HALEY ALDRICH

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REPORT ON

PHASE II ENVIRONMENTAL SUBSURFACE INVESTIGATION PROSPECTIVE YMCA NORTH BUFFALO FACILITY DEVELOPMENT UNILAND SITE BUFFALO, NEW YORK

by
Haley & Aldrich of New York
Rochester, New York

for
YMCA Buffalo Niagara
Buffalo, New York

File No. 134479-005
September 2020

HALEY & ALDRICH OF NEW YORK
200 Town Centre Drive
Suite 2
Rochester, NY 14623
585.359.9000

16 September 2020
File No. 134479-005

YMCA Buffalo Niagara
301 Cayuga Road, Suite 100
Buffalo, New York 14225

Attention: Matthew J. Shriver, CFO

Subject: Environmental Phase II Evaluation
Prospective YMCA North Buffalo Facility Development - Uniland Site
Buffalo, New York

Ladies and Gentlemen:

This report documents Environmental Phase II subsurface investigation activities (Phase II Investigation) conducted at the Prospective YMCA North Buffalo Facility Development – Uniland Site (subject site) in Buffalo, New York. The purpose of the Phase II Investigation was to evaluate subject site soil quality to inform both the potential subject site acquisition decision making/business environmental risk, and possible future subject site earthwork planning and development. Haley & Aldrich of New York (Haley & Aldrich) conducted the Phase II Investigation in August 2020 in accordance with our proposal dated 13 March 2020, as authorized by YMCA Buffalo Niagara on 1 July 2020 (Appendix A). A summary of subject site subsurface geotechnical conditions is presented under separate cover.

Background

The subject site is approximately 7 acres consisting of four adjoining land parcels located between Norris and Elmwood Avenues in Buffalo, New York. Please see Figure 1 – Site Locus for the location of the subject site in North Buffalo, and see Figure 2 for general configuration of the subject site and explorations completed for the Phase II.

Historically, the subject site was used as a steel foundry (southern portion), for general warehousing, and was also traversed by a railroad spur. Following the demolition of the steel foundry in the 1980s, the subject site has been predominantly vacant and forested, except for a single 3,121-SF warehouse located in the northwest corner along Norris Avenue.

Previous environmental due diligence investigation reports prepared by LCS, Inc. (LCS, 2017a, LCS, 2017b) and provided to Haley & Aldrich indicated urban fill materials underly much of the subject site, generally consisting of unconsolidated debris (piping, brick, asphalt, concrete, wood, metal, etc.) as well as gravel, clay, and sand. Subsurface observations summarized by LCS in test boring and test pit logs included in their November 2017 subsurface investigation report (LCS, 2017b) suggested fill materials

extended to depths of up to approximately 12 ft below ground surface (ft bgs). Analytical testing of fill soil samples collected from soil borings previously advanced within the boundaries of the current subject site (Figure 2) did not identify concentrations of metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), or semi-volatile organic compounds (SVOCs) exceeding applicable New York State Department of Environmental Conservation (NYSDEC) Part 375 Commercial or Protection of Groundwater Soil Cleanup Objectives (SCOs). However, nickel and acetone were observed in selected soil samples exceeding Unrestricted Use SCOs. Based on the locations of the former soil borings (see Figure 2), the soil characteristics and analytical results did not necessarily reflect soil quality where excavation would be necessary for the intended YMCA building footprint.

Haley & Aldrich completed a Phase I Environmental Site Assessment (Phase I ESA) at the subject site in January 2020 (Haley & Aldrich, 2020) as part of initial environmental due diligence activities conducted on behalf of the YMCA. The 2020 Phase I ESA identified one Recognized Environmental Condition (REC) in connection with the subject site related to the apparent presence of historical urban fill associated with past operation and demolition of the metal foundry previously located on and adjacent to the subject site. Historical information reviewed as part of Haley & Aldrich's 2020 Phase I ESA, as well as site reconnaissance observations, suggested that demolition debris from former foundry structures previously occupying the southern portion of the subject site and southerly adjacent property appeared to have been graded into site fill, creating an elevated area occupying the central and northern portions of the subject site (Figure 2); the filled area has a rough arcuate outline along its eastern and northern sides, approximately corresponding to an historical rail siding that traversed the site along a southeast to northwest path.

Based on the findings of the 2020 Phase I ESA, Haley & Aldrich designed a Phase II environmental subsurface investigation program to evaluate the identified REC, including roughly delineating the horizontal and vertical extents of urban fill across the subject site, and to evaluate the chemical characteristics of site soils to inform future earthwork activities associated with potential development of the subject site as a YMCA facility.

Please note that the exploration program completed was also used to collect geotechnical data and samples to allow Haley & Aldrich to evaluate conditions for the proposed YMCA building and related infrastructure (driveways and parking features); geotechnical engineering data, interpretations and recommendations are being reported under separate cover.

Subsurface Investigations

Between 3 August and 11 August 2020, Haley & Aldrich oversaw environmental subsurface investigations conducted at the subject site. During the investigation period, Earth Dimensions, Inc. (EDI) excavated 10 test pits and advanced 8 exploratory soil borings (Figure 2), using a Kubota KX080-4 Excavator and truck-mounted Diedrich D120 Hollow Stem Auger drill rig, respectively.

On 3 August 2020, EDI excavated 10 test pits (TP-01 to TP-10; Figure 2) to depths ranging between 3 and 10 ft bgs (below ground surface), generally stopping once native soils were observed underlying the fill materials, or upon encountering an obstruction that could not reasonably be moved by the excavator. A

Haley & Aldrich geologist monitored all test pits completed, screened recovered soils visually/olfactorily for observable evidence of contamination, and screened soils exposed with a photoionization detector (PID) for the potential presence of volatile organic compounds (VOCs). The geologist also characterized observed soils using the Unified Soil Classification System (USCS) characterization method. Refer to Appendix B for test pit logs. Select test pit photographs showing representative images of the fill soils encountered are presented in Appendix D. Environmental samples were not collected from test pit soils however observations made were used to guide sample collection from subsequently completed test borings within the proposed YMCA building footprint and paved areas. EDI backfilled the test pits with the excavated soils at each location explored and completed test pit surface locations to reasonably match pre-existing surface grades.

Between 4 August and 11 August 2020, EDI advanced 8 soil borings (SB-01 to SB-08; see Figure 2 for locations) to depths ranging between 10 and 86.5 ft bgs. EDI employed continuous split-spoon soil sampling throughout encountered subsurface fill (generally within the first 16 feet or less), and standard sampling (5 ft) intervals thereafter. A Haley & Aldrich geologist screened recovered soils visually/olfactorily for observable evidence of contamination, and also screened soils with a photoionization detector (PID) for the potential presence of VOCs. The Haley & Aldrich geologist also characterized recovered soils using the USCS characterization method. Please refer to Appendix C for the soil boring logs. Soil borings SB-01 through SB-05 were located within the proposed YMCA building footprint and advanced to the top of bedrock (approximately 75 ft bgs). Bedrock observed at SB-01 was cored for 10 feet. Soil borings SB-06 through SB-08 were located in potential future pavement areas throughout the subject site. Representative photographs of fill and native soil observed in SB-01 are presented in Appendix D. EDI backfilled the boreholes with drill cuttings at each location following the completion of drilling activities.

Haley & Aldrich collected ten soil samples from materials recovered during soil boring advancement for laboratory environmental analyses (please see Table I for all chemical sample identifications and results). Relatively few samples were selected on the basis of field observations of PID readings or other observed fill contents. In the absence of elevated PID readings and visual/olfactory evidence of contamination, Haley & Aldrich collected soil samples to generally represent the range of fill and native soils observed beneath the subject site, and generally within the depth range of fill that may require excavation and management during site development.

Soil samples were submitted to Eurofins Test America in Amherst, New York, for analysis of constituents listed in the NYSDEC Part 375 Soil Cleanup Objectives (SCOs), including: metals/inorganics, PCBs, herbicides/pesticides, VOCs, and SVOCs. Based on initial analytical results showing elevated concentrations in some samples for the metals lead and chromium, four soil samples were also analyzed for Toxicity Characteristic Leaching Procedure (TCLP) lead and chromium. Refer to Table I for soil analytical results and Appendix E for the applicable laboratory analytical data reports.

GEOLOGIC CONDITIONS

Observations from test pit excavations and soil boring advancement generally confirmed the presence of urban fill throughout the subject site, with fill thickness ranging from 2.5 to 10 ft bgs; please see

Figure 2 for exploration locations, each annotated with the thickness (in feet) of fill encountered. Exploration logs completed for the test pit and boring programs are contained in Appendix A and Appendix B, respectively.

Consistent with observations made during the conduct of Haley & Aldrich's January 2020 Phase I ESA due diligence activities, observed fill thickness was generally greatest within an elevated arcuate area occupying the central and northern portions of the subject site, and generally thickest within and adjacent to the footprint of the proposed YMCA building. Observed fill materials generally consisted of silts, sands and gravels containing miscellaneous debris, including concrete, brick, slag, ash, cinders, metal, plastic, rubber, asphalt and wood. Subject site fill materials were underlain by relatively thick deposits (>60 ft thick) of glaciolacustrine (lake-laid) clays, below which were <10 ft of apparent glaciofluvial (glacial stream-derived) sands, a laterally-discontinuous layer of glacial till, and below that weathered bedrock was encountered grading into competent dolostone bedrock at depths generally >75 ft bgs (Figure 3).

Visual and olfactory field observations and PID screening of soils recovered during test pitting generally identified similar conditions to those observed during soil boring activities, with the exception of slightly elevated PID readings in test pits TP-02 (2.5 ppm; 1 to 2 ft bgs) and TP-03 (0.6 ppm; 0 to 1 ft bgs), both located in the northwest portion of the subject site. Observations from TP-02 identified a light odor within fill materials containing miscellaneous debris including metal parts (apparent remnants of steel drums), aluminum cans and polyethylene sheeting. Observations from test pit TP-03 identified approximately 2.5 ft of urban fill materials exhibiting a stronger odor and black staining of an apparent creosote-like material on the north side of the excavation at a depth of approximately 1.5 ft bgs. A lighter odor was still observed in native clays (2.5 to 3.0 ft bgs) at the bottom of test pit TP-03. Photographs of soils excavated from TP-02 and TP-03 are presented in Appendix D.

Visual and olfactory observations of soils recovered during soil boring activities did not identify evidence of gross contamination in either fill materials or underlying native glaciolacustrine sediments. Additionally, PID readings did not identify concentrations of apparent VOCs in vapor emanating from soil exceeding 0.6 parts per million (ppm) (see the boring log for SB-02; sample depth 2 to 4 ft bgs, in Appendix C).

SOIL ANALYTICAL RESULTS

Due to our understanding of the future potential use of the subject site as a commercially-zoned recreational facility, soil chemical analytical results were compared to NYSDEC Part 375 Commercial and Protection of Groundwater (POGW) Restricted Use Soil Cleanup Objectives (SCOs). As noted above, analyses were completed for metals/inorganics, SVOCs, and VOCs. Out of the sampling and analyses completed there were generally detectable concentrations of a limited number of metals, VOCs and SVOCs, with few exceeding Commercial and/or POGW SCOs, as discussed herein.

Please see Table I for all sample analytical results. Note that bolded values indicate compound concentrations that were detected above the laboratory detection limit; results in black bolded font and

shaded gray exceed the NYSDEC Commercial SCO and results in blue bolded font and shaded gray exceed the Protection of Groundwater (POGW) SCO.

Inorganic compounds/metals were detected in each native or fill soil sample collected, with concentrations in fill soil samples exceeding Commercial and/or POGW SCOs for arsenic (SB-08), copper (SB-08), manganese (SB-02, SB-05), nickel (SB-08), and selenium (SB-05, SB-08). Lead and/or total chromium concentrations in *total metal* analyses of fill soils collected from borings SB-02, SB-03, SB-05 (4-8 ft bgs), and SB-08 were a factor of 20 times greater than the applicable criteria that would otherwise apply for hazardous waste characterization (5 mg/L or parts per million) if a toxicity characteristic leaching procedure (TCLP) analysis had been performed. Please note that the >20X criterion is often used as a rule-of-thumb to approximate characteristic hazardousness, i.e. the potential for the material to require treatment as a hazardous waste. These total metal analytical results prompted us to have the lab complete specific TCLP lead and chromium analytical testing. TCLP analytical results *did not* identify lead or chromium concentrations exceeding the applicable 5 mg/L maximum concentration for characteristic hazardousness by these criteria.

