

June 10, 2019

Mr. Gerry Pratt
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7013

Subject: Pre-Design Investigation Work Plan – 222 Maspeth Avenue Property
Former Equity Works Manufactured Gas Plant (MGP) Site
Brooklyn, New York
NYSDEC Site No.: 224050, Order on Consent Index #: A2-0552-0606

Dear Mr. Pratt:

National Grid is submitting the following Pre-Design Investigation (PDI) Work Plan for the 222 Maspeth Avenue property located in Brooklyn, New York. The 222 Maspeth Avenue property is located within the footprint of the former Equity Manufactured Gas Plant (MGP) site (Site) which consists of three adjoining properties – 222 Maspeth Avenue, 252 Maspeth Avenue, and 254 Maspeth Avenue. This PDI is being conducted by National Grid pursuant to a Multi-site Order on Consent and administrative settlement with the New York State Department of Environmental Conservation (NYSDEC), Index # A2-0552-0606, and in accordance with applicable guidelines of the NYSDEC and the New York State Department of Health (NYSDOH). The PDI activities are required to provide additional information regarding the condition and location of the former No. 1 Relief Holder subsurface foundation and the structural stability of the perimeter walls and equipment support structures on the parcel prior to finalizing the design of an Interim Remedial Measure (IRM) for the parcel. A combined excavation/in-situ stabilization (ISS) based IRM was requested for the 222 Maspeth Avenue parcel in a letter from NYSDEC to National Grid dated February 1, 2019.

Site History and Description

The Site was historically the location of a MGP operated by The Equity Gas Works Company from 1893 until 1903 and The Brooklyn Union Gas Company (BUG), a predecessor company to National Grid, from 1903 until 1929. BUG maintained ownership of the property until September of 1951. The Site currently houses a waste recycling facility and a bus storage/parking operation. The 222 Maspeth Avenue parcel is currently operated by Cooper Tank Recycling (Cooper Tank). The entire Site is now owned by third parties as shown below.

Owner's Name and Address	Status
222 Maspeth Avenue Inc.	Lot used as a waste recycling/ waste transfer station, although active recycling operations are currently on hold. Currently one enclosed building housing offices and one open building (no walls, with roof) housing permanent waste recycling equipment (a two story conveyor belt system building underlain by concrete recycling bins) is present on the lot. The lot operated by Cooper Tank Recycling Co. is currently being used to fabricate and rehabilitate roll-off boxes and dumpsters.
Giovanna Bordone	Currently one building is located on the lot (approximately 2,500 square feet). Currently used as a bus storage and parking facility.
254 Maspeth Ave, LLC.	Currently used for storage of empty roll-offs and vehicle parking for Cooper Tank personnel and rental parking space leased to third parties by Cooper Tank. The NAPL IRM equipment compound is also staged on this parcel.

A Remedial Investigation (RI) of the Site was completed in 2015 and the RI report was approved by the NYSDEC in 2016. A Supplemental Investigation (SI) was completed on the 222 Maspeth Avenue parcel in 2018 to provide additional information in proximity to the former No. 1 relief holder area that was not previously fully accessible during the RI due to former site operations. The SI report was approved by the NYSDEC in March of 2019. A NAPL recovery IRM comprised of 23 recovery wells at the 222, 252, and 254 Maspeth Avenue parcels is currently active on the site. All work is being conducted by National Grid.

Pre-Design Investigation Scope of Work

A PDI is required to provide information regarding the condition and location of the former No. 1 Relief Holder subsurface foundation and the structural stability of the perimeter walls and equipment support structures prior to finalizing the design of an IRM for the 222 Maspeth Avenue parcel. A supplemental investigation is proposed to further evaluate subsurface conditions within and adjacent to former MGP structures on the 222 Maspeth Avenue parcel. The IRM will comprise of: excavation of the Relief Holder 1 contents to the extent practicable; removal of former structures to the east and southeast of the Relief Holder 1, i.e., settling tank, tar tank and drip tanks; and ISS of soils surrounding the Relief Holder and outlying areas on the parcel to the intermediate clay per Figure 1. The holder remediation activities will be limited to the removal of its contents to maintain the structural stability of critical site infrastructure. Specifically, the PDI work will include:

