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Excavation Work Plan

CNG Temporary Injection Station
Former Inwood Gas Holder Site, Inwood, Nassau County, New York

National Grid

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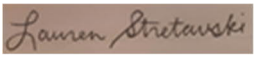			
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1. Introduction

This Excavation Work Plan (EWP) has been prepared to described requirements for management of impacted site media during the construction of a Compressed Natural Gas (CNG) offloading station at the Former Inwood Gas Holder Site (site) in Inwood, Nassau County, New York. The limits of disturbance (LOD) associated with the project are shown on Figure 1. Within these limits, National Grid and its contractor intend to install a manifold with locations for offloading of Compressed Natural Gas (CNG), two decompression enclosures, and gas main piping to connect the decompression enclosures to the existing natural gas infrastructure. The work also includes installation of a control trailer, nitrogen tank, metering assembly, emergency back-up generator, and gas piping to feed the emergency back-up generator. Finally, electrical conduit will be installed within the LOD to provide power to installed components and to lighting for the new facility.

This EWP was prepared to support Construction Workers that will be conducting intrusive work (e.g., excavation, utility repairs, fence repairs, vegetation removal, construction, etc.) within the site. The primary goal of this document is to ensure that intrusive work will be done in such a manner that Construction Workers and general public (including site workers) exposure to site-related impacts at the site is minimized through work zone controls, appropriate monitoring, and safe work practices.

1.1 Planned Activities and Notifications

Plans for re-grading include removal of trees and brush within vegetated areas of the LOD and management of materials disturbed by root ball removal (estimated up to 12 inches below ground surface [bgs]), followed by re-grading to meet the proposed construction contours. Intrusive elements for utilities to be installed beneath the composite cover system (CCS) include trenching for the 12” gas main piping, trenching for installation of electrical conduit, and excavation for foundations. Estimated volumes of soil to be excavated include approximately 2,985 cubic yards, of which approximately 2,615 cubic yards of soil are to be removed during regrading and approximately 370 cubic yards are to be removed during trenching and excavation for piping and foundations.

In accordance with the New York State Department of Environmental Conservation (NYSDEC)-approved Interim Site Management Plan (ISMP), at least 15 business days prior to the start of these activities, the Contractor, National Grid or it’s representative(s) will notify the NYSDEC. This EWP will serve as the notification required by the ISMP.

2. Planning

All areas of the site will be assumed impacted below the surface with the exception of the area designated in Figure 1. Since the intrusive work activity will disturb the CCS, several measures need to be taken to minimize the exposure of Construction Workers and the general public to site constituents of concern (COC) [benzene, toluene, ethylbenzene, and xylenes (BTEX), polyaromatic hydrocarbons (PAHs), cyanide, and Resource Conservation and Recovery Act (RCRA) metals] and non-site related constituents (e.g. petroleum and/or chlorinated volatile organic compounds [VOCs]). These measures are detailed in Section 3.

All surface intrusive work shall be performed in compliance with 29 CFR 1910.120. Two primary contractors are anticipated to perform the work activity:

- National Grid Gas Contractor – responsible for excavation trenches, placement of excavated soils within designated stockpile areas, dewatering and pumping of construction water to the site Water Treatment Plant (WTP) and/or directly to a frac tank or tanker truck, stormwater pollution prevention, and CNG infrastructure work. The National Grid Gas Contractor is responsible for mechanical sorting and segregation of vegetation root balls and soils to the designated stockpile areas.
- AECOM – responsible for oversight of all intrusive activities, soil screening, soil and treated water sampling, re-use and off-site backfill sampling, re-use soil management, and implementation of a Community Air Monitoring Plan (CAMP). Multiple subcontractors will be contracted by AECOM to conduct the following work:
  - WTP mobilization, operation, and demobilization and/or water storage containers (i.e. frac tanks, tanker trucks)
  - Off-site Transportation and Disposal of excavated impacted soils
  - Placement of demarcation layer as required
  - Site clearing as needed for stockpiling of soil for re-use
  - On-site stockpiling of site soils approved by NYSDEC for re-use
  - Implementation of odor control measures, as necessary
  - Survey of soil cut areas, as necessary

The National Grid Gas contractor shall identify appropriate Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Responses (HAZWOPER) trained workers and requisite equipment for all surface intrusive work. Similarly, AECOM shall identify appropriate OSHA HAZWOPER trained workers and requisite equipment for soil management.

2.1 Identification of Impacted Materials

During all surface intrusive work, an AECOM representative will support National Grid Gas to identify potentially impacted materials. As discussed above, materials with site-related and non-site-related (e.g., VOCs and some metals) impacts are known to exist on the site.

Site-related impacted materials typically consist of soil and/or groundwater impacted with BTEX, PAHs, RCRA metals, and cyanides. In addition, fly and oil ash are present within the fill across the site. Site-related impacts range from soil/groundwater impacted with free phase dense non-aqueous phase liquid (DNAPL) to soil impacts and dissolved phase impacts in groundwater.

There are several typical signs of the potential presence of site residuals within an open excavation, including: soil that is stained (black or bright blue), rainbow sheen on the surface of groundwater, and/or a characteristic “mothball-like” odor. To be identified as site-related, soil or groundwater will exhibit either visual or olfactory signs.

All subsurface soils should be placed on plastic (i.e., 6-mil thickness for temporary stockpiles and 12-mil for the designated stockpile area as shown on **Figure 2**). Soil with visible or olfactory evidence of site-related impacts shall not go back in the ground and shall be properly disposed of as discussed in Section 3. In addition, metal impacts are known to exist in several areas of the site.

For all surface intrusive work, an AECOM professional trained in the identification of site-related impacts will be present.

2.2 Health and Safety

Surface intrusive work must be conducted in accordance with the procedures defined in the National Grid Gas Contractor's Site-Specific Health and Safety Plan (HASP) and National Grid Site Investigation and Remediation (SIR) consultants CAMP. AECOM and its subcontractors will operate under their own HASP. The HASP may be updated to current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations.

2.3 Public Safety

Several steps need to be taken in order to protect the public, including site workers, and minimize exposure to impacted materials potentially present on the site.