SVOCs were detected in each sample collected from fill soils, and within native soils sampled from SB-04 (9-11 ft bgs). Concentrations exceeded two Commercial SCO compound values and/or three POGW SCOs in the fill soil collected from one boring, SB-04 (4-6 ft). Field observations from SB-04 identified trace ash and cinders in the sampled soil interval and these SVOC results are consistent with these observations.

Low concentrations of a limited number of VOCs were detected in selected fill and native soil samples, none above the applicable SCOs with one exception. Only acetone was identified exceeding POGW SCOs. Acetone is a common VOC, often inadvertently introduced during laboratory analysis. It was detected in each native and fill soil sample collected and at a very consistent concentration in each sample, indicating laboratory contamination as the likely source of these detected concentrations.

Trace concentrations of pesticides/herbicides were detected in fill soils from SB-05 and SB-07 only, while PCBs were not detected in subject site soils sampled as part of this investigation. These detections did not exceed any of the applicable SCOs.

CONCLUSIONS AND RECOMMENDATIONS

This Phase II Investigation was conducted to evaluate the Recognized Environmental Condition identified during previous Phase I ESA activities, the presence of historical urban fill associated with past operation and demolition of a foundry previously located on and adjacent to the subject site, and more specifically that the fill may contain sufficient concentrations of contaminants that may render it as hazardous if site development required management of the fill and possible disposal offsite.

Based on the results of the Phase II investigation we make the following conclusions:

- Urban fill soils were generally confirmed to exist across the subject site, with observed fill thicknesses ranging between 2.5 to 10± ft. Observed fill materials generally consist of sand with gravel, and variably contain ash, brick, metal, plastic, concrete, and other miscellaneous debris.

- A subset of subject site fill soil samples contained metals/inorganics concentrations exceeding applicable NYSDEC Part 375 Commercial and/or POGW SCOs.

    - Metals concentrations exceeding Commercial SCOs (particularly manganese and nickel) suggest possible legacy contamination associated with former subject site use as a steel foundry.

    - Metals concentrations exceeding POGW SCOs were identified in shallow fill soils (<8 ft bgs) located above the apparent local water table. In addition, site clay deposits below the fill and at thicknesses of 60± ft. limit the transmission of compounds to the saturated zone and groundwater beneath and adjacent to the site, suggesting limited potential introduction of the observed metals into the area groundwater. Subject site groundwater sampling conducted during previous subsurface investigations by others (LCS) in 2017 did not identify metals concentrations exceeding applicable NYSDEC Class GA groundwater criteria.

    - Specific TCLP analyses of the two metals, lead and chromium, and in samples that exhibited total concentrations >20X than the TCLP rule-of-thumb did not identify concentrations of leachable lead or chromium exceeding the applicable 5 mg/L maximum concentration for characteristic hazardousness. Therefore subject site fill soils are not expected to need treatment as characteristically hazardous waste associated with these leachable metals.

- SVOC concentrations in fill soils sampled from a single soil boring (SB-04) exceeded Commercial SCOs for benzo (a) pyrene. The presence of ash and cinders in the sampled soil interval are the likely source of the elevated SVOC concentration.

- Minor visual/olfactory evidence of contamination (dark and apparent creosote staining) was observed in fill soils excavated from test pits TP-02 and TP-03 in the northwest corner of the subject site. Similar observations were not noted in other test pits or nearby soil borings (SB-04, SB-05), suggesting the extent of observed contamination is limited.

The relatively minor and spatially discontinuous exceedances of NYSDEC Part 375 SCOs Commercial and POWG SCOs in soils across the subject site are consistent with historical subject site use as a foundry, and do not suggest the previous occurrence of identifiable releases of petroleum or hazardous materials at the subject site that would render site fill as hazardous waste in the course of site development. Based on the observed SCO exceedances and visual observations of site fill in the test pits and borings completed during our Phase II, as well as from our review of data provided in previous site investigations, we conclude the subject site's fill soils will require management as a solid waste during

future site redevelopment activities. Recommended management considerations for the subject site fill materials include the following:

- Leaving or re-using fill on site beneath engineered features is acceptable with the placement of conventional asphalt (e.g. driveways, parking), concrete (e.g. sidewalks, building), or other engineered material barrier to restrict access to and contact with the underlying fill materials where such surface improvements are intended, and assuming that leaving fill beneath such surface completions is consistent with geotechnical or other site engineering considerations.

- Where landscaping is intended, the placement of a 1-foot thick vegetated clean soil cover is also acceptable (this thickness is consistent with the development of commercial sites under the applicable SCO values referenced in this report). Areas excavated to accommodate stormwater ponding/drainage will also require a 1-foot thick soil cover over remaining fill materials; specific attention should be afforded to avoid erosion of the 1-foot cover where flow will occur.

- If fill material needs to be transported off site for disposition, from the analytical data collected and observations reported herein, we anticipate that the subject site fill materials will satisfy acceptance criteria for off-site transport and disposal as solid (not hazardous) waste and likely require disposal at an appropriately-permitted solid waste management facility.

Again, please note that geotechnical evaluation of the site will be reported to the Buffalo Niagara YMCA under separate cover and should be considered together with the conclusions and recommendations provided in this report for decision-making by the YMCA as well as to inform development design support by others working with the YMCA for this project.

We appreciate the opportunity to provide environmental consulting services on this project. Please do not hesitate to contact us if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

Andrew L. Nichols
Technical Specialist

Vincent B. Dick
Principal

Enclosures:

Table I – Summary of Soil Analytical Results
Figure 1 - Project Locus
Figure 2 – Soil Boring and Test Pit Plan
Figure 3 – Geologic Subsurface Profile
Appendix A: Test Pit Logs
Appendix B: Soil Boring Logs

Appendix C: Select soil boring and test pit photographs
Appendix D: Laboratory Analytical Data Reports
Appendix E: Previous LCS Subsurface Soil and Groundwater Investigation Report

References

1. LCS, 2017a. Phase I Environmental Site Assessment, 1984 Elmwood Avenue, 15, 19, 33, 35, 107, and 125 Norris Street, and 742 Hertel Avenue, Buffalo, New York, prepared by LCS, Inc., dated 16 November 2017, prepared by LCS, Inc., dated 9 June 2017.

2. LCS, 2017b. Limited and Focused Geophysical Survey and Limited and Focused Subsurface Soil & Groundwater Investigation Report for the Property Identified as: Mixed-use Property, 1984 Elmwood Avenue, 15, 19, 33, 35, 107, and 125 Norris Street, and 742 Hertel Avenue, Buffalo, New York, prepared by LCS, Inc., dated 16 November 2017.

3. Haley & Aldrich, 2020. ASTM Phase I Environmental Site Assessment, The Uniland Property, Norris and Elmwood Avenues, Buffalo, New York, prepared by Haley & Aldrich of New York, dated 31 January 2020.

4. New York State Department of Environmental Conservation, Division of Environmental Remediation, 6 NYCRR Part 375 Environmental Remediation Programs, Subparts 375-1 to 375-4 and 375-6, effective 14 December 2006.

TABLES

TABLE I - DRAFT
SUMMARY OF SOIL ANALYTICAL RESULTS
YMCA BUFFALO NIAGARA - UNILAND SITE
BUFFALO, NEW YORK

Location	Commercial	Protection of Groundwater	Eastern USA Background	SB-01	SB-02	SB-03	SB-04	SB-04	SB-05	SB-05	SB-06	SB-07	SB-08
Sample Date				08/04/2020	08/06/2020	08/06/2020	08/07/2020	08/07/2020	08/10/2020	08/10/2020	08/11/2020	08/11/2020	08/11/2020
Sample Type				N	N	N	N	N	N	N	N	N	N
Sample Depth (bgs)				68 - 70 (ft)	2 - 4 (ft)	2 - 4 (ft)	4 - 6 (ft)	9 - 11 (ft)	4 - 8 (ft)	8 - 12 (ft)	4 - 6 (ft)	4 - 6 (ft)	4 - 6 (ft)
Sampled Strata				Native	Fill	Fill	Fill	Native	Fill	Native	Fill	Fill	Fill
Sample Name				SB-01-68-70	SB-02-2.0-4.0	SB-03-2.0-4.0	SB-04-4.0-6.0	SB-04-9.0-11.0	SB-05-4.0-8.0	SB-05-8.0-12.0	SB-06-4.0-6.0	SB-07-4.0-6.0	SB-08-4.0-6.0
Herbicides (mg/kg)													
2,4,5-TP (Silvex)	500	3.8		ND (0.019)	ND (0.02)	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.019)	ND (0.017)	ND (0.017)
Inorganic Compounds (mg/kg)													
Arsenic	16	16	3-12	**2.3 J**	**5.4**	**6.1**	**2.9 J**	**2.6 J**	ND (25.2)	**8**	**3**	**0.75 J**	**24.2 [AB]**
Barium	400	820	15-600	**69.8**	**57.8**	**58.1**	**25.2 J**	**109**	**97.2**	**208**	**73.2**	**11.2 J**	**28.6 J**
Beryllium	590	47	0-1.75	**0.35 J**	**0.36 J**	**0.36 J**	**0.19 J**	**0.58**	**0.17 J**	**0.94**	**0.69**	**0.093 J**	**0.15 J**
Cadmium	9.3	7.5	0.1-1.1	**0.12 J**	**0.61 J**	**1.8**	ND (0.85)	ND (0.88)	**1.5**	ND (0.71)	**0.23 J**	**0.36 J**	ND (1.7)
Chromium	-	-	1.5-40	**12.1**	**123**	**49.6**	**23.6**	**21.2**	**318**	**27.3**	**19.2**	**33.7**	**494**
Chromium III (Trivalent)	1500	-	--	**12.1**	**123**	**49.6**	**23.6**	**20.6**	**318**	**27.3**	**19.2**	**33.7**	**494**
Chromium VI (Hexavalent)	400	19	--	ND (2.3)	ND (2.5)	ND (2.2)	ND (2.2)	**0.55 J**	ND (2.2)	ND (2.2)	ND (2.4)	ND (2)	ND (2.1)
Copper	270	1720	1-50	**22**	**23**	**42.8**	**41.9**	**22.2**	**46**	**26.1**	**21.8**	**29.1**	**328 [A]**
Cyanide	27	40	N/A	ND (1.1)	ND (1.2) F1	ND (1.1)	ND (1)	ND (0.96)	ND (0.92)	ND (0.99)	**1.3**	ND (0.94)	ND (1)
Lead	1000	450	--	**8.7**	**43.6**	**121**	**47.1**	**12.9**	**65.7**	**14.5**	**91.7**	**81.4**	**45.5**
Manganese	10000	2000	50-50,000	**351**	**2160 [B]**	**1340**	**642**	**502**	**12200 [AB]**	**607**	**474**	**1340**	**1190**
Mercury	2.8	0.73	0.001-0.2	**0.0092 J**	**0.025**	**0.044**	**0.0082 J**	**0.005 J**	**0.024**	**0.009 J**	**0.0099 J**	**0.013 J**	**0.015 J**
Nickel	310	130	0.5-25	**12.8**	**12.2**	**14.4**	**27.9**	**23.3**	**53.8**	**29.4**	**12.7**	**40.1**	**483 [AB]**
Selenium	1500	4	0.1-3.9	ND (3.6)	ND (4.6)	ND (4.1)	ND (4.3)	ND (4.4)	**10.4 [B]**	ND (3.5)	ND (3.5)	**1.3 J**	**8.5 J [B]**
Silver	1500	8.3	N/A	ND (1.8)	ND (2.3)	ND (2.1)	ND (2.1)	ND (2.2)	ND (1.7)	ND (1.8)	ND (1.7)	ND (1.6)	ND (4.3)
Zinc	10000	2480	9-50	**45.8**	**113**	**346**	**54.3**	**70.7**	**203**	**67.5**	**48.5**	**93.8**	**60.8**
TCLP Metals (mg/L)													
Chromium	-	-	-	-	ND (0.020)	ND (0.020)	-	-	ND (0.020)	-	-	-	ND (0.020)
Lead	-	-	-	-	**0.0077 J**	**0.034**	-	-	**0.057**	-	-	-	**0.0055 J**
PCBs (mg/kg)													
Aroclor-1016 (PCB-1016)	-	-	-	ND (0.27)	ND (0.28)	ND (0.25)	ND (0.5)	ND (0.25)	ND (0.2)	ND (0.25)	ND (0.21)	ND (0.21)	ND (0.21)
Aroclor-1221 (PCB-1221)	-	-	-	ND (0.27)	ND (0.28)	ND (0.25)	ND (0.5)	ND (0.25)	ND (0.2)	ND (0.25)	ND (0.21)	ND (0.21)	ND (0.21)
Aroclor-1232 (PCB-1232)	-	-	-	ND (0.27)	ND (0.28)	ND (0.25)	ND (0.5)	ND (0.25)	ND (0.2)	ND (0.25)	ND (0.21)	ND (0.21)	ND (0.21)
Aroclor-1242 (PCB-1242)	-	-	-	ND (0.27)	ND (0.28)	ND (0.25)	ND (0.5)	ND (0.25)	ND (0.2)	ND (0.25)	ND (0.21)	ND (0.21)	ND (0.21)
Aroclor-1248 (PCB-1248)	-	-	-	ND (0.27)	ND (0.28)	ND (0.25)	ND (0.5)	ND (0.25)	ND (0.2)	ND (0.25)	ND (0.21)	ND (0.21)	ND (0.21)
Aroclor-1254 (PCB-1254)	-	-	-	ND (0.27)	ND (0.28)	ND (0.25)	ND (0.5)	ND (0.25)	ND (0.2)	ND (0.25)	ND (0.21)	ND (0.21)	ND (0.21)
Aroclor-1260 (PCB-1260)	-	-	-	ND (0.27)	ND (0.28)	ND (0.25)	ND (0.5)	ND (0.25)	ND (0.2)	ND (0.25)	ND (0.21)	ND (0.21)	ND (0.21)
Polychlorinated biphenyls (PCBs)	1	3.2	-	ND (0.27)	ND (0.28)	ND (0.25)	ND (0.5)	ND (0.25)	ND (0.2)	ND (0.25)	ND (0.21)	ND (0.21)	ND (0.21)