- Geophysical surveying as part of utility pre-clearance prior to borehole advancement and test pitting.
- Advancement of five deep soil borings beneath the former No. 1 Relief Holder subsurface foundation to refine the remedial design and to pre-characterize the holder contents for off-site disposal. The borings will intersect the first NAPL confining unit in the subsurface identified as the “intermediate clay” layer (if present) and extended to the

underlying Gardiners Clay unit, a regional confining unit present at depths of 90 to 100 feet bgs beneath the Site.

- Advancement of 15 shallow soil borings in the proposed ISS area to pre-characterize soils to facilitate off-site soil disposal options.
- Completion of seven test-pits to evaluate the location and condition of the former No. 1 Relief Holder foundation and to evaluate the structural stability and construction of current site infrastructure including perimeter walls and the elevated C&D debris sorting equipment.
- Visual and field screening to evaluate the nature of any subsurface foundations of former MGP structures and current site infrastructure and to evaluate the presence of potential MGP residuals or other impacts, if encountered.
- Laboratory sampling at soil borings and test pits to pre-characterize soils and evaluate off-site soil disposal facility options.
- Community air monitoring to monitor concentrations of VOCs and particulate matter less than 10 microns in size (PM-10) in accordance with NYSDEC and NYSDOH guidance.
- Surveying of all completed soil boring and test pit locations.
- Management of investigation derived waste (IDW) at a National Grid approved off-site facility.

The rationale and the locations of the proposed soil borings and test pits are shown on Table 1 and Figure 1. All work will be performed in accordance with the procedures specified in the 2009 NYSDEC Approved RI Work Plan except where noted below.

Geophysical Survey/Utility Clearance

A utility mark-out and geophysical survey will be completed to identify subsurface utilities on 222 Maspeth Avenue property prior to intrusive activities in the proposed work areas outlined on Figure 1. Results may be used to modify the sample locations in consultation with NYSDEC if utilities are located in the proposed sampling areas. Techniques to be used may include radio frequency, M-scope electromagnetic instrument, EM-61 metal detector, and ground penetrating radar.

Borehole Advancement

Twenty soil borings (SB-200 through SB-219) are proposed at the locations outlined on Figure 1 and Table 1. Locations of soil borings may be adjusted in the field following completion of geophysical surveying efforts. Any significant alterations to the proposed soil boring program will be confirmed with NYSDEC prior to advancement. The target completion depths for soil borings vary, with shallow borings advanced 6 to 10 feet bgs and deep borings advanced to the Gardiners Clay present at depths of 90 to 100 feet bgs (Table 1).

Prior to advancement, each boring location will be cleared for utilities following National Grid and AECOM utility pre-clear protocols/standard operating procedures (SOP) and low energy/soft-dig excavation techniques. Once the locations are cleared by soft-dig methods to a minimum of 5 ft bgs, soil borings will be advanced by sonic drilling methods. During deep borehole advancement, isolation casing will be advanced as needed to isolate any zones of residual NAPL and prevent downward migration of impacts in the borehole. Soils will be logged

continuously for visual impacts and screened with a photoionization detector (PID) from ground surface to the terminus of the borehole. Soil samples will be collected for laboratory analysis to pre-characterize soils and evaluate off-site soil disposal facility options (Table 1).

Upon completion, soil borings will be tremie-grouted to approximately one-foot below the top of the concrete slab and completed to grade with concrete to match existing surface conditions.

