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April 29, 2016

Mr. Joshua P. Cook, P.E.
Environmental Engineer 2
New York State Department of Environmental Conservation – Region 7
Division of Environmental Remediation
615 Erie Boulevard West
Syracuse, New York 13204-2400

Re: Maider Road Waterfront Site
Site ID No. B00015

File: 195.705.001

Dear Mr. Cook:

We have received your letter dated March 2, 2016 regarding the Department's comments to our Supplemental Investigation / Alternatives Analysis Report, dated December 2015 for the above referenced site. Our responses to Department comments are provided below. Department comments are shown below in italics, while C&S comments and clarifications are shown in bold.

Comment 1: Section 1.2.2, Section 4.2 and Appendix E – Based on available documentation, which includes records associated with the former major oil storage facility license, aerial photographs, and deeds, the site has been used for the bulk storage of petroleum since approximately 1940 or 1939. If other records indicate petroleum storage began prior to 1939, provide a copy of the documentation. If there are no records indicating petroleum storage began prior to 1939, please respond as such.

Response: C&S does not maintain additional information other than that referenced above.

Comment 2: Section 10.1 – In the 2014 RI Report a remedial alternative was included which utilized on-site ex-situ thermal treatment, but that alternative was not included in this report. The ex-situ thermal treatment alternative must either be included and evaluated, or a discussion must be submitted explaining why it was screened out without completing a full evaluation. If it is screened out, the discussion must include what changed the evaluation in the time between the 2014 RI Report and now (e.g., was it due to a better estimate of the soil quantities, a change in price of the technology, some other factor(s), etc.). If it is evaluated, the evaluation must include:

a. *a brief description of the technology and alternative (i.e., a supplement to section 10.1 of the report);*
b. *an evaluation of the alternative (i.e., a supplement to sections 11 and 12 of the report, which may be combined into a single discussion for this alternative); and*
c. *a detailed cost estimate (refer to other items of this letter regarding the cost estimates in completing this).*

Response: C&S evaluated thermal treatment as a potential remedial option and it was ruled out as an option due to the relatively high costs. The costs for this technology correlate to the moisture content of the soil, as well as other factors, and the site's soils are relatively moist and the water table is close to the surface. These factors significantly increase the cost of this technology, beyond the cost of other approaches. Additionally, this remedial approach does not reduce metals concentrations in the on-site soils.

Based on this evaluation, Section 10.1 of the report will be revised as follows:

"As discussed in **Section 4.4 and 4.5**, this category includes contaminated surface and subsurface soil. The following remedial approaches are discussed in the sections below:

- No Action
- Site Management Plan with Institutional Controls
- Selected Soil Removal and Off-Site Disposal (Restricted Residential Use Cleanup)
- Selected Soil Removal and On-Site Treatment (Restricted Residential Use Cleanup)
- Complete Fill Removal and Disposal (Unrestricted Use Cleanup)

In addition, in situ and ex situ thermal treatment were preliminarily evaluated, but the relatively high cost of this approach resulted in its elimination from consideration. The costs for this technology correlate to the moisture content of the soil, as well as other factors, and the site's soils are relatively moist and the water table is close to the surface. These factors significantly increase the cost of this technology, beyond the cost of other approaches. Additionally, this remedial approach does not reduce metals concentrations in the on-site soils.

Comment 3: Figures – Submit a figure or figures depicting the areas to be remediated for each alternative.

Response: The areas to be remediated for each alternative are attached as Figures 5.

Comment 4: Figures 2 & 4 – Please make the following corrections and resubmit:

a. *Based on the field notes in Appendix A, TP-9 should be located between TP-10 and TP-11.* **Figures 2 & 4 were updated accordingly.**
b. *TP-NBT10, TP-RB2, TP-RB3 and TP-RB5 are missing.* **These test pit locations were added to Figure 2 & 4**
c. *According to previous reports, the tank labeled as Tank 9 is actually Tank 10, and the tank labeled as Tank 10 is actually Tank 9. This correction must be made to Figure 3 as well.* **Figures 2, 3, and 4 were updated accordingly.**
d. *Test pits TP-13 through TP-16 should be labeled as they were in the 2002 report. It is not clear which is which; however, based on the field notes in Appendix A, it seems unlikely they are labeled correctly on these figures. Alternatively, submit an explanation how it was determined which test pit was which.*

Response: We have made the corrections on Figures 2, 3, and 4. The amended figures are attached. Please note the exact locations of TP-13 and TP-16 could not be verified. Field notes indicate soils were similar and both exhibited petroleum odor.

Comment 5: Figures 3 & 4 – The boring labeled as "Off-site B-2" should be "Off-site B-1"; "Off-site B-3" should be "Off-site B-2"; and "Off-site B-1" should be "Off-site B-3". Please make the corrections and resubmit.

Response: We have relabeled the borings on Figures 3 & 4. The amended figures are attached.

Comment 6: Tables – In the response to this letter (i.e., in the cover letter), state from which locations the duplicate samples were collected.

Response: Duplicate samples were taken from SS-11 (0-2), SED 11, H4-BA (6/24/15), and H4-BA (9/23/15).

Comment 7: Tables & Appendix F – The following discrepancies were noted between the boring logs and the tables. If the boring log is incorrect, please revise the boring log and resubmit, if the table is incorrect please reply as such, but do not submit the revised table at this time.

a. *The sampled interval for B-12 is listed as 2-6 feet, but the boring log for B-12 in Appendix F shows the sampled interval as 4-8 feet.*
   Response: B-12 boring log corrected and attached.
b. *The sampled interval for B-14 is listed as 8-12 feet, but the boring log for B-14 in Appendix F shows the sampled interval as 4-6 feet.*
   Response: Table 2 was corrected to show sample interval at 4-6 feet to match the boring log for B-14.

Comment 8: Table 7 – The air sampling results must be presented in micrograms per cubic meter (ug/m3). The air guideline for tetrachloroethene is 30 ug/m3. The air guideline for trichloroethene is 2 ug/m3. Please revise and resubmit this table. Refer to http://www.health.ny.gov/environmental/indoors/vapor_intrusion/update.htm.

Response: The report text and table were revised. Table 7 is attached.

Comment 9: Tables 9 through 14 – In order to compare the cost of all the alternatives on a common basis, the cost of any alternative that requires site management must include an estimate of the cost of site management. The annual cost of site management must be estimated, then the present worth of those annual costs is calculated for each alternative. By convention, the present worth is evaluated based on 30 years of site management assuming an interest rate of 5%. That assumption does not mean that site management would cease after 30 years. If the annual costs are expected to decrease after a certain number of years, the average annual costs can be shown for the various periods, but the total present worth must still be calculated and presented as one number. The present worth of annual costs is then added to the estimated cost of construction to determine the total present worth of the alternative.

Response: Tables 9 and 10 summarize costs for tasks that require site management. These tables were adjusted to include estimates for site management including the present worth based on 30 years of site management. The costs were assumed to remain steady across the time period. Tables 9 and 10 are attached.

Comment 10: Tables 9 through 12 – The estimated total cost for each of these tables does not match the sum of the construction subtotal, deed restriction, engineering, and contingency costs. Please rectify. Wherever "deed restriction" is present it should be revised to read "environmental easement".

Response: Calculated sums were corrected. "Deed restriction" references were changed to "environmental easement". Tables 9 through 12 are attached.