Notes:
1. Results in **bold** are detected.
2. ND (#): Not detected above indicated reporting limit.
3. Lab qualifiers are shown:
   *: LCS or LCSD is outside acceptance limits.
   J: Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
   F1: MS and/or MSD recovery exceeds control limits.
   F2: MS/MSD RPD exceeds control limits.
4. Detected results were screened against NYSDEC Part 375 Soil Cleanup Objectives.
   Exceedances are shaded gray and flagged in [ ]:
   [A]: Result is greater than Restricted Use Commercial
   [B]: Result is greater than Restricted Use Protection of Groundwater

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Sample Date				08/04/2020	08/06/2020	08/06/2020	08/07/2020	08/07/2020	08/10/2020	08/10/2020	08/11/2020	08/11/2020	08/11/2020
Sample Type				N	N	N	N	N	N	N	N	N	N
Sample Depth (bgs)				68 - 70 (ft)	2 - 4 (ft)	2 - 4 (ft)	4 - 6 (ft)	9 - 11 (ft)	4 - 8 (ft)	8 - 12 (ft)	4 - 6 (ft)	4 - 6 (ft)	4 - 6 (ft)
Sampled Strata				Native	Fill	Fill	Fill	Native	Fill	Native	Fill	Fill	Fill
Sample Name				SB-01-68-70	SB-02-2.0-4.0	SB-03-2.0-4.0	SB-04-4.0-6.0	SB-04-9.0-11.0	SB-05-4.0-8.0	SB-05-8.0-12.0	SB-06-4.0-6.0	SB-07-4.0-6.0	SB-08-4.0-6.0
Pesticides (mg/kg)													
4,4'-DDD	92	14	-	ND (0.0019)	ND (0.2)	ND (0.092) F1	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	**0.0093 J**	ND (0.035)
4,4'-DDE	62	17	-	ND (0.0019)	ND (0.2)	ND (0.092)	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
4,4'-DDT	47	136	-	ND (0.0019)	ND (0.2)	ND (0.092)	ND (0.18)	ND (0.0018)	**0.0028**	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
Aldrin	0.68	0.19	-	ND (0.0019)	ND (0.2)	ND (0.092)	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
alpha-BHC	3.4	0.02	-	ND (0.0019)	ND (0.2)	ND (0.092) F1	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
alpha-Chlordane	24	2.9	-	ND (0.0019)	ND (0.2)	ND (0.092)	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
beta-BHC	3	0.09	-	ND (0.0019)	ND (0.2)	ND (0.092) F1	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
delta-BHC	500	0.25	-	ND (0.0019)	ND (0.2)	ND (0.092) F1	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
Dieldrin	1.4	0.1	-	ND (0.0019)	ND (0.2)	ND (0.092)	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
Endosulfan I	200	102	-	ND (0.0019)	ND (0.2)	ND (0.092) F1	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
Endosulfan II	200	102	-	ND (0.0019)	ND (0.2)	ND (0.092)	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
Endosulfan sulfate	200	1000	-	ND (0.0019)	ND (0.2)	ND (0.092) F1	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
Endrin	89	0.06	-	ND (0.0019)	ND (0.2)	ND (0.092) F1	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
gamma-BHC (Lindane)	9.2	0.1	-	ND (0.0019)	ND (0.2)	ND (0.092)	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
Heptachlor	15	0.38	-	ND (0.0019)	ND (0.2)	ND (0.092)	ND (0.18)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.038)	ND (0.034)	ND (0.035)
Semi-Volatile Organic Compounds (mg/kg)													
2-Methylphenol (o-Cresol)	500	0.33	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
3&4-Methylphenol	-	-	-	ND (0.38)	ND (0.4)	ND (3.7)	ND (36)	ND (0.36)	ND (1.8)	ND (0.37)	ND (1.9)	ND (1.7)	ND (1.7)
4-Methylphenol	500	0.33	-	ND (0.38)	ND (0.4)	ND (3.7)	ND (36)	ND (0.36)	ND (1.8)	ND (0.37)	ND (1.9)	ND (1.7)	ND (1.7)
Acenaphthene	500	98	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Acenaphthylene	500	107	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Anthracene	500	1000	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Benzo(a)anthracene	5.6	1	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18) F1	ND (0.19)	ND (0.92)	ND (0.19)	**0.27 J**	**0.14 J**	**0.18 J**
Benzo(a)pyrene	1	22	-	ND (0.19)	**0.061 J**	ND (1.9)	**4.8 JF1** [A]	ND (0.19)	**0.14 J**	ND (0.19)	**0.27 J**	**0.15 J**	**0.28 J**
Benzo(b)fluoranthene	5.6	1.7	-	ND (0.19)	**0.12 J**	**0.3 J**	**5.6 JF1** [B]	ND (0.19)	**0.19 J**	ND (0.19)	**0.31 J**	**0.18 J**	**0.24 J**
Benzo(g,h,i)perylene	500	1000	-	ND (0.19)	**0.079 J**	ND (1.9)	**3 JF1**	ND (0.19)	**0.11 J**	ND (0.19)	**0.22 J**	**0.15 J**	**0.22 J**
Benzo(k)fluoranthene	56	1.7	-	ND (0.19)	**0.033 J**	ND (1.9)	**2.8 JF1** [B]	ND (0.19)	**0.12 J**	ND (0.19)	**0.13 J**	ND (0.86)	**0.16 J**
Chrysene	56	1	-	ND (0.19)	**0.081 J**	ND (1.9)	**5.3 JF1** [B]	ND (0.19)	ND (0.92)	ND (0.19)	**0.29 J**	**0.2 J**	**0.22 J**
Dibenz(a,h)anthracene	0.56	1000	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Dibenzofuran	350	6.2	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Fluoranthene	500	1000	-	ND (0.19)	**0.078 J**	ND (1.9)	**8.2 JF2**	**0.033 J**	**0.21 J**	ND (0.19)	**0.6 J**	**0.31 J**	**0.36 J**
Fluorene	500	386	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Hexachlorobenzene	6	1.4	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Indeno(1,2,3-cd)pyrene	5.6	8.2	-	ND (0.19)	**0.053 J**	ND (1.9)	**2.8 JF1**	ND (0.19)	ND (0.92)	ND (0.19)	**0.17 J**	ND (0.86)	**0.17 J**
Naphthalene	500	12	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Pentachlorophenol	6.7	0.8	-	ND (0.38)	ND (0.4)	ND (3.7)	ND (36)	ND (0.36)	ND (1.8)	ND (0.37)	ND (1.9)	ND (1.7)	ND (1.7)
Phenanthrene	500	1000	-	ND (0.19)	**0.048 J**	ND (1.9)	**2.8 JF1**	ND (0.19)	ND (0.92)	ND (0.19)	**0.48 J**	**0.33 J**	**0.15 J**
Phenol	500	0.33	-	ND (0.19)	ND (0.21)	ND (1.9)	ND (18)	ND (0.19)	ND (0.92)	ND (0.19)	ND (0.96)	ND (0.86)	ND (0.89)
Pyrene	500	1000	-	ND (0.19)	**0.075 J**	ND (1.9)	**7.2 J**	**0.023 J**	**0.19 J**	ND (0.19)	**0.45 J**	**0.28 J**	**0.32 J**

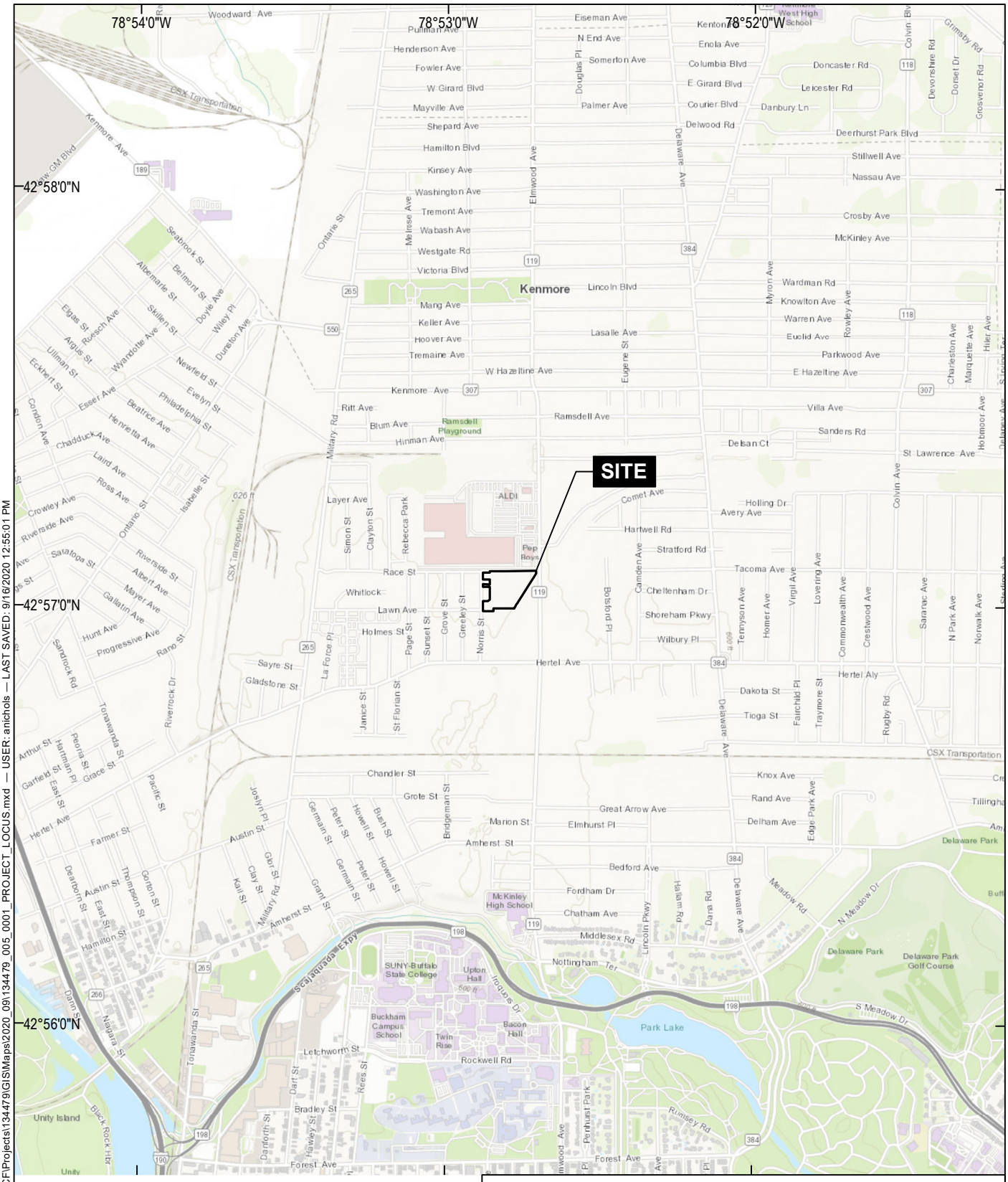
Notes:
1. Results in **bold** are detected.
2. ND (#): Not detected above indicated reporting limit.
3. Lab qualifiers are shown:
   *: LCS or LCSD is outside acceptance limits.
   J: Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
   F1: MS and/or MSD recovery exceeds control limits.
   F2: MS/MSD RPD exceeds control limits.
4. Detected results were screened against NYSDEC Part 375 Soil Cleanup Objectives.
   Exceedances are shaded gray and flagged in [ ]:
   [A]: Result is greater than Restricted Use Commercial
   [B]: Result is greater than Restricted Use Protection of Groundwater