Test Pits

Seven test pits (TP-200 through TP-206) are proposed at the locations outlined on Figure 1. Rationale for the test pits is provided on Table 1. Prior to excavation, the existing concrete surface will be saw-cut and removed into a roll-off for off-site disposal. Test pits are anticipated to be approximately 2 feet wide by 10 feet long and will be advanced until encountering the top and sides of the former holder foundation or until encountering the water table at approximately 6 to 8 feet bgs (maximum depth of 8 feet bgs). During excavation, soils removed from each test pit will be temporarily placed on poly adjacent to each test pit to prevent any drainage of liquids back into the excavation. Soil samples will be collected from each test pit for laboratory analysis to pre-characterize soils and evaluate off-site soil disposal facility options (Table 1). Following documentation, field screening of identified subsurface conditions and structures, and sample collection, soils will be returned to each test pit in the order in which they were removed. During backfilling, soils will be compacted in lifts with clean stone backfill added (if needed to make up volume), and the concrete will be restored at the surface to match pre-existing conditions.

Community Air Monitoring

A Community Air Monitoring Plan (CAMP) has been developed for this project and will be followed during all invasive fieldwork (soil boring advancement and test pitting). The CAMP will monitor concentrations of VOCs and particulate matter less than 10 microns in size (PM-10) in accordance with NYSDEC and NYSDOH guidance. The CAMP will monitor these parameters at two locations around the work area, with a focus towards areas of occupied space. Included in the CAMP is a description of methods that may be used to control odors during the PDI if needed. The CAMP is part of the approved 2009 approved RI Work Plan for the Site.

Site Survey

Following completion, all borings and test pit locations will be surveyed for elevation and location using a licensed New York surveyor. All horizontal locations will be reported in the New York State Plane Coordinate System, Long Island Zone (NAD83) in feet. All vertical measurements will be reported in NAVD88 in feet, to the nearest 0.1 ft. for soil borings.

Investigation Derived Waste Management

All Investigation Derived Waste (IDW) generated during the PDI will be collected in properly labeled 55-gallon drums, roll-offs, or a frac tank. Subsequently, the waste will be characterized by laboratory analyses and properly disposed in accordance with management of IDW procedures outlined in 2009 NYSDEC approved Field Sampling and Analytical Plan (FSAP).

Deliverables

Following completion of the investigation, the results of the PDI will be incorporated into a revised IRM design and submitted to the agency for review and approval.

Schedule

Field work can commence following the approval of this PDI Work Plan and following coordination with the property owner.

If you have any questions, comments, or require any additional information, please do not hesitate to contact me (718) 608-5102 or at brian.bermingham@nationalgrid.com.

Yours sincerely,



Brian Bermingham, P.E
Project Manager

Enclosure

cc: J. Deming, NYSDOH
D. Eaton, NYSDEC
W. Ryan, National Grid (Electronic Copy Only)
T. Leissing, National Grid (Electronic Copy Only)
P. Cox, AECOM (Electronic Copy Only)

Table

Table 1
Summary of Soil Boring and Test Pit Rationale
222 Maspeth Avenue Pre-Design Investigation
Former Equity Works MGP Site, Brooklyn, New York

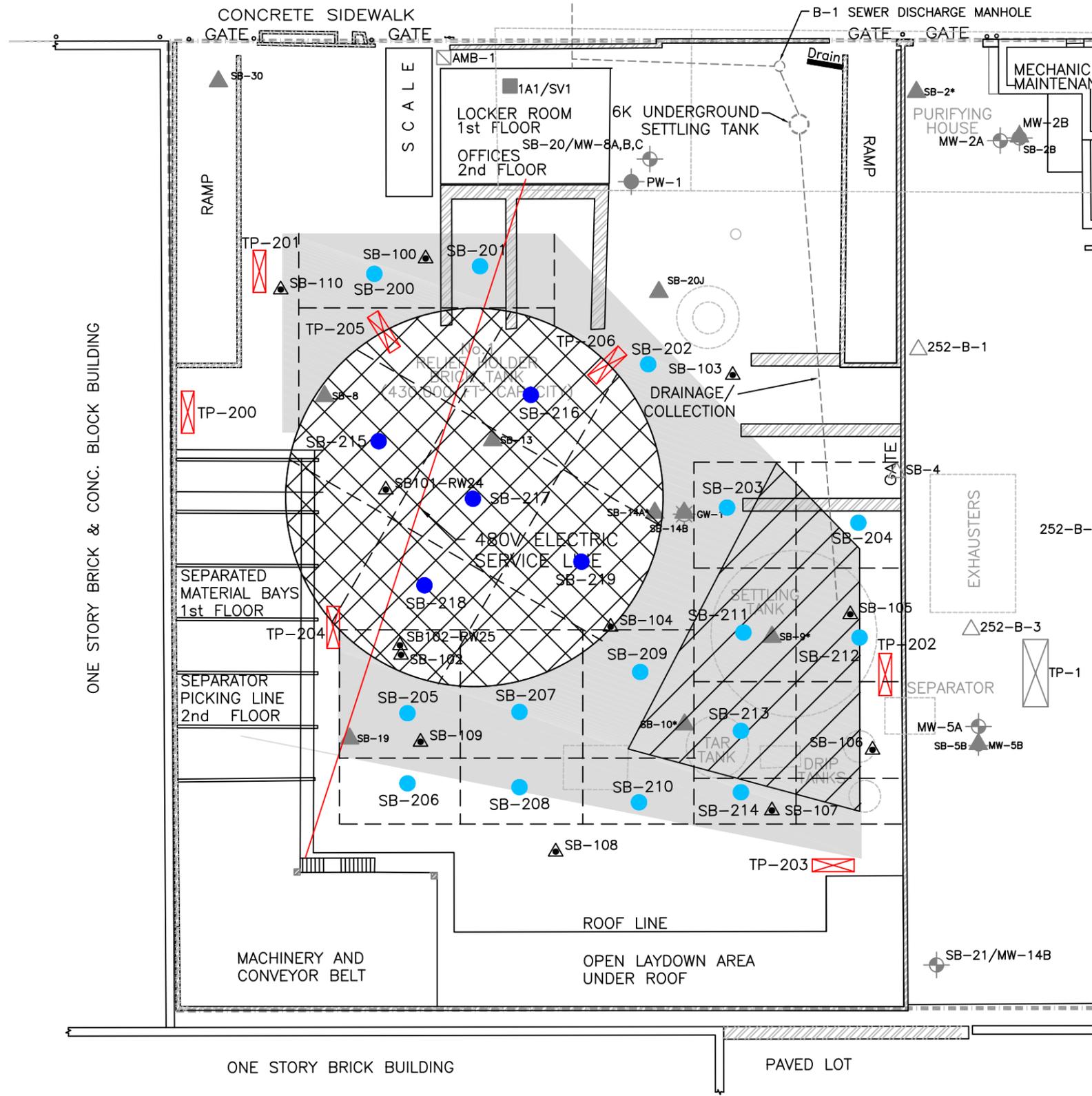
Sample ID	Completion Depth*	Sample Depth* (bgs)	No. of Samples	Analyses	Rationale
SB-200	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-201	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-202	Est. 50 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil samples for pre-characterization of soils to facilitate off-site disposal and to pre-characterize deeper soils to the intermediate clay that may be disposed off-site as ISS spoils.
SB-203	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-204	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-205	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-206	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-207	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-208	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-209	Est. 50 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil samples for pre-characterization of soils to facilitate off-site disposal and to pre-characterize deeper soils to the intermediate clay that may be disposed off-site as ISS spoils.
SB-210	Est. 6 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-211	Est. 10 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS and in area of former MGP structures. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-212	Est. 50 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS and in area of former MGP structures. Collect soil sample for pre-characterization of soils to facilitate off-site disposal. Pre-characterize deeper soils to the intermediate clay that may be disposed off-site as ISS spoils.
SB-213	Est. 10 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS and in area of former MGP structures. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-214	Est. 10 feet max	TBD	1	Visual, Waste Characterization	Evaluate shallow soil conditions in zone to be excavated prior to ISS and in area of former MGP structures. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
SB-215	Est. 100 feet max	TBD	1	Visual, Waste Characterization	Evaluate contents of former No. 1 Relief Holder and collect soil sample for pre-characterization of soils to facilitate off-site disposal. Evaluate subsurface conditions directly beneath former holder foundation to the Gardiners Clay, a regional confining unit.
SB-216	Est. 100 feet max	TBD	1	Visual, Waste Characterization	Evaluate contents of former No. 1 Relief Holder and collect soil sample for pre-characterization of soils to facilitate off-site disposal. Evaluate subsurface conditions directly beneath former holder foundation to the Gardiners Clay, a regional confining unit.
SB-217	Est. 100 feet max	TBD	1	Visual, Waste Characterization	Evaluate contents of former No. 1 Relief Holder and collect soil sample for pre-characterization of soils to facilitate off-site disposal. Evaluate subsurface conditions directly beneath former holder foundation to the Gardiners Clay, a regional confining unit.
SB-218	Est. 100 feet max	TBD	1	Visual, Waste Characterization	Evaluate contents of former No. 1 Relief Holder and collect soil sample for pre-characterization of soils to facilitate off-site disposal. Evaluate subsurface conditions directly beneath former holder foundation to the Gardiners Clay, a regional confining unit.
SB-219	Est. 100 feet max	TBD	1	Visual, Waste Characterization	Evaluate contents of former No. 1 Relief Holder and collect soil sample for pre-characterization of soils to facilitate off-site disposal. Evaluate subsurface conditions directly beneath former holder foundation to the Gardiners Clay, a regional confining unit.
TP-200	Est. 8 feet max	TBD	1	Visual, Waste Characterization	Evaluate perimeter wall construction/possible foundation component adjacent to the 1 Rewe Street building.
TP-201	Est. 8 feet max	TBD	1	Visual, Waste Characterization	Evaluate subsurface loading ramp construction/possible foundation component adjacent to the 1 Rewe Street building.
TP-202	Est. 8 feet max	TBD	1	Visual, Waste Characterization	Evaluate perimeter wall construction/possible foundation component adjacent to the 252 Maspeth Avenue parcel and evaluate the potential presence/location of the former settling tank foundation. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
TP-203	Est. 8 feet max	TBD	1	Visual, Waste Characterization	Evaluate perimeter wall construction/possible foundation component adjacent to the 252 Maspeth Avenue parcel, the 1 Rewe Street building, and the elevated roof structure perimeter wall. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
TP-204	Est. 8 feet max	TBD	1	Visual, Waste Characterization	Evaluate location and construction of former No. 1 Relief Holder foundation and construction/possible foundation of elevated C&D recycling structure and sorting bays. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
TP-205	Est. 8 feet max	TBD	1	Visual, Waste Characterization	Evaluate location and construction of former No. 1 Relief Holder foundation. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.
TP-206	Est. 8 feet max	TBD	1	Visual, Waste Characterization	Evaluate location and construction of former No. 1 Relief Holder foundation. Collect soil sample for pre-characterization of soils to facilitate off-site disposal.

Notes

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|-------------------------------|---|
| 1. No. - number | 6. TBD - To be determined based on field findings |
| 2. ID - identification | 7. Waste Characterization - TPH, TOX, VOCs, SVOCs, TCLP metals, total metals, ignitability, corrosivity, reactive sulfide and cyanide, total cyanide, PCBs, sulfur, TCLP VOCs, TCLP SVOCs, TCLP organics, BTU, Hexavalent chrome, moisture. |
| 3. ft - feet | 8. Number of samples = number of samples for laboratory analysis. |
| 4. EST. - Estimated | |
| 5. bgs - Below ground surface | |
- * - Depths may be adjusted in the field based on stratigraphy and observed impacts.

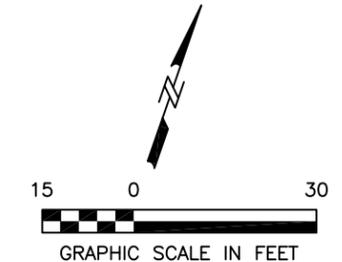
Figure

File: P:\Jobs\Rem_Eng\Project_Files\National_Grid\20190208\MXD & GIS\GIS\Presentation_20190208\MXD\Fig_3_4_Alternative_1_2_Pre_Design_Invest_Loc.dwg Layout: FIG 1 PREDESIGN INVESTIGATION LOC User: bourdeauj Plotted: Mar 27, 2019



NOTES:
 1.) SITE FEATURES (BUILDINGS, WALLS, UTILITIES, ETC.) TAKEN FROM MONTRÖSE FROM SURVEYING CO., LLC. OF RICHMOND HILL, NY. THOSE SURVEYS (MASPETH AVE 222 ON 9/21/04 AND MASPETH AVE 252 & 254 ON 3/10/06) PROVIDED BY COOPER TANK RECYCLING.
 2.) LOCATIONS OF HISTORIC MGP STRUCTURES BASED ON SANBORN FIRE INSURANCE MAPS.
 3.) LOCATION OF HISTORIC INVESTIGATION LOCATIONS BASED ON EEA INC., 2004 REPORT (254 MASPETH AVE) AND GANNETT FLEMING 2005 REPORT (252 MASPETH AVE).
 4.) SITE CHARACTERIZATION INVESTIGATION LOCATIONS SURVEYED BY GEOD CONSULTING ON DECEMBER 11 AND 12, 2009.
 5.) OFFICE BUILDING AND SCALE ON 222 MASPETH AVE. ADJUSTED FROM MONTRÖSE SURVEY BASED ON FIELD OBSERVATIONS.
 * LOCATIONS BASED ON FIELD TIE-INS BY AECOM.

- LEGEND:**
- PROPOSED SHALLOW SOIL BORINGS
 - PROPOSED DEEP SOIL BORINGS
 - X PROPOSED TEST PITS
 - - - - - PRE-CHARACTERIZATION SAMPLING GRID (BASE ON VOLUME)
 - SOLIDIFY NAPL TO INTERMEDIATE CLAY (~45 FT BGS)
 - EXCAVATE HOLDER CONTENTS TO 26 FT BGS
 - ISS PRE-EXCAVATION TO 10 FT BGS
 - - - - - SITE BOUNDARY
 - - - - - ROADWAY EASEMENT
 - CURB
 - BUILDING WALL
 - CONCRETE WALL
 - FENCE
 - WATER UTILITY WITH ACCESS WAY
 - WATER UTILITY VALVE
 - HYDRANT
 - UNDERGROUND ELECTRIC UTILITY VAULT
 - 60" SEWER UTILITY WITH ACCESS WAY
 - 12" SEWER UTILITY WITH ACCESS WAY
 - BOLLARDS
 - ELECTRIC UTILITY POLE
 - MW-4A RI MONITORING WELL
 - SB-4 RI SOIL BORING
 - TP-3 RI TEST PIT
 - AMB-1 AMBIENT AIR
 - 1A1/SV1 INDOOR AIR/SOIL VAPOR
 - PW-1 ON-SITE PUMPING WELL
 - GW-1 TEMPORARY MONITORING WELL
 - 254-B-6 PREVIOUS INVESTIGATION SAMPLE LOCATION
 - - - - - HISTORIC STRUCTURE
 - - - - - CURRENT FEATURE
 - SB-100 SUPPLEMENTAL INVESTIGATION LOCATION



NATIONAL GRID EQUITY FORMER MGP SITE, BROOKLYN NY PRE-DESIGN INVESTIGATION 60137362.680		PRE-DESIGN INVESTIGATION LOCATIONS REMOVAL OF HOLDER CONTENTS AND SOLIDIFICATION OF NAPL 222 MASPETH AVENUE
DATE: 03/15/2019	DRWN: JB	FIGURE 1