Personnel and equipment decontamination areas should be in place prior to soil disturbance to prevent soil from being tracked by Construction Workers or equipment out of the work area. Appropriate housekeeping procedures need to be implemented to ensure that public spaces are clear of soil and debris related to excavation work, whether the soil or debris is thought to be impacted or not.

Community air monitoring will be performed prior to and during intrusive and impacted soil management activities. Community air monitoring consists of, at a minimum, a photo ionization detector (PID) equipped with a 10.6 eV lamp and a portable particulate monitor. CAMP stations shall be placed upwind and downwind of the work area. The CAMP is included as Appendix A of the ISMP.

A variety of odor, vapor and dust control techniques may be used. Please refer to Section 3.14 and Section 3.15 of this document for more details.

Additional practices that may also be executed to mitigate the public's exposure to impacted soil and water include:

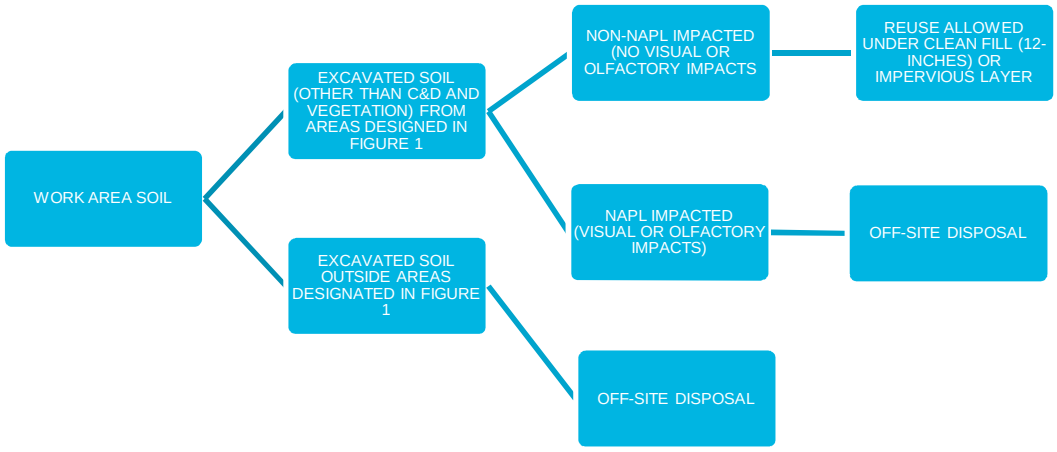
- Keeping surfaces beyond the excavation areas swept clean of dirt and debris.
- Pathways and roads will be kept free of soil, regardless of level of impacts (i.e. keep the work site clean).
- The contractor shall ensure that groundwater draining from excavated soil is appropriately managed to contain potential impacted water.
- Containers (e.g., drums, tanks) of groundwater generated during intrusive activities shall be monitored for leakage.
- Groundwater generated during intrusive activities will be sampled by AECOM as required to facilitate disposal at an approved off-site facility.
- All soil stockpiles are to be placed in a poly-lined bermed area and securely covered.
- Soils with visible and/or olfactory evidence of impacts shall be separated and stockpiled in a poly-lined bermed area and not go back in the ground.
- Backfilling of the top two feet of excavated non-paved areas shall be completed with clean fill from an off-site source. A clearly identifiable demarcation layer shall be emplaced beneath the clean fill and existing soils.

2.4 Classification of Site Soils for Reuse or Disposal

As shown on Figure 1, site soils in a part of the project area have been characterized to meet Unrestricted Use Soil Cleanup Objectives (SCOs). Soils excavated from this area will still be observed by AECOM during excavation for signs of gross contamination. If gross contamination is not encountered, these soils may be reused at the site below either a paved surface or below a minimum one-foot of soils meeting the SCOs for the cover system as set forth in 6 NYCRR Part 375-6.7(d).

Division of Environmental Remediation (DER)-10 Table 5.4(e)10 - Recommended Number of Soil Samples of Soil Imported to or Exported From a Site, will be followed to ensure the correct number of VOC, SVOC, Inorganic, polychlorinated biphenyl (PCB), and Pesticide samples are collected for the volume of in place or stockpiled soil. Based on the volume of soils below commercial use SCOs, (2,600 cubic yards) and requirements of DER-10, 11 discrete samples will be collected for VOCs and 4 composite samples of soils will be collected for SVOCs, inorganics, PCBs, and pesticides. If the soils meet all the SCOs for commercial use and approved by NYSDEC, the material can be reused at the site under a paved or a minimum of 12-inch soil cover system and subject to ISMP and a future Environmental Easement. If the volumes of the concrete and soils are different than the estimated volumes, the sampling frequency will be modified. The sampling locations and analytical results will be submitted to the NYSDEC for review.

Soil Management



3. Excavation Work Plan

All site work described in this plan is surface intrusive work and shall be performed in compliance with 29 CFR 1910.120. The contractor/National Grid representative shall use an Occupational Safety and Health Administration (OSHA) trained Site Supervisor and HAZWOPER-trained workers to complete the work.

Note: Access is restricted at the perimeter of the site. A 6-foot tall chain-link fence secures the site. The fence around the site perimeter includes gates that are locked to restrict access which provides additional physical control. The existing and future access conditions were taken into account in the development of the procedures, methods, and controls discussed in this section.

3.1 Soil Screening Methods

AECOM will perform visual, olfactory and instrument-based soil screening during all site work. All excavation and invasive work performed during development, such as excavations for foundations and utility work, regardless of when the invasive work is performed, will require visual, olfactory, and instrument-based soil screening.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing for reuse. In addition, vegetation with soil attached to roots will be segregated in separate stockpile for processing.

3.2 On-Site Material Management

3.2.1 Vegetation

Vegetation shall be segregated from site soils. The National Grid Gas Contractor shall cut portions above the root level and place them within a stockpile area for disposal offsite. The National Grid Gas Contractor will then segregate the roots and any soils clinging to the roots and place them in designated stockpile areas. Following sampling of the soil by AECOM, soil and roots will be managed for disposal off-site (with disposal of roots by the National Grid Gas Contracted if not impacted and by AECOM if impacted).