TABLE I - DRAFT
SUMMARY OF SOIL ANALYTICAL RESULTS
YMCA BUFFALO NIAGARA - UNILAND SITE
BUFFALO, NEW YORK

Location	Commercial	Protection of Groundwater	Eastern USA Background	SB-01	SB-02	SB-03	SB-04	SB-04	SB-05	SB-05	SB-06	SB-07	SB-08
Sample Date				08/04/2020	08/06/2020	08/06/2020	08/07/2020	08/07/2020	08/10/2020	08/10/2020	08/11/2020	08/11/2020	08/11/2020
Sample Type				N	N	N	N	N	N	N	N	N	N
Sample Depth (bgs)				68 - 70 (ft)	2 - 4 (ft)	2 - 4 (ft)	4 - 6 (ft)	9 - 11 (ft)	4 - 8 (ft)	8 - 12 (ft)	4 - 6 (ft)	4 - 6 (ft)	4 - 6 (ft)
Sampled Strata				Native	Fill	Fill	Fill	Native	Fill	Native	Fill	Fill	Fill
Sample Name				SB-01-68-70	SB-02-2.0-4.0	SB-03-2.0-4.0	SB-04-4.0-6.0	SB-04-9.0-11.0	SB-05-4.0-8.0	SB-05-8.0-12.0	SB-06-4.0-6.0	SB-07-4.0-6.0	SB-08-4.0-6.0
Volatile Organic Compounds (mg/kg)													
1,1,1-Trichloroethane	500	0.68	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
1,1-Dichloroethane	240	0.27	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
1,1-Dichloroethene	500	0.33	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
1,2,4-Trimethylbenzene	190	3.6	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	**0.0043 J**	ND (0.005)	ND (0.0035)
1,2-Dichlorobenzene	500	1.1	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
1,2-Dichloroethane	30	0.02	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
1,3,5-Trimethylbenzene	190	8.4	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	**0.0017 J**	**0.00038 J**	ND (0.0035)
1,3-Dichlorobenzene	280	2.4	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
1,4-Dichlorobenzene	130	1.8	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
1,4-Dioxane	130	0.1	-	ND (0.078)	ND (0.12)	ND (0.11)	ND (0.1)	ND (0.075)	ND (0.1)	ND (0.092)	ND (0.1)	ND (0.099)	ND (0.071)
2-Butanone (Methyl Ethyl Ketone)	500	0.3	-	ND (0.02)	**0.018 J**	**0.011 J**	**0.0062 J***	ND (0.019) *	ND (0.025) *	ND (0.023) *	**0.0051 J**	**0.0061 J**	ND (0.018)
2-Phenylbutane (sec-Butylbenzene)	500	11	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Acetone	500	0.05	-	**0.004 J**	**0.13** [B]	**0.061** [B]	**0.069** [B]	**0.026**	**0.01 J**	**0.012 J**	**0.044**	**0.013 J**	**0.026**
Benzene	44	0.06	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	**0.0006 J**	ND (0.005)	ND (0.0035)
Carbon tetrachloride	22	0.76	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Chlorobenzene	500	1.1	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Chloroform (Trichloromethane)	350	0.37	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
cis-1,2-Dichloroethene	500	0.25	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Ethylbenzene	390	1	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	**0.00047 J**	ND (0.005)	ND (0.0035)
Methyl Tert Butyl Ether	500	0.93	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Methylene chloride	500	0.05	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
n-Butylbenzene	500	12	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
n-Propylbenzene	500	3.9	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	**0.00043 J**	ND (0.005)	ND (0.0035)
tert-Butylbenzene	500	5.9	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Tetrachloroethene	150	1.3	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Toluene	500	0.7	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	**0.0011 J**	ND (0.005)	ND (0.0035)
trans-1,2-Dichloroethene	500	0.19	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Trichloroethene	200	0.47	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Vinyl chloride	13	0.02	-	ND (0.0039)	ND (0.0061)	ND (0.0055)	ND (0.005)	ND (0.0038)	ND (0.0051)	ND (0.0046)	ND (0.005)	ND (0.005)	ND (0.0035)
Xylene (total)	500	1.6	-	ND (0.0078)	ND (0.012)	ND (0.011)	ND (0.01)	ND (0.0075)	ND (0.01)	ND (0.0092)	**0.0034 J**	ND (0.0099)	ND (0.0071)

Notes:
1. Results in **bold** are detected.
2. ND (#): Not detected above indicated reporting limit.
3. Lab qualifiers are shown:
   *: LCS or LCSD is outside acceptance limits.
   J: Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
   F1: MS and/or MSD recovery exceeds control limits.
   F2: MS/MSD RPD exceeds control limits.
4. Detected results were screened against NYSDEC Part 375 Soil Cleanup Objectives.
   Exceedances are shaded gray and flagged in [ ]:
   [A]: Result is greater than Restricted Use Commercial
   [B]: Result is greater than Restricted Use Protection of Groundwater

FIGURES



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HALEY ALDRICH

YMCA BUFFALO NIAGARA
UNILAND SITE
BUFFALO, NEW YORK

PROJECT LOCUS

MAP SOURCE: ESRI
SITE COORDINATES: 42°57'03"N, 78°52'49"W

APPROXIMATE SCALE: 1 IN = 2000 FT
SEPTEMBER 2020

FIGURE 1

DRAFT

LEGEND

- SOIL BORING, WITH FILL THICKNESS IN FEET
- TEST PIT, WITH FILL THICKNESS IN FEET
- FORMER SOIL BORING, 2017
- FORMER SOIL BORING AND TEMPORARY MONITORING WELL, 2017
- FORMER TEST PIT, 2017
- CROSS SECTION TRANSECT
- SUBJECT SITE BOUNDARY
- PROPOSED YMCA BUILDING
- FORMER STEEL FOUNDRY BUILDING
- TOPOGRAPHIC CONTOUR, 2-FT INTERVAL
- FORMER RAILROAD

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. PROPOSED BUILDING LOCATION FROM PLAN TITLED, "PREFERRED: SITE PLAN", PREPARED BY GRO, DATED 10 FEBRUARY 2020.

3. FORMER STEEL FOUNDRY BUILDING SOURCE: SANBORN FIRE INSURANCE MAP, 1950

4. TEST PIT EXPLORATIONS PERFORMED ON 3 AUGUST 2020 BY EARTH DIMENSIONS, INC. OF ELMA, NEW YORK.

5. SOIL BORINGS DRILLED BETWEEN 4 AUGUST AND 11 AUGUST 2020 BY EARTH DIMENSIONS, INC. OF ELMA, NEW YORK.

6. FORMER EXPLORATION LOCATION SOURCE: SITE INVESTIGATION PLAN, PREPARED BY LCS, INC., DATED 17 NOVEMBER 2017.

7. TOPOGRAPHIC CONTOUR DATA SOURCE: ERIE COUNTY

8. AERIAL IMAGERY SOURCE: EAGLEVIEW 2019

N

0 80 160

SCALE IN FEET

HALEY ALDRICH

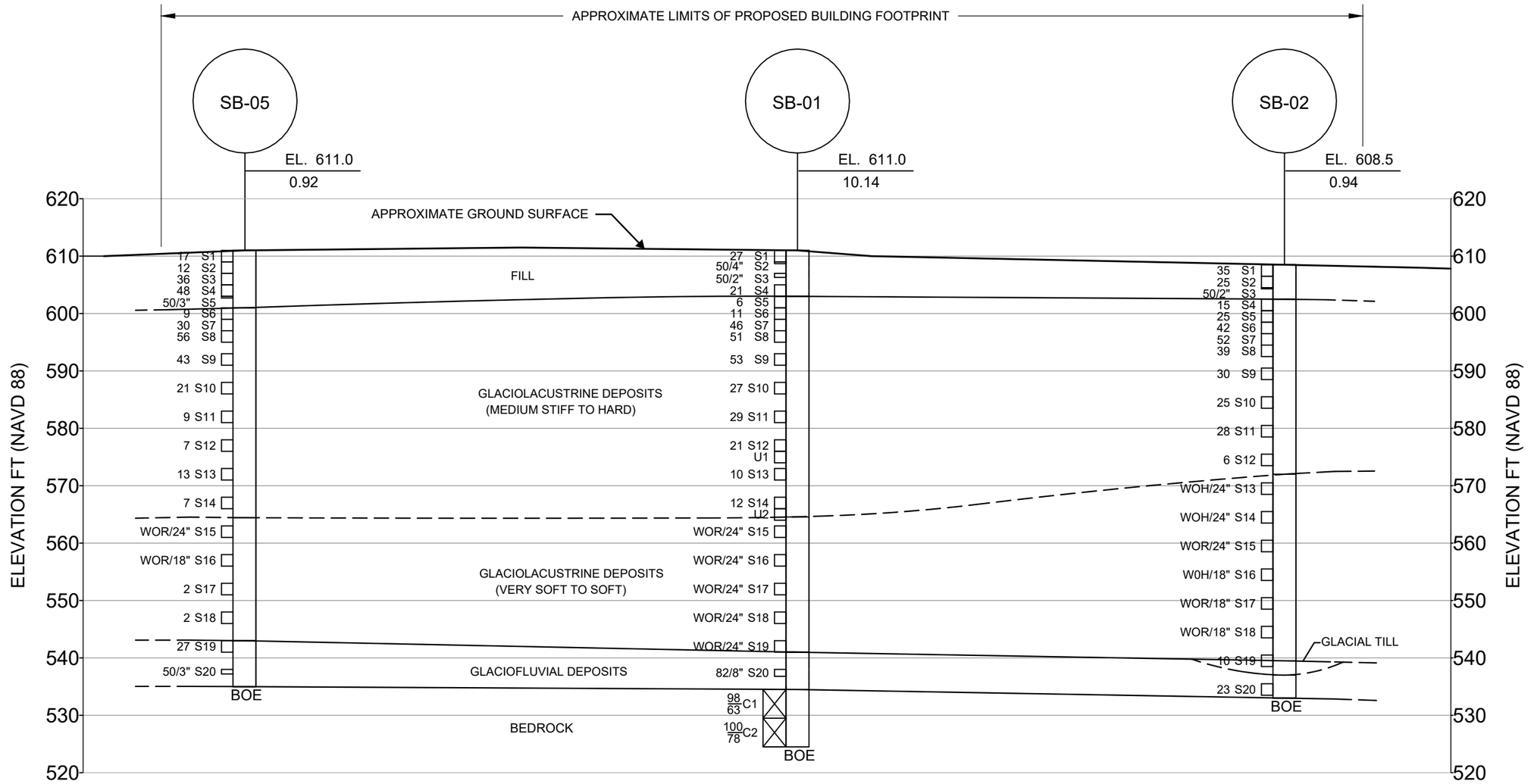
YMCA BUFFALO NIAGARA
UNILAND SITE
BUFFALO, NEW YORK

SOIL BORING AND TEST PIT PLAN

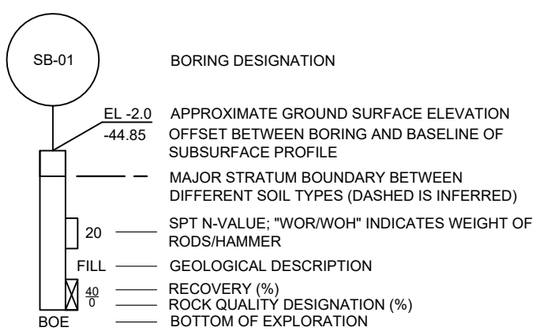
SEPTEMBER 2020

FIGURE 2

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\134479\GIS\Maps\2020_09\134479_005_0001_SOIL_BORING_TEST_PIT_PLAN.mxd — USER: anichols — LAST SAVED: 9/16/2020 12:57:49 PM



BORING LEGEND



NOTES

1. REFER TO FIGURE 2 FOR LOCATION AND ORIENTATION OF THE SUBSURFACE PROFILES.
2. ALL ELEVATIONS NOTED HEREIN ARE IN FEET AND REFERENCE THE NAVD 88 VERTICAL DATUM.
3. LINES REPRESENTING INTERFACES BETWEEN OR CHANGES WITHIN STRATA ON THE PROFILE ARE BASED UPON INTERPOLATION BETWEEN BORINGS SHOWN ON THE PROFILE AND OTHER AVAILABLE SUBSURFACE INFORMATION. THE INTERFACE LINES ARE INTENDED TO SHOW THE GENERAL SEQUENCE OF STRATA AND MAY NOT REPRESENT ACTUAL SUBSURFACE CONDITIONS. THE TRANSITION BETWEEN MATERIALS IS APPROXIMATE AND MAY BE GRADUAL. REFER TO TEST BORING LOGS FOR MORE DETAILS.