Comment 11: Tables 9 through 14 – Include notes explaining what work is included for each line item that is not readily apparent (e.g., Site Preparation, Engineering). Were the costs listed below considered in developing the cost estimates? If not, they must be added. If they were, a note must be added specifically detailing which line item these costs are included under. The costs that must be considered include the costs associated with the items listed below. Please revise Tables 9 through 14 in accordance with items 9 through 11 and item 20 of this letter and resubmit.

a. *remedial design, including the cost to conduct additional sampling to delineate the arsenic impacts (for Table 9 and 10), and to delineate all soil that exceeds unrestricted use SCOs (for Table 11);*

b. *contractor mobilization;*
c. *contractor's health and safety (e.g., air monitoring, personal protective equipment, etc.);*
d. *installing, maintaining and removing erosion and sedimentation controls (silt fencing, stabilized construction entrance, decontamination pad, etc.);*
e. *installing and maintaining temporary perimeter fencing during construction;*
f. *decommissioning existing monitoring wells prior to excavation;*
g. *endpoint sampling;*
h. *establishing a groundwater monitoring network at the completion of construction;*
i. *conducting community air monitoring during construction;*
j. *surveying excavation limits, sampling locations and other pertinent information;*
k. *developing a Site Management Plan;*
l. *conducting pre-qualification sampling for backfill to show the soil meets remedial requirements*
m. *annual costs, as also discussed in items 9 and 20 of this letter.*

Response: Tables 9 through 14 were revised to clearly include the items listed above as well as the items originally listed. Tables 9 through 12 are attached.

Comment 12: Appendices – Submit the category B deliverables for all samples collected as part of the 2001/2002 preliminary site investigation, and all samples collected as part of the remedial investigation or interim remedial measure between 2004 and 2007. Submit them in electronic format (pdf).

Response: Category B Deliverables for samples collected in 2001/2002 could not be located and may have not been delivered as such. The 2004 and 2007 Category B Deliverable data could not be located at the time of this letter. If they are found they will be submitted. DUSRs were located for the 2004 and 2007 data and are available on DVD to address comment 17 of this letter.

Comment 13: Appendices – Submit any soil vapor intrusion building inventories or sampling data forms completed by C&S or its subcontractor.

Response: No additional building or sampling data forms were completed by C&S or its subcontractor. These forms were completed by NYSDEC at the time of the sampling events.

Comment 14: Appendix F, B-2 – The "Sample No." column shows the sampled interval as 7-10 feet, but the note at the bottom of the description column states the sampled interval was 2-4 feet. Please rectify and resubmit this boring log.

Response: B-2 boring log corrected and attached.

Comment 15: Appendix F, Off-site B-4 – The "Sample No." column shows the sampled interval as 9-12 feet, but the note at the bottom of the description column states the sampled interval was 6-9 feet. Please rectify and resubmit this boring log.

Response: B-4 boring log corrected and attached.

Comment 16: Appendix F – If soil logs were completed during the surface and shallow soil sampling please submit the logs. If no logs were completed, please reply as such.

Response: Logs were not completed.

Comment 17: Appendix I – Based on recent correspondence with C&S, the Department understands that portions of the Data Usability Summary Reports were not included in the pdf. Please include the entirety of each DUSR, especially the validated laboratory data sheets (Form I's). Please submit in electronic format (pdf).

Response: PDFs of the complete DUSRs are attached on a CD.

Comment 18: Fish and Wildlife Resources Impact Analysis (FWRIA), Appendix A – Label the wetland areas as identified in Section 1.1.2.1 of the FWRIA (Wetland A, B, and C). Label the locations of the test pits which are included in the photographic log (e.g., W-A-1, W-B-1, etc.) Indicate the locations of the wetland delineation pits from which petroleum odors emanated. Please update the figure in Appendix A of the FWRIA and resubmit the figure.

Response: The figure has been updated accordingly and is attached.

Comment 19: FWRIA, Section 1.1.2 – In the response to this letter (i.e., in the cover letter), state when the wetland delineation was completed.

Response: The wetland delineation was completed on September 24, 2015.

Comment 20: The report failed to note that several monitoring wells were installed deeper in order to vertically-delineate impacts that were noted at shallower depths, which included petroleum in the form of non-aqueous phase liquid (NAPL). The monitoring wells were intentionally installed in the deeper, more compact, site material to evaluate the vertical extent of groundwater contamination. This was done, because, during early stages of the site investigation, it was observed that the more permeable upper zone material was saturated with petroleum NAPL, and rather than waste resources investigating the obvious

impact to groundwater, it was assumed that any site remedy would need to include provisions to address the groundwater issues identified in the shallow zone.

Based on the fact that, in certain areas, the upper fill layer contains petroleum contamination, it is likely that volatile organic compounds (VOCs) have partitioned into this zone of the groundwater and semivolatile organic compounds (SVOCs) may be associated with groundwater contamination in the shallow zone. This was supported by the presence of SVOCs in the sample of water collected from the sump in the basement of one of the adjacent residences. As a result of the report failing to acknowledge this contamination, certain potential exposure scenarios were not included in the report. Exposures to VOCs could also result from incidental ingestion of groundwater and as a result of the inhalation of VOCs evaporating from exposed groundwater during intrusive activities. Exposures to SVOCs may occur due to direct contact and incidental ingestion during ground intrusive activity.

Therefore, the report should have included the following remedial action objectives (RAOs) for groundwater:

<u>RAOs for Public Health Protection</u>

- *Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.*
- *Prevent contact with, or inhalation of volatiles, from contaminated groundwater.*

<u>RAOs for Environmental Protection</u>

- *Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.*
- *Prevent the discharge of contaminants to surface water and sediment.*
- *Remove the source of ground or surface water contamination.*

Based on the recommended remedy for soil contamination, and in consideration of the fact that the adjacent residences are serviced by public water, it is expected that the groundwater contamination, or the majority thereof, will be addressed sufficiently through source removal (soil excavation) and through dewatering during excavation. The extracted water will be treated prior to discharge or disposed of off-site. However, the remedy must include a means to evaluate the effectiveness of the remediation for groundwater. As such, the remedy must include the installation of several monitoring wells and periodic groundwater monitoring following remediation. The report should also have noted some technologies that may be utilized at the site should it be found that the soil excavation and associated dewatering do not adequately address the groundwater contamination. The technologies/remediation methods that would most likely be considered would include:

monitored natural attenuation; enhanced bioremediation; chemical oxidation; and potentially others.

The additional information required by this letter must take into account the need for groundwater monitoring. The figures submitted depicting the areas to be remediated must include some preliminary/conceptual locations for monitoring wells upon completion of the excavations. The cost estimates must include the cost of installing sufficient monitoring wells, including upgradient and downgradient wells for each area of impact, and must include the cost of groundwater monitoring as part of the annual costs.

Response: Section 9 has been updated to include the RAO's for groundwater. In addition, Sections 10 and 11 have been updated to include long-term groundwater monitoring as an alternative to compliment the soil Restricted Residential Use Alternatives that include partial soil removal and / or treatment. Costs for groundwater monitoring are shown in Tables 9 and 10. Figure 5 shows the locations of the existing wells to be decommissioned as well as the proposed new well network.

We trust this information meets your needs at this time. If you have any questions or comments please contact me.

Sincerely,

C&S ENGINEERS, INC.