3.2.2 Soils

Excavated soil shall be placed on plastic in order to prevent cross contamination, and all soil stockpiles are to be placed in a poly-lined bermed area and securely covered.

If soil is visibly or olfactory impacted with site residuals, it should be placed in appropriate containers (steel drums or roll offs depending on amount) and disposed of at a National Grid approved thermal treatment facility. Soils with visible or olfactory indications of site-related impact shall not be reused.

Materials that do not exhibit visible or olfactory indications of manufactured gas plant (MGP) impact must conform to the requirements in Section 3.6 in order to be reused on site as backfill.

There are three categories of soil that will be encountered at the site:

1. Soil that meets the NYSDEC Unrestricted Use SCOs. This soil can be reused at the site as fill. A layer of orange demarcation fabric must be placed on the surface of the bottom of the excavation, beneath this reused soil layer, as well as on the top of the reused soil, below the cover system. Surveyed points will be provided locating the as-built bottom of the soil cut, the top surface of the reused soil, and top of the final grade. Survey work will be performed by SIR Environmental Contractor.
2. Soil that meets the NYSDEC Commercial Use SCOs. This soil can be reused at the site as fill following testing in accordance with NYSDEC DER-10 requirements. The results of this testing will

be provided to the NYSDEC with a request to reuse the soils onsite. Upon approval, these soils can be reused at the site as fill and will be covered with a minimum of 12-inches of backfill, meeting the SCOs for cover material, or concrete or asphalt of any thickness. A layer of orange demarcation fabric must be placed (by the National Grid Gas Contractor) on the surface of the bottom of the excavation, beneath this reused soil layer, as well as on the top of the reused soil, below the cover system. Surveyed points will be provided locating the as-built bottom of the soil cut, the top surface of the reused soil, and top of the final grade.

3. Soil that exceeds the NYSDEC Commercial Use SCOs and/or exhibits signs of gross impacts (i.e. NAPL). This soil will not be reused at the site. This soil could be any that was found to have visual or olfactory indications of contamination that was NAPL saturated, or not saturated, or which subsequent analytical testing indicates regulatory exceedances. Material designated for off-site disposal will be placed in roll-off containers, drums, and/or stockpiled on plastic and maintained within a secure location around the work area; stockpiled material will be covered for protection from precipitation and to prevent material from becoming airborne. Material collected in drums will be properly labeled and covered for off-loading to a secure area. The material will then be characterized by AECOM for subsequent disposal. The material will be transported by a licensed waste hauler under manifest to a National Grid approved off-site disposal facility.

Guidelines for site soil that meets the Commercial Restricted Use SCOs: (1) soils in the excavation areas, both disturbed and undisturbed, will be covered with a minimum of 12 inches of fill that meets SCOs for the cover or with a paved surface (i.e. asphalt or concrete), or (2) if excavated and not reused, soils will be disposed off-site as solid waste.

Visually or olfactory impacted material should be placed in roll-off containers, drums, or stockpiled on plastic and maintained within a secure location around the work area; stockpiled material shall be covered for protection from precipitation and to prevent material from becoming airborne. Stockpiles should be placed either downwind or significantly upwind of off-site receptors to control the potential for odor emissions. The stockpile locations will be determined based on these criteria and predetermined before excavation begins. It is anticipated that the material will be transported to National Grid approved off-site disposal facility. Material collected in drums will be properly labeled and covered for off-loading to a secure area. The material will then be characterized by the contractor/National Grid representative for subsequent disposal.

Stockpiles containing known or suspected impacts will be continuously encircled with a berm as shown in **Figure 4**. Berms will be constructed by the National Grid SIR Contractor, while the National Grid Gas Contractor will install the associated erosion controls (a double row of silt fence) surrounding the lined and bermed area. Contaminated water draining from the soils containing known or suspected impacts will be collected from inside the bermed area and will be pumped by the National Grid Gas Contractor to the on-site WTP. Hay bales will be used as needed near catch basins, surface waters and other discharge points. Collection containers that may hold impacted water will be monitored for leakage.

Stockpiles containing known or suspected impacts will be kept covered at all times with appropriately anchored tarps. Stockpiles containing known or suspected impacts will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles containing known or suspected impacts will be inspected in accordance with the Stormwater Pollution Prevention Plan (SWPPP) established in Section 2.9 of the ISMP. Inspections will be completed at a minimum once each day and after every storm event of 1 inch or greater. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. Stockpiled material not being used will be removed following disposal facility characterization.

3.2.3 Groundwater

Site data indicates that the water table is approximately 5 feet to 6 feet below current ground surface. Therefore, groundwater may be encountered. In the event that it is necessary, the National Grid Gas Contractor will provide sufficient means to remove groundwater from the excavation and pump it to the

WTP influent tank. All groundwater shall be considered impacted and collected for onsite treatment and discharge in accordance with the effluent limitations and monitoring requirements established in response to the State Pollution Discharge Elimination System (SPDES) equivalency permit application.

3.3 Materials Excavation and Load Out

AECOM will oversee all invasive work and the excavation and load-out of all excavated site soils. National Grid and its contractors are solely responsible for safe execution of all invasive and soil management work performed under this EWP.

Excavated soil shall be segregated (e.g., on plastic or by containerization) from vegetation regardless of its level of impact.

After the completion of soil removal and any other surface intrusive activities, a demarcation layer, consisting of orange geotextile fabric will be placed in excavation areas along the sidewalls and excavation bottom to separate backfill from existing soils.

All solid waste derived from excavation or other intrusive activities will be either stockpiled or placed in appropriate containers (e.g., 55-gallon steel drums, 20-cubic yard roll off containers, 4,000 gallon Baker tanks) and grouped by environmental matrix (soil, debris, or vegetation). Construction and demolition (C&D) material, including personal protection equipment (PPE), that has been in contact with impacted soil and/or groundwater shall be containerized, separately unless approved by the impacted material disposal facility.