DRAFT

FOR DISCUSSION PURPOSES ONLY

HORIZ. 0 30 60
VERT. 0 20 40
SCALE IN FEET

HALEY ALDRICH

YMCA BUFFALO NIAGARA
UNILAND SITE
BUFFALO, NEWYORK

GEOLOGIC SUBSURFACE PROFILE

SCALE
SEPTEMBER 2020

FIGURE 3

APPENDIX A

Test Pit Logs

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-01

Project	YMCA Buffalo	**File No.**	134479-005
Location	Buffalo, NY	**H&A Rep**	D. Mukherjee
Client	YMCA Buffalo Niagara	**Date**	Aug 3, 20
Contractor	Earth Dimensions, Inc.	**Weather**	Mostly Cloudy 60-70^{0}F
Equipment Used	Kubota KX080-4 Excavator		

Ground El.:
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Brown silty SAND with gravel (SM), mps 3.5 ft, no structure, no odor, dry to moist, contains wood, concrete, asphalt, steel pieces, and various refuse debris PID=0.0 ppm										
2			-FILL-										
4													
	4.5	CL	Gray-brown sandy lean CLAY (CL), mps <2.0 in., no structure, no odor, moist PID=0.0 ppm										
6			-GLACIOLACUSTRINE DEPOSITS-										
8													
10	10.0		-BOTTOM OF TEST PIT APPROXIMATELY 10 ft Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid	S - Slow	N - None	
Toughness	L - Low	M - Medium	H - High	
Plasticity	N - Nonplastic	L - Low	M - Medium	H - High
Dry Strength	N - None	L - Low	M - Medium	H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 8x3
Pit Depth (ft) 10

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-02

Project	YMCA Buffalo	**File No.**	134479-005
Location	Buffalo, NY	**H&A Rep**	D. Mukherjee
Client	YMCA Buffalo Niagara	**Date**	Aug 3, 20
Contractor	Earth Dimensions, Inc.	**Weather**	Mostly Cloudy 60-70^{0}F
Equipment Used	Kubota KX080-4 Excavator		

Ground El.:
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Dark brown silty SAND (SM), mps 2.5 ft, no structure, light chemical-like odor, contains wood, concrete, brick, asphalt, metal debris remnants, possible drum parts, and various other refuse debris PID=0.1-2.5 ppm										
2			-FILL-										
4													
6													
8													
10	10.0	CL	Clay encountered at approximately 10 ft, possible change in strata. PP=0.0 ppm										
			-BOTTOM OF TEST PIT APPROXIMATELY 10 ft Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid	S - Slow	N - None	
Toughness	L - Low	M - Medium	H - High	
Plasticity	N - Nonplastic	L - Low	M - Medium	H - High
Dry Strength	N - None	L - Low	M - Medium	H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 10x2.5
Pit Depth (ft) 10

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-03

Project	**YMCA Buffalo**	**File No.**	134479-005
Location	Buffalo, NY	**H&A Rep**	D. Mukherjee
Client	YMCA Buffalo Niagara	**Date**	Aug 3, 20
Contractor	Earth Dimensions, Inc.	**Weather**	Mostly Cloudy 60-70^{0}F
Equipment Used	Kubota KX080-4 Excavator		

Ground El.:
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Light brown silty SAND (SM), mps 1.5 ft, no structure, strong odor, possible creosote-like material observed PID=0.0-0.6 ppm										
1			-FILL-										
2													
	2.5	CL	Gray-brown sandy lean CLAY (CL), mps <0.2 in., no structure, light chemical-like odor, moist PP=0.0 ppm										
3	3.0		-GLACIOLACUSTRINE DEPOSITS- BOTTOM OF TEST PIT APPROXIMATELY 3 FT Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid	S - Slow	N - None	
Toughness	L - Low	M - Medium	H - High	
Plasticity	N - Nonplastic	L - Low	M - Medium	H - High
Dry Strength	N - None	L - Low	M - Medium	H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 6x2.5
Pit Depth (ft) 3

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-04

Project	YMCA Buffalo
Location	Buffalo, NY
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions, Inc.
Equipment Used	Kubota KX080-4 Excavator

File No.	134479-005
H&A Rep	D. Mukherjee
Date	Aug 3, 20
Weather	Mostly Cloudy 60-70^{0}F

Ground El.:
El. Datum:

Location: See Plan

Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Brown silty SAND with gravel (SM), mps 3.5 ft, no structure, no odor, dry to moist, contains brick, concrete, metal and wood pieces and various other refuse debris										
			PID=0.0 ppm										
1			-FILL-										
2													
3													
4			Note: Concrete slab encountered at approximately 5 ft below ground surface. Abandoned test pit excavation.										
5	5.0		BOTTOM OF TEST PIT APPROXIMATELY 5 FT										
			Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid	S - Slow	N - None	
Toughness	L - Low	M - Medium	H - High	
Plasticity	N - Nonplastic	L - Low	M - Medium	H - High
Dry Strength	N - None	L - Low	M - Medium	H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 8x3
Pit Depth (ft) 5

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-05

Project	YMCA Buffalo
Location	Buffalo, NY
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions, Inc.
Equipment Used	Kubota KX080-4 Excavator

File No.	134479-005
H&A Rep	D. Mukherjee
Date	Aug 3, 20
Weather	Mostly Cloudy 60-70^{0}F

Ground El.:
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Brown silty SAND with gravel (SM), mps 4.0 ft, no structure, no odor, moist, contains concrete, brick, and asphalt pieces, possible historic steel drum remnants, and various other refuse debris PID=0.0 ppm -FILL-										
1													
2													
3													
4													
5	5.0		Note: Concrete slab encountered at approximately 5 ft below ground surface. Abandoned test pit excavation.										
			BOTTOM OF TEST PIT APPROXIMATELY 5 FT Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid	S - Slow	N - None	
Toughness	L - Low	M - Medium	H - High	
Plasticity	N - Nonplastic	L - Low	M - Medium	H - High
Dry Strength	N - None	L - Low	M - Medium	H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 10x2.5
Pit Depth (ft) 5

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-06

Project	YMCA Buffalo	**File No.**	134479-005
Location	Buffalo, NY	**H&A Rep**	D. Mukherjee
Client	YMCA Buffalo Niagara	**Date**	Aug 3, 20
Contractor	Earth Dimensions, Inc.	**Weather**	Mostly Cloudy 60-70^{0}F
Equipment Used	Kubota KX080-4 Excavator		

Ground El.:
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Brown silty SAND with gravel (SM), mps 3.0 ft, no structure, no odor, moist, contains brick, concrete, granite blocks, and wood pieces and various other refuse debris PID=0.0 ppm -FILL-										
2													
4													
6													
8	8.0	CL	Gray-brown sandy lean CLAY with gravel (CL), mps <3.0 in., no structure, no odor, moist PP=0.0 ppm										
	8.5		-GLACIOLACUSTRINE DEPOSITS- BOTTOM OF TEST PIT APPROXIMATELY 8.5 FT Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid	S - Slow	N - None	
Toughness	L - Low	M - Medium	H - High	
Plasticity	N - Nonplastic	L - Low	M - Medium	H - High
Dry Strength	N - None	L - Low	M - Medium	H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 10x2.5
Pit Depth (ft) 9

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-07

Project	YMCA Buffalo	**File No.**	134479-005
Location	Buffalo, NY	**H&A Rep**	D. Mukherjee
Client	YMCA Buffalo Niagara	**Date**	Aug 3, 20
Contractor	Earth Dimensions, Inc.	**Weather**	Mostly Cloudy 60-70^{0}F
Equipment Used	Kubota KX080-4 Excavator		

Ground El.:
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Brown silty SAND with gravel (SM), mps 3.5 ft, no structure, no odor, dry to moist, contains brick, concrete and wood pieces and various other refuse debris PID=0.0 ppm -FILL-										
2													
4													
6													
	7.0	CL	Brown soft sandy lean CLAY with gravel (CL), mps <2.0 in., no structure, no odor, moist PP=0.0 ppm										
	7.5		-GLACIOLACUSTRINE DEPOSITS- BOTTOM OF TEST PIT APPROXIMATELY 7.5 FT Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid	S - Slow	N - None	
Toughness	L - Low	M - Medium	H - High	
Plasticity	N - Nonplastic	L - Low	M - Medium	H - High
Dry Strength	N - None	L - Low	M - Medium	H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 10x2.5
Pit Depth (ft) 8

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-08

Project	YMCA Buffalo
Location	Buffalo, NY
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions, Inc.
Equipment Used	Kubota KX080-4 Excavator

File No.	134479-005
H&A Rep	D. Mukherjee
Date	Aug 3, 20
Weather	Mostly Cloudy 60-70^{0}F

Ground El.:
El. Datum:

Location: See Plan

Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Brown silty SAND with gravel (SM), mps 3.0 ft, no structure, no odor, dry to moist, contains brick, concrete, burnt coal, and wood pieces and various other refuse debris PID=0.0 ppm -FILL-										
2													
4													
6													
	7.5	CL	Brown sandy lean CLAY with gravel (CL), mps <2.0 in., no structure, no odor, moist PP=0.0 ppm -GLACIOLACUSTRINE DEPOSITS-										
8	8.5		BOTTOM OF TEST PIT APPROXIMATELY 8.5 FT Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid S - Slow N - None
Toughness	L - Low M - Medium H - High
Plasticity	N - Nonplastic L - Low M - Medium H - High
Dry Strength	N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 9x2.5
Pit Depth (ft) 9

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-09

Project	YMCA Buffalo	**File No.**	134479-005
Location	Buffalo, NY	**H&A Rep**	D. Mukherjee
Client	YMCA Buffalo Niagara	**Date**	Aug 3, 20
Contractor	Earth Dimensions, Inc.	**Weather**	Mostly Cloudy 60-70^{0}F
Equipment Used	Kubota KX080-4 Excavator		

Ground El.:
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Brown silty SAND with gravel (SM), mps 1.0 ft, no structure, no odor, dry to moist, contains concrete pieces PID=0.0 ppm -FILL-										
3	3.0	CL	Brown CLAY with gravel (CL), mps <2.0 in., no structure, no odor, moist PP=0.0 ppm -GLACIOLACUSTRINE DEPOSITS-										
4	4.0		BOTTOM OF TEST PIT APPROXIMATELY 4 FT Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy	R - Rapid	S - Slow	N - None	
Toughness	L - Low	M - Medium	H - High	
Plasticity	N - Nonplastic	L - Low	M - Medium	H - High
Dry Strength	N - None	L - Low	M - Medium	H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 8x2.5
Pit Depth (ft) 4

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

HALEY ALDRICH

TEST PIT LOG

DRAFT

Test Pit No. TP-10

Project	YMCA Buffalo
Location	Buffalo, NY
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions, Inc.
Equipment Used	Kubota KX080-4 Excavator

File No.	134479-005
H&A Rep	D. Mukherjee
Date	Aug 3, 20
Weather	Mostly Cloudy 60-70^{0}F

Ground El.:
El. Datum:
Location: See Plan
Groundwater depths/entry rates (in./min.): Not encountered

Depth (ft)	Stratum Change Elev./ Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (color, natural grain size and artificial component percentage estimates, maximum particle size, manual test properties, structure, odors, moisture, other descriptions and observations GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Tests Dilatancy	Toughness	Plasticity	Strength
0		SM	Brown silty SAND with gravel (SM), mps 2.5 ft, no structure, no odor, dry to moist, contains concrete and wood pieces PID=0.0 ppm -FILL-										
3	3.0	SP- SM	Orange-brown poorly-graded SAND with silt (SP-SM), mps 2 ft, no structure, no odor, moist										
5	5.0	CL	Gray-brown sandy lean CLAY (CL), mps <2.0 in., no structure, no odor, moist PP=0.0 ppm										
	5.5		-GLACIOLACUSTRINE DEPOSITS- BOTTOM OF TEST PIT APPROXIMATELY 5.5 FT Note: Test pit backfilled with excavated soil upon completion.										