Daniel E. Riker, P.G.
Managing Geologist

ec: Harry Warner (NYSDEC)
Joshua Cook (NYSDEC)
Maureen Schuck (NYSDOH)
Richard Jones (NYSDOH)
Damian Ulatowski (Town of Clay)
Judy Rios (Town of Clay)
Lisa Vincitore (Town of Clay)
Ronald DeTota (C&S)
Daniel Riker (C&S)
Wayne Randall (C&S)

COMMENT 7
BORING LOG B-12
CORRECTION

C&S Engineers, Inc.	BORING LOG	Boring No.	B-12
499 Col. Eileen Collins Blvd Syracuse, NY 13212 Phone: 315-455-2000 Fax: 315-455-9667 www.cscos.com		Sheet 12 of:	24
		Project No.:	195705001

Project Name:	Maider Road Brownfields Site						**Surface Elev.:**	Ground Surface	
Location:	Maider Road, Town of Clay, NY						**Datum:**		
Client:	Town of Clay						**Start Date:**	6/3/15	
Drilling Firm:	Geologic						**Finish Date:**	6/3/15	
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	HSA			**Inspector:**	WNR	
While Drilling:			**Casing:**	4.125"	**Rock Core:**		**Undist:**		
Before Casing Removal:			**Sampler:**		**Other:**				
After Casing Removal:			**Hammer:**						

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

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION c - coarse, m - medium, f - fine a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10% S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
						8:25 AM
1				***fmc GRAVEL & SAND, trace silt, moist***		20" recovery
2						
3				***fill material***	0.0 ppm	8" recovery
4						
5				***grey, tan, SILT, trace gravel***	0.0 ppm	18" recovery
6						
7				***grey SILT, some gravel***	0.0 ppm	18" recovery
8						
9				***grey SILT, some gravel***	0.0. ppm	14" recovery
10						
11				***grey SILT***	0.0 ppm	6" recovery
12						
13				***grey SILT, some gravel***	0.0 ppm	24" recovery
14						
15				***grey SILT, some gravel, wet***	0.0 ppm	10" recovery
16				***END OF BORING AT 16 FT***		
17				Laboratory Sample: 4-8 ft.		
18						
19						
20						
21						
22						
23						

COMMENT 8
TABLE 7
SOIL VAPOR DATA
COMPLETE SUMMARY

Table 7
2015 Additional Investigation - SVI Sampling
Maider Road Waterfront Site
Site ID No. B00015
Town of Clay - Onondaga County

Sample ID	H1-BA	H1-OA	H2-SS	H2-BA	H2-BA Dupe	H2-IA	H2-OA	H3-BA	H3-OA	H4-BA	H4-BA Dupe	H4-IA	H4-OA	H4-SS	H4-BA	H4-BA Dupe	H4-IA	H4-OA
Address	[redacted]			[redacted]				[redacted]					[redacted]					
Date Collected	4/20/2015	4/20/2015	4/23/2015	4/23/2015	4/23/2015	4/23/2015	4/23/2015	4/23/2015	4/23/2015	6/24/2015	6/24/2015	6/24/2015	6/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015	9/24/2015
Analyte																		
1,1,1-Trichloroethane	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.23**	0.15 U	0.15 U	0.15 U	0.15 U
1,1,2,2-Tetrachloroethane	0.15 U	0.15 U	**0.15** J	**0.15** J	0.15 U	**0.15** J	**0.15** J	**0.15** J	**0.15** J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
1,2,4-Trichlorobenzene	0.15 U	0.15 U	**0.15** J	**0.15** J	**0.15** J	**0.15** J	**0.15** J	**0.15** J	**0.15** J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
1,2,4-Trimethylbenzene	0.15 U	0.15 U	**0.58**	**0.11** J	**0.1** J	**0.11** J	0.15 U	0.15 U	0.15 U	**0.14** J	**0.13** J	**0.15**	**0.14** J	**1.5**	**0.13** J	**0.13** J	**0.17**	**0.11** J
1,2-Dichloroethane	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.2**	0.15 U
1,3,5-Trimethylbenzene	0.15 U	0.15 U	**0.24**	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.22** J	**0.24** J	**0.21**	**0.22**	**0.76**	**0.11** J	**0.11** J	**0.18**	0.15 U
1,4-Dioxane	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	0.3 U	0.3 U	0.3 U	0.3 U	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J
2,2,4-trimethylpentane	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.16**	0.15 U	0.15 U	0.15 U	0.15 U
4-ethyltoluene	0.15 U	0.15 U	**0.15**	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.46**	0.15 U	0.15 U	0.15 U	0.15 U
Acetone	**3.1**	**4.4**	**33** J	**4.2** J	**5.4** J	**7.5** J	**4.5** J	**4.1** J	**4.3** J	**62** J	**39** J	**11**	**12**	**32**	**13**	**9.2**	**16**	**6**
Benzene	0.15 U	**0.12** J	**0.33**	**0.14** J	**0.14** J	**0.16**	**0.16**	**0.11** J	**0.15**	0.15 U	0.15 U	0.15 U	0.15 U	**0.29**	**0.11** J	**0.12** J	**0.13** J	**0.15**
Bromodichloromethane	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.24**	**0.24**	**0.18**	0.15 U
Bromofluorobenzene	**0.92**	**0.85**	**0.97**	**0.99**	**0.89**	**0.86**	**0.89**	**1**	**0.89**	**0.91** J	**0.93** J	**0.86**	**0.86**	**0.98**	**0.87**	**0.85**	**0.86**	**0.86**
Carbon disulfide	0.15 U	0.15 U	**0.14** J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.13** J	**0.13** J	**0.13** J	0.15 U	**1.9**	**0.11** J	**0.12** J	**0.12** J	0.15 U
Carbon tetrachloride	**0.13**	**0.13**	**0.11** J	**0.13** J	**0.14** J	**0.16** J	**0.13** J	**0.13** J	**0.15** J	**0.08** J	**0.08** J	**0.09**	**0.09**	0.15 U	**0.09**	**0.1**	**0.08**	**0.09**
Chloroform	**0.1** J	0.15 U	**0.32**	**0.12** J	**0.13** J	**0.21**	0.15 U	0.15 U	0.15 U	**0.21** J	**0.2** J	0.15 U	0.15 U	**0.59**	**3.2**	**1.1**	**0.81**	0.15 U
Chloromethane	**0.43**	**0.52**	**0.51**	**0.45**	**0.51**	**0.52**	**0.52**	**0.44**	**0.54**	0.15 U	0.15 U	**0.53**	**0.53**	**0.66** J	**0.15** J	**0.15** J	**0.15** J	**0.41** J
cis-1,2-Dichloroethene	0.15 U	0.15 U	**0.11** J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.76**	0.15 U	0.15 U	0.15 U	0.15 U
Cyclohexane	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.62** J	**0.35**	0.15 U	**1.7**	**0.48**	**0.4**	0.15 U	0.15 U
Ethyl acetate	0.25 U	0.25 U	**0.25** J	**0.25** J	**0.12** J	**0.12** J	**0.25** J	**0.23** J	**0.25** J	**0.11** J	0.25 U	0.25 U	**0.11** J	**0.27** J	**0.3** J	**0.25** J	**0.3**	**0.25** J
Ethylbenzene	0.15 U	0.15 U	**0.4**	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.30**	0.15 U	0.15 U	0.15 U	0.15 U
Freon 11	**0.33**	**0.33**	**0.3**	**0.31**	**0.33**	**0.3**	**0.33**	**0.35**	**0.35**	**0.5** J	**0.47** J	**0.34**	**0.31**	**0.42**	**0.4**	**0.41**	**0.4**	**0.25**
Freon 113	0.15 U	**0.1** J	0.15 U	0.15 U	0.15 U	**0.1** J	**0.11** J	**0.11** J	**0.1** J	**0.12** J	**0.12** J	**0.11** J	**0.11** J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Freon 12	**0.72**	**0.71**	**0.63**	**0.64**	**0.66**	**0.66**	**0.7**	**0.86**	**0.69**	**0.6** J	**0.58** J	**0.59**	**0.56**	**0.54**	**0.53**	**0.54**	**0.4**	**0.53**
Heptane	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**2.0**	**0.1** J	0.15 U	**0.19**	0.15 U
Hexachloro-1,3-butadiene	0.15 U	0.15 U	**0.15** J	**0.15** J	**0.15** J	**0.15** J	**0.15** J	**0.15** J	**0.15** J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Hexane	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**1.9**	**0.43**	**0.44**	**0.91**	**0.16**
Isopropyl alcohol	0.15 U	**2.8**	**3.5** J	**0.92** J	**0.94** J	**1.5** J	**1.2** J	**0.15** J	**0.15** J	**9.6** J	**11** J	**2.8**	**4.2**	**6.0** J	**20** J	**6.4** J	**6** J	**1.2** J
m&p-Xylene	**0.22** J	**0.11** J	**1.5**	**0.13** J	**0.15** J	**0.14** J	0.3 U	0.3 U	0.3 U	**0.22** J	**0.22** J	0.3 U	**0.2** J	**1.1**	**0.2** J	**0.2** J	**0.21** J	**0.15** J
Methyl Butyl Ketone	0.3 U	0.3 U	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	0.3 U	0.3 U	0.3 U	0.3 U	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J
Methyl Ethyl Ketone	**0.38**	0.3 U	**1.6**	**0.66**	**0.57**	**0.52**	0.3 U	0.3 U	0.3 U	**1.8** J	**1.8** J	**0.57**	**0.74**	**1.8** J	**0.46** J	**0.36** J	**0.3** J	**0.33** J
Methyl Isobutyl Ketone	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J	0.3 U	0.3 U	0.3 U	**0.12** J	**0.25** J	**0.3** J	**0.3** J	**0.3** J	**0.3** J
Methylene chloride	**0.4**	**0.38**	**10**	**0.13** J	**0.14** J	**0.2**	**0.18**	**0.22**	**0.15**	**0.34** J	**0.34** J	**0.17**	**0.24**	**1.4**	**0.22**	**0.22**	**0.15**	**0.13** J
o-Xylene	0.15 U	0.15 U	**0.72**	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.54**	0.15 U	0.15 U	**0.11** J	0.15 U
Styrene	0.15 U	0.15 U	**0.31**	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.47**	0.15 U	0.15 U	**0.12** J	0.15 U
Tetrachloroethylene	0.15 U	0.15 U	**0.15**	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.29**	**0.18**	**0.25**	0.15 U	0.15 U	0.15 U
Tetrahydrofuran	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	**3.8** J	**3.4** J	**0.27**	0.15 U	**0.60**	**0.28**	**0.23**	0.15 U	0.15 U
Toluene	**0.46**	**0.29**	**3.1**	**0.31**	**0.25**	**0.46**	**0.16**	**0.16**	0.15 U	**24** J	**24** J	**0.79**	**0.42**	**1.6**	**9.8**	**9.5**	**4**	**0.24**
Trichloroethene	0.04 U	0.04 U	**0.3**	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	**1.9**	**0.06**	**0.06**	**0.08**	**0.04**