All removed soil will be characterized using the laboratory analyses and sampling frequency specified by the disposal facility. The analyses to be performed may include, but not be limited to, the following, depending on the medium and the selected disposal facility:

- Total Metals by United States Environmental Protection Agency (USEPA) Method 6010B (Mercury 7470A)
- Total Petroleum Hydrocarbons (DRO and GRO) by USEPA Method 8015 modified
- Polychlorinated biphenyl (PCBs) by USEPA 8082
- Toxicity Characteristics Leaching Procedure (TCLP) ZHE Extraction – USEPA Method 1311
- TCLP VOC – USEPA Method 8260B
- TCLP SVOC – USEPA Method 8270C
- TCLP Resource Conservation and Recovery Act (RCRA) Metals – USEPA Method 6010B (Mercury 7470A)
- Corrosivity – USEPA Method 9045C
- Ignitability/Flashpoint – USEPA SW-846 Method 1010A
- Reactive Cyanide and Reactive Sulfide by USEPA SW-846 Chapter 7, Sections 7.3.3.2/7.3.4.2
- Total Organic Halogens – USEPA SW-846 Method 9020B

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYS Department of Transportation (DOT) requirements (and all other applicable transportation requirements).

A truck decontamination area will be operated on-site by National Grid SIR. The AECOM subcontractor will be responsible for ensuring that all outbound trucks shall be decontaminated at the truck decontamination area before leaving the site until the activities performed under this section are complete. Water, sand or soil derived from the truck decontamination area will be handled in the same manner specified in Section 3.2.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The National Grid Gas Contractor will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed by the Contractor as needed to maintain a clean condition with respect to site-derived materials.

3.4 Materials Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 New York Codes Rules and Regulations (NYCRR) Part 364. Haulers will be appropriately licensed and trucks properly placarded.

At a minimum, trucks should have an impermeable tarp, competent cover systems, and functional tailgates to prevent leakage of liquids. Trucks transporting impacted soils shall be lined with 8-mil polyethylene sheeting large enough to fully cover the top of the load. The truck covers shall be an impermeable soil cover. Additional automatic mesh tarps will be used to secure the liners. Loose-fitting canvas-type truck covers or mesh covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used. All trucks transporting impacted soils will be decontaminated prior to leaving the site. Decontaminated water, if any, will be collected and disposed of off-site in an appropriate manner.

Truck transport routes shall be in accordance with all New York City (NYC) Department of Transportation (DOT) and New York State (NYS) DOT approved roadways. It is National Grid/contractor's responsibility to follow all applicable state, local, and municipal rules, regulations, and guidelines (including NYCDOT and NYSDOT) regarding truck routes.

All trucks loaded with impacted materials will exit the vicinity of the site using only the approved truck route. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the site; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during any site activity and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

3.5 Materials Disposal Off-Site

All soil/fill/solid waste excavated and removed from areas known to have site impacts will be designated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYCDEC. Unregulated off-site management of materials from this site will not occur without formal NYCDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate (i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D recycling facility, etc). Actual disposal quantities and associated documentation will be reported to the DEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Unrestricted Use SCOs is prohibited from being taken to a NYS recycling facility (6NYCRR Part 360-16 Registration Facility).

3.6 Backfill

Backfill may be 1) site soils from designated areas on the site without visual impacts or NAPL odors that have NYSDEC soil re-use approval, 2) Off-site soils or crushed rock, as discussed below, 3) crushed C&D debris free of gross impacts, and 4) imported clean fill that have been analyzed for emerging contaminants (i.e. Per- and Polyfluoroalkyl Substances [PFAS]) to confirm that concentrations are below applicable criteria.

3.7 Materials Reuse On-Site

This section provides details for methods to be followed for materials reuse on-site. 'Reuse on-site' means reuse on-site of material that originates at the site and which does not leave the site during the excavation. All impacted material exposed and removed as part of the work at the site shall be disposed off-site as detailed in this EWP.

All other material will require NYSDEC approval prior to any reuse on-site. AECOM will ensure that procedures defined for materials reuse by the NYSDEC and DER-10 are followed and that unacceptable material does not remain on-site. Site soils without visual impacts or petroleum odors may be reused as backfill, under a paved surface or a minimum of one foot of soil cover, either in the excavation area or in other areas of the site subject to the ISMP and an environmental easement.

Soil identified for potential re-use will be characterized using the laboratory analyses and sampling frequency specified in DER-10, Table 5.4(e)10. Samples will also be collected for additional analyses listed in the waste characterization criteria specified in Section 3.3 – these samples will be held pending the results of the samples collected for re-use and will be analyzed if off-site disposal is necessary.

The analyses to be performed for characterization of soils for re-use will include the following:

- Total VOC – USEPA 8260B
- Total SVOC – USEPA 8270C
- Total Metals by USEPA 6010B (Mercury 7470A)
- Polychlorinated biphenyl (PCBs) by USEPA 8082
- Pesticides by USEPA 8081

If soil is confirmed to meet the Commercial Use SCOs, it will be stockpiled in a designated area, the location of which will be established based on site conditions and coordination between National Grid Gas Contractor and the National Grid SIR Contractor. A preliminary stockpile location for soils identified for future re-use is shown on **Figure 1**. If soil does not meet the criteria for re-use, it will be transported off-site for disposal at a National Grid-approved disposal facility.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

After removal of the existing cover system and any other surface intrusive activities, and before the area is graded, a demarcation layer, consisting of orange geotextile fabric will be placed to create a barrier between undisturbed or reused site soils and the 12-inch layer of clean fill or an impervious layer. The demarcation layer will cover the entire surface underneath the clean fill or impervious layer to demarcate the site soils.

If site soil is reused as backfill, the following survey elevations are needed:

- the bottom of the excavation/ undisturbed Site soils,
- the demarcation layer placed above the reused soil layer, and
- the surface elevation of the top of the minimum 12-inches of clean fill cover layer or the top of the impervious layer, if soil cover is not used.

If an area is excavated and no site soil is emplaced in the excavation, the following survey elevations are needed:

- the demarcation layer placed at the bottom of the excavation/ on the undisturbed Site soils and
- the surface elevation of the top of the minimum 12-inches of clean fill cover layer or the top of the impervious layer, if soil cover is not used.

