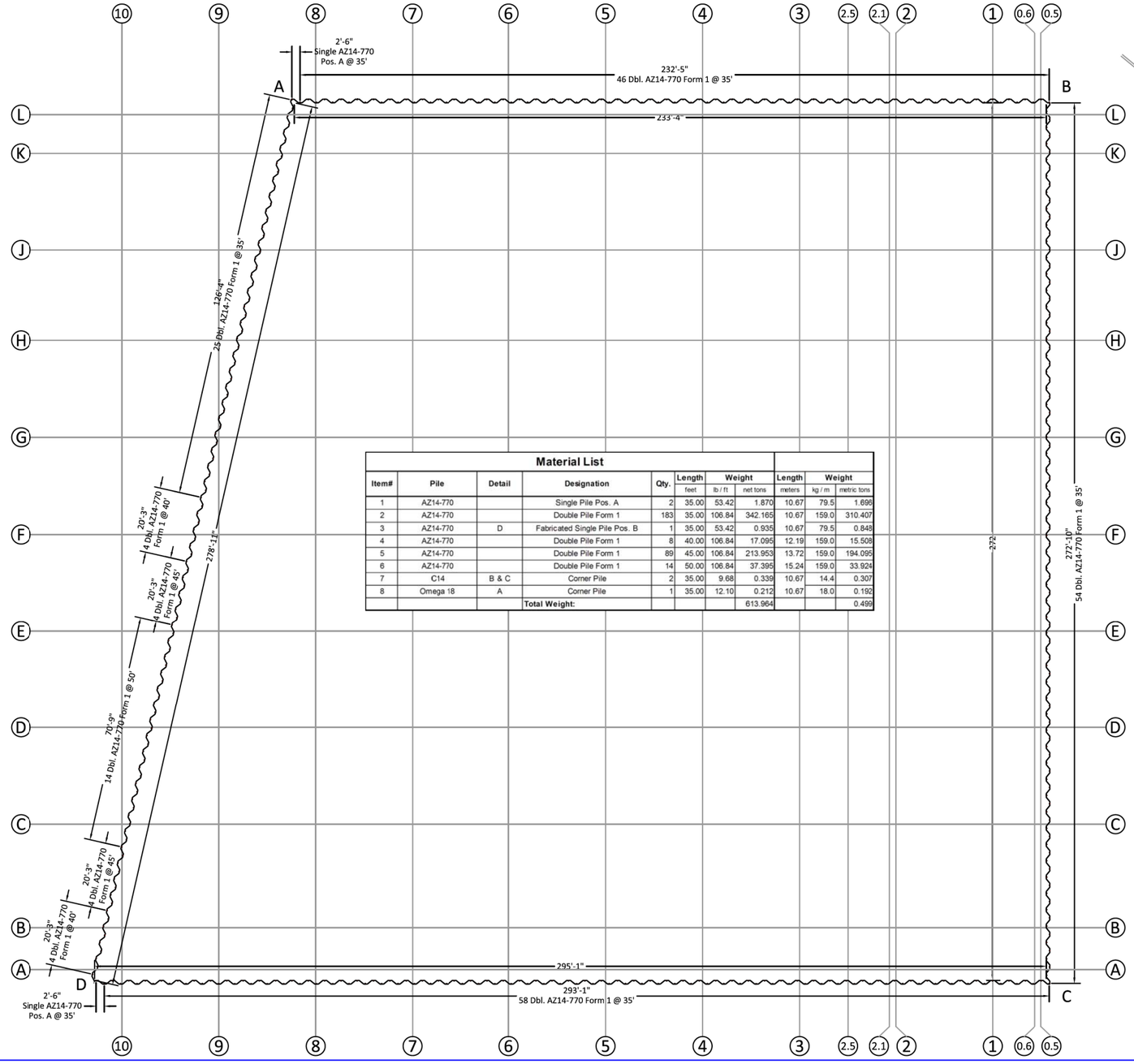
GENERAL CONSTRUCTION LAYOUT

FIGURE 3-1

Preliminary

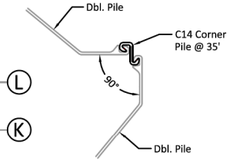


Detail A

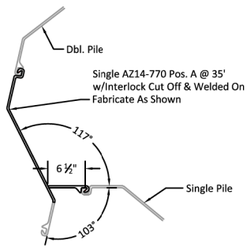


Material List

Item#	Pile	Detail	Designation	Qty.	Length feet	Weight lb / ft	Weight net tons	Length meters	Weight kg / m	Weight metric tons
1	AZ14-770		Single Pile Pos. A	2	35.00	53.42	1.870	10.67	79.5	1.695
2	AZ14-770		Double Pile Form 1	183	35.00	106.84	342.165	10.67	159.0	310.407
3	AZ14-770	D	Fabricated Single Pile Pos. B	1	35.00	53.42	0.935	10.67	79.5	0.848
4	AZ14-770		Double Pile Form 1	8	40.00	106.84	17.095	12.19	159.0	15.508
5	AZ14-770		Double Pile Form 1	89	45.00	106.84	213.953	13.72	159.0	194.095
6	AZ14-770		Double Pile Form 1	14	50.00	106.84	37.395	15.24	159.0	33.924
7	C14	B & C	Corner Pile	2	35.00	9.68	0.339	10.67	14.4	0.307