Units are micrograms per cubic meter (mcg/m^3).
U = Analyte not detected above laboratory detection limits.
Only those analytes detected above laboratory detection limits are presented in this table.

COMMENT 9, 10, 11, & 20
TABLES 9 THROUGH 14 UPDATED

Table 9
Remedial Cost Estimating
Selected Soil Removal and Off-Site Disposal (Track 4 - Restricted Residential Use Cleanup)
Maider Road Brownfield Site

Item	Unit Rate	Per	No. Unit	Costs
Site Preparation (Clearing/Grubbing/E&S/Fence)	$ 30,000	LS	1	$ 30,000
Disposal Characterization	$ 5,000	LS	1	$ 5,000
Excavation of Contaminated Material-Petroleum	$ 25	CY	7407	$ 185,185
Excavation of Contaminated Material-Arsenic	$ 25	CY	426	$ 10,648
Transportation and Disposal - Petroleum	$ 50	ton	11852	$ 592,593
Transportation and Disposal - Arsenic	$ 50	ton	681	$ 34,074
Dewatering	$ 50,000	LS	1	$ 50,000
Water Treatment/Discharge	$ 100,000	LS	1	$ 100,000
Backfill/Topsoil	$ 18	ton	12533	$ 225,600
Clean Backfill Characterization Sampling / Analysis	$ 10,000	LS	1	$ 10,000
Seeding	$ 10,000	LS	1	$ 10,000
Subtotal				$ 1,253,100
Environmental Easement	$ 25,000	LS	1	$ 25,000
Site Management Plan Development	$ 5,000	LS	1	$ 5,000
Site Management - Eng / Inst Control Annual Cert	$ 3,500	Yr	30	$ -
Site Management - Well Monitoring	$ 5,000	Yr	30	$ -
Site Management Present Worth	$ 189,667	LS	1	$ 189,667
Remedial Design/Add'l Contamination Delineation/Endpoint Sampling	$ 30,000	LS	1	$ 30,000
Well Decommissioning (3) & Reinstallation (6)	$ 20,000	LS	1	$ 20,000
Site Survey	$ 25,000	LS	1	$ 25,000
Health & Safety	$ 15,000	LS	1	$ 15,000
Community Air Monitoring	$ 15,000	LS	1	$ 15,000
Mob/demob/decon	5%	LS	$ 1,253,100	$ 62,655
Engineering (Design/Oversight/Monitoring)	15%	LS	$ 1,253,100	$ 187,965
Contingency	15%	LS	$ 1,253,100	$ 187,965
Estimated Total Cost				$ 2,016,352

Table 10
Remedial Cost Estimating
Selected Soil Removal and On-Site Treatment (Track 4 - Restricted Residential Use Cleanup)
Maider Road Brownfield Site

Item	Unit Rate	Per	No. Unit	Costs
Site Preparation (Clearing/Grubbing/E&S/Fence)	$ 30,000	LS	1	$ 30,000
Disposal Characterization	$ 5,000	LS	1	$ 5,000
Excavation of Contaminated Material-Petroleum	$ 25	CY	7407	$ 185,185
Excavation of Contaminated Material-Arsenic	$ 25	CY	426	$ 10,648
Construction of Bio-Pad	$ 75,000	LS	1	$ 75,000
Placement of Soil on Bio-Pad	$ 10	CY	11852	$ 118,519
Tilling	$ 10,000	month	36	$ 360,000
Sampling of Treated Soils	$ 10,000	event	6	$ 60,000
Replacement of Soils Following Traetment	$ 10	CY	11852	$ 118,519
Transportation and Disposal - Arsenic	$ 50	ton	681	$ 34,074
Dewatering	$ 50,000	LS	1	$ 50,000
Water Treatment/Discharge	$ 100,000	LS	1	$ 100,000
Backfill/Topsoil	$ 18	ton	681	$ 12,267
Clean Backfill Characterization Sampling / Analysis	$ 10,000	LS	1	$ 10,000
Seeding	$ 10,000	LS	1	$ 10,000
Subtotal				$ 1,179,211
Environmental Easement	$ 25,000	LS	1	$ 25,000
Site Management Plan Development	$ 5,000	LS	1	$ 5,000
Site Management - Eng / Inst Control Annual Cert	$ 3,500	Yr	30	$ -
Site Management - Well Monitoring	$ 5,000	Yr	30	$ -
Site Management Present Worth	$ 189,667	LS	1	$ 189,667
Remedial Design/Add'l Contamination Delineation/Endpoint Sampling	$ 30,000	LS	1	$ 30,000
Well Decommissioning (3) & Reinstallation (6)	$ 20,000	LS	1	$ 20,000
Site Survey	$ 25,000	LS	1	$ 25,000
Health & Safety	$15,000	LS	1	$ 15,000
Community Air Monitoring	$15,000	LS	1	$ 15,000
Mob/demob/decon	5%	LS	$ 1,179,211	$ 58,961
Engineering (Design/Oversight/Monitoring)	15%	LS	$ 1,179,211	$ 176,882
Contingency	15%	LS	$ 1,179,211	$ 176,882
Estimated Total Cost				$ 1,916,602

Table 11
Remedial Cost Estimating
Complete Fill Removal and Off-Site Disposal (Track 1 - Unrestricted Use Cleanup)
Maider Road Brownfield Site

Item	Unit Rate	Per	No. Unit	Costs
Site Preparation (Clearing/Grubbing/E&S/Fence)	$ 30,000	LS	1	$ 30,000
Disposal Characterization	$ 15,000	LS	1	$ 15,000
Excavation of Site-Wide Fill	$ 25	CY	72,600	$ 1,815,000
Transportation and Disposal	$ 50	ton	116,160	$ 5,808,000
Dewatering	$ 250,000	LS	1	$ 250,000
Water Treatment/Discharge	$ 350,000	LS	1	$ 350,000
Backfill/Topsoil	$ 18	ton	116,160	$ 2,090,880
Clean Backfill Characterization Sampling / Analysis	$ 30,000	LS	1	$ 30,000
Seeding	$ 50,000	LS	1	$ 50,000
Subtotal				$ 10,438,880
Site Survey	$ 25,000	LS	1	$ 25,000
Endpoint Sampling	$ 750	Sample	50	$ 37,500
Health & Safety	$15,000	LS	1	$ 15,000
Community Air Monitoring	$15,000	LS	1	$ 15,000
Mob/demob/decon	5%	LS	$ 10,438,880	$ 521,944
Engineering (Design/Oversight/Monitoring)	15%	LS	$ 10,438,880	$ 1,565,832
Contingency	15%	LS	$ 10,438,880	$ 1,565,832
Estimated Total Cost				$ 14,184,988

Table 12
Remedial Cost Estimating
Process Piping and Tank Bottom Removal and Off-Site Disposal
(Track 4 –Restricted Residential Use Cleanup)
Maider Road Brownfield Site

Item	Unit Rate	Per	No. Unit	Costs
Geophysical Survey	$ 25,000	LS	1	$ 25,000
Excavation Activities	$ 5,000	day	25	$ 125,000
Off-site Soil Tansportation and Disposal	$ 50	ton	500	$ 25,000
Analytical Sampling	$ 750	Sample	20	$ 15,000
Video Inspection	$ 3,500	day	2	$ 7,000
Flowable Fill	$ 50	CY	25	$ 1,250
Subtotal				$ 198,250
Health & Safety	$5,000	LS	1	$ 5,000
Mob/demob/decon	5%	LS	$ 198,250	$ 9,913
Engineering (Design/Oversight/Monitoring)	15%	LS	$ 198,250	$ 29,738
Contingency	15%	LS	$ 198,250	$ 29,738
Estimated Total Cost				$ 272,638

Table 13
Remedial Cost Estimating
Additional Monitoring (Track 1 – Unrestricted Use Cleanup)
Maider Road Brownfield Site

Item	Unit Rate	Per	No. Unit	Costs
Additional Monitoring				
Sampling and Reporting	$ 4,000	LS	2	$ 8,000
Contingency	15%	LS	$ 8,000	$ 1,200
Estimated Total Cost				$ 9,200

Table 14
Remedial Cost Estimating
Sediment Removal and Disposal (BCP Track 4 – Restricted Residential Use Cleanup)
Maider Road Brownfield Site

Item	Unit Rate	Per	No. Unit	Costs
Site Preparation (Clearing/Grubbing/E&S/Fence)	$ 15,000	LS	1	$ 15,000
Disposal Characterization	$ 5,000	LS	1	$ 5,000
Excavation	$ 25	CY	870	$ 21,759
Transportation and Disposal	$ 50	Ton	1393	$ 69,630
BackFill	$ 18	Ton	1393	$ 25,067
Clean Backfill Characterization Sampling / Analysis	$ 10,000	LS	1	$ 10,000
Seeding	$ 5,000	LS	1	$ 5,000
Subtotal				$ 151,456
Health & Safety	$ 5,000	LS	1	$ 5,000
Endpoint Sampling	$ 750	Sample	20	$ 15,000
Site Survey	$ 25,000	LS	1	$ 25,000
Mob/demob/decon	5%	LS	$ 151,456	$ 7,573
Engineering (Design/Oversight/Monitoring)	15%	LS	$ 151,456	$ 22,718
Contingency	15%	LS	$ 151,456	$ 22,718
Estimated Total Cost				$ 249,465

COMMENT 14
BORING LOG B-2
CORRECTION

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Syracuse, NY 13212
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Fax: 315-455-9667

BORING LOG

Boring No.	**B-2**
Sheet 2 of:	24
Project No.:	195705001
Surface Elev.:	Ground Surface
Datum:	
Start Date:	6/1/15
Finish Date:	6/1/15
Inspector:	WNR

Project Name:	Maider Road Brownfields Site							
Location:	Maider Road, Town of Clay, NY							
Client:	Town of Clay							
Drilling Firm:	Geologic							
Groundwater	**Depth**	**Date & Time**	**Drill Rig:**	HSA				
While Drilling:			**Casing:**	4.125"	**Rock Core:**		**Undist:**	
Before Casing Removal:			**Sampler:**		**Other:**			
After Casing Removal:			**Hammer:**					

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

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
						10:51 AM
1				***No recovery w/ 2" spoon so try with 3" spoon,***		3" recovery
				gravelly, silty, SAND, wet		
2						
				No recovery w/ 2" spoon so try with 3" spoon	0.0 ppm	3" recovery
3				***fmc GRAVEL, cobbly***		
4						
				fmc GRAVEL, wet, trace silt,wet	0.0 ppm	12" recovery
5						
6						
				silty SAND, grey, black streaks, organics, wet	0.0 ppm	12" recovery
7						
				tan SILT,wet		
8						
				tan to brown SILT, trace sand, wet	0.0. ppm	24" recovery
9						
10						
				brown SILT, some gravel	0.0 ppm	20" recovery
11						
12						
				gray SILT, wet	0.0 ppm	24" recovery
13						
14						
				grey SILT, trace gravel, wet	0.0 ppm	24" recovery
15						
16				***END OF BORING AT 16 FT***		
				Laboratory Sample: 7-10 ft.		
17						
18						
19						
20						
21						
22						
23						

COMMENT 15
BORING LOG B-4
CORRECTION

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Syracuse, NY 13212
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Fax: 315-455-9667
www.cscos.com

BORING LOG

Boring No.	**Offsite B-4**
Sheet 18 of:	24
Project No.:	195705001
Surface Elev.:	Ground Surface
Datum:	
Start Date:	6/22/15
Finish Date:	6/22/15
Inspector:	WNR

Project Name:	Maider Road Brownfields Site
Location:	Maider Road, Town of Clay, NY
Client:	Town of Clay
Drilling Firm:	NYEG Drilling LLC

Groundwater	Depth	Date & Time
While Drilling:		
Before Casing Removal:		
After Casing Removal:		

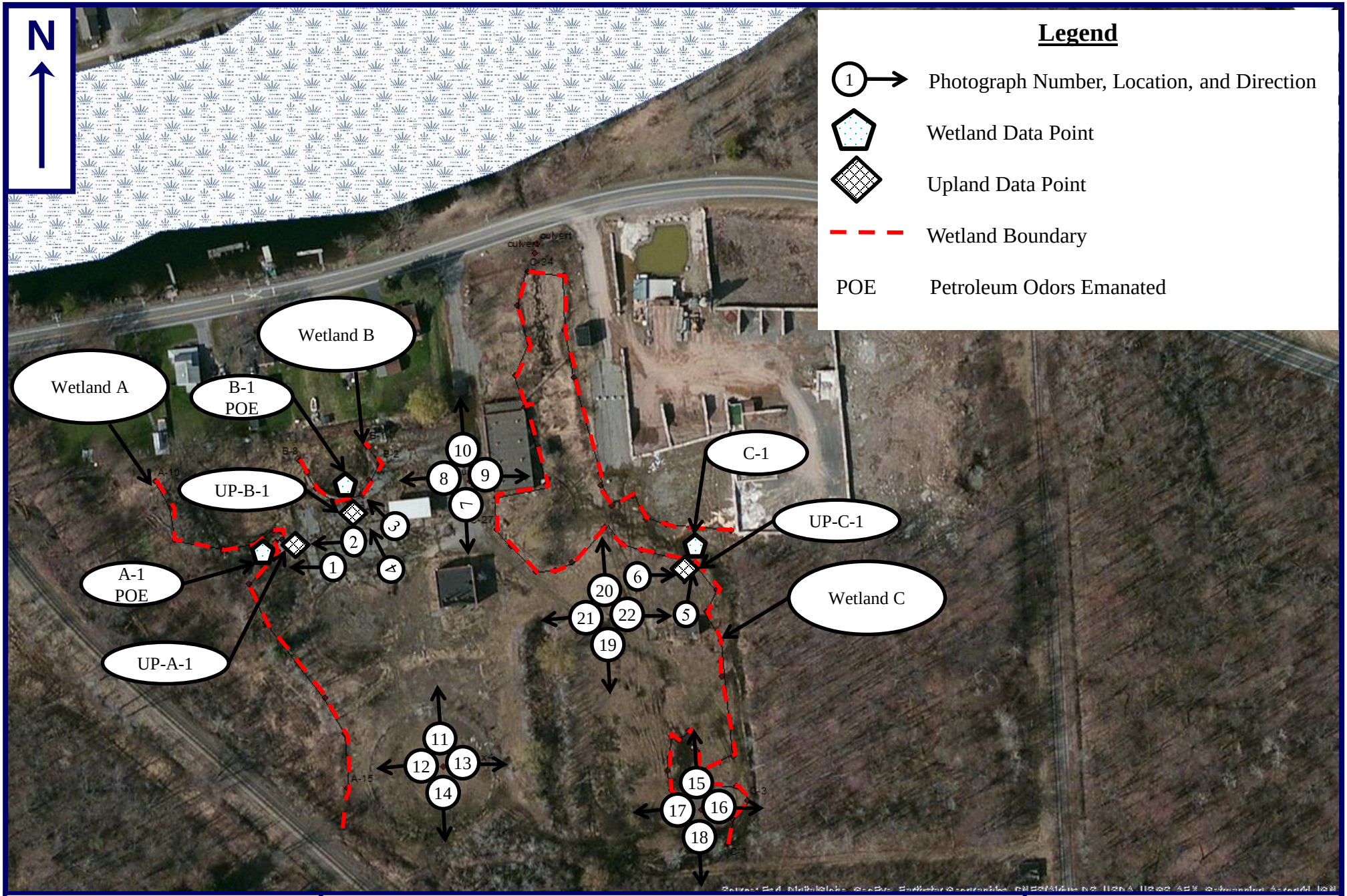
Drill Rig:	Geoprobe		
Casing:		***Rock Core:***	***Undist:***
Sampler:		***Other:***	
Hammer:			

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

Depth (ft)	Sample No.	Symbol	Blows on Sampler per 6"	MATERIAL DESCRIPTION (c - coarse, m - medium, f - fine; a - and - 35-50%, s - some - 20-35%, l - little - 10-20%, t - trace - 0-10%; S - Sand, $ - Silt, G - Gravel, C - Clay, cly - clayey)		COMMENTS (e.g., N-value, recovery, relative moisture, core run, RQD, % recovered)
1						
2				***grey SILT, trace organics***	0.0 ppm	36" recovery
3				***grey SILT, some f gravel***		
4						
5				***grey SILT***	0.0 ppm	36" recovery
6						
7						
8				***No Recovery***		
9						
10						
11				***grey SILT, brown mottles, wet***	0.0 ppm	36" recovery
12						
13				***END OF BORING AT 12 FT***		
				Laboratory Sample: 9-12ft.		
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						

COMMENT 17
CD OF DATA USABILITY SUMMARY REPORTS

COMMENT 18
UPDATED
FIGURE
FROM
APPENDIX A
OF FWRIA



ENGINEERS
DESIGN BUILD
TECHNICAL RESOURCES
OPERATIONS

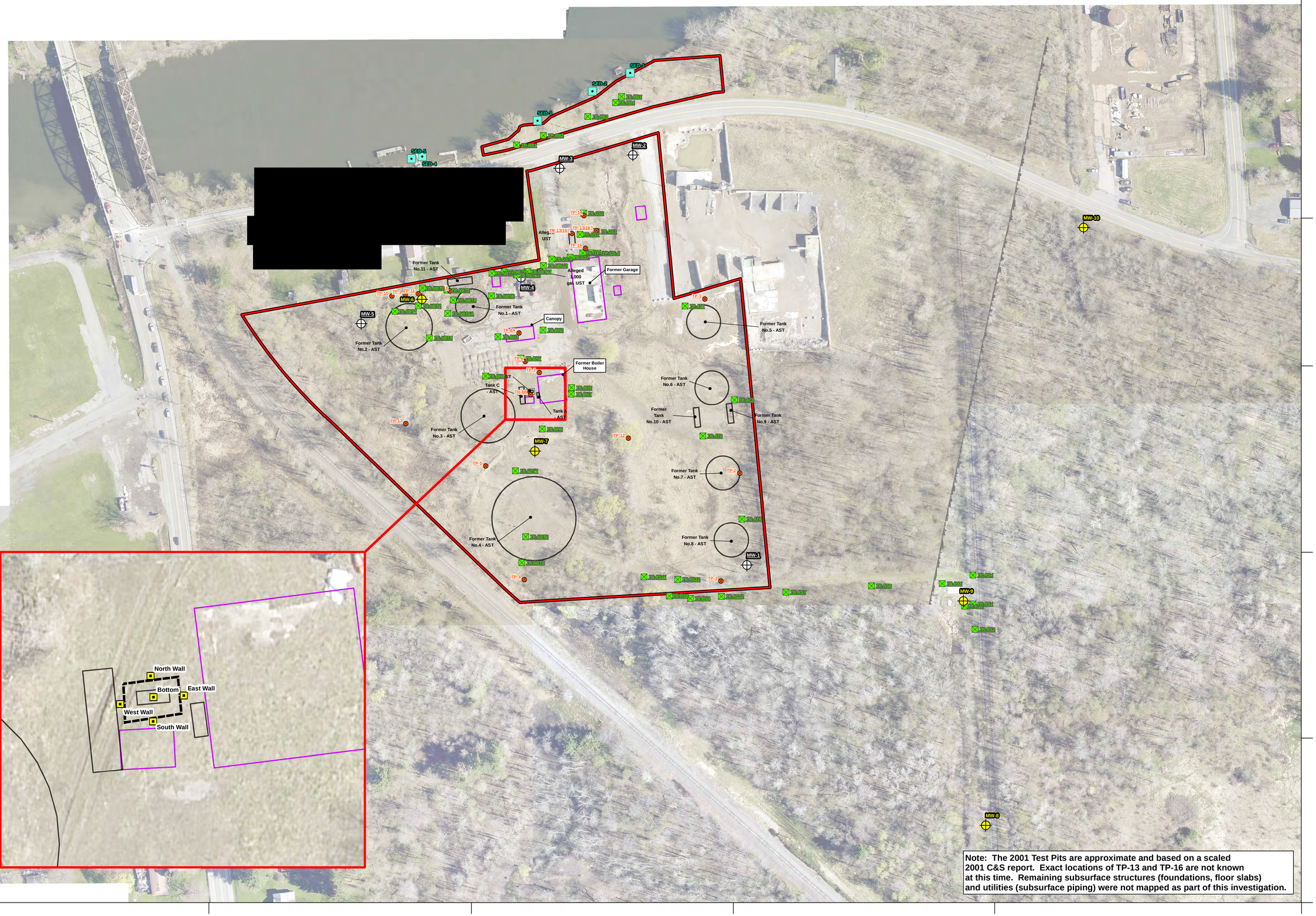
Source: USGS Topographic Maps
USGS Baldwinsville Quadrangle
Dated 1973, Photorevised/inspected in 1978

Project Location Map – Maider Road Brownfield Site

Town of Clay, Onondaga County, New York

Wetland Delineation Area - Photograph Key

COMMENT 4 & 5
FIGURE 2, 3, & 4 UPDATES



F:\Project\195 - TOWN OF CLAY\195705001 Maider Road Brownfield\GIS\Projects\Figure 2_2001 Investigation_Map.mxd

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N

0 40 80 160 Feet

1 inch = 80 feet

DATE: April 2016

SCALE: AS SHOWN

Source: Aerial Imagery from Pictometry Online, Inc.

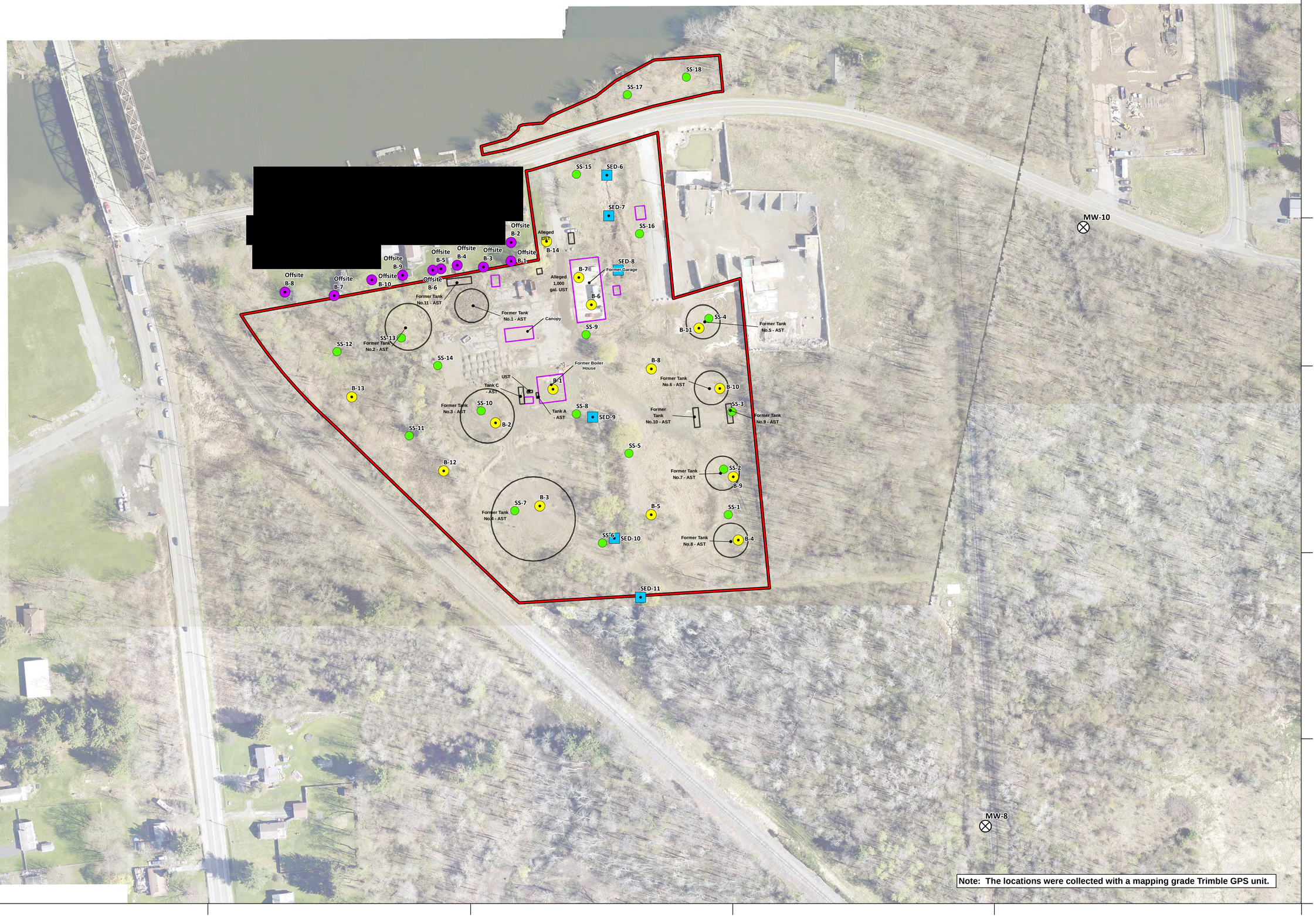
Legend

- Test Pits - 2001
- Monitoring Wells - 2007
- Test Pits - 2007
- Sediment Sampling - 2007
- Monitoring Wells - Unknown Year
- Approxamite 2006 Excavation
- Subject Parcel
- Former Tanks
- Former Structures

Maider Road Brownfield Site
Former Cibro Facility
Town of Clay
Onondaga County, New York

FIGURE 2

Previous Investigations Map



F:\Project\1395 - TOWN OF CLAY\195705001 Maider Road Brownfield\GIS\Projects\Figure 3 2015 Investigations Map.mxd

Note: The locations were collected with a mapping grade Trimble GPS unit.

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TOWN OF CLAY ONONDAGA CO. N.Y. EST. 1827

N

0 40 80 160 Feet

1 inch = 80 feet

DATE: April 2016

SCALE: AS SHOWN

Source: Aerial Imagery from Pictometry Online, Inc.

Legend

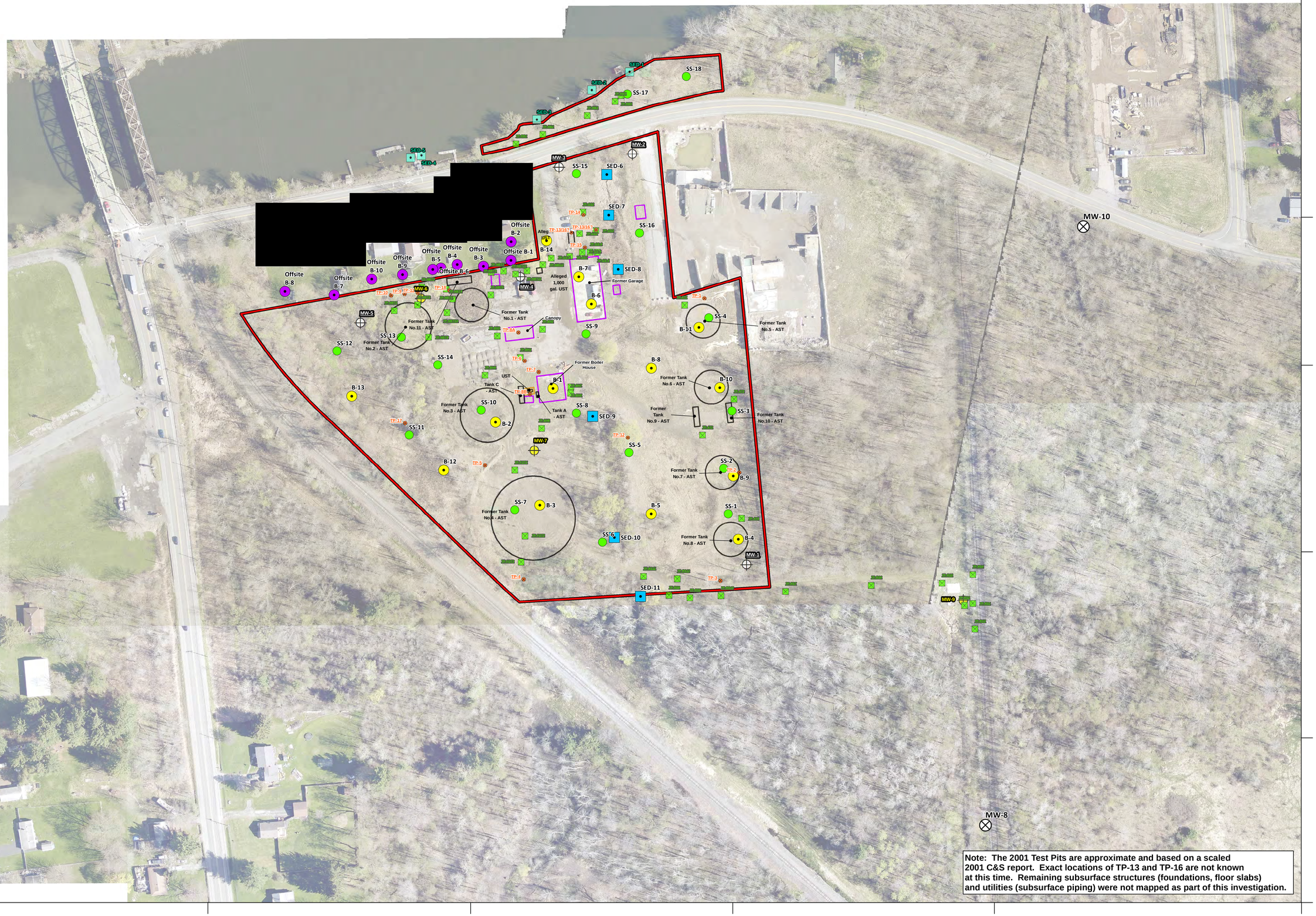
2015 Explorations

- Boring
- Offsite Boring
- Surface Sample
- Sediment Sample
- Soil Vapor Sample Location
- Decomissioned Monitoring Wells
- Subject Parcel
- Former Tanks
- Former Structures

Maider Road Brownfield Site
Former Cibro Facility
Town of Clay
Onondaga County, New York

FIGURE 3

2015 Investigations Map



Note: The 2001 Test Pits are approximate and based on a scaled 2001 C&S report. Exact locations of TP-13 and TP-16 are not known at this time. Remaining subsurface structures (foundations, floor slabs) and utilities (subsurface piping) were not mapped as part of this investigation.

F:\Project\195 - TOWN OF CLAY\195705001 Maider Road Brownfield\GIS\Projects\Figure 'A' All Locations.mxd

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N

0 40 80 160 Feet

1 inch = 80 feet

DATE: April 2016

SCALE: AS SHOWN

Source: Aerial Imagery from Pictometry Online, Inc.

Legend

- Soil Vapor Location
- Boring - 2015
- Offsite Boring - 2015
- Surface Sample - 2015
- Sediment Sample - 2015
- Decomissioned Monitoring Wells - 2015
- Test Pits - 2001
- Test Pits - 2007
- Sediment Sampling - 2007
- Monitoring Wells - 2007
- 2006 Excavation
- Monitoring Wells - Unknown Year
- Subject Parcel
- Former Tanks
- Former Structures

Maider Road Brownfield Site
Former Cibro Facility
Town of Clay
Onondaga County, New York

FIGURE 4

Summary Investigations Map

COMMENT 3 & 20
FIGURE 5 – PROPOSED REMEDIATED AREAS

Note: The 2001 Test Pits are approximate and based on a scaled 2001 C&S report. Exact locations of TP-13 and TP-16 are not known at this time. Remaining subsurface structures (foundations, floor slabs) and utilities (subsurface piping) were not mapped as part of this investigation.

F:\Project\195 - TOWN OF CLAY\195705001 Maider Road Brownfield\GIS\Projects\Figure_5_Proposed_Remediated_Areas.mxd

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TOWN OF CLAY ONONDAGA CO. N.Y. EST. 1827

N

0 30 60 120 Feet

1 inch = 60 feet

DATE: April 2016

SCALE: AS SHOWN

Source: Aerial Imagery from Pictometry Online, Inc.

Legend

- Proposed Monitoring Wells
- Decomissioned Monitoring Wells - 2015
- Monitoring Wells - 2007 (To be Decommisioned)
- Monitoring Wells - Unknown Year (To Be Decommisioned)

Areas to be Remediated

- Sediment Removal
- Arsenic Impact Removal
- Petroleum Impact Removal
- Alleged Existing Pipeline To Be Removed
- Subject Parcel
- Former Tanks
- Former Structures

EXCEEDANCE OF NYSDEC SOIL CLEANUP OBJECTIVES

- NOT SAMPLED
- NO EXCEEDANCE
- SAMPLE EXCEEDS UNRESTRICTED USE FOR AT LEAST ONE COMPOUND
- SAMPLE EXCEEDS RESIDENTIAL USE FOR AT LEAST ONE COMPOUND
- SAMPLE EXCEEDS RESTRICTED RESIDENTIAL USE FOR AT LEAST ONE COMPOUND
- SAMPLE EXCEEDS INDUSTRIAL USE FOR AT LEAST ONE COMPOUND

Maider Road Brownfield Site
Former Cibro Facility
Town of Clay
Onondaga County, New York

FIGURE 5

Proposed Remediation Areas