Soil with visual impacts, i.e. NAPL saturation or strong petroleum odors, will be disposed of off-site (see sections 3.4 and 3.5). In addition, soils without visible or olfactory indications of impacts that are not reused on site shall be disposed off-site as impacted material.

3.7.1 Backfill from Off-Site Sources

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in the ISMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in the ISMP. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site. Additionally, all imported soils must meet 6NYCRR Part 375 Restricted Use Commercial SCOs.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

3.8 Cover System Restoration

After the completion of soil removal and any other invasive activities, the existing on-site CCS will be restored in a manner that complies with the ISMP. The demarcation layer, consisting of orange geotextile fabric will be placed in excavation areas with site impacts. The demarcation layer will provide a visual reference to the top of the 'Impacted Zone', the zone that requires adherence to special conditions for disturbance of impacted soils defined in the ISMP. If applicable, Figures 1-9 and 1-10 of the ISMP will be updated to show the revised Impacted Zone. If the type of cover system changes from that which exists prior to the excavation (e.g., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the 'Impacted Zone". A figure showing the modified surface will be included in any updates to the ISMP.

3.9 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event of 1 inch or greater. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the ISMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

3.10 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, a Safety Stop will occur to address future excavation activities.

Sampling will be performed on product, sediment and surrounding soils, etc., as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (Total Analytical List metals; Total Compound List (TCL) volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In that case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline.

3.11 Equipment Decontamination

All hand tools and heavy equipment that come in contact with impacted material will be decontaminated at the end of the work shift, day, when moving to new areas, or anytime required by the AECOM oversight personnel and/or National Grid SIR. Decontamination should be accomplished using industry standard means and methods. Dry decontamination using brushes is anticipated to be sufficient. In addition to dry decontamination of hand tools and heavy equipment (by each contractor for their own work/ equipment), the National Grid SIR Contractor will conduct dry decontamination of trucks hauling impacted materials off-site for disposal. Decontamination will be completed over 6-mil poly such that decontamination waste may be collected and placed in the truck for disposal, All decontamination related wastes (impacted solids and PPE) should be managed appropriately and disposed of off-site at an approved facility.

3.12 Health and Safety

The National Grid Gas Contractor shall develop and utilize site health and safety protocols consistent with the HASP included in the ISMP. The HASP included in the ISMP provides guidance regarding work zone monitoring and minimum requirements for health and safety.

The intention of the health and safety program at the site is to protect the public, site workers, contractor / property owner representative(s) while they secure/monitor the excavation, utility/maintenance and other Construction Workers during execution of their work, and the environment. Although the composition of site residuals is well known, handling must be limited to personnel with appropriate health and safety training and proper personnel protective equipment (PPE).

This EWP was developed primarily to handle activities that involve excavation (i.e., replacement/inspection of utilities, etc.) at the site. While comprehensive, this EWP cannot anticipate all potential future scenarios for invasive work on the site.

3.13 Community Air Monitoring Plan

The CAMP requires ambient air (VOC) and particulate (dust) monitoring. Air sampling stations will be placed upgradient and downgradient of generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

The monitoring instruments will be checked by a technician every 15 minutes, and the real-time measurements recorded. The following levels should not be exceeded for more than 15 consecutive minutes at the downwind perimeter of the site:

- Benzene 1 part per million (ppm)
- Total VOCs 5 ppm
- Dust 100 micrograms per cubic meter ($\mu g/m^3$)

The above listed action levels are above (in addition to) the background ambient (upwind) concentration.

Exceedances of action levels listed in the CAMP (Appendix D of the ISMP) will be reported to NYSDEC and New York State Department of Health (NYSDOH) Project Managers.

3.14 Odor Control Plan

Fugitive emissions can be generated from a variety of activities including excavation, dewatering and/or from the temporary staging of materials for characterization, consolidation, and scheduling for transportation.

Odor emissions may result from the atmospheric exposure of contaminated media. The potential for odor generation from groundwater is less than that from solids. The constituent concentrations associated with these odors are typically less than the levels that potentially pose a health risk as the odor threshold of COCs are typically less than health-based action levels.

This odor control plan is capable of controlling emissions of nuisance odors off-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the site. Implementation of all odor controls, including the halt of work, is the responsibility of the National Grid and AECOM contractors, and any measures that are implemented will be discussed in the Periodic Review Report.

A three-tiered set of controls are proposed for this EWP:

- Level I - Built into the design of the EWP and includes proactive measures to minimize the effect of fugitive emissions. Level I includes air monitoring to ensure that levels of VOCs and dust are under site-specific action levels.
- Level II – Procedures that are implemented in response to specific increases in fugitive emissions but are not likely to have a significant impact in the schedule of site activities.
- Level III – More aggressive procedures, also initiated in response to specific increases in fugitive emissions that are likely to have a more significant impact on production schedule and site activities.

AECOM is responsible for the implementation of these options, in coordination with the National Grid Gas Contractor, until emission sources are controlled and ambient concentrations no longer have the potential to pose a health risk.

3.14.1 Level I Controls

Level I Controls are built into the design of the field activities and involve physical controls, site layout, and scheduling.

3.14.1.1 Physical Controls

The following physical controls shall be implemented:

- Use of tarps on trucks that move or transport impacted material.
- All stockpiles of impacted material are to be covered at the end of every day, by the National Grid SIR Contractor.
- All trucks used for off-site transport should have tarps in place to cover impacted material as detailed in Section 2.2. On-site haul routes should be routinely wetted to control dust using a hose, sprinkler, or dedicated water truck by the National Grid Gas Contractor.

3.14.1.2 Site Layout

The dispersion of fugitive emissions is controlled by meteorological conditions and their impact generally decreases with distance from the source. If possible, transfer/storage areas will be placed either downwind or significantly upwind of off-site receptors.

The height of the stockpiles should be lower than the top of the perimeter fencing (6 feet) to utilize the benefit of the barrier cloth. If stockpiles must be staged near the fence line (within 100 feet), they should be less than 6-feet in height.