8	Omega 18	A	Corner Pile	1	35.00	12.10	0.212	10.67	18.0	0.192
			Total Weight:				613.964			0.499



Detail B



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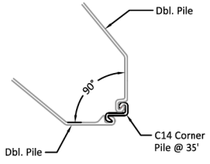

Detail C

skylinesteelI
ArcelorMittal
8 WOODHOLLOW RD, PARSIPPANY, NJ 07054 TEL: (973) 428-6100 FAX: (973) 428-7399

REV.	DESCRIPTION	Date	CAD By
1	Released For Approval	06-18-12	
0	Released For Approval	06-15-12	

PROJECT: 1001 Main Street MOB Garage, Buffalo, New York
CONTRACTOR: H. F. Darling

DATE:	06-15-12
SCALE:	N.T.S.
DRAWN BY:	J. Austro
PROJECT NO:	041-3132
SHEET:	L–1
REV.	1

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DESIGNED BY:	
CHECKED BY:	

PLAN LAYOUT SHORING DESIGN

FIGURE 3-2

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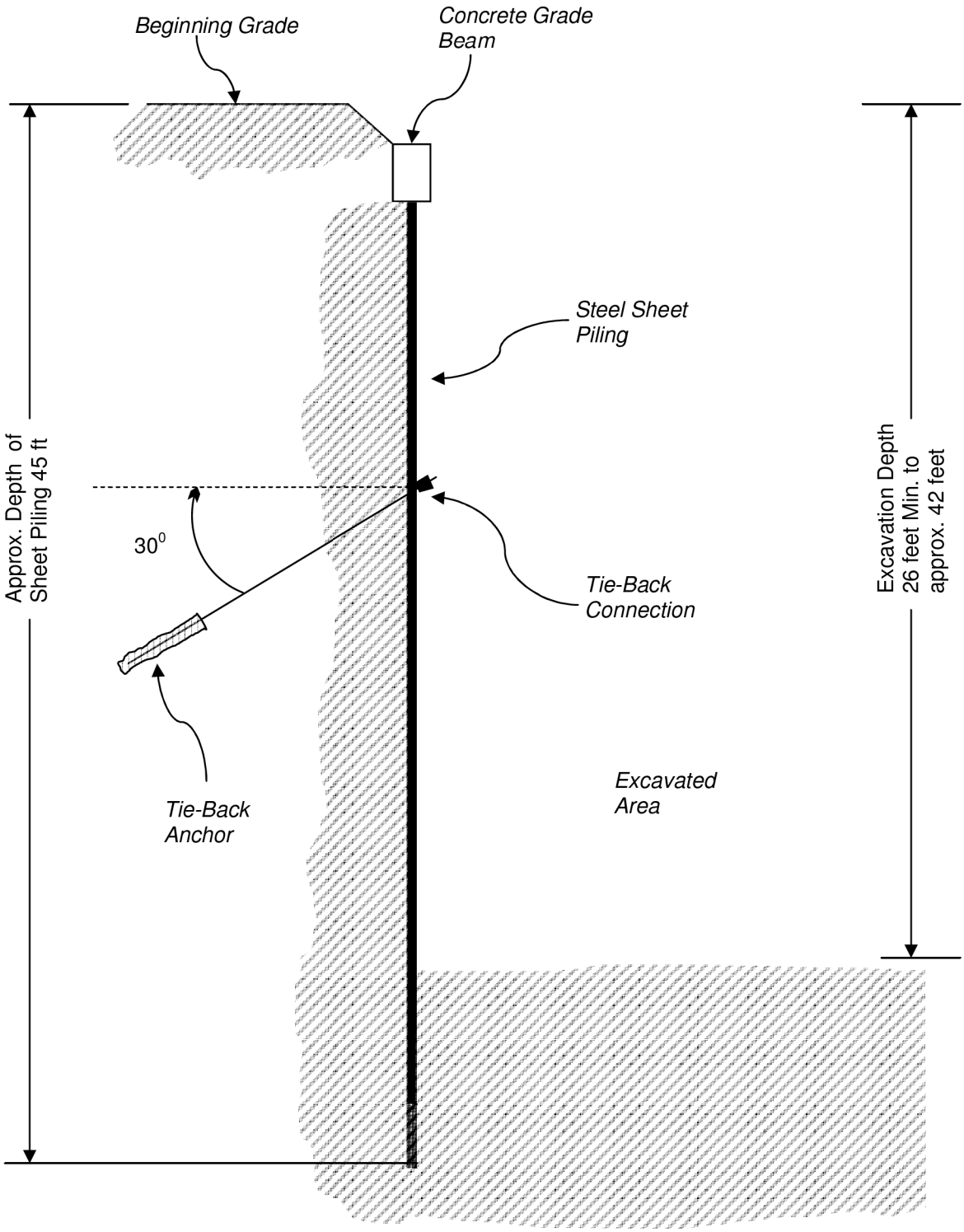

TITLE:

TYPICAL SHORING DESIGN SECTION

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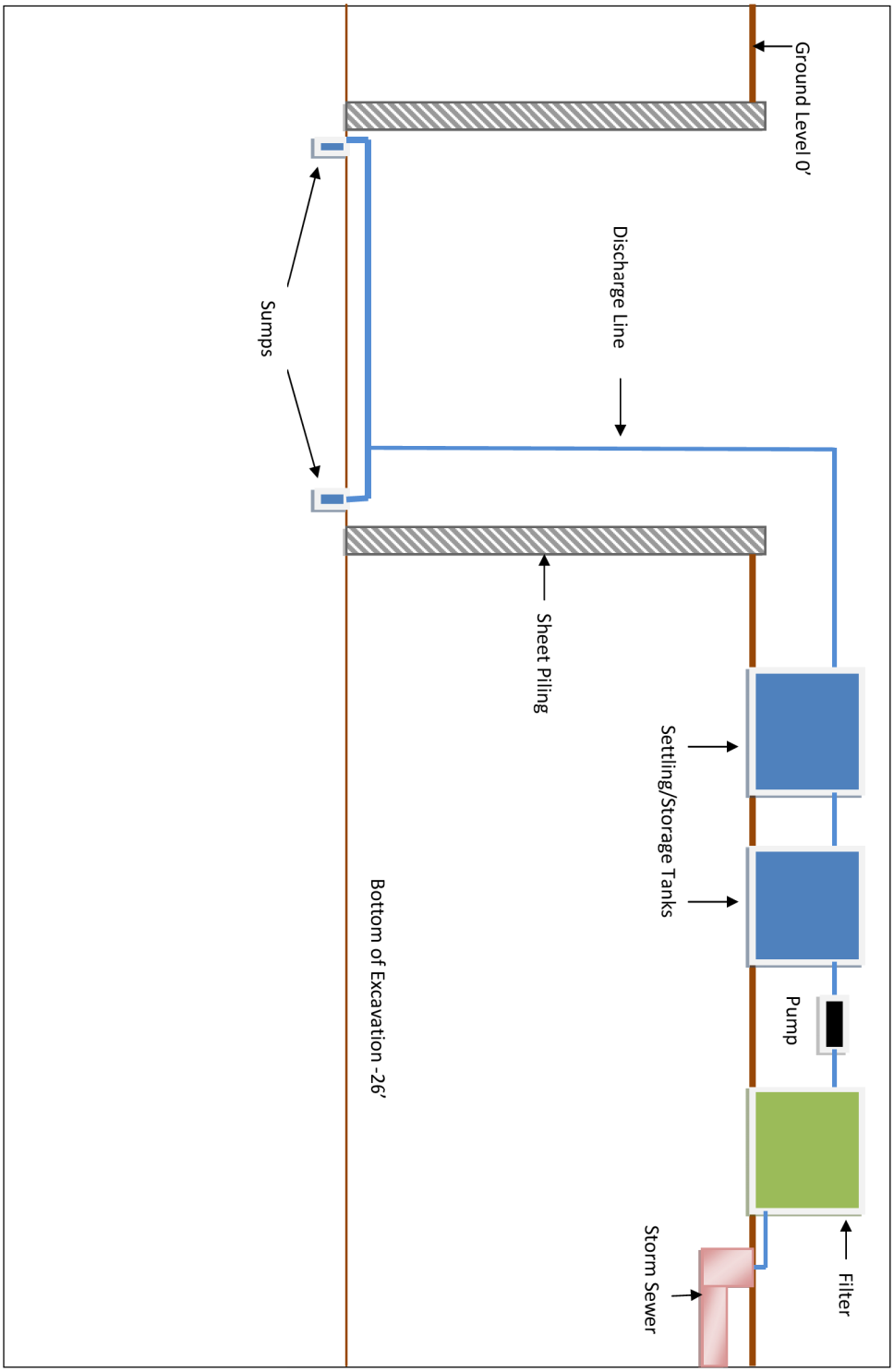
FIGURE 3-3



TITLE:

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FIGURE 3-4