Obstructions:

Remarks:

Field Tests

Dilatancy R - Rapid S - Slow N - None
Toughness L - Low M - Medium H - High
Plasticity N - Nonplastic L - Low M - Medium H - High
Dry Strength N - None L - Low M - Medium H - High V - Very High

Standing Water in Completed Pit

at depth Not Encountered ft
measured after hours elapsed

Boulders

Diameter (in.)	Number	Approx. Vol. (cu.ft)
12 to 24		=
over 24		=

Test Pit Dimensions (ft)

Pit Length x Width (ft) 8x2.5
Pit Depth (ft) 6

NOTE: Soil identification based on visual-manual methods of the USCS system as practiced by Haley & Aldrich, Inc.

TEST PIT WITHOUT SAMPLE ID COLUMN 134479-LIB09-REV.GLB HA-TP07-1.GDT \\HALEYALDRICH.COM\SHAREC\PROJECTS\134479\005 - PHASE II AND GEOTECH\GINT\134479_TP.GPJ Sep 16, 20

APPENDIX B

Soil Boring Logs

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-01

Project	YMCA Buffalo, Buffalo, New York
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Truck: Diedrich D120
Inside Diameter (in.)	3.25	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb)	NA	140	-	Drill Mud: None
Hammer Fall (in.)	NA	30	-	Casing: HSA Spun
				Hoist/Hammer: Safety Hammer
				PID Make & Model: MiniRAE 3000

File No. 134479-005
Sheet No. 1 of 4
Start 4 August 2020
Finish 5 August 2020
Driller P. Bence
H&A Rep. D. Mukherjee
Elevation 611.0 (est.)
Datum NAVD 88
Location See Plan
N 1075260.283
E 1068765.572

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	7 11 16 15	S1 13	0.0 2.0	0.0		SM	Medium dense gray silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, dry, concrete and asphalt fragments and particles -FILL-	10	10	10	20	35	15				
	50/4"	S2 4	2.0 2.3	0.0		SM	Brown silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, moist	15	10	10	20	25	20				
5	49 50/2"	S3 7	4.0 4.7	0.0		SM	Black silty SAND with gravel (SM), mps 1.2 in., no structure, no odor, moist	5	10	15	20	30	20				
	30 12 9 7	S4 14	6.0 8.0	0.0		SM	Medium dense dark brown silty SAND (SM), mps 0.75 in., no structure, no odor, moist	5	5	15	25	30	20				
	21 4 2 5	S5 11	8.0 10.0	0.0	603.0 8.0	CL	Medium stiff gray-brown lean CLAY (CL), mps 0.25 in., no structure, no odor, moist -GLACIOLACUSTRINE DEPOSITS-		5				95	N	L	M	H
10	3 4 7 14	S6 17	10.0 12.0	0.0		CL	Stiff red-brown lean CLAY with sand (CL), mps 0.3 in., no structure, no odor, moist		5			10	85	N	L	M	H
	15 20 26 21	S7 22	12.0 14.0	0.0		CL	Hard brown lean CLAY with gravel (CL), mps 0.3 in., no structure, no odor, moist, contains trace intermixed fine gravel		10		5		85	N	L	M	H
15	21 25 26 37	S8 24	14.0 16.0	0.0		CL	Similar to S7		10				90	N	L	M	H
	13 22 31 37	S9 24	18.0 20.0	0.0		CL	Hard brown lean CLAY (CL), mps 0.25 in., no structure, no odor, moist		5				95	N	L	M	H
20																	
	5 11 16 25	S10 22	23.0 25.0	0.0		CL	Very stiff brown lean CLAY (CL), mps 0.25 in., no structure, no odor, moist		5				95	N	L	M	H
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 76.5
Rock Cored (ft) 10
Samples 20S, 1C, 2U

Boring No. SB-01

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich of New York

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-01
File No. 134479-005
Sheet No. 2 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25																	
	8 12 17 19	S11 24	28.0 30.0	0.0		CL	Very stiff brown lean CLAY with sand (CL), mps 1.3 in., no structure, no odor, moist	5	5			5	85	N	L	M	M
30							-GLACIOLACUSTRINE DEPOSITS-										
	9 10 11 12	S12 24	33.0 35.0	0.0		CL	Very stiff brown lean CLAY (CL), mps 1.2 mm, no structure, no odor, moist	5				5	90	N	M	M	M
35		U1 18	35.0 37.0				Note: Shelby tube sample collected from approximately 35 to 37 ft.										
	2 5 5 7	S13 24	38.0 40.0	0.0		CL	Stiff brown lean CLAY with sand (CL), mps 0.8 in., no structure, no odor, moist		5			10	85	N	M	M	M
40																	
	2 5 7 9	S14 24	43.0 45.0	0.0		CL	Stiff brown lean CLAY (CL), mps <2 mm, no structure, no odor, moist					10	90	N	M	M	M
45		U2	45.0 47.0				Note: Shelby tube sample collected from approximately 45 to 47 ft.										
	WOR WOR WOR WOR	S15 24	48.0 50.0	0.0		CL	Very soft brown lean CLAY (CL), mps <2 mm, no structure, no odor, moist					10	90	N	M	M	M
50																	
	WOR WOR WOR WOR	S16 24	53.0 55.0	0.0		CL	Similar to S15										
55																	
	WOR WOR WOR WOR	S17 24	58.0 60.0	0.0		CL	Very soft brown lean CLAY with sand (CL), mps 0.2 in., no structure, no odor, moist	5	5			10	80	N	M	M	M
60																	

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-01

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-01
File No. 134479-005
Sheet No. 3 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
	WOR WOR WOR WOR	S18 24	63.0 65.0	0.0		CL	Similar to S17										
65							-GLACIOLACUSTRINE DEPOSITS-										
	WOR WOR WOR WOR	S19 24	68.0 70.0	0.0		CL	Very soft brown lean CLAY with sand (CL), mps 1.0 in., no structure, no odor, moist	5	5			5	85	N	M	M	M
70					541.0 70.0		Note: Drill action suggests a possible change in strata while drilling from approximately 70 to 73 ft.										
							-GLACIOFLUVIAL DEPOSITS-										
	19 32 50/2"	S20 19	73.0 74.2	0.0		SP-SM	Very dense dark gray poorly graded SAND with silt (SP-SM), mps 0.25 in., no structure, no odor, wet		5	35	20	30	10				
75							Auger refusal at approximately 76.5 ft.										
							SEE CORE BORING REPORT FOR ROCK DETAILS										
80																	
85																	

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-01

HALEY ALDRICH

CORE BORING REPORT DRAFT

Boring No. SB-01
File No. 134479-005
Sheet No. 4 of 4

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	3	C1	76.5 81.5	59 38	98 63	Slight		Moderately hard to hard to moderately hard, slightly weathered, gray, fine-grained to medium-grained DOLOSTONE. Bedding very thin to medium. Primary joint; horizontal to low angle and extremely close to moderate, rough, undulating, fresh to discolored, open, slight reaction with HCL, contains frequent pits, frequent inclusion, occasional horizontal calcite veins.
	4							
	4							
	3							
80								-CAMILLUS, SYRACUSE, AND VERNON FORMATIONS-
	6							
	6	C2	81.5 86.5	60 47	100 78	Slight		Approximately 81.5 to 82 ft: Similar to C1 above
	6							Approximately 82 to 84 ft: Moderately hard to hard, fresh, dark gray, aphanitic SHALE. Bedding: very thin and horizontal to low angle. Horizontal to low angle joint set; planar to undulating, fresh, tight to partly open, no reaction to HCL, no inclusions.
	5							
	4							Approximately 84 to 86.5 ft: Moderately hard, fresh to discolored, dark gray to white, medium to coarse-grained DOLOSTONE. Bedding: thin to moderate and horizontal to low angle. Horizontal to low angle joint set; rough undulating to planar, tight to open, very slight reaction to HCL, no inclusions.
85	4							
							86.5	BOTTOM OF EXPLORATION 86.5 FT
								Note: Borehole backfilled with soil cuttings upon completion.
90								
95								
100								
105								

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-02

Project	YMCA Buffalo, Buffalo, New York
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Truck: Diedrich D120
Inside Diameter (in.)	3.25	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb)	NA	140	-	Drill Mud: None
Hammer Fall (in.)	NA	30	-	Casing: HSA Spun
				Hoist/Hammer: Safety Hammer
				PID Make & Model: MiniRAE 3000

File No. 134479-005
Sheet No. 1 of 3
Start 5 August 2020
Finish 6 August 2020
Driller P. Bence
H&A Rep. D. Mukherjee
Elevation 608.5 (est.)
Datum NAVD 88
Location See Plan
N 1075153.736
E 1068695.487

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	9 9 26 27	S1 8	0.0 2.0	0.0		SM	Dense brown to black silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, dry	10	10	10	20	30	20				
	15 16 9 21	S2 19	2.0 4.0	0.6		SM	-FILL- Medium dense black silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, brick particles and fragments	5	15	5	20	35	20				
5	50/2"	S3 2	4.0 4.2	0.0		SM	Brown silty SAND (SM), mps 1.3 in., no structure, no odor, moist, piece of gravel lodged in tip of split spoon sampler	5	5	10	15	40	25				
	11 6 9 14	S4 19	6.0 8.0	0.0	602.5 6.0	CL	Stiff olive-gray lean CLAY (CL), mps <1 mm, no structure, organic odor, moist					10	90	N	M	M	H
	9 10 15 18	S5 17	8.0 10.0	0.0		CL	-GLACIOLACUSTRINE DEPOSITS- Very stiff brown lean CLAY (CL), mps 0.5 in., no structure, no odor, moist		5			5	90	N	M	M	H
10	16 19 23 31	S6 24	10.0 12.0	0.0		CL	Hard brown lean CLAY (CL), mps <1 mm, no structure, no odor, moist					5	95	N	M	M	H
	26 25 27 27	S7 3	12.0 14.0	0.0		CL	Hard brown lean CLAY (CL), mps 0.5 in., no structure, no odor, moist		5			5	90	N	M	M	H
15	16 18 21 30	S8 23	14.0 16.0	0.0		CL	Hard red CLAY (CL), mps 0.5 in., laminae, no odor, moist										
	9 13 17 20	S9 24	18.0 20.0	0.0		CL	Very stiff brown lean CLAY with sand (CL), mps 0.5 in., no structure, no odor, moist		5			5	90	N	M	M	H
20																	
25	8 11 14 20	S10 24	23.0 25.0	0.0		CL	Very stiff brown lean CLAY with sand (CL), mps 0.8 in., no structure, no odor, moist	5	5			10	80	N	M	M	M

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/6/20	0715		65	65	DRY
8/6/20	0830		75	75.5	35

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary
Overburden (ft) 75.5
Rock Cored (ft) -
Samples 20S

Boring No. SB-02

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich of New York

HALEY ALDRICH

TEST BORING REPORT

DRAFT

Boring No. SB-02
File No. 134479-005
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25																	
	7 13 15 17	S11 12	28.0 30.0	0.0		CL	Very stiff brown lean CLAY with sand (CL), mps 1.3 in., no structure, no odor, moist, piece of gravel lodged in tip of split spoon sampler	5	5			5	85	N	M	M	M
30							-GLACIOLACUSTRINE DEPOSITS-										
	1 2 4 5	S12 24	33.0 35.0	0.0		CL	Medium stiff brown lean CLAY (CL), mps <1 mm, no structure, no odor, moist					10	90	N	M	M	M
35																	
	WOR WOR WOH 5	S13 24	38.0 40.0	0.0		CL	Very soft brown lean CLAY (CL), mps <1 mm, no structure, no odor, moist					5	95	N	M	M	M
40																	
	WOR WOR WOH WOH	S14 24	43.0 45.0	0.0		CL	Very soft brown lean CLAY (CL), mps 0.5 in., no structure, no odor, moist		5			5	90	N	M	M	M
45																	
	WOR WOR WOR WOR	S15 24	48.0 50.0	0.0		CL	Similar to S14										
50																	
	WOR WOR WOH 3	S16 24	53.0 55.0	0.0		CL	Very soft brown lean CLAY with sand (CL), mps <1 mm, no structure, no odor, moist					15	85	N	M	M	M
55																	
	WOR WOR WOR 6	S17 24	58.0 60.0	0.0		CL	Similar to S16										
60																	