3.14.1.3 Scheduling

Every effort should be made to minimize the amount of time that potentially contaminated material is stored on-site. Appropriate strategies involve the in-place pre-characterization of soils to be excavated and the sampling of stockpiles as soon as they are placed.

Efficient scheduling/coordination of operations can also limit the impact of active emission sources. Close coordination of excavation activities can decrease the surface area of disturbed material, thereby reducing the size of the emission source. A smaller source area can facilitate the implementation of additional controls, if required.

3.14.2 Level II Controls

Air monitoring will routinely be performed at the fence line of the site as delineated in the CAMP (Appendix D of the ISMP) during all work activities. The results will be compared to site-specific action levels for VOCs and total particulates.

Level II controls will be enacted if the exceedance is confirmed or odors are detected at the fence line. If the action levels are exceeded, additional monitoring will be conducted to confirm the result. Level II controls will be enacted if the exceedance is confirmed. AECOM must work through the applicable list of site controls until the fence line monitoring results for all parameters are determined to be less that their associated action levels. Specific Level II controls are discussed below.

3.14.2.1 Suppressing Agents

Several agents that can be applied over emissions sources have been determined to be effective in controlling emissions. These include odor suppressant foam for VOC mitigation and water spray for dust suppression. AECOM will be responsible for management of any suppressing agents.

The following suppressing agents have been identified for use, but additional agents may be used or substituted for other proven agents such as odex, hydromulch, or ecosorb.

Odor Suppressant Foam

Odor suppressant foam can provide immediate, localized control of VOC and odor emissions. The foam is created by the injection of air into a foam concentrate/water mixture using a Pneumatic Foam Unit. The foam is applied via a hose to cover source areas to a depth of 3 to 6 inches. Foam (Rusmar AC-600 or equivalent) is a short term remedy and can be actively used to control VOC and odor emissions from active excavations/stockpiles, and during the loading of trucks. It is shipped as a concentrate and diluted with water at the site. Under normal conditions, this foam can last for several hours. However, it has been observed to degrade quickly in direct sunlight or precipitation so it must be applied liberally and frequently to all areas that require odor control.

Water Spray

A spray of water can be used to minimize the amount of dust created. A water hose is effective for controlling dust over a small area, while lawn sprinklers may be more efficient for extended control of large areas or on-site haul routes.

3.14.2.2 Tarps

Tarps can provide effective control for source areas that are likely to be inactive for extended periods of time. To be effective, the size of the source area should be controlled such that it can be covered using a single tarp. Rolls of 6-mil polyethylene will be used to cover inactive stockpiles. Tarps will also be used for covering exposed soils loaded into trucks. All trucks will be lined with 6-mil polyethylene sheeting, the liners will be large enough to overlap and fully cover the top of the load. Additional automatic mesh tarps will be used to secure the liners.

3.14.3 Level III Controls

Level III controls are to be implemented when Level II controls have been exhausted and ambient concentrations of emissions continue to exceed the site-specific action levels. Each of the control options listed in this subsection has the potential to significantly affect the schedule/production rate of site activities. These delays may be required periodically to ensure that acceptable levels of fugitive emissions are maintained and are preferable to a complete work cessation to control an emission event.

3.14.3.1 Production/ Schedule

It may be necessary to reduce the excavation rate to reduce the surface area of disturbed media or slow the generation rate of stockpiles. These activities would result in smaller source areas that could be more effectively controlled using Level II techniques.

3.14.3.2 Meteorological Conditions

It may be necessary to limit certain activities to those periods when preferred meteorological conditions exist, such as wind direction or low temperatures are present.

3.14.3.3 Relocation of Activities

Another option is cease work and move the remedial activities to lesser-impacted areas until adequate control measures can be implemented or more favorable meteorological conditions return. In addition, it may be beneficial to temporarily relocate material loading and transfer activity areas to other areas of the site or within subsurface excavations to utilize the natural dispersion of emissions in the atmosphere, or shelter from the wind.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

3.15 Dust Control Plan

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

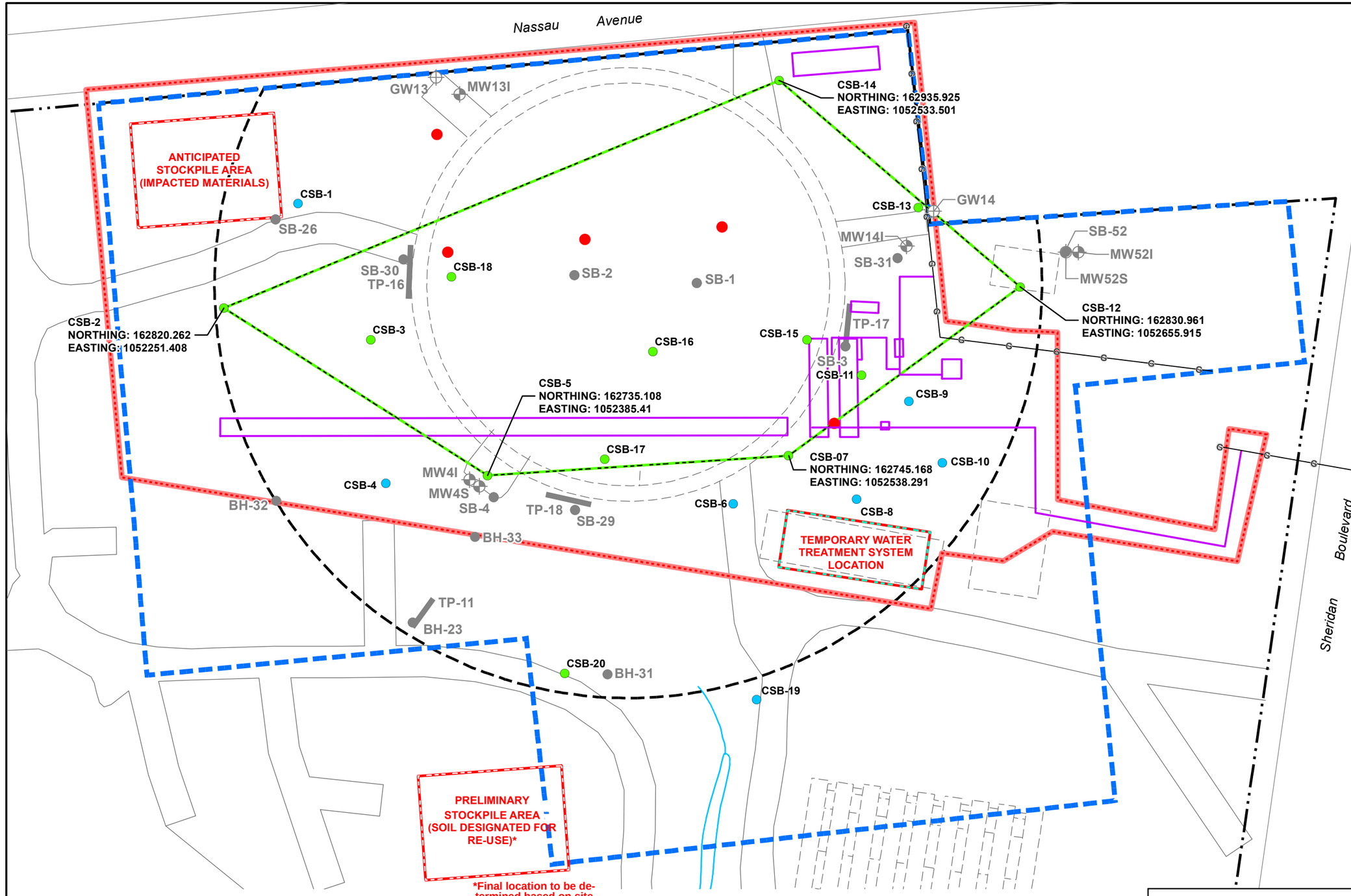
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production;
- If excess soil, clean or impacted, is stored on-site, it shall be covered in plastic to help mitigate excessive dust.
- Gravel will be used on roadways to provide a clean and dust-free road surface; and
- On-site roads will be limited in total area to minimize the need for dust control.