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-02

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-02
File No. 134479-005
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
				0.0		CL	Very soft brown lean CLAY with sand (CL), mps 0.9 in., no structure, no odor, moist	5	5			10	80	N	M	M	M
	WOR WOR WOR 5	S18 24	63.0 65.0														
65							-GLACIOLACUSTRINE DEPOSITS-										
	WOR WOR 10 21	S19 16	68.0 70.0	0.0	539.5	CL	Similar to S18										
					69.0	SM	Dense brown silty SAND (SM), mps 1.3 in., no structure, no odor, moist	5	5	10	25	35	20				
70							-GLACIAL TILL-										
					537.0 71.5												
	27 11 12 15	S20 19	73.0 75.0	0.0		SM	Medium dense brown silty SAND (SM), mps 1.3 in., no structure, no odor, wet	5	5	15	25	35	15				
75							-GLACIOFLUVIAL DEPOSITS-										
					533.0 75.5		Auger refusal at approximately 75.5 ft.										
							BOTTOM OF EXPLORATION 75.5 FT										
							Note: Borehole backfilled with soil cuttings upon completion.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-02

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-03

Project	YMCA Buffalo, Buffalo, New York
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Truck: Diedrich D120
Inside Diameter (in.)	3.25	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb)	NA	140	-	Drill Mud: None
Hammer Fall (in.)	NA	30	-	Casing: HSA Spun
				Hoist/Hammer: Safety Hammer
				PID Make & Model: MiniRAE 3000

File No. 134479-005
Sheet No. 1 of 3
Start 6 August 2020
Finish 6 August 2020
Driller P. Bence
H&A Rep. D. Mukherjee
Elevation 610.0 (est.)
Datum NAVD 88
Location See Plan
N 1075152.048
E 1068814.487

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	11 10 9 15	S1 11	0.0 2.0	0.0		SM	Medium dense brown silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, dry	5	10	10	25	30	20				
							-FILL-										
	18 12 9 11	S2 15	2.0 4.0	0.0		SM	Medium dense brown silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, dry, contains brick and concrete fragments and various other construction debris	10	10	10	20	30	20				
5	50/2"	S3 2	4.0 4.2	0.0		SM	Brown silty SAND with gravel (SM), mps 1.2 in., no structure, no odor, dry	5	10	10	20	40	15				
	50/4"	S4 4	6.0 6.3	0.0		SM	Similar to S3										
	13 6 4 5	S5 0	8.0 10.0	0.0			No recovery, piece of gravel lodged in tip of spit spoon sampler tip.										
10	2 6 10 17	S6 19	10.0 12.0	0.0	600.0 10.0	CL	Very stiff brown lean CLAY with sand (CL), mps 0.5 in., no structure, no odor, moist		10		5	5	80	N	M	M	H
							-GLACIOLACUSTRINE DEPOSITS-										
	10 17 21 29	S7 24	12.0 14.0	0.0		CL	Hard brown lean CLAY with sand (CL), mps 1.0 in., no structure, no odor, moist	5	5			10	80	N	M	M	H
15	10 12 21 32	S8 24	14.0 16.0	0.0		CL	Similar to S7, except contains a lens of yellow fine to medium-grained sand										
	7 12 18 26	S9 24	18.0 20.0	0.0		CL	Very stiff brown lean CLAY with gravel (CL), mps 1.3 in., no structure, no odor, moist, angular gravel	10	10			5	75	N	M	M	H
20																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/6/20	1945		77.5	77.5	40
8/7/20	0745			77.5	31

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 77.5
Rock Cored (ft) -
Samples 20S

Boring No. SB-03

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich of New York

HALEY ALDRICH

TEST BORING REPORT

DRAFT

Boring No. SB-03
File No. 134479-005
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
	9 9 11 15	S10 24	23.0 25.0	0.0		CL	Very stiff brown lean CLAY with sand (CL), mps 0.5 in., no structure, no odor, moist		10			10	80	N	M	M	H
25							-GLACIOLACUSTRINE DEPOSITS-										
	3 4 6 9	S11 24	28.0 30.0	0.0		CL	Stiff brown lean CLAY (CL), mps 0.3 in., no structure, no odor, moist		5			5	90	N	M	M	M
30																	
	3 5 6 7	S12 22	33.0 35.0	0.0		CL	Stiff brown lean CLAY (CL), mps 0.3 in., no structure, no odor, moist		5			5	90	N	M	M	M
35																	
	WOR WOR WOR WOR	S13 23	38.0 40.0	0.0		CL	Very soft brown lean CLAY with sand (CL), mps 0.3 in., no structure, no odor, moist		5			10	85	N	M	M	M
40																	
	WOR WOR WOR 3	S14 24	43.0 45.0	0.0		CL	Similar to S13							N	M	M	M
45																	
	WOR WOR WOR WOR	S15 24	48.0 50.0	0.0		CL	Very soft brown lean CLAY (CL), mps < 1 mm, no structure, no odor, moist					10	90	N	M	M	M
50																	

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-03

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-03
File No. 134479-005
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
	WOR WOR WOR WOR	S16 24	53.0 55.0	0.0		CL	Similar to S15										
55							-GLACIOLACUSTRINE DEPOSITS-										
	WOR WOR WOR 6	S17 24	58.0 60.0	0.0		CL	Very soft brown lean CLAY (CL), mps <1 mm, no structure, no odor, moist					10	90	N	M	M	L
60																	
	WOR WOR WOR WOR	S18 24	63.0 65.0	0.0		CL	Similar to S17										
65					543.5												
				0.0	66.5	ML	Very dense gray-brown sandy SILT with gravel (ML), mps 1.0 in., no structure, no odor, moist, piece of gravel lodged in tip of split spoon sampler	5	15	10	15	10	75				
	2 15 40 49	S19 14	68.0 70.0														
70							-GLACIAL TILL-										
				0.0	538.5 71.5	SW-SP	Medium dense gray well graded SAND with silt and gravel (SW-SP), mps 1.0 in., no structure, no odor, wet	5	15	20	20	30	10				
	3 6 21 34	S20 13	73.0 75.0														
75							-GLACIOFLUVIAL DEPOSITS-										
					532.5 77.5		Auger refusal at approximately 77.5 ft. BOTTOM OF EXPLORATION 77.5 FT Note: Borehole backfilled with soil cuttings upon completion.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-03

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-04

Project	YMCA Buffalo, Buffalo, New York
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Truck: Diedrich D120
Inside Diameter (in.)	3.25	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb)	NA	140	-	Drill Mud: None
Hammer Fall (in.)	NA	30	-	Casing: HSA Spun
				Hoist/Hammer: Safety Hammer
				PID Make & Model: MiniRAE 3000

File No. 134479-005
Sheet No. 1 of 3
Start 7 August 2020
Finish 10 August 2020
Driller P. Bence
H&A Rep. D. Mukherjee
Elevation 605.0 (est.)
Datum NAVD 88
Location See Plan
N 1075399.402
E 1068688.735

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	6 5 5 4	S1 4	0.0 2.0	0.0		SM	Loose dark gray silty SAND (SM), mps 0.2 in., no structure, no odor, dry, contains roots and plastic/rubber debris		5	5	30	40	20				
							-FILL-										
	5 6 17 19	S2 13	2.0 4.0	0.0		SM SP-SM	2-3 ft: Similar to S1 3-4 ft: Dense red poorly graded SAND with silt (SP-SM), mps 3 mm, no structure, no odor, dry			5	25	60	10				
5	10 12 31 25	S3 20	4.0 6.0	0.0		SP-SM SM SM	4-4.5 ft: Similar to S2 4.5-6 ft: Very dense gray silty SAND (SM), mps 0.4 in., no structure, no odor, moist, trace ash and cinders		5	10	25	40	20				
	15 17 23 27	S4 24	6.0 8.0	0.0		SM	Dense dark brown silty SAND (SM), mps 0.5 in., no structure, no odor, moist	5	5	10	20	40	20				
	12 6 6 8	S5 24	8.0 10.0	0.0	596.5 8.5	SM CL	8-8.5 ft:Similar to S4 8.5-10 ft: Stiff dark gray lean CLAY with sand (CL), mps <1 mm, no structure, no odor, moist					20	80	N	M	M	M
10							-GLACIOLACUSTRINE DEPOSITS-										
	5 9 16 19	S6 18	10.0 12.0	0.0		CL	Very stiff red-brown lean CLAY with sand (CL), mps 0.3 in., no structure, no odor, moist		5			10	85	N	M	M	H
	9 16 20 27	S7 24	12.0 14.0	0.0		CL	Hard brown lean CLAY with sand (CL), mps 0.8 in., no structure, no odor, moist, angular gravel	5	5			10	80	N	M	M	H
	18 19 25 33	S8 24	14.0 16.0	0.0		CL	Hard brown lean CLAY with gravel (CL), mps 1.3 in., no structure, no odor, moist, angular gravel	5	5			5	85	N	M	M	H
15																	
	15 15 20 28	S9 24	18.0 20.0	0.0		CL	Similar to S8										
20																	
	5 9 11 19	S10 24	23.0 25.0	0.0		CL	Very stiff brown lean CLAY (CL), mps 1.3 in., no structure, no odor, moist	5	5			5	85	N	M	M	M
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/10/20	0710		78	78	36

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 78
Rock Cored (ft) -
Samples 20S

Boring No. SB-04

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich of New York

HALEY ALDRICH

TEST BORING REPORT

DRAFT

Boring No. SB-04
File No. 134479-005
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25																	
	5 6 7 12	S11 24	28.0 30.0	0.0		CL	Stiff brown lean CLAY (CL), mps 0.3 in., no structure, no odor, moist		5			5	90	N	M	M	M
30							-GLACIOLACUSTRINE DEPOSITS-										
	4 6 7 8	S12 24	33.0 35.0	0.0		CL	Stiff brown lean CLAY (CL), mps < 1 mm, no structure, no odor, moist					10	90	N	M	M	M
35																	
	5 7 8 7	S13 7	38.0 40.0	0.0		CL	Stiff brown lean CLAY (CL), mps < 1 mm, no structure, no odor, moist					10	90	N	M	M	M
40																	
	4 5 6 6	S14 21	43.0 45.0	0.0		CL	Similar to S13										
45																	
	WOR WOR 2 3	S15 24	48.0 50.0	0.0		CL	Very soft brown lean CLAY (CL), mps < 1 mm, no structure, no odor, wet					5	95	N	M	M	M
50																	
	WOR WOR WOR WOR	S16 24	53.0 55.0	0.0		CL	Very soft brown lean CLAY (CL), mps < 1 mm, no structure, no odor, moist					5	95	N	M	M	M
55																	
	WOR 3 8 6	S17 24	58.0 60.0	0.0		CL	Stiff brown lean CLAY with sand (CL), mps 1.2 in., no structure, no odor, moist	5	5		5	10	75	N	M	M	M
60																	
				0.0	543.5 61.5			10	10			30	50				

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-04

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-04
File No. 134479-005
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
						ML	Dense gray-brown sandy SILT with gravel (ML), mps 1.3 in., no structure, no odor, moist, subrounded gravel										
	18 19 22 26	S18 24	63.0 65.0				-GLACIAL TILL-										
65																	
	8 15 18 29	S19 24	68.0 70.0	0.0	536.5 68.5	ML	68-68.5 ft: Similar to S18										
						SP-SM	68.5-70 ft: Dense gray-brown poorly graded SAND with silt (SP-SM), mps 0.1 in., no structure, no odor, wet Note: Difficult drilling.			15	35	40	10				
70							-GLACIOFLUVIAL DEPOSITS-										
	26 23 17	S20 10	73.0 74.5	0.0		SP-SM	Medium dense brown poorly-graded SAND with silt (SP-SM), mps 4 mm, no structure, no odor, wet Note: Drove spoon 1.5 ft.			25	35	30	10				
75																	
					527.0 78.0		Auger refusal at approximately 78 ft, possible top of bedrock BOTTOM OF EXPLORATION 78 FT Note: Test boring sampling completed on 8/7/20. The augers were left in the borehole over the weekend. After the depth to groundwater was measured on the morning of 8/10/20, the augers were removed and the borehole was backfilled with soil cuttings.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-04

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-05

Project	YMCA Buffalo, Buffalo, New York
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Truck: Diedrich D120
Inside Diameter (in.)	3.25	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb)	NA	140	-	Drill Mud: None
Hammer Fall (in.)	NA	30	-	Casing: HSA Spun
				Hoist/Hammer: Safety Hammer
				PID Make & Model: MiniRAE 3000

File No. 134479-005
Sheet No. 1 of 3
Start 10 August 2020
Finish 10 August 2020
Driller P. Bence
H&A Rep. D. Mukherjee
Elevation 611.0 (est.)
Datum NAVD 88
Location See Plan
N 1075390.892
E 1068827.99

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	8 8 9 5	S1 13	0.0 2.0	0.0		SM	Medium dense dark gray silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, dry, contains concrete and brick fragments -FILL-	5	10	5	20	35	25				
	16 9 3 10	S2 22	2.0 4.0			SM	2-3 ft: Similar to S1										
				0.0		GP	3-4 ft: Medium dense yellow poorly graded GRAVEL with sand (GP), mps 1.3 in., no structure, no odor, dry	20	20	10	15	30	5				
5	11 19 17 18	S3 12	4.0 6.0	0.0		SM	Dense dark brown silty SAND (SM), mps 1.0 in., no structure, no odor, moist, contains concrete fragments and trace metal debris	5	5	5	20	40	25				
	15 22 26 31	S4 24	6.0 8.0	0.0		SM	Dense dark brown silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, moist, contains concrete and brick fragments and trace possible slag	10	10	10	20	30	20				
	50/3"	S5 2	8.0 8.3	0.0			Note: Poor recovery, piece of gravel lodged in tip of split spoon sampler tip.										
10	8 4 5 10	S6 24	10.0 12.0	0.0	601.0 10.0	CL	Stiff gray-brown lean CLAY (CL), mps 0.3 in., no structure, no odor, moist -GLACIOLACUSTRINE DEPOSITS-		5		5	10	80	N	M	M	H
	13 14 16 21	S7 22	12.0 14.0	0.0		CL	Very stiff brown lean CLAY (CL), mps 1.3 in., no structure, no odor, moist, contains some thin sandy partings		5		5	5	85	N	M	M	H
15	16 25 31 27	S8 24	14.0 16.0	0.0		CL	Hard brown lean CLAY (CL), mps 1.2 in., no structure, no odor, moist	5	5	5	5	10	70	N	M	M	H
	23 24 19 21	S9 24	18.0 20.0	0.0		CL	Hard brown lean CLAY (CL), mps 0.8 in., no structure, no odor, moist	5	5			10	80	N	M	M	H
20																	
	8 9 12 15	S10 24	23.0 25.0	0.0		CL	Very stiff brown lean CLAY (CL), mps 1.3 in., no structure, no odor, moist	5	5			10	80	N	M	M	M
25																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/10/20	1345		76	76	50

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 76
Rock Cored (ft) -
Samples 20S

Boring No. SB-05

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich of New York

HALEY ALDRICH

TEST BORING REPORT

DRAFT

Boring No. SB-05
File No. 134479-005
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
25																	
	2 3 6 6	S11 24	28.0 30.0	0.0		CL	Stiff brown lean CLAY (CL), mps < 1 mm, no structure, no odor, moist to wet					10	90	N	M	M	M
30							-GLACIOLACUSTRINE DEPOSITS-										
	2 3 4 7	S12 24	33.0 35.0	0.0		CL	Medium stiff brown lean CLAY (CL), mps 0.3 in., no structure, no odor, moist to wet		5			5	90	N	M	M	M
35																	
	5 6 7 8	S13 23	38.0 40.0	0.0		CL	Stiff brown lean CLAY (CL), mps < 1 mm, no structure, no odor, moist					10	90	N	M	M	M
40																	
	WOR 3 4 5	S14 24	43.0 45.0	0.0		CL	Medium stiff brown lean CLAY (CL), mps 1.2 in., no structure, no odor, moist to wet, angular gravel	5	5			10	80	N	M	M	M
45																	
	WOR WOR WOR WOR	S15 24	48.0 50.0	0.0		CL	Very soft brown lean CLAY (CL), mps < 1 mm, no structure, no odor, moist					5	95	N	M	M	M
50																	
	WOR WOR WOR 6	S16 22	53.0 55.0	0.0		CL	Similar to S15										
55																	
	WOR WOR 2 2	S17 24	58.0 60.0	0.0		CL	Very soft brown lean CLAY (CL), mps < 1 mm, no structure, no odor, moist					10	90	N	M	M	M
60																	

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-05

HALEY ALDRICH

TEST BORING REPORT

DRAFT

Boring No. SB-05
File No. 134479-005
Sheet No. 3 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
				0.0													
	WOR WOR 2 4	S18 24	63.0 65.0			CL	Very soft brown lean CLAY (CL), mps <1 mm, no structure, no odor, moist to wet					10	90	N	M	M	M
65							-GLACIOLACUSTRINE DEPOSITS-										
					543.0												
	7 12 15 9	S19 11	68.0 70.0	0.0	68.0	SP-SM	Medium dense gray-brown poorly graded SAND with silt and gravel (SP-SM), mps 1.3 in., no structure, no odor, wet	5	10	20	25	30	10				
70							-GLACIOFLUVIAL DEPOSITS-										
	32 50/3"	S20 9	73.0 73.8	0.0		SP-SM	Very dense gray poorly graded SAND with silt (SP-SM), mps 0.4 in., no structure, no odor, wet		5		65	20	10				
75					535.0 76.0		Auger refusal at approximately 76 ft, possible top of bedrock BOTTOM OF EXPLORATION 76 FT Note: Borehole backfilled with soil cuttings upon completion.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. SB-05

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-06

Project	YMCA Buffalo, Buffalo, New York
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions Inc.

File No. 134479-005
Sheet No. 1 of 1
Start 11 August 2020
Finish 11 August 2020
Driller P. Bence
H&A Rep. D. Mukherjee
Elevation 604.5 (est.)
Datum NAVD 88
Location See Plan
N 1075406.083
E 1069109.033

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Truck: Diedrich D120
Inside Diameter (in.)	3.25	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb)	NA	140	-	Drill Mud: None
Hammer Fall (in.)	NA	30	-	Casing: HSA Spun
				Hoist/Hammer: Safety Hammer
				PID Make & Model: MiniRAE 3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	5 7 10 11	S1 10	0.0 2.0	0.0		SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, dry, contains roots and concrete fragments/particles	5	10	10	15	40	20				
							-FILL-										
	15 7 50/3"	S2 15	2.0 3.3	0.0		SM	Very dense brown silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, moist, contains concrete and asphalt fragments/particles	5	10	5	20	35	25				
5	21 25 18 16	S3 17	4.0 6.0	0.0		SM	Dense gray silty SAND (SM), mps 1.3 in., no structure, no odor, moist, contains concrete, slag, bricks, and wood, fragments/particles	5	5	10	20	40	20				
	34 12 10 8	S4 8	6.0 8.0	0.0		SP-SM	Medium dense gray poorly graded SAND with silt and gravel (SP-SM), mps 1.35 in., no structure, no odor, wet	10	15	10	10	45	10				
	2 5 6 6	S5 9	8.0 10.0	0.0	596.5 8.0 594.5 10.0	CL	Stiff brown lean CLAY with gravel (CL), mps 0.8 in., gray fine sand laminae, no odor, moist -GLACIOLACUSTRINE DEPOSITS-	10	10			10	70	N	M	M	H
10							BOTTOM OF EXPLORATION 10 FT Note: Borehole backfilled with soil cuttings upon completion.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 10
Rock Cored (ft) -
Samples 5S

Boring No. SB-06

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich of New York

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-07

Project	YMCA Buffalo, Buffalo, New York
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions Inc.

File No. 134479-005
Sheet No. 1 of 1
Start 11 August 2020
Finish 11 August 2020
Driller P. Bence
H&A Rep. D. Mukherjee
Elevation 610.5 (est.)
Datum NAVD 88
Location See Plan
N 1075231.381
E 1068937.706

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Truck: Diedrich D120
Inside Diameter (in.)	3.25	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb)	NA	140	-	Drill Mud: None
Hammer Fall (in.)	NA	30	-	Casing: HSA Spun
				Hoist/Hammer: Safety Hammer
				PID Make & Model: MiniRAE 3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	34 19 15 17	S1 14	0.0 2.0	0.0		SM	Dense dark brown silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, moist, contains roots and concrete fragments/particles, and possible trace slag fragments -FILL-	5	10	10	20	35	20				
	14 7 12 14	S2 16	2.0 4.0	0.0		SM	Medium dense dark brown silty SAND (SM), mps 1.0 in., no structure, no odor, moist, yellow sand from approximately 2.5 ft to 3 ft	5	5	20	20	30	20				
5	13 14 9 8	S3 15	4.0 6.0	0.0		SM	Medium dense black silty SAND (SM), mps 1.3 in., no structure, no odor, moist, contains concrete, slag, and metal debris fragments/particles	5	5	15	25	35	15				
	6 5 21 8	S4 4	6.0 8.0	0.0		SM	Similar to S3, except wet, wood lodged in tip of split spoon sampler										
	5 3 12 6	S5 3	8.0 10.0	0.0		SM	Similar to S3, except contains wood and wet										
10					600.5 10.0		BOTTOM OF EXPLORATION 10 FT Note: Borehole backfilled with soil cuttings upon completion.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 10
Rock Cored (ft) -
Samples 5S

Boring No. SB-07

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich of New York

HALEY ALDRICH

TEST BORING REPORT DRAFT

Boring No. SB-08

Project	YMCA Buffalo, Buffalo, New York
Client	YMCA Buffalo Niagara
Contractor	Earth Dimensions Inc.

File No. 134479-005
Sheet No. 1 of 1
Start 11 August 2020
Finish 11 August 2020
Driller P. Bence
H&A Rep. D. Mukherjee
Elevation 609.0 (est.)
Datum NAVD 88
Location See Plan
N 1075011.392
E 1068733.312

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HSA	S	-	Rig Make & Model: Truck: Diedrich D120
Inside Diameter (in.)	3.25	1 3/8	-	Bit Type: Cutting Head
Hammer Weight (lb)	NA	140	-	Drill Mud: None
Hammer Fall (in.)	NA	30	-	Casing: HSA Spun
				Hoist/Hammer: Safety Hammer
				PID Make & Model: MiniRAE 3000

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	12 12 17 18	S1 10	0.0 2.0	0.0		SM	Medium dense dark gray silty SAND with gravel (SM), mps 1.3 in., no structure, no odor, dry, contains roots and concrete fragments/particles	5	10	5	20	40	20				
							-FILL-										
	12 6 8 37	S2 15	2.0 4.0	0.0		SM	Medium dense dark brown silty SAND (SM), mps 1.3 in., no structure, no odor, dry to moist, contains brick and concrete fragments/particles	5	5	10	20	40	20				
	42 50/4"	S3 13	4.0 4.8	0.0		SM	Very dense dark brown silty SAND (SM), mps 1.0 in., no structure, no odor, dry to moist, contains brick and concrete fragments/particles	5	5	10	20	45	15				
5					603.0 6.0												
	12 7 13 17	S4 16	6.0 8.0	0.0		CL	Very stiff brown lean CLAY with sand (CL), mps 0.3 in., no structure, no odor, moist, contains brick and concrete fragments/particles		5			10	85				
							-GLACIOLACUSTRINE DEPOSITS-										
	14 18 23 33	S5 24	8.0 10.0	0.0		CL	Hard brown lean CLAY with sand (CL), mps 0.2 in., gray fine sand laminae, no odor, moist		5			10	85				
10					599.0 10.0		BOTTOM OF EXPLORATION 10 FT Note: Borehole backfilled with soil cuttings upon completion.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	10
Rock Cored (ft)	-
Samples	5S

Boring No. SB-08

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich of New York

APPENDIX C

Select soil boring and test pit photographs

Photo 1: SB-01 (0 to 2 ft bgs)

Photo 2: SB-01 (2 to 4 ft bgs)

Photo 3: SB-01 (4 to 6 ft bgs)

Photo 4: SB-01 (6 to 8 ft bgs)

Photo 5: SB-01 (8 to 10 ft bgs)

Photo 6: SB-01 (12 to 14 ft bgs)

Photo 7: SB-01 (14 to 16 ft bgs)

Photo 8: TP-02

Photo 9: TP-03

Photo 10: TP-03; black creosote-like material

APPENDIX D

Laboratory Analytical Data Reports

APPENDIX E

Previous LCS Subsurface Soil and Groundwater Investigation Report