3.16 Quality Assurance/ Quality Control Planning

Field and laboratory quality control (QC) samples will be collected and analyzed to document the accuracy and precision of analytical samples that will require submittal to NYSDEC, if any. The Quality Assurance (QA)/QC samples include trip blanks, field equipment blanks, field duplicates and matrix spikes, and matrix spike duplicates. The data quality level for the investigation will be consistent with procedures outlined in the NYSDEC Analytical Services Protocol (ASP) July 2005 methodologies. A full ASP Category B data package will be prepared by the laboratory for all samples. The data will be reviewed, and a qualified chemist will prepare a Data Usability Summary Report.

Waste characterization samples do not have to meet the QA/QC sampling requirements described in the above paragraph.

Figures



Area of Soil Meeting Unrestricted Use Soil Cleanup Objective Values

Location	Northing	Easting
CSB-02	162820.262	1052251.408
CSB-05	162735.108	1052385.410
CSB-07	162745.168	1052538.291
CSB-12	162830.961	1052655.915
CSB-14	162935.925	1052533.501

Legend

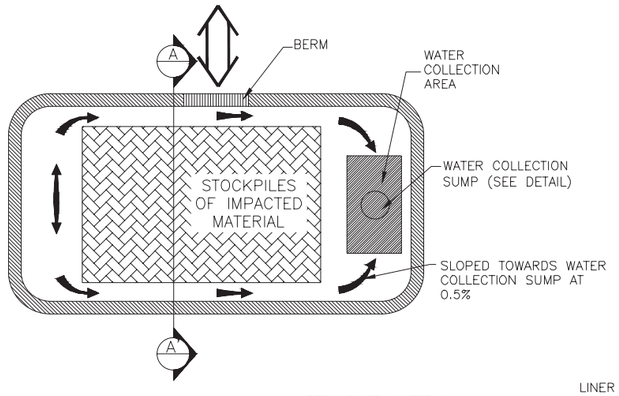
- Soil Characterization Boring One or more Compounds Exceed the NYSDEC Part 375-6.8(b) Unrestricted Use Soil Cleanup Objective Values
- Soil Characterization Boring No Compounds Exceed the NYSDEC Part 375-6.8(b) Unrestricted Use Soil Cleanup Objective Values
- Gas Operations Geotechnical Boring Location
- Historic RI Boring Location
- Pre-RI Groundwater Monitoring Well Location
- RI Groundwater Monitoring Well Location
- Historic RI Test Pit Location
- Property Boundary
- Existing Gas Line
- Access Road
- Waterfront
- Historic Structures
- Curblines
- Proposed Redevelopment Area and Gas Line
- Former Gas Holder Area with 100 Foot Radius Off the Footprint
- Area of Lead in Soil Remediation Excavation and Backfill 0.5-3.0 Feet (1996)
- CNG Offloading Station Limit of Disturbance
- Area of Soil Meeting Unrestricted Use Soil Cleanup Objective Values
- Temporary Water Treatment System Location
- Anticipated Stockpile Area

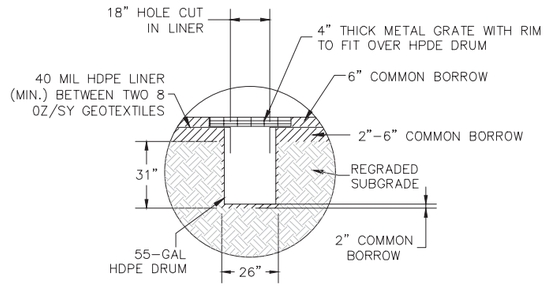
AECOM

National Grid
Former Inwood Gas Holder Site
Nassau Ave/Sheridan Blvd
Inwood, NY

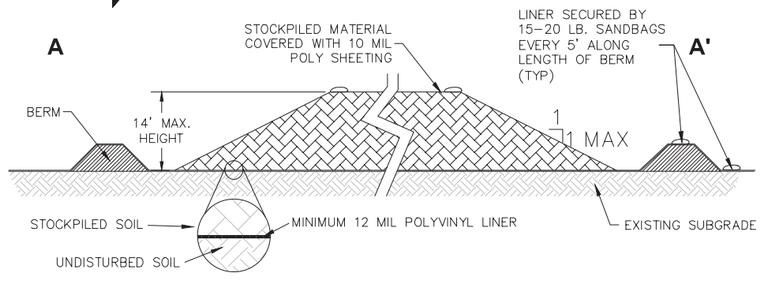
Holder Pad
Soil Pre-Characterization Boring Results
(0-5ft bgs)

Date: 7/31/2020 | Drawn: PMH | Figure 1

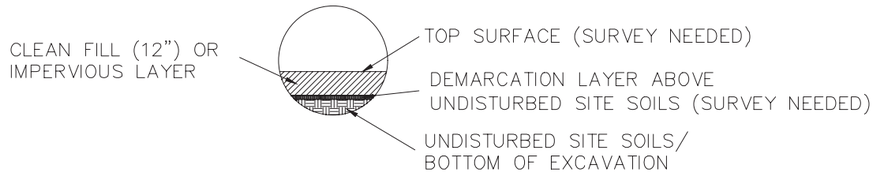


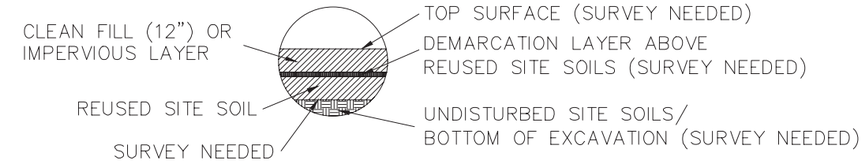


WATER COLLECTION SUMP DETAIL



STOCKPILE DETAILS





CROSS-SECTION OF BACKFILL LAYERS DETAIL

STOCKPILE AREA NOTES:

1. STOCKPILE AREA DIMENSIONS AND SHAPE MAY VARY. ACTUAL SIZE WILL BE DETERMINED BASED ON SITE CONDITIONS AND REQUIRED STORAGE AREA. CONTRACTOR SHALL DETERMINE FINAL SIZE OF AREA WITH APPROVAL BY SITE ENGINEER.
2. EXISTING SUBGRADE SHALL BE FREE OF ANGULAR PROTRUSIONS EXCEEDING 1" IN DIAMETER AND GRADED TO DRAIN INTO THE WATER COLLECTION SUMP.
3. CONTAINMENT BERMS SHALL BE CONSTRUCTED SURROUNDING THE STOCKPILE AREA, AND SHALL BE CONSTRUCTED OF COMMON BORROW OR USING HAY BALES WITH POLY LINER WRAPPED OVER THEM TO PREVENT WATER COMING INTO CONTACT WITH POTENTIALLY IMPACTED MATERIAL FROM ESCAPING. NO ON SITE MATERIALS SHALL BE USED TO CONSTRUCT CONTAINMENT BERMS OR BEDDING. CONTRACTOR SHALL PLACE SOILS IN MAXIMUM OF 12" LIFTS.
4. POLYVINYL SHEETING SHALL BE INSTALLED FOR STOCKPILES OF IMPACTED MATERIAL THAT ARE PLACED OUTSIDE OF THE EXCAVATION AREA. LINER UNDER STOCKPILE AREA WILL BE PLACED WITH A MINIMUM OF 12-INCH OVERLAPPING SECTIONS.
5. THE LINER SHALL BE SECURED BY SANDBAGS PLACED EVERY 5 FEET ALONG THE LENGTH AT THE TOP AND TOE OF THE BERM. LOOSE SOILS, FILL, OR IMPACTED MATERIALS SHALL NOT BE USED TO SECURE THE LINER MATERIAL AT THE CONTAINMENT BERMS.
6. DAILY INSPECTION AND MAINTENANCE OF THE GEOMEMBRANE LINER AND CONTAINMENT BERMS IS REQUIRED FOR THE DURATION OF THE PROJECT.
7. ONE OR MORE WATER COLLECTION SUMPS SHALL BE INSTALLED IN THE IMPACTED MATERIAL STOCKPILE AREA TO COLLECT WATER. WHEN EACH SUMP IS ONE-HALF (1/2) FULL, THE WATER COLLECTION SUMP SHALL BE PUMPED OUT AND THE WATER TRANSFERRED TO APPROPRIATE CONTAINERS FOR DISPOSAL.
8. SOLIDS ACCUMULATED IN THE SUMPS SHALL BE REMOVED PERIODICALLY AND PLACED IN THE CONSOLIDATION AREA OR DISPOSED OFFSITE AT AN OWNER-APPROVED FACILITY.
9. INITIAL PLACEMENT OF STOCKPILED MATERIAL SHALL BE CAREFULLY PLACED IN A 12" LIFT SO THAT EQUIPMENT DOES NOT DAMAGE LINER.
10. IMPACTED STOCKPILED SOIL SHALL BE COVERED WITH 10 MIL POLYETHYLENE SHEETING AT THE END OF EACH DAY AND WHEN NOT BEING WORKED ON.
11. UPON COMPLETION OF THE WORK, THE STOCKPILE AREA SHALL BE REMOVED, AND THE AREA GRADED. ALL MATERIALS SHALL BE PLACED IN THE CONSOLIDATION AREA OR DISPOSED OFFSITE AT AN OWNER-APPROVED FACILITY.
12. ANY DAMAGE TO STOCKPILE AREA MUST BE REPORTED TO THE SITE ENGINEER IMMEDIATELY, AND REPAIRED.
13. FLUSHMOUNT WELLS TO BE PROTECTED DURING INSTALLATION AND REMOVAL OF STOCKPILE AREA. LINER TO BE PLACED OVER TOP OF WELLS.

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Stockpile Plan

Figure 2

PROJ. NUMBER:

DATE: 2/15/2018

DRAWING NUMBER:

SHEET NUMBER: 1 of 1

REVISION 0

File: \\TYPICAL LAYOUTS\Layout: ANSI D ENGINEERING User: erica.hart Plotted: Feb 15, 2018 - 2:37pm Xref's: