FINAL

Interim Remedial Measure Work Plan
Mathews Avenue Parcel A Bike Trail Corridor
Town of Geddes, Onondaga County, NY

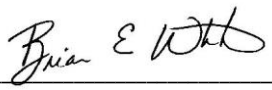
Honeywell

October 2019

OBG
Part of Ramboll

I, **Brian White**, certify that I am currently a NYS-registered Professional Engineer and that this Interim Remedial Measure Work Plan was prepared in accordance with applicable statues and regulations and in substantial conformance with the DER *Technical Guidance for Site Investigation and Remediation* (DER-10).

This Work Plan was developed pursuant to the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (December 14, 2006).

72730	October 1, 2019	
NYS Professional Engineer #	Date	Signature

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1. INTRODUCTION

This Interim Remedial Measure Work Plan (IRM WP) presents the scope of work associated with placing a soil cover within a portion of the Matthews Avenue Site Parcel A to facilitate construction of the Erie Canalway Trail (Trail). A Site Location map is included as **Figure 1**. The limits to be addressed under this IRM WP are presented on **Figure 2** and generally represent the corridor along the northern limits of the Matthews Avenue Parcel A (Parcel A) between the northern edge of the Erie Canal and the southern right-of-way of Belle Isle Road. The area defined by these limits will be herein referred to as the Site This work has been prepared on behalf of 301 Belle Isle Road, LLC (Volunteer) in accordance with 6 New York Code, Rules and Regulations (NYCRR) Subpart 375-3 Brownfield Cleanup Program (December 14, 2006). The remainder of the Parcel A property will be addressed in the Mathews Avenue Landfill Parcel A Remedial Action Work Plan (RAWP), to be submitted subsequent to this IRM WP.

The proposed IRM consists of a soil and stone cover over surface soils that exceed the Commercial Soil Cleanup Objectives identified in Table 375-6.8(b): Restricted Use Soil Cleanup Objectives of 6 NYCRR Part 375. The proposed cleanup track for the Parcel A portion to be addressed by this IRM WP is Track 4 - *Restricted Use with Site-Specific Soil Cleanup Objectives*.

This Work Plan is organized in six sections. Background/site description information is presented in **Section 1**. **Section 2** describes the project management and staffing. **Section 3** describes how Health and Safety will be implemented during the remedial action. **Section 4** describes the remedial design and implementation of the IRM. **Section 5** describes the Construction Quality Assurance and Construction Quality Control to be implemented for the IRM. **Section 6** describes the post-construction documentation requirements.

1.1 SITE DESCRIPTION

This section summarizes the site background information relevant to the development of the IRM WP including site description and the reasonably anticipated future site use (including Erie Canalway Trail).

The Site is situated to the south of Belle Isle Road and west of the intersection of Belle Isle Road and Mathews Avenue in the Town of Geddes, Onondaga County, New York. Parcel A is a 66-acre property that contains the Site. Parcel A also includes the former Mathews Avenue Landfill, a land-locked section of the former Erie Canal, the Northern Drainage Swale, and the relatively flat, low-lying area between the Matthews Avenue Landfill and Geddes Brook which contains both upland and wetland areas. The Site, subject to the IRM WP, consists of an approximately 4 acre, narrow, rectangular-shaped corridor situated over the berm that confines the northern side of the east-west oriented old Erie Canal located within the Parcel A boundary, and extends down to the toe of the slope of the berm to the edge of the right-of-way along the southern edge of Belle Isle Road (**Figure 2**).

1.1.2 Site Background

Beginning around 1931 water was pumped from Ninemile Creek to the section of the former Erie Canal adjacent to the Mathews Avenue Site. The water in the canal was then pumped to the former Solvay Process Company and Allied Chemical Corp. Main Plant for use as boiler feed water, which continued until 1986. The LCP facility, to the east across Belle Isle Road, also pumped water from the canal until 1988 to use as cooling water in their operations.

Investigation of the Site was conducted during the Preliminary Site Assessment of Parcel A performed during 2002 and 2003. Supplemental PSA activities were performed between 2006 and 2007. The findings are summarized in the PSA Report dated April 9, 2007 (O'Brien & Gere 2007). Surface waters and sediments within the Canal exhibit a variety of semi-volatile organic compounds, poly-chloriniated biphenyl and inorganic constituents. However, compounds detected in the old Erie Canal have a different fingerprint than the compounds within the Mathews Avenue Landfill. The compounds detected within the old Erie Canal are likely related to historical uses of the canal, materials used to construct the berms or are naturally occurring, and not related the Mathews Avenue Landfill. The northern berm that comprises the Site subject to the IRM is noted to appear to be constructed out of material removed to construct the canal (or other nearby fill material). The

material is mostly a heterogeneous mixture of silt, sand and gravel with some layers with wood fragments. Two soil samples collected during the PSA within the Site area indicates detectable levels of inorganics, primarily arsenic, chromium, copper, mercury and nickel. These data are shown on Figure 29 of the PSA dated April 2007 (OBG 2007).

2. PROJECT MANAGEMENT AND STAFFING

2.1 PROJECT MANAGEMENT STAFFING

New York State Department of Environmental Conservation (NYSDEC) Project Manager – Michael Belveg

As the lead regulatory agency, the NYSDEC Project Manager's functions shall include the following;

- Review and approve designs
- Review project submittals for compliance with regulations
- Issue approval to construction the project once design has been approved
- Review and approve major design modifications or requests for variances from the regulatory conditions during construction.

New York State Department of Health (NYSDOH) Project Manager – Kristin Kulow

The NYSDOH Project Manager will oversee and review all health-related matters to minimize or eliminate the public's exposure to site-related contaminants.

Honeywell Project Manager – Shane Blauvelt, P.E.

The Honeywell Project Manager will provide technical input, represent Honeywell, and attend meetings with project staff and NYSDEC.

Project Officer – Brian White, P.E.

The Project Officer (PO) will oversee project quality, safety, schedule, and overall project performance; will periodically attend construction review meetings; and will be available on an as-needed basis to the project team. The PO will also be responsible for certifying documents in accordance with Technical Guidance for Site Investigation and Remediation (Division of Environmental Remediation (DER)-10) (NYSDEC 2010).

Construction Manager – Ed Prossner

The Construction Manager will manage the procurement and construction phases of the project on a day-to-day basis, monitor and evaluate project controls throughout the project, and see that the technical and quality objectives are achieved.

Design Project Manager – Jennifer Reymond

The Design Project Manager (PM) will support the PO in overseeing project quality, safety, schedule, and overall project performance, and will manage engineering activities during the construction phase of this project. The PM may periodically attend weekly construction progress update meetings and be available to as needed to support the project team and provide input to value engineering alternatives identified during the construction phase of the project.

Engineering Assistant Project Manager – Trevor Staniec

The Engineering Assistant Project Manager (APM) will lead engineering activities during the construction phase of this project. The APM will attend weekly construction progress update meetings at the request of the Construction Manager, and provide shop drawing reviews, respond to requests for information, and provide input to value engineering alternatives identified during the construction phase of the project.

Health and Safety Manager – Erin Visalli, CHST

The Health and Safety Manger will support implementation and enforcement of the Site-Specific Health and Safety Plan For the project.

3. HEALTH AND SAFETY

3.1 HEALTH AND SAFETY

3.1.1 Project Health and Safety Plan

The project-specific Health and Safety Plan (HASP) is included as **Appendix A**. The HASP details practices that will be implemented for the safe execution of the project and the safety of the workers involved with the project.

Training and planning tools, which will be utilized by the project team will include the following:

- Job Safety Analysis
  - A job safety analysis (JSA) will be developed for the scope of work associated with this project. The JSA will be reviewed as part of the Site orientation training and all employees and direct hire personnel/subcontractors will be required to follow the requirements of the JSA.
- Site Orientation Training:
  - Personnel working on this project will be required to attend a site orientation training session prior to engaging in any work activities and/or entering the work zone.
- Daily Pre-Task Planners and Weekly Toolbox Safety Meetings:
  - Pre-Task Planners are prepared daily and will be reviewed with the work crew focusing on any changes in equipment, tools, work methods, or site conditions as well as key hazards and safety controls.

Project personnel must attend a project Weekly Toolbox Safety Meeting. These meetings are an opportunity to conduct field safety training, distribute key safety information, reinforce safety as a priority and review recent inspection results with all project personnel.

3.1.2 Community Health and Safety

Community Health and Safety will be addressed via continuous air emissions monitoring using temporary stations equipped with dust monitoring equipment. Dust monitoring, when work is ongoing, will consist of continuous real-time air measurements of particulate matter less than 10 microns (PM_{10}) upwind and downwind of daily construction activities. Dust measurements will be made using portable aerosol monitors located at the upwind and downwind monitoring stations.

Dust monitoring work perimeter limits will be based on guidance contained in the NYSDOH gCAMP. Dust levels will be expressed as 15-minute time-averaged concentrations. Work perimeter limits and corrective responses will be as follows:

- Control Level - If the downwind PM_{10} level is 100 µg/m^3 above the upwind level for a 15-minute period or if airborne dust is observed leaving the site perimeter, then additional dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM_{10} levels do not exceed 150 µg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- Work Perimeter Limit - If, after implementation of dust suppression techniques, downwind PM_{10} levels are greater than 150 µg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM_{10} concentration to within 150 µg/m^3 of the upwind level and in preventing visible off-site dust migration.

Background will be identified by the upwind station concentrations for each 15-minute period. Each dust monitor will automatically alert an air monitoring technician (either visual or audible alarm, pager, or text message) to indicate high readings that may lead to potential exceedances of work perimeter limits. The air monitoring technician will then alert the site construction manager.

3.2 WORK ZONE AIR QUALITY MONITORING

OBG, part of Ramboll (OBG), will implement a work zone air quality monitoring program during intrusive activities. The requirements of this program are described in Section 5 of the HASP (**Appendix A**).

4. INTERIM REMEDIAL MEASURE DESIGN AND CONSTRUCTION

The cover system design, as described below, incorporates green remediation concepts in general accordance with DER-31 (NYSDEC, 2011). Specifically, the cover system has been designed to require minimum maintenance and to be integrated with the long-term use of the Site. In addition, the following green techniques will be implemented during construction:

- Local sourcing of cover materials
- Use of local labor resources
- Use of B-20 biodiesel in heavy equipment, as appropriate
- Minimization of equipment idling, consistent with 6 NYCRR Part 217-3 – Idling Prohibition for Heavy Duty Vehicles.

4.1 INTERIM REMEDIAL MEASURE DESIGN

The IRM comprises grading and installation of a soil cover. **Appendix B** includes detailed Design Drawings for the proposed work.

4.1.1 Site Grading

The construction of the subbase of the Trail has been integrated into the construction of this IRM WP. Construction of the subbase for the Trail is being included as part of this IRM WP construction as it would be necessary to manage impacted soils to construct the subbase of the Trail. Parsons Corporation (Parsons) is responsible for the design of the Trail, and provided a grading plan, typical trail cross sections, and profile for the portion of the Trail that crosses the Site. Design details applicable to the Site are provided as **Exhibit 1**.

The Site will be graded so that a minimum of 1 foot of imported soil or stone fill will be installed over existing site soils prior to placement of the Trail and will serve as a part of the trail subgrade. Grading considerations included in Parsons' design include Americans with Disabilities Act access requirements, stormwater drainage and management, existing site grade, and the presence of existing utilities on-site. As part of anticipated grading activities, excess material will be generated that will be managed on-site to fill areas of localized low elevations below the constructed soil cover or managed within other areas of Parcel A and addressed under the Remedial Action Workplan to be prepared for that site. To improve the consistency of soil cover placement, existing tree stumps will be ground in place and covered by the soil cover.

4.1.2 Soil Cover

A soil cover with a minimum thickness of 1 foot and a demarcation layer will be placed over existing site materials that exhibit concentrations that exceed Commercial SCOs. Based on results of previous sampling, and the objectives of this IRM, approximately 4.0 acres will receive a soil cover as shown on the Design Drawings (**Appendix B**). Generally, the cover will include a stone surface within the horizontal limits of the Trail and vegetated soils beyond. Typical cross sections are provided on Sheet C-502 of the Design Drawings (**Appendix B**). Sampling and analysis of select fill and topsoil will be conducted prior to placement in accordance with requirements of **Section 5** (Construction Quality Assurance/Construction Quality Control).

4.2 INTERIM REMEDIAL MEASURE CONSTRUCTION

Interim Remedial Measure construction activities for the Site will generally be completed in four phases - mobilization and site preparation, site grading, cover installation, and demobilization. Each of the four phases are described in the subsections below.

4.2.1 Mobilization and Site Preparation

Tasks associated with mobilization and site preparation include marking of subsurface utilities, establishment of support areas and access roads (as needed), management of vegetative material, establishing temporary erosion

and sedimentation controls, establishing traffic controls, community air monitoring activities, and decommissioning and/or retro-fitting of monitoring wells. These are described below.

Marking of Subsurface Utilities

Dig Safely New York will be contacted prior to the initiation of intrusive work at the Site. A date and time will be established for the various utility companies to meet an OBG representative and mark the locations of subsurface utilities in the proposed work areas. A private utility locator will be contracted to locate and mark underground utilities at locations that Dig Safety New York will not mark due to being on private property.

Marking of Wetlands

The Site is located adjacent to previously delineated federally regulated wetlands and waters. Specifically, the western-most end of the Old Erie Canal consists of an emergent marsh extending west to the Parcel A property boundary, and the Old Erie Canal consists of an open water habitat that extends to the eastern site boundary. Although these areas are under the jurisdiction of the U.S. Army Corps of Engineers, disturbance to these wetlands and waters adjacent to the site is not anticipated as part of the IRM. Therefore, wetland or open water permits are not required for this project. Potential impact to these off-site habitats will be avoided through the use of erosion and sediment control measures as presented in the SWPPP.

Establish Support Areas

Support areas will be constructed and established including:

- Portable on-site sanitary services (porta-johns and hand wash stations or equivalent) and temporary portable water supply for use by on-site personnel.
- Decontamination of equipment will be conducted for equipment used in intrusive work. A lined decontamination pad with a collection sump will be constructed on-site for equipment decontamination. The decontaminating pad will be constructed per the Decontamination Pad Detail on Sheet C-501 of the Design Drawings. Collected decontamination water will be pumped to a storage vessel for solids settling prior to discharging it to the Willis Ave Groundwater Treatment Plant.

Install Stabilized Construction Access

Construction entrance/exit pad(s) will be constructed per the Stabilized Construction Access Detail on Sheet C-501 of the Design Drawings. A construction entrance/exit pad at all access points to public roads to facilitate removal of loose dirt and stone from transportation vehicles. Mud and dirt will be removed from trucks and heavy equipment prior to leaving the Site to mitigate the potential for tracking of mud and dirt onto roadways. Mud or dirt tracked onto roadways will be removed using a combination of a water truck and skid steer with a sweeper attachment or other method reviewed by the Construction Manager.

Site Security

Access to the Site will be restricted by a combination of temporary construction fencing that will be installed around presently accessible portions of site work area and existing fencing around the portions of Parcel A that abut the Site work area. Additional measures may be taken to further limit site access and augment security during remedial activities. The level of security will be dependent on activities being performed and the location of the activities. Minimum security measures to be implemented include: temporary fencing and/or barriers; warning tape and signs; maintenance of sign-in/sign-out sheets; and implementation of safe work practices. Descriptions of the security measures are provided below:

- Perimeter Fencing – the work areas shall be enclosed with a perimeter security fence to control access for unauthorized personnel. The existing fence for Parcel A will be used to the extent practicable, supplemented by temporary fence where necessary (*e.g.*, along Belle Isle Road).

- Temporary fencing and/or barriers will be used to delineate and secure areas of ongoing remedial activities including open excavations and other potentially dangerous areas.
- A sign-in/sign-out sheet shall be maintained at the Site for the duration of the remediation activities. Site construction workers, other site personnel, and visitors shall be required to sign in upon entering the Site and sign out upon leaving.
- Implementation of safe work practices will provide for additional site security during remediation. Safe work practices that contribute to overall site security include: parking heavy equipment in designated areas and removing keys; maintaining organized work areas; participating in daily security and health and safety meetings. Additional details on safe work practices can be found in the HASP (**Appendix A**)

Erosion and Sedimentation Controls

The project will be completed in substantive compliance with NYSDEC SPDES General Permit No. GP-0-15-002 per the Stormwater Pollution Prevention Plan (SWPPP) being prepared for this project. The SWPPP provides details of the erosion and sediment control measures that will be implemented and maintained throughout this project.

Community Air Monitoring

Community air monitoring will be implemented in accordance with the New York State Department of Health Generic Community Air Monitoring Plan, Fugitive Dust and Particulate Monitoring Plan.

Vegetative Material Management

The trees located within the limits of the Site were felled in March 2019, to minimize potential impacts to protected bat species (Indiana bat [*Myotis sodalist*, state and federally listed as endangered] and northern long-eared bat [*Myotis septentrionalis*, state and federally listed as threatened]). Felled trees located on-site have been consolidated to a central location and chipped. Chipped vegetation may be re-used on-site as temporary stormwater controls, as temporary construction access pathways, or placed in lifts less than 3-inches in thickness under the soil cover outside the footprint of the proposed Trail. A small section of vegetation near the northeastern corner of the Site remains vegetated and will be similarly cleared as part of the IRM, prior to commencing grading activities.

Decommissioning and/or Retro-fitting Monitoring Wells

Monitoring wells MW07-S,D, MW06-S,D, MW06-2S, MW17-S are located within the Site boundary, and are constructed as stick-up wells, above grade. Existing monitoring wells situated within the Trail footprint will be decommissioned. Trail surface finish will be stone and retro-fitting to flush-mount wells could potentially present a safety concern. Monitoring wells outside of the Trail footprint will be decommissioned or retro-fitted following inspection of well condition and elevations in comparison to the final capped grade. Based on site data, it is not anticipated that wells within the Site boundary will be required for long-term monitoring; however, this will be re-evaluated during the Revised RAWP and addressed if necessary. The proposed Wells will be decommissioned in accordance with NYSDEC Commissioners Policy (CP)-43: *Groundwater Monitoring Well Decommissioning Policy* (NYSDEC, 2009), utilizing the "Grout-in-place" method. Monitoring wells may be decommissioned prior to site mobilization with approval from NYSDEC.

4.2.2 Site Grading

Tasks associated with site grading include grinding of remnant tree stumps, grading to 1-ft below final grade, placement and compaction of spoils to 1-ft below final grade and survey.

Grading

Where the existing elevation of the Site is within 1-ft of the proposed final Trail elevation (as shown in Exhibit 1 and allowing for final trail construction thickness), the existing surface will be graded to a minimum of 1-ft

below the finished Trail grade to allow for the installation of the prescribed 1-ft soil cover. Areas of cut and fill are identified on the Design Drawings (**Appendix B**)

As stated above, it is not anticipated that spoils requiring off-site management will be generated during grading. Spoils not addressed within the Site footprint will be temporarily staged elsewhere within the Parcel A area and addressed as part of the Revised RAWP. The staged spoils will be placed on polyethylene sheeting and covered with a 12-inch thick temporary soil cover with erosion control measures (*e.g.*, seed and mulch, erosion mats).

Survey

After grading has been completed to the required design subbases, the Site will be surveyed. The survey will be conducted by a surveyor licensed in the State of New York with a maximum fifty-foot grid to at least the limits of the cover installation. This survey will be used to establish the base conditions for the installation of the soil cover. After the survey has been completed grade stakes will be installed to facilitate installation of materials to the final design elevation.

4.2.3 Cover Installation

Tasks associated with cover installation include import of cover material, placement and compaction of select fill, placement of topsoil, and seeding.

Import of Cover Materials

Cover materials will be imported from off-site sources. Imported fill materials will be sampled and meet the requirements of material management quality assurance/quality control (QA/QC) described in **Section 5.1** and requirements of the Technical Specifications (**Appendix C**). After approval by NYSDEC, material will be transported to and stockpiled on-site. The type, quantity and description of material anticipated to be imported to the Site follows:

- Topsoil – 700 CY - For use as final cover surface and promote vegetative growth.
- Select Fill – 4,600 CY - For use as fill to create a physical barrier over subbase soil and meet grade requirements for the Trail.
- Select Stone Fill – 1,600 CY - For use as cover surface where Trail will be constructed.

Cover Installation

The 1-ft soil cover will consist of a demarcation layer, 8-inches of compacted select fill and 4-inches of topsoil. The cover will be graded as to minimize surface water ponding. A typical cross section, the limits, and final grade of the soil cover are presented in the Design Drawings (**Appendix B**)

As described in the Technical Specifications (**Appendix C**) select fill will be placed in loose lifts not thicker than 6-inches then thoroughly compacted by compaction equipment appropriate for the material prior to placement of succeeding lifts. Select fill will be placed and compacted to within 4-inches of the final grade. Compaction of cover will be in accordance with technical specifications, and acceptance will be based upon the results of on-site demonstrations.

Once the select fill is placed and compacted, a minimum of 4-inches of topsoil will be placed and graded.

Trail Subbase Installation

A portion of the cover is intended to support the subbase material for the Trail. The trail-area will receive stone sub-base (as necessary for final Trail grade) in place of topsoil within the trail footprint and buffer. The top of the Trail subbase will be installed with a minimum of 1.5% slope to the sides. To comply with the Americans with Disabilities Act the maximum allowable slope along the length of the Trail will be 3%; grading will also be conducted accordingly. To facilitate Trail stability the Site cap will be compacted as described in **Section 5.2.2**. Final Trail work will be performed by Others.

Seed and Mulching

After the topsoil has been placed and the requirements of the cover have been verified, areas outside the limits of the Trail will be seeded and mulched. Requirements for seeding and mulching are provided in the Design Drawings (**Appendix B**) and Technical Specifications (**Appendix C**). QA/QC requirements for seeding and mulching are discussed in **Section 5.3**.

4.2.4 Demobilization

Tasks associated with demobilization include removal of security fencing and removal of temporary erosion and sedimentation controls.

Removal of Security Fencing

Once construction is completed temporary perimeter fencing and temporary barriers will be removed from the Site. Permanent fencing at the Site, which may have been damaged during construction, will be repaired or replaced as necessary with equivalent permanent fencing.

Removal of Temporary Erosion and Sedimentation Controls

In accordance with the SWPPP, temporary erosion and sedimentation controls will be removed and disposed off-site in accordance with local and state regulations once the qualified inspector indicates that the Site has achieved final stabilization. A State Pollutant Discharge Elimination System (SPDES) Notice of Termination (NOT) will be filed with the NYSDEC once the final inspection is completed.

5. CONSTRUCTION QUALITY ASSURANCE/CONSTRUCITON QUALITY CONTROL

5.1 MATERIAL IMPORTATION

5.1.1 Select Fill

Prior to the installation of select fill materials, the supplier will be required to provide the following:

- Name and location of the material source
- Affidavit from the owner of the source for each type of borrow material to be imported to the Site
- Laboratory data for each material.

The Affidavit from the owner of the source of each type of borrow material shall state that, to the best of the owner's knowledge, the site of the source material was never used as a dump site for chemical, toxic, hazardous or radioactive materials and it is not now, or ever has been, listed as a suspected depository for chemical, toxic, hazardous, or radioactive materials by any federal, state, or other governmental agency, department, or bureau.

Laboratory analytic data (or documentation of such data no older than one year from submittal) will be provided for these soils for the compounds in Table 375-6.8(B) "Restricted Use Soil Cleanup Objectives (SCO)" Protection of Public Health Commercial in NYSDEC Subpart 375 (NYSDEC. 2006). Failure of a single constituent test result compared to Restricted Use Commercial SCOs will mean that the entire material batch will be rejected unless specifically accepted on a test-by-test basis by OBG and approved by NYSDEC.

In addition, the supplier will be required to collect samples of the proposed topsoil and other select fill. Supplier will provide the following geotechnical testing results to OBG for review:

Table 5-1 Topsoil Analysis

Parameter	Standard	Criteria
Grain Size	ASTM D422	Monitor consistency of borrow source
pH	ASTM D4972	pH in the range of 5.5 to 7.6
Organic Content	ASTM D2974	Organic concentration of 0.5 to 6%
Liquid Limit, Plastic Limit and Plasticity Index	ASTM D4318	Silty Loam, Loam, Sandy Loam, Clay Loam

Notes:

1. **ASTM D422 – Method for Particle-Size Analysis of Soil**
2. **ASTM D2974 – Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils**
3. **ASTM D4972 – Method for pH of Soils**
4. **ASTM D4318 – Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils**

Table 5-2 Other Select Fill

Parameter	Standard	Criteria
Gradation	ASTM D422	Monitor consistency of source
Compaction Curves	ASTM D698	Moisture-density relationship of backfill

Notes:

1. **ASTM D422 – Method for Particle-Size Analysis of Soil**
2. **ASTM D698 – Method for Laboratory Compaction Characteristics of Soil**

5.2 MATERIAL PLACMENT

This section provides the basis for the construction quality assurance/construction quality control CQA/CQC activities associated with placement of materials as part of the IRM.

5.2.1 Soil Cover

As discussed in **Section 4.2.2**, prior to placement of the soil cover the prepared subbase shall be surveyed; then grade stakes identifying the required depth of material placement will be installed**.** The grade stakes will be used to track depth of material installed and verify that the required depth of soil cover has been placed to the extents required by the design.

5.2.2 Trail Compaction Testing

Select fill placed as subbase within the limits of the Trail will be compacted to a minimum of 95% of Standard Proctor Maximum Density. In-place density shall be established by American Society of Testing and Materials (ASTM) D1556 sand cone method or ASTM D2922 nuclear density method at a frequency of 1 test per 200 liner feet of Trail.

5.3 RESTORATION

The area to be vegetated will be seeded with native plant species. The area will be inspected weekly in accordance with the SWPPP until it has achieved final stabilization (*i.e.*, a minimum of 80% vegetative ground coverage). Areas where vegetative ground coverage is less than 80% will be re-seeded as needed to achieve final stabilization. After the SPDES NOT is submitted, vegetated areas will be inspected annually and re-seeded as needed, as detailed in a Site Management Plan (SMP). It is anticipated that the SMP will be completed subsequent to implementation of the final Parcel A remedy and will be addressed in the Revised RAWP. Alternative native seed mixes may be substituted as necessary if field conditions (*e.g.*, surface soil saturation) unsuitable to successional old field species are encountered.

6. POST CONSTRUCTION

This section describes activities to be implemented following completion of construction which will include development of the SMP, preparation of a Construction Completion Report, and issuance of a certificate of completion letter by NYSDEC.

6.1 SITE MANAGEMENT PLAN

It is anticipated that the SMP that will describe the engineering and institutional controls for the Site will be completed subsequent to implementation of the final Parcel A remedy and will be addressed in the Revised RAWP. It is anticipated that the SMP will generally include:

- An introduction and description of the remedial program
- An Engineering and Institutional Control Plan
- A Monitoring Plan.

Appendices will include:

- Excavation Plan
- Environmental Easements and/or environmental notice
- Sample Health and Safety Plan
- Generic Community Air Monitoring Plan
- Site-wide inspection Form.

The SMP will be submitted to NYSDEC for review and approval following completion of the IRM.

6.1.1 Institutional Controls

Institutional controls will be established for the Site in the form of an environmental easement or environmental notice for the Site in support of the following:

- Requiring the property owner to complete and submit periodic certifications to NYSDEC that the institutional and engineering controls are still in place and remain effective in accordance with Part 375-1.8(h)(3)
- Requiring management of the Site in accordance with the provisions of the NYSDEC-approved SMP
- Restricting disturbance or excavation of the soil cover and the soil below the installed soil cover
- Restrict the use and development of the Site for commercial or industrial use as defined by Part 375-1.89(g).
- The potential for vapor intrusion must be evaluated for any buildings developed on-site, and any potential impacts that are identified must be monitored and mitigated.

6.2 CONSTRUCTION COMPLETION REPORT

At the completion of construction, a Construction Completion Report (CCR) will be prepared documenting the IRM. The CCR will include:

- A description of the IRM as constructed pursuant to the approved IRM WP, including variations, if any, from the approved IRM WP
- A description of the required institutional controls
- The SMP by reference
- Record Drawings stamped and signed by a New York State licensed Professional Engineer
- Certification of the IRM signed by a New York State Licensed Professional Engineer.

6.3 CERTIFICATE OF COMPLETION

It is anticipated that the Certificate of Completion for the Site will be completed subsequent to implementation of the final Parcel A remedy. Accordingly, the approach and sequencing for this will be addressed in the Revised RAWP.

6.4 POST CONSTRUCTION OPERATION AND MAINTENANCE REQUIREMENTS

Site maintenance requirements will be detailed in the SMP. The plan will describe post-construction monitoring requirements to assess the effectiveness of the remedy and corrective measures taken to maintain the soil cover. The SMP will include provisions for an annual inspection of the soil cover. The proposed remedy does not include any active systems that would require operation. Additionally, a change of use notification will be submitted to NYSDEC in association with the proposed Trail Construction.

REFERENCES

NYSDEC. 2006. *6 NYCRR Subpart 375-6.8: Restricted Use Soil Cleanup Objectives*. December 2006. www.dec.ny.gov/docs/remediation_hudson_pdf/part375.pdf.

NYSDEC. 2009 *CP-43: Groundwater Monitoring Well Decommissioning Policy*. November 2009.

NYSDEC, 2016. *New York Standards and Specifications for Erosion and Sediment Control*. November 2016.

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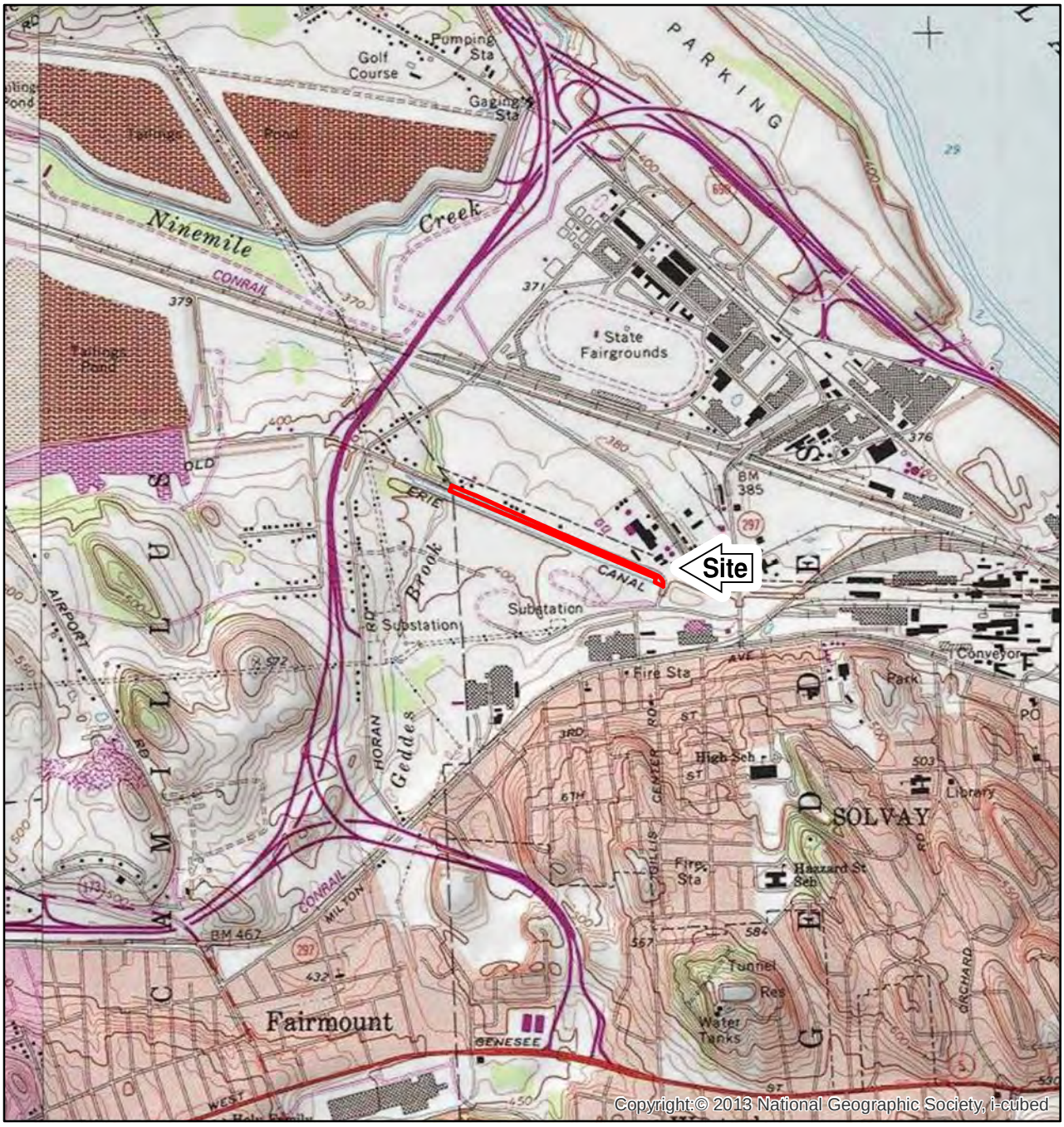
Figures

FIGURE 1



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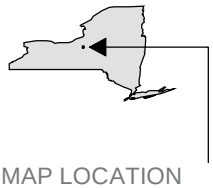

MAP LOCATION

HONEYWELL
MATHEWS AVENUE
PARCEL A BIKE TRAIL CORRIDOR
INTERIM REMEDIAL MEASURE
GEDDES, NY

SITE LOCATION

N

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Feet

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AUGUST 2019

O'BRIEN & GERE ENGINEERS, INC.

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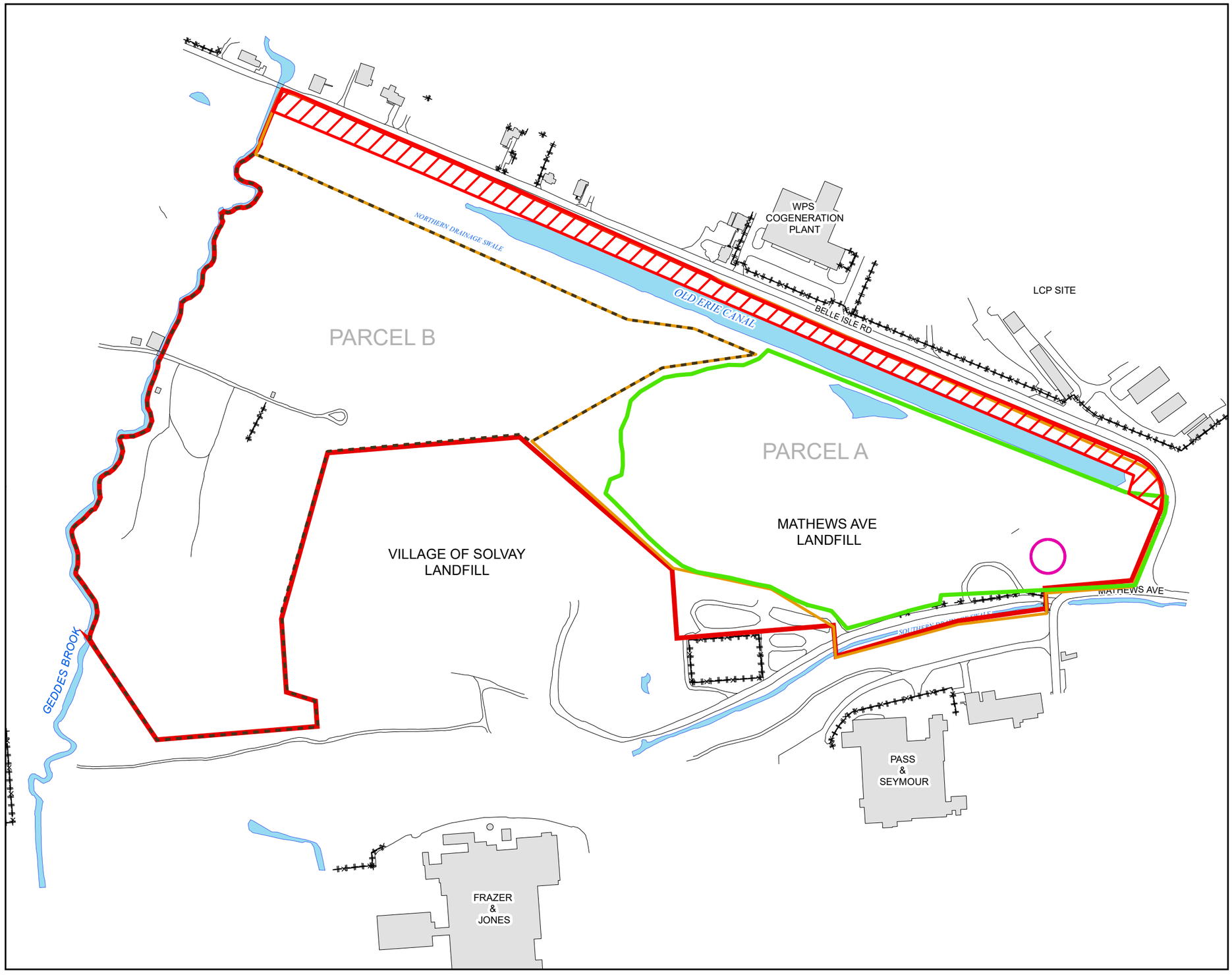

LEGEND

- IRM AREA
- MATHEWS AVENUE LANDFILL
- MATHEWS AVENUE PARCEL B BOUNDARY
- MATHEWS AVENUE PARCEL A BOUNDARY
- MATHEWS AVENUE SITE BOUNDARY
- STAGING AREA

HONEYWELL
MATHEWS AVENUE
PARCEL A BIKE TRAIL CORRIDOR
INTERIM REMEDIAL MEASURE
GEDDES AND CAMILLUS, NY

SITE PLAN

0 150 300 600
Feet

1163.71978
SEPTEMBER 2019

O'BRIEN & GERE ENGINEERS, INC.

Appendices

Health and Safety Plan (HASP)

Health & Safety Plan
Mathews Ave Parcel A Bike Trail Corridor
Town of Geddes, Onondaga County, NY

Honeywell

August 2019

OBG
Part of Ramboll

REVISION SUMMARY

Revision Date	Description of Changes	Reason for Change
	(Section title or number – description)	(individual name or title, company / agency name, document reference and date)

PREFACE

This document describes the minimum anticipated protective measures necessary for worker health and safety during the activities associated with this project. OBG employees and direct OBG subcontractors must read and understand the contents of this document. We do not intend the contents of this document to cover all situations that may arise nor to waive any provisions specified in Federal, State, and local regulations or site owner / contractor health and safety requirements. During this project, if any task occurs that is not covered in this Environmental, Health & Safety Plan, the individual responsible for that task will inform OBG's Corporate Health & Safety Department. Site personnel affected by the new activity and its associated hazards must ensure that they follow necessary safety procedures and use appropriate protective equipment.

Subcontractors are accountable for the health and safety of their own employees. No requirements or provisions within this plan shall be construed by subcontractors as an assumption by OBG, or Honeywell of the subcontractor's legal responsibilities as an employer.

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1. INTRODUCTION

This Health & Safety Plan (HASP) has been developed to outline the requirements to be met by OBG employees, direct subcontractors of OBG (if any), and OBG visitors while performing activities outlined herein for the Interim Remedial Measure activities at the Mathews Avenue Parcel A Bike Trail Corridor. This HASP describes the responsibilities, training requirements, protective equipment and safety procedures necessary to minimize the risk of injury, fires, explosion, chemical spills and material damage incidents related to construction activities. This HASP incorporates by reference the Occupational Safety and Health Administration (OSHA) regulations contained in 29CFR1910 and 29CFR1926, Also, incorporated by reference are the EPA Standard Operating Safety Guides, Publication 9285.1-03.

The requirements and guidelines in this HASP are based on a review of available information and data, and an evaluation of identified on-Site hazards. This HASP will be reviewed with Site personnel and will be available on-Site. OBG employees, direct subcontractors, and visitors will report to the on-Site OBG Site Safety Leader (SSL) in matters of health and safety. While the SSL is responsible for overseeing compliance with this HASP and stopping work when necessary, the Project Manager is responsible for implementation of this HASP into daily Site activities.

OBG employees and subcontractors must review this safety plan prior to beginning work and sign the Pre-Work Briefing Form (*Attachment 1*) or equivalent.

> ***All project personnel have the right to stop work if they believe safety controls are not adequate for job Site hazards or if new job Site hazards are identified for which safety controls have not been clearly established.***

1.1 COVERED PERSONNEL

This HASP is specifically intended for OBG employees, direct subcontractors, and visitors who will be conducting activities within the defined scope of work in specified areas of the Site. OBG will inform Site personnel of identified safety and health hazards as outlined in this HASP. OBG employees, subcontractors, and visitors are responsible for complying with government regulations, Site owner policies and this HASP as it relates to their scope of work. This HASP may be provided to interested third parties for informational purposes. Subcontractors and other contractors that are working directly for the client shall have their own HASP or Job Safety Analysis (JSA) for the specific work they will be performing.

1.2 HASP REVIEW AND MODIFICATION

Future actions that may be conducted at this Site and unexpected conditions that may be encountered may require the modification of this HASP. The SSL will recommend modifications to this HASP and the assigned OBG Corporate Health and Safety Project Manager will have the responsibility of approving them. Modifications to this HASP shall be outlined on the **Revision Summary** page.

This HASP may be modified for new or additional scopes of work by directly revising this HASP and saving a revised copy OR by developing supplemental Job Safety Analyses (JSAs) or equivalent safety planning documents as outlined in "**Pre-Work Safety Planning**" section of this HASP. JSAs may modify air sampling, personal protective equipment and other safety precautions in this HASP as necessary to safely perform new work activities. Direct Subcontractors will be required to do the same for their project HASP's and JSA activity.

1.3 SITE DESCRIPTION

The Site is situated to the south of Belle Isle Road and west of the intersection of Belle Isle Road and Mathews Avenue in the Towns of Geddes and Camillus, Onondaga County, New York. Parcel A is a 66-acre property that contains the Site. Parcel A also includes the former Mathews Avenue Landfill, a land-locked section of the former Erie Canal, the Northern Drainage Swale, and the relatively flat, low-lying area between the Matthews Avenue Landfill and Geddes Brook which contains both upland and wetland areas. The Site, subject to the IRM

WP, consists of an approximately 4 acre, narrow, rectangular-shaped corridor situated over the berm that confines the northern side of the east-west oriented old Erie Canal located within the Parcel A boundary, and extends down to the toe of the slope of the berm to the edge of the right-of-way along the southern edge of Belle Isle Road

1.4 SCOPE OF WORK

OBG is managing the construction of the interim remedial measures at the site. This will require the regrading of a portion of the Site and clearing of existing surface overgrowth. Clearing is anticipated to be performed with the use of mechanical means (wood chipper) and some limited hand clearing. Intrusive work is anticipated as the clearing will include grinding of stumps and grading to facilitate future installation of a bike trail. Heavy equipment will be used to place a vegetated soil cover. OBG's scope of work is outlined below and includes activities:

- Mobilization Site Preparation
- Site Grading
- Installation of vegetative soil and stone fill covers
- Demobilization

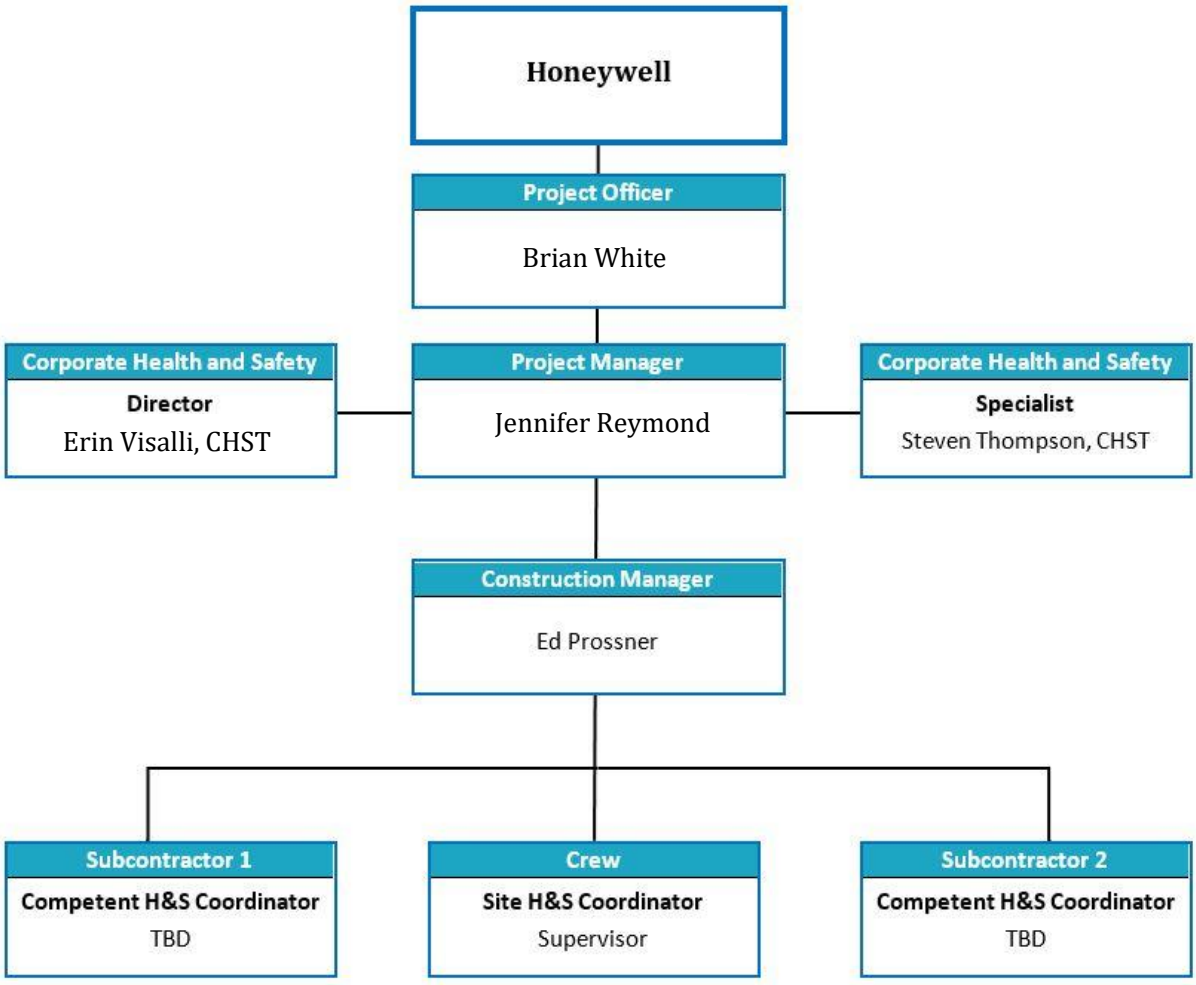
1.5 PROJECT PERSONNEL AND ORGANIZATION

The following are key project personnel with respect to OBG's Scope of work.

Key Project Personnel	
NYSDEC	
Mike Belveg	Project Manager
NYSDOH	
Kristin Kulow	Project Manager
OBG	
Brian White, PE	Project Officer
Jennifer Reymond	Project Manager
Ed Prossner	Construction Manager
Steven Thompson	Corporate Health and Safety Project Manager
Erin Visalli, CHST	OBG Manager of Corporate Health & Safety
Honeywell	
Shane Blauvelt	Project Manager

1.6 PROJECT ORGANIZATION

The following organization chart outlines reporting and accountability relationships with respect to health and safety.



1.7 RESPONSIBILITIES

As directed in this HASP, general compliance and HASP implementation will generally be addressed first by the OBG SSL with support from Project Management. Direct Subcontractors must identify qualified Safety Competent Persons who must be on Site for all field activities. **All project personnel have the authority to stop work if a life-threatening condition or behavior is observed.**

1.7.1 OBG Project Officer

The Project Officer is responsible for providing upper level management support for health and safety. He or she will provide sufficient authority and resources to the Construction Supervisor and SSL to fully implement health and safety requirements as outlined in this HASP, contract documents, and regulatory requirements. The Project Officer will provide this support to the entire project while the Construction Project Officer will provide additional attention and support to site remediation activities.

1.7.2 OBG Project Manager

The Project Manager is responsible for providing management support for health and safety. He or she will provide sufficient authority and resources to the field crew and the SSL to fully implement health and safety

requirements as outlined in this HASP, contract documents, and regulatory requirements. The Project Manager will provide this support to entire project activities.

1.7.3 OBG Construction Manager

The Construction Manager is responsible for coordinating project requirements in the field. The Construction Manager oversees daily activities and is, therefore, responsible for implementing health and safety requirements daily in the field. The Construction Manager is also responsible for conducting daily safety inspections and coordinating timely correction of observed deficiencies with any contractor or subcontractor. The Site Coordinator shall be qualified to also serve as the OBG SSL with respect to OBG's scope of work.

1.7.4 OBG Project Engineer

The OBG Project Engineer is responsible to help resolve project design issues as well as provide general site information that may be required for health and safety purposes. The Project Engineer is the main point of contact related to sampling an analytical protocol and design support during construction activities. In particular, the Project Engineer oversees and coordinates the development of the design documents including updates to design documents. The Project Engineer also reviews and comments on the site HASP.

1.7.5 OBG SSL

The SSL provides Site-level leadership and oversight for project safety. The SSL has the authority to stop work if any operation threatens Site workers, the public, or environment. The SSL is accountable to the Health and Safety Project Manager and the Project Manager regarding issues of safety. In general, responsibilities of the SSL include, but are not limited to, the following:

- Conducting and documenting safety inspections on a weekly basis and conducting daily safety walkthroughs
- Conducting daily safety pre-work safety meetings and documenting meetings on a daily Pre-Task Planner (or equivalent)
- Selection and inspection of personal protective equipment (PPE)
- Conducting periodic surveillance to evaluate effectiveness of the HASP
- Monitoring on-Site hazards and conditions and recommending modifications to the HASP when new hazards are observed
- Informing the Project Manager of observed safety deficiencies requiring corrective action
- Having knowledge of emergency procedures, evacuation routes, and telephone numbers for emergency services
- Posting directions to the hospital and telephone numbers for emergency services
- Coordinating emergency medical care as necessary
- Immediately notify (via phone call) of an incident followed by submittal of written accident/incident reports to a Honeywell Project Representative and the OBG Corporate Health and Safety Project Manager within 24 hours.
- Review JSAs for all high-risk construction activities
- Reviewing and maintaining safety documentation and reports

1.7.6 OBG Corporate Health and Safety Project Manager

The Corporate Health and Safety Project Manager advises project personnel on matters of health and safety on the Site. The OBG Corporate Health and Safety Project Manager will assist the OBG Manager of Corporate Health & Safety in the implementation of the Corporate Health & Safety program. General support tasks related to the implementation of the OBG Corporate Health & Safety Program include safety audits, training, accident investigations, etc. The Health and Safety Project Manager makes regular Site visits to assess compliance with

requirements in this HASP and evaluate overall safety performance. Inspections will periodically be conducted to monitor worker health and safety and will address issues such as subcontractor pre-qualification, Site safety orientation programs and documentation, implementation of permit programs (confined space, hot work, etc.) safety planning, accident investigations, adequacy of personal protective equipment (PPE), air monitoring needs, and general construction safety issues.

1.7.7 Subcontractor Safety Competent Person

All direct subcontractors under contract to OBG are covered by this HASP and will be required to designate a Subcontractor Safety Competent Person. The Safety Competent Person must be the Superintendent/Foreman unless the project is sufficiently large to require a full-time Safety Competent Person. A Safety Competent Person must be on Site always when the subcontractor has employees performing work for OBG and will have the same responsibilities as the OBG SSL within the subcontractor's scope of work. This individual must possess a sound working knowledge of pertinent OSHA regulations, this HASP, and other applicable safety requirements related to their scope of work. The Safety Competent Person will ensure timely correction of safety deficiencies identified by OBG. Subcontractors may request assistance from the OBG Corporate Health & Safety Department. An Alternate Safety Competent Person may also be designated as a backup.

> ***NOTE: A Direct Subcontractor must provide a full-time Safety Competent Person when 15 or more field workers are on-Site. Subcontractor's Safety Competent Person must be acceptable to OBG.***

Regulatory agencies, facility owner, and OBG may also require specialized competent persons to provide oversight of specific activities. These persons are designated in **Section 2.1.5-Safety Training & Competent Persons** of this HASP. General Safety Competent Persons as described above may also be designated as the competent person any number of these specific activities if qualified.

2. SITE SAFETY AND CONTROL PROCEDURES

This HASP incorporates by reference the OSHA requirements in 29 CFR Part 1910, 29 CFR Part 1926, and the OBG Health, Safety, and Environment (HSE Manual). A copy of the OBG HSE Manual will be available on Site (electronic or hard copy are acceptable) for reference. Direct Subcontractors must review the OBG Site HASP to ensure they meet or exceed OBG corporate requirements as well as all regulations applicable to their scope of work. Key Site safety procedures applicable to OBG employees and OBG Direct Subcontractors are described in more detail in this section.

2.1 SITE SECURITY AND CONTROL

The elements of Site control include restricting access to the Site to persons until they have the proper safety training and have received a Site safety orientation from OBG, and have reviewed the information in this HASP at a minimum. All direct contractors and subcontractors to OBG shall have an approved HASP or JSA for the work they will be doing prior to commencing the actual work. OBG will oversee site security and control with specific site-entry requirements as follows:

2.1.1 Subcontractor Prequalification

Subcontractors must be prequalified annually using OBG's Pre-Qualification Process (or Client Equivalent). Subcontractors must achieve a Pass (A, B, or C) rating or a "Conditional" rating. Subcontractors with a conditional rating must implement additional safety requirements outlined by the conditions specified by OBG Corporate Health & Safety Department and the Project Manager.

2.1.2 Citizenship

All project personnel must be U.S. citizens or legally be authorized to work in the U.S. with the proper work visas.

2.1.3 Language

All project personnel must understand and speak English at a "conversational" level. Subcontractors are responsible for all costs or delays incurred if non-English speaking employees are banned from the Site. OBG will make the final determination if a person is sufficiently fluent in English. Interpreters may be used if authorized by OBG. When authorized, a minimum of one interpreter will be required for every 10 non-English speaking personnel always while work is on Site.

2.1.4 Drug and Alcohol Testing

> ***The primary document outlining drug and alcohol testing requirements for union labor is described in Appendix C of the "Onondaga Lake and Subsites Environmental Remediation Labor Harmony Agreement," May 2010. OBG non-union employees are specifically subject to OBG policies referenced below. Refusal to take a drug or alcohol test when directed in accordance with the LHA or OBG policies will be treated as a "positive" test and will result in immediate removal from the site. All subcontractors must have submitted a signed copy of the Certificate of Compliance (RES-HS-09).***

All project personnel are required to work in accordance with OBG's policy for a Drug Free Workplace, as appropriate. Testing allowed under both policies is summarized below:

- **Pre-Access** – Project personnel subject to the LHA must have testing performed per the LHA. Other project personnel must otherwise have pre-access testing performed within six months of site work and kept current with subsequent testing performed at least annually.
- **Reasonable Cause** – Two supervisors must concur that the person exhibits symptoms and behavior that "more probably than not" be the result of a controlled substance.

- **Post Accident** – Similar to Reasonable Cause, testing may be performed following an accident if the accident may have been avoided by a "reasonable alert" action and substance abuse cannot be discounted as a contributing factor.
- **Random Testing** – OBG may start and stop random testing at any time. Such testing will be non-discriminatory and be conducted at a rate up to 50% of employees on an annualized basis. OBG will coordinate random testing through Industrial Medial Associates (IMA) as a third party administrator.
- **Return to Work** – This is additional "periodic" testing that is required for up to one year following return to work.

2.1.5 Safety Training and Competent Persons

Project personnel must be properly trained for the type of work being performed and in accordance with OSHA 29CFR1926 and 1910.

Specialized safety training is required for working with asbestos, lead, and hazardous waste. Other training is required for tasks that include, but not limited to, confined space entry, fire prevention and control, lockout/tagout, hazard communication, fall protection, forklift/lull license, NFPA 70E (energized electrical), crane operator license or Certified Crane Operator (CCO). Subcontractors will designate in writing to OBG their employees who are trained and authorized to operate heavy equipment including manlifts, excavators, front loaders, dozers, demolition hammers, shears, grapples, dump trucks, pulverizes, and skid steer. A company letter is sufficient or copies of current licenses/certificates.

As outlined in **Section 1.6.4 – Subcontractor Safety Competent Person**, subcontractors are also required to designate one person as a general Safety Competent Person who must be on Site during all Site activities. The Safety Competent Person must have a thorough understanding of OSHA regulations. An Alternate Safety Competent Person may also be designated. These individuals are designated in the **Key Project Personnel table**. The HASP will be updated as competent person designations change.

Other task-specific competent persons must be designated in subcontractor safety plans or JSAs for the following activities and be on Site as necessary to support activities performed under their oversight. The following table lists various types of Competent Persons that may be applicable. The list is not all-inclusive and will be revised as necessary by on changes to project requirements for support by Competent Persons. In addition to written designation, the subcontractor must submit evidence of competency when requested by OBG.

Competent Person Designations		
Type	**Comment**	**Designated Person***
Excavation Competent Persons	Required during all excavation activities. The Competent Person must have formal classroom training documented on a training certificate acceptable to OBG as well as excavation experience.	TBD prior to start of excavation activities
Demolition Competent Persons	Perform pre-demolition "engineering survey" in support of a demolition plan. During demolition, the competent person must perform regular inspections to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material.	NA
Scaffolding Competent Persons	Supervise the erection and dismantling of scaffolds and perform daily inspections while scaffolds are in use.	NA
Fall Protection Competent Persons	Oversee implementation of fall protection systems including anchoring personal arrest equipment.	NA

Competent Person Designations		
Type	**Comment**	**Designated Person***
Confined Space Competent Persons	Oversees implementation of confined space entry procedures. Determines if a confined space is permit or non-permit.	TBD prior to ANY confined space activities on-Site
Welding & Cutting Competent Persons	Must determine if coated surfaces are flammable and must also assess combustibility of underlying surfaces and residual dust	TBD prior to ANY hot work being performed on-Site
Crane & Hoist Competent Persons	Must inspect cranes and hoists prior to use. Will usually be the operator.	NA
Rigging Equipment Competent Persons	Inspect rigging equipment prior to use. Training must be current and meet the Nov. 2010 updated OSHA requirements for Rigging Persons.	TBD prior to the use of ANY rigging on-Site
Crane Signaling Competent Persons	Training must be current and meet the Nov. 2010 updated OSHA requirements for mobile crane Signaling Persons.	NA
Ladder Competent Persons	Periodically inspect ladders	TBD prior to the use of ANY ladders on-Site
Qualified Electrical Worker	Must have training required by NFPA 70E for "Qualified Persons" and is a person on Site who will prepare Energized Electrical Work Permits.	TBD Prior to any Energized Electrical Work
Powder Actuated Tool Operator	Training certification to safely use Hilti Guns, Ramset Guns, and similar powder actuated tools	NA
*** TBD = To Be Determined / NA = Not Applicable or Not Anticipated**		

2.1.6 Client-Required Site Orientation

The client's safety requirements will be reviewed by OBG, which will include client site requirements as part of the Project Safety orientation.

2.1.7 OBG Project Safety Orientation

All project personnel must complete a Project Safety Orientation to ensure understanding of OBG's and client safety requirements. Upon completing a Project Safety Orientation, project personnel will sign a Pre-Work Briefing Form (Attachment 1 or equivalent). The Project Safety Orientation will focus on hazards and the required hazard controls as outline in the HASP and/or Pre-Work JSA and will at a minimum include:

- Applicable Sections of the HASP
- Pre-Work JSAs
- Associated Exhibits, Permits, and Attachments identified on (and attached to) the Pre-Work JSA

2.1.8 Entry/Exit Log

OBG shall require all employees, direct subcontractors, and visitors to sign in and out on an Entry / Exit Log ***(Attachment 2 or equivalent)***.

2.1.9 Authorized Project Personnel

At a minimum, authorized personnel who will be granted unescorted access to the project include employees from OBG and appropriately pre-qualified subcontractors that have successfully completed the following:

- Submitted Safety Training and Competent Person documentation to the OBG SSL
- Negative 10-panel drug test
- Negative alcohol test

- Submitted medical surveillance documentation (for persons entering Exclusion and Decontamination Areas)
- Submitted respirator medical clearance (for persons who may use respirators)
- Attend an OBG Project Safety Orientation (applicable sections of this HASP)

2.1.10 Visitors

Visitors must be escorted by an Authorized Project Person.

2.1.11 Pre-Work Safety Planning (JSAs, Daily Pre-Task Planners, and Site Work Permits)

Subcontractors are required to complete the OBG Pre-Work JSA Template **(Appendix A)** prior to mobilization and may complete additional Pre-Work JSAs as required for high-hazard tasks. The Pre-Work JSA should be completed in a collaborative effort between OBG and subcontractors and will help identify appropriate permits and notifications based on the specific means, methods, tools, and equipment used by subcontractors.

OBG may also use the Pre-Work Template to identify hazards and controls associated with changes to OBG's scope of work. JSAs will supplement information in this HASP.

Below is a list of forms and procedures used by OBG to supplement information in this HASP:

Job Safety Analysis (JSA)

JSAs are prepared prior to starting work on major tasks and will use the OBG-required JSA template in ***Attachment 7 or approved equivalent***. Electronic copies of the JSA template are available from OBG. Although OBG may assist in preparing initial drafts of JSA templates, it is the responsibility of the subcontractor performing the work to complete the JSA and update the JSA at a frequency requested by the OBG Project Manager or SSL. Subcontractors should be prepared to discuss changes or updates to JSAs on a weekly basis based unless otherwise directed. Changes to the JSA should be based on any changes to equipment, tools, work methods, Site conditions, or other changes which could affect risk and require modifications to safety controls. The minimum JSAs anticipated for this project are listed in the ***"Hazard Evaluation"*** section of this HASP along with guidance on specific tasks and hazards which must be identified in JSAs.

Daily Pre-Task Planner (PTP)

Daily Pre-Task Planners are prepared (or reviewed) by subcontractor Safety Competent Persons using the OBG-required Daily Pre-Task Planner template in ***Attachment 3 or approved equivalent***. Daily Pre-Task Planners will focus on the hazards and controls for specific work tasks being conducted that day and the specific area in which personnel will work during that day. Most importantly, Daily Pre-Task Planners will describe "how" safety controls outlined in this HASP and applicable JSAs will be implemented for that day's tasks. For example, Daily Pre-Task Planners will specifically instruct the work crew where to tie-off if personal fall arrest equipment is required during the day.

Subcontractor Superintendents or Safety Competent Person will prepare and review Daily Pre-Task Planners with each work crew each day. Crew members will sign the Pre-Task Planner after attending the review. Daily Pre-Task Planners may not be placed on a table with the expectation that Site personnel will thoroughly read and sign them prior to work.

> ***NOTE – High Hazard Power Tools must only be used if safer alternatives are not feasible and must be clearly identified on JSAs/Pre-Task Planners with applicable safety controls listed. Refer to the "High Hazard Power Tools" section of this HASP.***

Daily Pre-Task Planners will also be reviewed by the OBG SSL or Site Superintendent prior to work.

OBG Site Work Permits (SWPs)

OBG requires that Site Work Permits (SWPs) be issued for the tasks listed below.

> ***NOTE – All persons must be trained and authorized by OBG prior to completing SWPs. All permits are to be filled out correctly before any work is to be performed. Follow proper procedures for each permit, and notify every party involved or affected by the work to be performed prior to the commencement of work.***

- *Hot Work Permit – Required for any type of hot work. Following the conclusion of hot work, 30 minutes of fire watch. All required air monitoring results, must be recorded on the hot work permit. Permits only issued at the time of work no permits may be completed in anticipation of Hot Work. All responsible parties must be trained in their roles and responsibilities.*
- *Confined Space Permit – Must be used with all permit required confined spaces, and the air monitoring log in the back must be filled out throughout the duration of the confined space work. Contact must be made and maintained with Site security via two-way radio. Follow all protocols before entering a confined space, crew must poses documented PRCS training.*

> ***Note: In order to re-classify or classify a confined space, you must have the required Confined Space Entrant, Attendant, and Supervisor Training.***

- *Energized Electrical Work Permit [DAILY] Used when working on energized electrical systems when de-energizing is not possible. Approval must be made prior.*

2.1.12 Site Layout & Work Zones

The visible delineation of the Construction Area is required to prevent unauthorized persons from entering. Physical markings of the perimeter of the Construction Areas can be accomplished through the use of fencing, wood barricades, rope, barricade tape, etc. Existing structures or land features may also be utilized where appropriate.

The use of barricade tape for outdoor work zones that will be setup for greater than 24 hours is not permitted.

Warning signs will be posted on at the perimeter of Site to alert Site personnel and the public. Signs shall be approximately 10 inches by 14 inches in size and of aluminum or steel construction for outdoor use. The Site perimeter must be posted but with a sign that states "***DANGER – CONSTRUCTION AREA – UNAUTHORIZED PERSONNEL KEEP OUT"*** (Emedco # 42525) or acceptable alternate.

2.1.13 Vapor & Odor Control

Vapors released during site activities represent a potential health hazard and odor problem. The following controls will be implemented to mitigate these issues:

- Controlling the amount of impacted soils disturbed or placed concurrently.
- Air monitoring will be conducted per the Community Air Monitoring Program (CAMP)

2.1.14 Dust Control

Dust released during placement activities represents a nuisance and potential health hazard. The following controls will be implemented to mitigate dust issues:

- Water will be used to suppress dust during any activities which disturb existing soils or as required by dust monitoring and visual observations
- A water truck will be on site to support dust control if dry, dusty conditions are encountered

- The site speed limit of 10 mph (or as otherwise posted) will be enforced. Slower vehicle speeds reduce road dust and minimize the potential for accidents and spills. Dust monitoring will be conducted per the Community Air Monitoring Program (CAMP).

2.2 DAILY SAFETY MEETINGS

Daily safety meetings are documented using the Daily Pre-Task Planner when only OBG personnel are on-Site, otherwise OBG SSL will attend the morning safety meeting of the work team which was previously outlined in the ***Pre-Work Safety Planning*** section of this HASP.

> ***The intent of the daily safety meetings is to encourage daily safety planning (top portion of the Daily Pre-Task Planner) by Supervisors and support communication between Supervisors and their respective field crews (bottom portion of the Daily Pre-Task Planner).***

The use of Pre-Task Planners during daily safety meetings provides documentation about what "safety messages" site personnel are receiving on a daily basis. Pre-Task Planners also provide a checklist to monitor changes to site personnel, equipment, work methods, or conditions that may affect hazards and require different safety precautions. Pre-Task Planners are intended to supplement, but not replace, Pre-Work JSAs and safety plans. Pre-Task Planners will be retained on site for inspection during periodic safety audits.

The form will be completed as follows:

- Subcontractor Crew Foremen will prepare a Daily Pre-Task Planner for that day's activities or the next day's activities if the Daily Pre-Task Planner is prepared the prior afternoon
- The Supervisor/Superintendent/or Forman will review the Pre-Task Planner with his respective crew
- Each site worker will then sign the Pre-Task Planner
- All Pre-Task Planners will be returned to OBG after the day's activities are complete
- Any significant changes to the scope of work or work methods during the work shift will require revisiting the Pre-Task Planner. Recognition of previously unidentified hazards will also require revisiting their safety plan or Pre-Work JSAs.

2.3 WEEKLY TOOLBOX SAFETY MEETINGS

> ***A separate Weekly Toolbox Safety Meeting (or "All-Hands" Safety Meeting) is required on projects where separate Daily Safety Meetings are held for different work crews. When all site personnel attend the same Daily Safety meeting, a separate Weekly Toolbox Safety meeting is not necessary. Pre-task safety planning is completed by each foreman for each crew under his direction as outlined in the previous section.***

Toolbox Safety meetings are held at a minimum of once per week. The SSL on smaller projects with fewer site personnel may choose to assemble all site personnel during Daily Safety meetings and in so doing, may not hold separate Weekly Toolbox Safety Meeting. On projects where separate Daily Safety meetings are held for different field crews, the SSL will assemble all site personnel at a Weekly Safety meeting ("All-Hands" Safety Meeting). The intent of the weekly toolbox meeting is to provide additional field safety training and review relevant safety topics for approximately 15 minutes, and ensure that a consistent safety message is delivered to all site personnel on larger projects. Attendance will be documented on the Safety Toolbox Meeting Forms ***(Attachment 4 or equivalent).***

2.4 SAFETY AUDITS AND INSPECTIONS

OBG requires daily review of construction work areas by Supervisors/Foremen which they should document in their daily logs or journals. The on-Site OBG SSL will conduct weekly inspections that will be documented on OBG's Safety Short Form Audit Checklist (***Attachment 5***) or an electronic equivalent.

Direct Subcontractor Safety Competent Persons designated by OBG subcontractors will also conduct daily inspections of their work areas which are documented on a checklist or form deemed by OBG to be suitable for the size and complexity of their work.

The OBG Corporate Health and Safety Project Manager will conduct Safety Inspections on a regular basis throughout the duration of the project or more often as needed.

The OBG Corporate Health and Safety Project Manager will provide additional support on-Site for High Risk Activities.

NOTE – In addition to weekly work area inspections by OBG and subcontractors, OBG Corporate EHS may conduct periodic safety inspections or Audits.

2.5 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Specific PPE requirements are outlined below but a general dress code for any work areas includes long pants that must cover top of ANSI-approved protective toe leather work shoe or boot, hard hat, safety glasses with rigid side shields, and Class II Safety Vests Hi-Vis Yellow in color. Shirts must have at least 4 inches of sleeve. Long-sleeve shirts may be required at specific locations or for certain tasks. ***Leather or Mechanics Gloves –are required for all tasks unless glove use is exempted on an approved OBG JSA or PTP, Cut Resistant Gloves (Class 3 or greater) are required when handing sharp objects or cutting tools.*** Direct Subcontractors must specify additional PPE as appropriate for specific work methods, tools, and equipment covered by their safety plans. Additional PPE that may be necessary is summarized in the following paragraphs.

2.5.1 Head Protection

All OBG project personnel are required to wear approved hard hats that meet ANSI Z89.1-2003. Hard hats must be in good condition and may be worn with brim to the rear when the harness is oriented properly, this however is not the preferred method of wearing a hardhat as it leaves the area above the eyes unprotected.

2.5.2 Eye and Face Protection

Project personnel are required to wear approved ANSI Z87.1-2003 safety glasses with rigid side shields. Chemical goggles are required during other activities with a potential for chemical splashes to the face. Face shields will be required when performing certain tasks (*e.g.* chipping, sawing, and handling chemicals or corrosive liquids) Face shield must be worn over safety glasses or chemical goggles.

2.5.3 Hearing Protection

Approved hearing protection must be worn as specified in all posted areas and while working with or around high noise level producing tools, machines or equipment.

OSHA Guidance: "If you have to raise your voice to be heard 3-5' away you need hearing protection".

2.5.4 Fingers, Hand, Wrist and Arm

Gloves suitable for the job being performed shall be worn always. Tool holders should be used when driving stakes and wedges or when holding star drills, bull pins or similar tools. ***Fixed blade knives (pocket knives, razor knives, and box cutters) are prohibited and safety knives or scissors must be substituted in their place.***

Exceptions to this policy must be approved by the OBG Corporate Health and Safety Project Manager via a JSA which clearly defines why a safer tool cannot be substituted and what safety measures will be implemented to prevent injury.

2.5.5 Foot Protection

All project personnel are required to wear ***Steel Toe safety footwear (or composite)*** that is in accordance with current ASTM standards. Rubber boots with safety toe protection are required on jobs subject to chemically hazardous conditions or wet conditions.

2.5.6 High Visibility Clothing

All project personnel are required to wear high visibility clothing including a vest, shirt, or jacket. ***High visibility clothing must be predominantly safety yellow in color and must be ANSI Class II.***

2.5.7 Respiratory Protection

Respirators (including SCBAs and airlines), if used by project personnel, must meet National Institute for Occupational Safety and Health (NIOSH)/Mine Safety and Health Administration (MSHA) standards. Respirators must be inspected regularly and stored in a dust-free container. Employees required to wear a respirator must have a physician's approval and be fit tested within the last year. Employees must be clean shaven in the facial area to obtain an acceptable seal. Subcontractors must keep respirator training, fit testing, and medical clearance documentation on Site for the duration of the project and available for OBG inspection. The following table summarizes common respiratory hazards.

Respiratory Protection		
Contaminant Chemical	**Minimum Respirator Type**	**Source of Exposure**
Silica	Respirator with N100 or P100 filter	During cutting or pulverizing concrete
Carbon monoxide	Supplied Air (SCBA or Airline)	Engine combustion byproduct in enclosed or confined spaces
Metal dust	Respirator with N95 or P95 filters	Settled dusts getting airborne, grinding metals or painted surfaces, welding, or torch cutting
Metal fumes	Respirator with N100 or P100 filters	Welding or torch cutting

2.5.8 Skin

If the possibility of skin contact with chemicals, lead, asbestos or other hazardous material exists, then protective clothing will be worn.

- ***Tyvek®*** (or equivalent) – asbestos, lead, or other dust exposures
- ***Tychem QC®*** (poly-coated Tyvek®) or **Tychem SL®** (Saranex®) or equivalent – for liquid chemical exposures including liquids contaminated with PCBs
- ***Tychem SL®*** (Saranex®) ***with hood and boots*** (or equivalent) – for use with SCBAs during emergency response involving chemical releases.

2.5.9 PPE Summary

In general, PPE is divided into four broad categories as outlined below.

- ***Level D PPE*** – Minimum PPE for Level D includes hard hat, safety glasses with side shield, safety shoes/boots, cut-resistant gloves, and high visibility vest. Additional PPE that may be required includes hearing protection, face shield, fall protection harness and lanyard, and Kevlar chaps and jacket (if using a chainsaw).

- » ***Modified Level D PPE*** – Level D PPE plus protective clothing to prevent skin contact or contamination of support zone areas. Additional information on chemical protective clothing, chemical resistant gloves, and face shields is described in previous paragraphs of the PPE section of this HASP.
- » ***Full Modified Level D PPE*** consists of Level D PPE plus coveralls, nitrile gloves (or equivalent), and boots or shoe covers. Full Modified Level D PPE is necessary when extensive contact with contaminated materials is anticipated, such as the manual-excavation of contaminated soils. Full Modified Level D PPE is also required when handling corrosive chemicals.
- » ***Lightweight Modified Level D PPE*** consists of nitrile gloves (or equivalent) and boots or boot covers. Lightweight Modified Level D is necessary when minimal contact with contaminated materials in anticipated and contamination control must be maintained. Appropriate tasks for Lightweight Modified Level D PPE include equipment operators with minimal direct contact, surveyors, sampling technicians, inspectors, etc. The SSL shall determine which is appropriate based on-Site conditions.

- ***Level C PPE*** – Modified Level D PPE plus air purifying respiratory protection. Additional information on respiratory protection is described in previous paragraphs of the PPE section of this HASP.
- ***Level B PPE*** – Modified Level D PPE plus supplied air respiratory protection. Level B PPE is not anticipated for this project.

The following table provides more specific initial PPE requirements for different tasks. ***When work assignments involved mixed tasks, choose the most conservative PPE or change PPE as required between different tasks.***

PPE by Task									
PPE level	**Level D**						**Mod Level D**		**C**
TASK	**High Vis[1]**	**Head**	**Eye and Face**	**Foot**	**Hearing**	**Hand[2]**	**Hand**	**Skin[3]**	**Resp.**
General Site Work (to be worn unless more specific PPE requirements are not outlined below)	X	X	Safety Glasses	X	X (when in posted areas or using loud tools)	CR (when working)			
Clearing and Grubbing	X	X	Safety Glasses and Face Shield	X	X	CR			
Intrusive excavation where contact with contaminated soils or groundwater is anticipated	X	X	Safety Glasses	X With overboots	X (when in posted areas or using loud tools)	CR			½ face or full face with OV cartridges when action levels are reached
Haul Truck Drivers (when outside vehicle)	X	X	Safety Glasses	X		CR			
Haul Truck Drivers (when inside vehicle)			Safety Glasses	X	X (when in posted areas or using loud tools)				
Heavy Equipment Operation	X	X (May be removed if within enclosed covered cab)	Safety Glasses (May be removed if in fully enclosed cab	X	X				
Welding, Cutting, Grinding	X (fire resistant)	X	Safety Glasses with Welding Visor or Face Shield	X	X	CR (leather or fire resistant)			½ face with N or P100 filter (optional)
Energized[4] Electrical Disconnects		X	Safety Glasses with arc flash face shield	X		Leather over Electric			

PPE by Task									
PPE level	———— Level D ————						Mod Level D		C
TASK	**High Vis[1]**	**Head**	**Eye and Face**	**Foot**	**Hearing**	**Hand[2]**	**Hand**	**Skin[3]**	**Resp.**
Chop/Demo/Chain Saw Cutting	X	X	Safety Glasses with face shield	X (Kevlar chaps also required)	X	CR			
Decontamination	X	X	Safety Goggles and Face Shield	X	X	nDex or Latex		Tychem QC	
NOTES	**1.** High visibility vests will not be required where persons are wearing Tyvek or Poly-Coated Tyvek **2.** **CR** = cut resistant gloves, **HR** = heat resistant, **nitrile** = 3-5 mil nitrile gloves, **nDex®** = surgical nitrile **3.** Tyvek and Poly Coat Tyvek include the use of boot covers or a boot wash to prevent the spread of contaminated materials to support zone areas and includes the use of nitrile surgical gloves (usually underneath cut-resistant gloves) **4.** Energized electrical work required all PPE as required by NFPA 70E								

2.5 TEMPORARY CORDS

Proper management of temporary cords and hoses is required to minimize the potential for slips and trips. The following guidelines should be implemented to the extent feasible:

- Cords and hoses must be run out of aisles and sidewalks (e.g., within six inches of a wall or toe board)
- Cords and small diameter hoses that cannot be run overhead or buried must be marked with cones, protected by hose ramps, or equivalent whenever the cross aisles or sidewalks
- Cords and hoses that cross roads must be protected from damage
- All temporary cords and hoses must be removed to equipment laydown areas when not in use

Cords also pose an electrical hazard if they are not protected from damage and inspected before each use. Cords may not be run through doors or windows without being protected. Cords must not be run across walkways and stairs. Cords may not be run through standing water. Ground Fault Circuit Interrupters are required on all 120v hand tools and equipment.

2.6 EXCAVATIONS

OBG employees will not assume the role of "Excavation Competent Person" for subcontractor excavations unless authorized by the Project Manager and qualified as an Excavation Competent Person in accordance with the OBG HSE Manual Excavation procedure.

All excavations greater than 5 feet deep require sloping or shoring whenever persons enter excavations OR adjacent structures may be affected by a cave-in. Subcontractors will identify in their safety plans or JSAs specific shoring systems or sloping/benching that will be used in specific areas. Excavations greater than four (4) feet in depth are classified as a non-permit confined space unless contamination is encountered. Refer to the *"Confined Space"* section of this HASP for more guidance on how excavations will be handled with respect to confined space entry requirements.

- Assume soil is Type C unless soil testing indicates otherwise and such testing is documented. Standard sloping and benching (per OSHA) will follow a 1:1.5 (V:H) cut-back associated with Type C soil.

- Shore excavations >5' where personnel must enter and sloping is not feasible. Equipment used to shore excavations MUST follow OSHA shoring tables, or the subcontractor must have ***tabulated data from the manufacturer on Site.***
- If sections of trench are less than 5' AND no cave-in hazard exists, then shoring is not required.
- ***No workers may enter excavations until the designated Excavation Competent Person has inspected the excavations.*** All excavation inspections must be documented on a ***Daily Excavation Checklist*** or an approved alternate with documentation remaining on Site for the full project duration and made available for OBG review.
- Qualified engineers will evaluate excavations that could affect the stability of adjacent structures.
- A ladder or egress ramp will be provided within 25 feet of workers who must enter excavations.
- Water will not be allowed to accumulate in trenches in a manner that will affect the integrity of excavation walls and shoring systems.
- All spoils will be kept a minimum of 2 feet from the edge of the excavations.
- Fall Protection will be provided around excavations left open during off-hours. Fall protection will consist of solid barricades (saw horses or portable chain link) or soft barricades (safety fence) off-set 6 feet from the edge.
- Pedestrian Barricades – Portable chain link fence (48 inches high) or equivalent will be used to protect pedestrians. If pedestrian traffic is re-routed to avoid excavations, pedestrian detours must be accessible to bicyclists, handicapped persons, and other pedestrian in the area who may have special needs.
- Traffic Barricades – Any excavation activities that affect public or plant roads must be equipped with traffic safety devices as required by the Manual on Uniform Traffic Control Devices. If flaggers are used on public roads, they must have received Department of Transportation (DOT) Flagger Training. All flaggers that are utilized on the plant Site must have flagger training as well.

2.7 HEAVY EQUIPMENT

Project personnel may be exposed to "struck-by" injuries by walking in close proximity to heavy equipment or vehicles and "crush" injuries if caught between heavy equipment or vehicles (or counterweights) and a fixed object. Subcontractors must comply with requirements in this section...

Operators will use seatbelts if so equipped. Heavy equipment/vehicles will be equipped with overhead and rollover protection whenever feasible. Operators will inspect equipment daily for leaks, damage, and other necessary repairs.

Heavy equipment/vehicles must be equipped with backup alarms, horns, and other safety devices installed by the manufacturer. Vehicles operated at night must have headlights, tail lamps, and reflectors. Safety devices must not be disabled.

Heavy equipment/vehicles must undergo an ***"Acceptance Inspection"*** conducted by management when first mobilized to the Site. Inspections must be documented using a checklist that is acceptable to OBG. OBG may perform the "Acceptance Inspection" or may delegate the inspection to the subcontractor superintendent/foreman who will submit documentation to OBG when complete. Defective equipment must be "rejected" and removed from Site or repaired before being placed in service.

Heavy equipment/vehicle must also be ***inspected daily***. Similar to "Acceptance Inspections," inspections must be documented using a checklist that is acceptable to OBG. Documentation must be maintained on Site and available for inspection by OBG.

Any heavy equipment/vehicle on Site for more than 30 days must be on a ***written preventative maintenance schedule*** that is in accordance with the manufacturer's requirements. The preventative maintenance schedule and documentation of completed preventative maintenance must be retained on Site and available for inspection by OBG.

2.8 FIRE PROTECTION AND PREVENTION

Hot Work Permits, subcontractor safety plans, and JSAs may supplement basic fire safety requirements outlined below by establishing specific requirements throughout the course of the project as needed to ensure that personnel and property are adequately protected from potential fires. Emergency response associated with fires is covered in the Emergency Response section of this HASP. Basic fire protection requirements include:

- Construction heaters or other forms of heat generating equipment may only be used by subcontractors with prior approval from OBG and a Hot Work Permit is obtained from the issuing authority on-Site.
- Fire hydrants and standpipes may only be used for firefighting purposes unless other use is authorized and permitted by Village of Frankfort.
- Fire hydrants and valves must not be obstructed or blocked. At least a ***6-foot*** clearance must be maintained on all sides for emergency access.
- SSL ***must inspect extinguishers monthly*** in addition to annual service provided by an extinguisher service company. Inspections and testing must be documented on ***weather-resistant tags or labels*** attached to each fire extinguisher.
- Only ***fire-resistant tarpaulins*** are allowed.
- Fire extinguishers shall be provided so that the travel distance from any work area to the nearest extinguisher is less than 100 feet. When 5 gallons or more of a flammable or combustible liquid is being used, an extinguisher must be within 50 feet.

2.9 FALL PROTECTION

OSHA-approved methods of fall protection are required under the following conditions:

- An employee is working 6 feet or more above the ground
- An employee is working on scaffolding without a 42-inch railing protection
- An employee is working in an aerial lift or scissors lift
- An employee is involved in assembly/disassembly of scaffolds, work platforms or temporary surfaces working 6 feet or more above the ground
- An employee is working over dangerous equipment/conditions (at any height)
- An employee is working on a walking/working surface or roof and is within 15 feet unprotected edge or floor opening/hole that will expose the employee to a fall greater than six feet.

Full body harnesses (Class III) and retractable lanyards must be secured to an anchor point that can withstand ***5,000 lbs.*** of force when used for fall arrest. Retractable lanyards are required for all elevated work requiring fall protection.

Other methods to prevent falls include ***temporary guardrails***, installation of ***hole covers, warning lines*** (15' from the edge), ***fall restraint lines***, safe use of ladders, and safe use of ***aerial lifts***.

2.10 HIGH HAZARD POWER TOOLS

Some relatively common power tools can cause serious injury and are classified by OBG as highly hazardous as outlined in OBG's HSE Manual in a procedure called, ***"Power Tools-High Hazard"***. Highly hazardous power tools include powder-actuated tools (Hilti), chainsaws, chop (or demo) saws, weed trimmers with blade cutter,

die/end grinders, powered abrasive wheel tools, hand-held hydraulic rebar benders, portable HDPE fusion welder, portable circular saw, and band saws (portable & stationary).

Safer tools should be used when feasible. When the use of highly hazardous power tools is necessary, then they must be used in accordance with requirements in this HASP and OBG's "***Power Tools-High Hazard"*** procedure with safety controls identified in JSAs which include the use of a highly hazardous power tool. At a minimum, tools must be operated in accordance with the manufacturer's safe operating guidelines. Prior to work when reviewing JSA requirements, users of highly hazardous power tools should review the OBG Safety Meeting Topic for applicable high hazard power tool listed above (or equivalent safety information). The applicable Safety Meeting Topic identifies key hazards and safety controls for each high hazard power tool.

> ***NOTE – Operators of powder-actuated tools must have a training certification as outlined in the Safety Training & Competent Persons section of this HASP. Any JSA that includes demo/chop saw use requires special review and approval as outlined in the Pre-Work Safety Planning section of this JSA. OBG requires that chop/demo saw operators wear Kevlar (or equivalent) chaps. A Kevlar (or equivalent) jacket is also required if the chop/demo saw is operated above the waist.***

2.11 HOUSEKEEPING AND MATERIAL STORAGE

The Site shall be maintained in a clean and orderly condition always. Construction areas shall be free of waste materials, debris, and rubbish that will be ***removed daily.*** Waste materials shall be placed in appropriate waste receptacles for off-Site disposal or recycling. All recycling bins must be covered with a tarp covering or roofing to prevent anything from getting to pavement and into storm drains. Items with any kind of chemical or contaminant must be removed from the property ***immediately*** following job completion. Materials and equipment shall not obstruct traffic or emergency response activities at any time. Each subcontractor will have a designated lay-down area for the storage of their project materials. It is the responsibility of the subcontractor to maintain cleanliness of their area. ***Unused tools and materials shall be returned to lay-down areas daily.***

2.12 HAZARD COMMUNICATION AND SDS

OBG is responsible for having and administering a Hazard Communication Program (Global Harmonization Program) that requires all employees to be informed about the hazards associated with chemicals used on the job and the location of the safety data sheets (SDSs) for all materials brought on-Site.

SDSs shall be requested from vendors for materials procured for the current project from all suppliers of paints, coatings, adhesives, grout, caulk, lubricants, welding products, solvents, insulation, and similar products prior to being brought on-Site. Subcontractors will submit SDSs to OBG for review and upon request.

- OBG shall complete an inventory of chemicals brought on Site;
- OBG shall confirm locations of safety data sheets (SDSs);
- Before or as the chemicals arrive on Site, obtain an SDS for each hazardous chemical and include the chemical inventory sheet (attached to the project safety plan) and add the SDS to the SDS on-Site notebook;
- Label chemical containers with the identity of the chemical and with hazard warnings, and store properly;
- Give employees required chemical-specific HAZCOM training using the chemical-specific training form included as an attachment to the project safety plan; and
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

2.13 GENERAL WORKER SAFETY RULES

Workers follow the established safety practices for their respective tasks. The need to exercise caution in the performance of work is made more acute due to weather conditions and restrictions in mobility, peripheral vision, and communication caused by the personal protective equipment.

To enhance Site safety, the following General Worker Safety procedures have been established:

- ***Smoking or the use of any tobacco products is not permitted in work areas, smoking is allowed in designated areas only.***
- ***No firearms may be brought on Site.***
- Employ the buddy system when appropriate. Be alert.
- Minimize contact with contaminated materials.
- Avoid breathing chemical odors.
- Do not expose skin to water, chemicals, or soil. If one becomes dirty or wet with contaminated fluids, clean up immediately using plenty of water.
- Hands must be washed before eating or drinking and after using toilets.
- Consumption of alcohol or intoxication (under the influence or impaired) during work hours or while on Site is prohibited.
- Working when ill is prohibited.

3. CHEMICAL PARAMETERS OF CONCERN

The OSHA Hazard Communication Standard require that Site personnel, subcontractors, and visitors must be informed of hazards associated with their work area. Health and safety information in this HASP is intended to supplement Hazard Communication training previously provided to Site workers by his or her employers.

3.1 EXPOSURE PATHWAYS

Chemical exposures and their exposure pathways anticipated during this project include:

- Contaminated soil and/or water
- Inhalation of contaminated dusts
- Accidental ingestion of contaminants
- Skin contact/absorption with contaminated soils and/or water
- Injection through punctures and lacerations.

Based upon anticipated Site activities and prudent safety and hygiene practices during Site work, ingestion of Site contaminants is unlikely. Hazardous skin contact or absorption by the various contaminants is also unlikely because of the low concentrations that are anticipated and/or the use of PPE. The primary route of exposure is inhalation of airborne contaminants and contaminated dusts generated during intrusive activities. However, inhalation of airborne contaminants approaching the OSHA PELs is unlikely because of natural ventilation of the work area, safe work practices, PPE, and/or air monitoring.

3.2 CONTAMINANTS OF CONCERN

The following paragraphs summarize the health effects of Site contaminants that are frequently of concern and other Site chemicals (if any). Site chemicals are usually those chemicals petroleum products associated with heating, vehicles, and equipment maintenance. This HASP focuses on those which are believed to have the potential to pose a significant health hazard to Site personnel based on their potential to become airborne, concentrations in soil and groundwater, and their toxicity and other hazardous characteristics. Table 3.1 – "Summary of Potential Health Effects" also includes information on exposure limits and key physical characteristics such as flammability. *Chemical Constituents of Concern (COCs) are identified below as being* (☒ **APP).** *Chemicals hazards that are not present or do not otherwise represent a serious health risk based on historical site data are identified as not applicable* (☒ **NOT APP).**

- ☐ ***APP*** / ☒ ***NOT APP***
  - **Polychlorinated Biphenyls (PCBs)** – PCBs are considered a potential human carcinogen, especially with respect to the liver. PCBs can be inhaled or absorbed through the skin. Skin effects include lesions, rashes, and severe acne-like conditions for those who may be especially sensitive to contact with PCBs. PCBs are not volatile and potential exposure will consist of contaminated dust and contact with contaminated soil and groundwater.
- ☒ ***APP*** / ☐ ***NOT APP***
  - **Lead** – Lead is a hazardous metal that was once common in paint, gasoline, and a variety of other uses. Lead is a solid material and may be inhaled as airborne dust or ingested if personal hygiene is poor. Lead can gradually accumulate in the body with frequent small exposures adding to a growing body burden. Lead is especially hazardous to young children and infants and every effort must be made to prevent site personnel from carrying lead home on contaminated clothing, tools, and equipment.
- ☐ ***APP*** / ☒ ***NOT APP***

- » **Asbestos** – Asbestos is a material often used in insulation, transite panels, and roofing materials and the potential exists to encounter this material in buildings on the site. Asbestos is a naturally occurring mineral and is considered a potential occupational carcinogen by OSHA. Asbestos-related diseases such as lung cancer, mesothelioma and digestive system cancer may occur if over exposed to asbestos fibers. Asbestos and cigarette smoking interact with each other and will have an effect much greater than either one individually.

- ☐ ***APP*** / ☒ ***NOT APP***

  - » **Silica** – Crystalline silica has been classified as a human lung carcinogen. Additionally, breathing crystalline silica dust can cause silicosis, which in severe cases can be disabling, or even fatal. The respirable silica dust enters the lungs and causes the formation of scar tissue, thus reducing the lungs' ability to take in oxygen. There is no cure for silicosis. Since silicosis affects lung function, it makes one more susceptible to lung infections like tuberculosis. In addition, smoking causes lung damage and adds to the damage caused by breathing silica dust. Exposure occurs during many different construction activities. The most severe exposures generally occur during abrasive blasting with sand to remove paint and rust from bridges, tanks, concrete structures, and other surfaces. Other construction activities that may result in severe exposure include: jack hammering, rock/well drilling, concrete mixing, concrete drilling, brick and concrete block cutting and sawing, tuck pointing, and tunneling operations.

- ☒ ***APP*** / ☐ ***NOT APP***

  - » **Chromium & Hexavalent Chromium** – Chromium metal and chromium salts (Cr II/III) are naturally occurring and generally less hazardous than hexavalent chromium (Cr VI). The risk is further reduced with exposure to chromium dust as opposed to chromium fume. All chromium can affect the liver, kidneys, respiratory system and many forms can cause skin sensitization. CrVI is clearly the more hazardous form of chromium. Workplace exposure to Chromium (Cr(VI)) may cause the following health effects: lung cancer in workers who breathe airborne Cr(VI); irritation or damage to the nose, throat and lungs (respiratory tract) if Cr(VI) is inhaled; and irritation or damage to the eyes and skin if Cr(VI) contacts these organs. Workers can inhale airborne Cr(VI) as a dust, fume or mist while, among other things, producing chromate pigments, dyes and powders (such as chromic acid and chromium catalysts); working near chrome electroplating; performing hot work and welding on stainless steel, high chrome alloys and chrome-coated metal; and applying and removing chromate-containing paints and other surface coatings. Skin exposure can occur while handling solutions, coatings and cements containing Cr(VI).

- ☒ ***APP*** / ☐ ***NOT APP***

  - » **Mercury** – The nervous system is very sensitive to all forms of mercury. Methyl mercury and metallic mercury vapors are more harmful than other forms, because more mercury in these forms reaches the brain. Exposure to high levels of mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause effects including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation. Mercury is a naturally occurring metal which has several forms. Metallic mercury is a shiny, silver-white, odorless liquid. If heated, it is a colorless, odorless gas and small amounts (several milligrams) may be contained in fluorescent bulbs. Mercury may also be in switches and thermostats.

- ☐ ***APP*** / ☒ ***NOT APP***

  - » **Volatile Organic Compounds** (VOCs) – Several organic solvents may be encountered and are collectively referred to as VOCs. Residual quantities may be present in process piping and subsurface soils and groundwater and could be encountered during excavation work. Although the precise mixture is unknown, VOCs may include (but not necessarily be limited to) trichloroethylene, 1,2-dichloroethylene,

vinyl chloride, and phenol (semi-volatile) from process operations and petroleum products such as gasoline and heating oil that may be associated with site vehicles or combustion equipment.

- ☐ ***APP*** / ☒ ***NOT APP***
  - **Polycyclic Aromatic Hydrocarbons** (PAHs) –PAHs are semi-volatile organic compounds that do not readily evaporate. As a result of their low volatility, exposure to these compounds will result from airborne dusts contaminated with PAHs. Short-term (acute) effects of exposure to these compounds are the same as those associated with exposure to dusts in general and may include eye and upper respiratory tract irritation at high dust levels. High dust levels are characterized by dust levels where visible dust emissions are observed that typically obscure vision. The primary health effect associated with PAHs is cancer as a result of long-term (chronic) exposure. Several PAHs are suspected as being potential human carcinogens.

Table 3.1 – Summary of Potential Health Effects

Chemical	Location	PEL	IDLH	Characteristics	Routes of Exposure	Symptoms of Exposure & Health Effects
SEMI-VOLATILES – may include a mixture of the following						
☒ **NA** Polychlorinated Biphenyls (PCBs)	Soil and sediment	1 mg/m³ 1242 0.5 mg/m³ 1254/1260	5 mg/ m³	Oil liquids or solids that are colorless to light yellow	Inhalation Contact	PCBs are classified as probable human carcinogen by the EPA More common symptoms and health effects include skin lesions and rashes Although PCBs may create vapor, they do not evaporate easily and the most likely inhalation exposure is by dust contaminated with PCBs
☒ **NA** Phenol	Soil and sediment	5 ppm TWA (skin)	250 ppm	Colorless to light pink liquid with a sharp, medicinal, sweet, tarry odor Ionization potential = 8.5	Inhalation Absorption	Inhalation of vapors, dust, or mist contaminated with phenol may result in vomiting, difficulty in swallowing, diarrhea, loss of appetite High concentrations or chronic exposure may also cause burning in the eyes, nose and throat, dizziness, irregular breathing and abdominal pain Phenol is readily absorbed through the skin causing photodermatitis Skin contact must be avoided
☒ **NA** Polycyclic Aromatic Hydrocarbons (PAH) Also known as: PNAH Polynuclear aromatic hydrocarbons	Excavations	0.2 mg/m³ (Coal tar pitch volatiles - benzene soluble fraction) 0.15 mg/m³ (Coke Oven Emissions - benzene soluble fraction)	Not determined	PAHs do not readily evaporate. Exposure from contaminated soil/dust created during remediation activities Pure material is a brown/black tar-like substance	Inhalation Contact	High exposures (>PEL) may cause irritation of the respiratory system The skin and eyes are especially prone to irritation from contact with PAHs May cause photosensitization of the skin and eyes increasing the potential for sunburn and irritation Long-term exposure may cause skin, lung, and kidney cancer
METALS & MINERALS						
☐ **NA** Lead	Lead in soil or ground water	0.05 mg/m³ TWA 0.035 mg/m³ Action Level	100 mg/m³	Pure material is a heavy, ductile, soft, gray, solid Lead is present on site as a component of soil from paint chips	Inhalation Ingestion	Lassitude (weakness, exhaustion), insomnia Facial pallor Anorexia, weight loss, malnutrition; constipation, abdominal pain, colic

Table 3.1 – Summary of Potential Health Effects

				that have flaked off painted structures and will not resemble its pure form Lead is also a component of paint		Anemia Gingival lead line Tremor Paralysis of the wrist, ankles Encephalopathy Kidney disease Irritation eyes Hypotension
☒ NA Asbestos	Existing building: floor tiles, window caulk, roofing mastic	0.1 fibers/cc	NA	Commonly found in insulation, felt, mastic, transite panels, and a variety of other structural applications	Inhalation Ingestion Contact	Asbestosis, Mesothelioma cancer Restricted pulmonary function
☒ NA Silica	Cutting or pulverizing concrete	0.05 mg/m^3 (NIOSH)	50 mg/m^3 (quartz)	Colorless, odorless solid A component of sand, concrete and other masonry materials	Inhalation	Cough, dyspnea (breathing difficulty), wheezing Decreased pulmonary function, progressive resp symptoms (silicosis) Irritation to the eyes Potential occupational carcinogen
☒ NA Hexavalent Chromium	Chromium in soil or groundwater	0.005 mg/m^3 [skin]	15 mg/m^3	Dark-red, odorless flakes or powder (pure form)	Inhalation Contact	Irritation to the respiratory system Nasal septum perforation Liver, kidney damage Leukocytosis (increased blood leukocytes), leukopenia (reduced blood leukocytes), eosinophilia Eye injury, conjunctivitis Skin ulcer, sensitization dermatitis Potential occupational carcinogen
☐ NA Mercury	Fluorescent light bulbs and mercury switches and thermostats	0.1 mg/m^3 [skin]	10 mg/m^3	Metal: Silver-white, heavy, odorless liquid	Inhalation Contact	Irritation to the eyes and skin Cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis Tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion) Stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria
VOLATILE ORGANIC COMPOUNDS (VOCs) – may include a mixture of the following						
☒ NA Trichloro-ethylene (TCE)	Soil, groundwater, residual in drums	100 ppm TWA	1000 ppm	Colorless liquid with a chloroform odor UEL=10.5%, LEL=8.0% Combustible Liquid Ionization Potential = 9.45 eV	Inhalation Absorption Contact	Causes headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating Large amounts of may cause impaired heart function, unconsciousness, and death Breathing for long periods may cause nerve, kidney, and liver damage

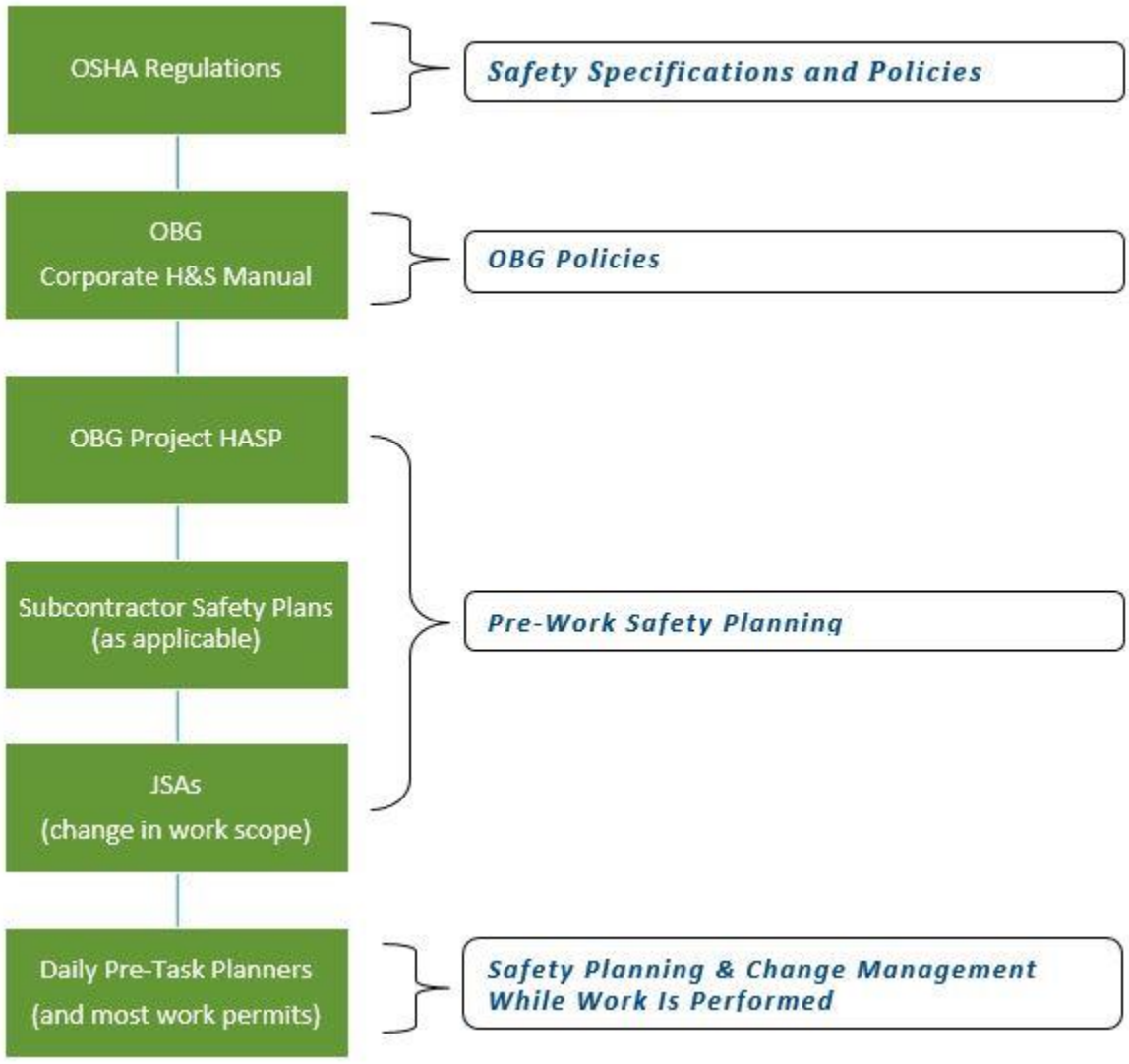
Table 3.1 – Summary of Potential Health Effects						
☒ NA Tetrachloro-ethylene (Perchloro-ethylene)	Soil, groundwater, residual in drums	100 ppm TWA	150 ppm [potential carcinogen]	Colorless liquid with a mild, chloroform-like odor Noncombustible Liquid Ionization Potential = 9.32 eV	Inhalation Absorption Contact	irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]
☒ NA Vinyl Chloride	soil, groundwater, residual in drums	1 ppm carcinogen	NA	Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations UEL=33%, LEL=3.6% Flammable Liquid Ionization Potential = 9.99 eV	Inhalation Contact	Lassitude (weakness, exhaustion) Abdominal pain Gastrointestinal bleeding Enlarged liver Pallor or cyanosis of extremities; liquid Frostbite Potential occupational carcinogen
☒ NA 1,2,-Dichloro ethylene	Soil, groundwater, residual in drums	200 ppm	1,000 ppm	Colorless liquid (usually a mixture of the cis and trans isomers) with a slightly acrid, chloroform-like odor. UEL=12.8%, LEL=5.6% Flammable Liquid Ionization Potential = 9.65 eV	Inhalation Contact	Irritation to the eyes and respiratory system Central nervous system depression
☒ NA Benzene	Soils, groundwater, residual in drums	1 ppm TWA 5 ppm STEL	500 ppm	Colorless vapor released from contaminated soil or water that may have a strong, irritating, or otherwise characteristic odor generally detectable at 4-5 ppm Ionization Potential = 9.24 eV	Inhalation Absorption Contact	Irritation to the eyes, nose, and throat Dizziness Dermatitis Prolonged exposure to hazardous levels may damage blood-forming systems Benzene is also a suspected human carcinogen (ACGIH 1996 Class A2)
☒ NA Toluene	Soils, groundwater, residuals in drums	200 ppm 300 ppm Ceiling	500 ppm	Colorless liquid with a sweet benzene-like odor UEL=7.1% and LEL=1.1% Class IB Flammable Liquid Ionization Potential=8.82 eV	Inhalation Contact (dermatitis)	Irritation to eyes and nose May cause skin irritation/dermatitis and headaches Exposures at or above the OSHA PEL may cause fatigue, confusion, dizziness and overall depression of central nervous system Chronic exposure or high exposures approaching IDLH levels may cause liver and kidney damage

Table 3.1 – Summary of Potential Health Effects						
☒ NA Xylene (o,m,p)	Soils, groundwater, residuals in drums	100 ppm	900 ppm	Colorless liquid with an aromatic odor UEL=6.7%-7.0% and LEL=0.9%-1.1% Class IC Flammable Liquid Ionization Potential = 8.56 eV	Inhalation Contact (dermatitis)	Irritation to eyes, nose, and throat May cause skin irritation/dermatitis and headaches Exposures at or above the OSHA PEL may cause fatigue, confusion, dizziness, nausea, vomiting, cornea (eye) damage, and overall depression of central nervous system Chronic exposure or high exposures approaching IDLH levels may cause liver and kidney damage
OTHER						
☒ NA Solvay Waste	Soil	None	None	White to gray material that ranges from almost cement-like to toothpaste-like consistency Material may "liquefy" with repeated vibration	Inhalation (residues) Contact	Primary hazard is high pH (alkaline) material that may cause skin irritation with prolonged exposure Solvay waste is not classified as hazardous waste
Footnotes	All values are 8-hour time-weighted averages (TWAs) unless otherwise indicated **PEL**: Permissible Exposure Limit, the concentration an employee may be exposed to for an 8-hour work day for a 40 hour work week for which nearly all employees may be repeatedly exposed without adverse health effects **REL**: NIOSH recommended exposure limit for full-shift exposures **STEL**: Short-Term Exposure Limit as a 15 minute average **CEILING:** maximum concentration **IDLH**: IMMEDIATELY Dangerous to Life and Health, contaminant concentration which present the possibility for severe health consequences if exposed to the IDLH concentration without the appropriate personal protective equipment (PPE) **LEL**: Lower Explosive Limit **Units: mg / m³** = milligrams per cubic meter of air | **f / cc** = fibers per cubic centimeter of air					

4. HAZARD EVALUATION

The OSHA safety regulations (29CFR1910 and 29CFR1926) require that Site personnel, subcontractors, and visitors must be informed of the hazards associated with their work activities. Hazard Identification and control begins during safety planning which is described in the ***Pre-Work Safety Planning*** section of this HASP.

Safety planning is required for work on this project and occurs at different times during the project. Each "level" of safety planning typically has differing degrees of detail and focus. However, the ultimate objective is that Site management and crafts methodically evaluate hazards and implement safety controls to prevent the occurrence of an injury, fire, explosion, spill, or property damage incident and can manage changes as they occur. The following chart provides an overview of safety planning requirements and tools outlined in previous sections of this HASP.



Safety Plans, JSAs, and Safe Work Permits developed subsequent to this HASP by OBG or subcontractors (if any) will identify hazard controls that are consistent with this HASP. Subcontractors may use an OBG Pre-Work JSA template **(Appendix A)** or request approval from OBG to use an alternate JSA template. Submitting standard

company policies or programs is not acceptable. Preliminary identification of hazards and their respective controls for major work tasks or phase are outline in **Table 4.1**.

Table 4.1 – Hazard Identification & Control

Activities & Tasks	Affected Personnel	Safety Hazards	Safety Hazard Controls
GENERAL SAFETY HAZARDS **Mandatory PPE:** **Level D PPE** **(Refer to PPE section of HASP for specific components of Level D PPE based on the task being performed)** **As needed PPE:** **Face shield for all grinding, torch cutting, pressure washing** **Covered tasks:** **This section covers safety hazards and their associated controls that are applicable to a variety of crafts/trades.** **These will only be repeated in subsequent sections when specific tasks or site conditions require changing or modifying safety hazard controls.**	Generally applicable to all trades/crafts	**Slip, trips, and falls** **Manual lifting** **Noise- during operation of heavy equipment and power tools or working adjacent to such equipment** **Electrical – shock hazards associated with the use of extension cords and power tools** ■ Contact with damaged cord ■ Overhead power lines ■ Contact with sub-surface utilities **Hand & power tools** ■ Shock ■ Flying dust, cuttings, debris ■ Hand injuries from cutting blades/bits **Ladder hazards** ■ Ladders kicking out or tipping over during use ■ Users fall from a ladder ■ Falling objects strike workers or pedestrians on lower work surfaces **Heavy equipment hazards – Working near heavy equipment requires that general safety precautions be considered. When tasks require the use of certain types of heavy equipment (e.g., manlifts, forklifts, and cranes), they will be covered in more detail with respect to those tasks.** ■ Turnover due to the slope angle and/or stability ■ Struck by injuries (counterweight swing or run-over) ■ Dropped loads ■ Hydraulic fluid leaks ■ Equipment fire	**Safety controls for slips, trips, and falls include:** ■ Daily cleanup ■ Unused materials must be stored in a designated area ■ Unused tools must be picked up daily ■ All trash, scrap metal, and construction debris must be placed in the appropriate dumpsters ■ Icy walkways, stairs, work platforms, and scaffolding must be salted prior to use. Slip-on traction devices (YakTrax®) should also be considered. **Follow proper lifting technique.** **Review primary precautions below:** ■ Keep load in close to the body ■ Keep hips and shoulders aligned (no twisting) ■ Maintain stability (keep a balanced position) ■ Think and plan difficult lifts (use two people when weight is >55-75 lbs) **Wear hearing protection while operating heavy equipment (unless with enclosed cab) or noisy power tools. Wear hearing protection if you have to raise your voice talking to someone five feet away.** **Electrical safety controls when using extension cords and power tools include:** ■ Locate and verify all building utilities with owner representative ■ Inform all site personnel that **overhead power lines are energized** and a **20-foot clearance** must be maintained » A 10-foot clearance may be used for insulated secondary lines that distribute power within the site » If the lines are <300 volts and a safety spotter observes equipment while it's moved, then a 3-foot clearance may be used ■ Use GFCIs on all power tools and extension cords ■ Inspect tools for visible damage on a daily basis ■ Inspect all flexible extension cords and power tool cords daily prior to use ■ Discard all flexible cords without a ground plug or outer insulation this is cut through. Tool cords must be in similarly good condition. ■ Do not repair flexible cords smaller than 12 gauge ■ All extension cords must be ran overhead (>7-foot) when crossing walkways or other areas of high travel or protected when run across the floor (in a manner that does not create an excessive trip hazard) ■ All extension cords must be protected when run across roadways ■ Subsurface utilities must be located and marked prior to driving stakes, fence posts, or earthwork. Temporary utilities for construction may be shallower than expected. **Perform the following to ensure that tools are in good working order** ■ Inspect tools for visible damage prior to each use. ■ Inspect all flexible extension cords and power tool cords. Discard all flexible cords without a ground plug

Table 4.1 – Hazard Identification & Control

			or outer insulation that is cut through. Tool cords must be in similarly good condition. Do not repair flexible cords smaller than 12 gauge. ■ **Do not operate tools without guards and use only in accordance with manufacturer's operating instructions** ■ Use **GFIs** on all extension cords and power tools **Ladders must be used in accordance with OSHA guidelines or fall protection must be implemented above six feet. Ladder safe guidelines include, but are not limited to:** ■ Ensure all ladders are inspected and properly labeled ■ Maintain 3-point contact while working on step ladders and extension ladders (work requiring the use of both hands when on a ladder will require the worker to tie-off) ■ Keep your torso between the rails of the ladder ■ Do not use a step ladder as a straight ladder ■ Do not stand on the top two steps of a step ladder ■ Extend extension ladders three feet above the upper level ■ Secure the top and base of extension ladders ■ Extension ladders should have a 4:1 height to base ratio ■ Do not use metal ladders within 20 feet of exposed conductors or overhead power lines ■ **Ladders must be inspected prior to each use** **Heavy equipment safety precautions include:** ■ Ensure **slopes** in designated work areas do not exceed slopes allowed by manufacturer's safe operating guidelines ■ Keep **non-essential personnel** out of areas in which heavy equipment will be operating. Portable chain link (or equivalent) will be used to secure the construction area ■ Ensure all operators are qualified and familiar with the **manufacturer's safe operating guidelines** for the equipment they are operating. Subcontractors must submit the following for specific types of equipment: ■ Forklift – Operators license ■ Manlift – Training certificate. Letter of Authorization and Training on company letterhead, or equivalent. ■ Crane – State License and/or CCO ■ **Inspect heavy equipment daily** prior to use Immediately repair any leaks ■ Operators must wear **seatbelts** at all times unless the manufacturer does not provide seat belts ■ Equipment operators must ensure workers are kept clear from **crush points** created by counterweight swings and for boom movement ■ Never lift or suspend a load over people ■ Inspect all rigging materials prior to use ■ Ensure that a **fire extinguisher** is mounted to the equipment ■ Ensure spill materials for oil/hydraulic fluid are located near the construction area

Table 4.1 – Hazard Identification & Control

SITE PREPARATION & MOBILIZATION **Minimum PPE:** **Level D PPE (Refer to PPE section of HASP for specific components of Level D PPE based on the task being performed.)** **Additional PPE:** **Hearing protection during operation of heavy equipment or other loud equipment** **Kevlar Chaps & Jacket:** **During operation of chainsaw that may be required to clear small trees and large shrubs** **Covered Tasks:** **Mobilization of equipment** **Site Survey** **Site security – perimeter safety fence installation** **Installation of silt fence, drainage swales, and other erosion controls** **Use of a "brush hog" either pulled behind a piece of heavy equipment, or on an arm that protrudes from the side of equipment.**	Laborers Equipment Operators Surveyors Delivery Personnel Utility Installation Crews	**General Hazards previously listed in the "General Safety Hazards" section of this table** **Vegetative Clearing** ■ Biological hazards - Poison Ivy and poisonous snakes and insects ■ Ticks bites ■ Cuts/lacerations from chainsaws (if used) **Brush Hog Operation** ■ Thrown material leading to injury ■ Loss of life or limb from rotating blades ■ Loss of life or limb due to unprotected belts/pullys ■ Tipping over of Equipment due to extreme slope or equipment being off balance.	**General Hazards previously listed in the "General Safety Hazards" section of this table (liner may be installed and used on site and is extremely slippery when wet)** **Safety controls for clearing include:** ■ Know how to recognize poison ivy. Maintain alcohol wipes or rubbing alcohol to wipe down exposed skin following contact with allergy-causing oils from poison ivy. ■ Syracuse is in a high Lyme disease area. Use 25%+ DEET on skin and permethrin on Tyvek when walking into, or working in, overgrown areas. ■ All personnel using chainsaws for clearing activities must wear **Kevlar Chaps and Jacket** and hard hat mounted face shield in addition to other safety gear ■ Use heavy equipment to do as much of the vegetative clearing as possible. ■ Roots and stumps will not be removed. Removing surface vegetation without disrupting contaminated soil is not considered "intrusive." **Safety Controls for "Brush Hog" operation include:** ■ Do not operate "Brush Hog" while elevated from the ground. ■ Do not allow pedestrians to approach the Bush Hog while in operation. ■ Do not intentionally run over excessively large stumps, stones, or debris. ■ Do not operate the Brush Hog while in a vertical position or while above knee level. ■ Leave all manufacturer guards in place and do not allow workers to be exposed to moving parts of the equipment. ■ Read the manufacturers recommendations in regards to safe operating slopes. ■ Use side arm brush hog while drive equipment can be safely operated from a stable, level surface. ■ Keep side arm brush hog lowered as close to the ground as possible and as near to the equipment as possible when operating.

Table 4.1 – Hazard Identification & Control

Placement of soil cover **Minimum PPE:** **Level D PPE (refer to PPE section of HASP for specific components of Level D PPE based on the task being performed)** **Additional PPE:** **Hearing protection during operation of heavy equipment or other loud equipment** **Covered Tasks:** **use of heavy equipment to evenly place soils onto predetermined areas at specified application rates.**	Machine operator	**General Hazards previously listed in the "General Safety Hazards" section of this table** ■ Heavy Equipment Operation ■ Haul Truck Operation (inside cab/outside) ■ Contact with unprotected belts and pulleys ■ Being hit by Flying material	**General Hazards previously listed in the "General Safety Hazards" section of this table:** **Contact with unprotected belts and or pulleys** ■ Keep all guards in place when operating equipment. ■ Release all stored energy prior to maintenance being performed. ■ Do not operate with personnel in the spreader equipment.

5. EMPLOYEE AIR MONITORING

Air monitoring is to be performed in accordance with Program 2.1 of the OBG Corporate Health & Safety Manual, *Airborne Materials Exposure*, and Program 2.22 of the OBG CHS Manual, *Hazardous Waste Operations*. Presented below is the site-specific information. The purpose of air monitoring is to verify the adequacy of PPE being used and to evaluate new hazards or changing site conditions.

The **"site"** refers to the work area(s) designated for this project. **Community action levels** generally apply at the site perimeter. The **"work area or zone"** is the area immediately surrounding activities that disturb contaminated materials and is the area within which "work area action levels" apply. Exclusion Zones may be setup to coincide with the perimeter of individual work areas or encompass several work areas. Where Exclusion Zones are adjacent to the site perimeter, the most stringent of work area and community action levels shall apply.

5.1 MONITORING EQUIPMENT

Monitoring Instruments will be calibrated in accordance with manufacturers' recommendations. Air monitoring information from perimeter PIDs and dust meters will be downloaded at the end of the day. Air monitoring results will be submitted to NYSDEC on a weekly basis.

Monitoring Equipment

Required?	Contaminant	Location	Equipment	Comments
Yes	Volatile Organic Compounds (VOCs)	1 upwind 2 downwind 1 "roving" meter for use in work areas and backup for perimeter monitors	Photoionization Detector (PID) with 10.6 eV lamp	Available from Pine Environmental 800-301-9663 (approx $200 a week)
NO	Oxygen and flammable vapors	Confined spaces	Gas Meter – Neotronics Minigas or equivalent	Available from Pine Environmental 800-301-9663 (approx $150 a week) For use if confined space entry Not to be used for ambient monitoring
YES	Dust / Particulate (PM-10)	1 upwind 2 downwind 1 "roving" meter for use in work areas and backup for perimeter monitors	Dust Meter - TSI DustTrak Model 8520 (w/ PM-10)	Available from Pine Environmental 800-301-9663 (approx $300 a week) Rent the optional TSI Environmental Enclosure for stationary locations subject to rain and prolonged sun
NO	Hydrogen cyanide		ToxiRAE Plus or Industrial Scientific T82 single gas monitors with HCN sensor	Available from Pine Environmental 800-301-9663 (approx $75 a week)
NO	VOC -benzene (Drager tube)	At the discretion of the SSL to supplement PID Readings	Drager Tube - Benzene 0.5/c (tube # 81 01841) 20 strokes, approx 20 minutes per test, uses scrubber tube to decrease interference from other VOCs	Benzene colorimetric tubes are subject to cross-sensitivity to a variety of aromatic compounds and will therefore be used only at the discretion of the SSHC or Manager of Corporate Health & Safety
NO	Mercury Vapor	Intrusive Work Activities at the discretion of the SSL	Jerome Mercury Vapor Analyzer	Available from Pine Environmental 800-301-9663 (approx. $71.50 a day)
NO	VOC - benzene (exposure sampling badge)	Intrusive Work Activities at the discretion of the SSL	3M 3520 Organic Vapor Badge for analysis by NIOSH 1500 (benzene)	Supplied by Galson Labs 888-432-5227 ($5.00 when analysis performed by Galson)

5.2 WIND DIRECTION

Wind direction will be monitored daily using visual observations with wind direction and velocity recorded in a field log.

5.3 WORK AREA (EMPLOYEE) MONITORING

The Work Area Monitoring approach will use "roving" (hand-held) equipment to periodically check breathing zone exposures in active work areas. One PID and one dust meter will be used to assess potential contamination hot spots, investigate odors, and monitor effectiveness of dust and vapor controls in the work area. Hand held meters may be used as backups to perimeter CAMP instruments if equipment fails.

Work area monitoring includes one or more of the following depending on site activities:

- **Periodic / Roving Monitoring** – The SSHC or designated alternates will conduct air monitoring using hand-held instruments within each intrusive work area when intrusive work is being conducted.
- **Confined Space Entry** – A combustible gas / oxygen meter will be required for entry into confined spaces, including excavations greater than four feet deep that are classified as a confined space. Action levels are provided in Section 5.3.1, below.
- **Hot Work** – A combustible gas / oxygen meter will be required to monitor areas where flammable vapors may accumulate prior to conducting hot work.

Work Area (Employee) Air Monitoring Action Levels

Contaminant (equipment / method)	Frequency	Action Level	SSL Action/Response
Volatile Organic Vapors (VOCs) **(PID)**	Continuously in work areas during intrusive activities (excavation work).	*5 ppm	Increase to Level C PPE (half or full-face respirator)
	When odors are encountered or changing site conditions affect hazards.		Increase to Level B (supplied air) PPE or implement additional vapor controls outlined in this HASP to keep VOC levels below 50 ppm.
	Prior to and continuous during confined space entry (i.e., excavations >4 feet and tanks).	*50 ppm	Notify the OBG Manager of Corporate Health & Safety and the Project Manager.
	NOTE: a trench or pit with limited access over 4 feet may be considered a confined space if it is sloped steeper than 1.5H:1V and/or does not have access "ramps" or stairs.	*250 ppm	STOP work and use ventilation, covers, vapor suppressants or other controls to reduce VOC levels below 250 ppm. Immediately notify the OBG Manager of Corporate Health & Safety, OBG Project Manager and Honeywell Representative.

Work Area (Employee) Air Monitoring Action Levels			
DUST / PARTICULATE **nuisance dust, PAHs, chromium, concrete dust/silica** **(Dust Meter)**	Periodically in work areas when dusty conditions are observed. NOTE: Visible dust generated by site activities that migrates past the Work Area perimeter must be controlled regardless of dust meter readings in the work area.	**1 mg/m^3	Increase to Level C PPE (half or full-face respirator). Implement additional controls outlined in the Community Health and Safety Plan (CHASP) to keep dust levels below 1 mg/m^3.
		**1.5 mg/m^3	Full-Face Level C PPE or implement additional controls outlined in the CHASP to keep dust levels below 1.5 mg/m^3 Notify the OBG Manager of Corporate Health & Safety and the Project Officer.
		**5.0 mg/m	STOP work and use investigate additional dust controls to reduce dust levels below 5 mg/m^3 (or lower). Immediately notify the OBG Manager of Corporate Health & Safety, OBG Project Officer.
Mercury Vapor	Periodically in work areas during intrusive activities.	0.025 mg/m^3	Increase to Level C (Half-face Respirator) with Mercury Vapor Cartridge.
		*.25 mg/m^3	Increase to Level C (full-face respirator) with Mercury Vapor Cartridges Stop work and investigate controls to reduce mercury levels below .25 mg/m^3 Notify the OBG Manager of Corporate Health & Safety and Project Officer
		*1.25 mg/m^3	Increase to Level B (supplied air respirator)

*** VOCs - Sustained readings for 5 minutes above background. Background readings are taken at upwind locations relative to Work Areas.**
**** DUST/PARTICULATE - 15 minute time-weighted average above upwind background readings.**

5.3.1 Confined Space Entry Monitoring

Respiratory protection and/or mechanical ventilation must be provided where hazardous atmospheres are identified or may develop during work activities. Action levels for oxygen, combustible vapors, hydrogen sulfide and carbon monoxide are outlined below and on the Confined Space Entry Permit.

- Oxygen – 19.5% to 23.5%
- LEL – 10%
- Carbon Monoxide – 35 ppm
- Hydrogen Sulfide – 10 ppm

6. MEDICAL MONITORING

Medical surveillance requirements are required by OSHA for persons who are exposed to lead, perform asbestos abatement, wear respirators, perform hazardous waste work, and other activities. Employees are required to have medical surveillance that complies with OSHA regulations.

6.1 FITNESS FOR RESPIRATOR USE

Persons who may wear respiratory protection must be provided respirators as regulated by 29 CFR 1926.103 and 29 CFR 1910.134. This Standard requires that an individual's ability to wear respiratory protection be medically certified before he / she perform designated duties. Where medical requirements of 29 CFR 1926.65 overlap those of 29 CFR 1910.134, the more stringent of the two will be enforced. *Documentation of respirator suitability must be maintained on-Site for all project personnel who may be required to wear a respirator.*

6.2 MEDICAL SURVEILLANCE

Medical surveillance examinations for persons conducting hazardous waste work, asbestos abatement, and lead work are administered on a pre-employment and periodically thereafter and as required by applicable regulations. Medical exams must be administered by a board-certified (or one who is eligible for board certification) physician in Occupational Medicine. The examining physician is required to make a report to the employer of any medical condition which would place employees at risk when wearing a respirator, wearing other personnel protective equipment, or working with hazardous materials. Subcontractors must maintain medical records in accordance with OSHA regulations. *Documentation of medical clearance to perform regulated work activities (such as hazardous waste operations, asbestos abatement, lead abatement, etc.) must be maintained on Site for all project personnel who may perform regulated work.*

6.3 HEAT STRESS MONITORING

Heat stress monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70°F or above. To monitor heat stress risk, the OBG SSL (or designated alternate) will use one of the following methods:

- Monitoring Heat Stress Index
- Implement heat stress precautions in accordance with the Heat Stress Index of the work area.

Heat Index Chart
Temperature (°F) vs. Relative Humidity

(F)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
115	111	115	120	127	135	143	151												
110	105	108	112	117	123	130	137	143	151										
105	100	102	105	109	113	118	123	129	135	142	149								
100	95	97	99	101	104	107	110	115	120	126	132	136	144						
95	90	91	93	94	96	98	101	104	107	110	114	119	124	128	134	140	147	154	161
90	85	86	87	88	90	91	93	95	96	98	100	102	106	109	113	117	122	127	132
85	80	81	82	83	84	85	86	87	88	89	90	91	93	95	97	99	102	105	108
80	75	76	77	77	78	79	79	80	81	81	82	83	85	86	86	85	86	88	89
75	70	71	72	72	73	73	74	74	75	75	76	76	77	77	78	76	76	77	77

Heat Index	Heat Stress Risk and Preventative Measures
VERY HIGH (EXTREME) 115 or higher	Heatstroke/sunstroke highly likely with continued exposure. • **Moderate and strenuous outdoor activity prohibited**
HIGH 104-115	Sunstroke, heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity. • **Strenuous outdoor activity while wearing Tyvek is prohibited without the use of personal cooling devices.** • **Workers must drink every 15 minutes or more frequently at their discretion** • **Air conditioned break areas must be available.**
MODERATE 91-103	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity. • **Strenuous outdoor activity while wearing Tyvek is prohibited above a HSI of 99 without the use of personal cooling devices and is recommended for lower HSI.** • **SSHC to monitor employees for symptoms of heat stress.** • **Workers must drink every 30 minutes or more frequently at their discretion.** • **Air conditioned break areas must be made available for morning, lunch, and afternoon breaks.**
CONCERN (CAUTION) 75-90	Fatigue possible with prolonged exposure and/or physical activity. • **SSHC to monitor employees for symptoms of heat stress.** • **Workers must drink every 60 minutes or more frequently at their discretion.** • **Shaded break areas must be made available for morning, lunch, and afternoon breaks. Air conditioning is recommended.**

Source: National Weather Service heat index table modified by OSHA (https://www.osha.gov/SLTC/heatillness/heat_index/pdfs/all_in_one.pdf) for use at work sites.

- Monitoring Heart Rate

Heart rate should be measured by the radial pulse for a 30 second period as early as possible in the rest period. If the heart rate exceeds 110 beats per minute, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 110 beats per minute at the next rest period, shorten the following cycle by one-third.

- Monitoring Oral Temperature

Oral temperature should be measured at the end of the work period (before drinking). If oral temperature exceeds 99.6°F, shorten the next work cycle by one-third without changing the rest period. If the oral temperature still exceeds 99.6°F at the beginning of the next rest period, shorten the next work cycle by one third. Do not permit a worker to wear a semi-permeable or impermeable garment when his / her oral temperature exceeds 100.6°F.

- Preventing Heat Stress
  - **Know the Symptoms** - Some symptoms associated with heat stress are: Employees should be aware of these symptoms with themselves and with their co-workers:
    - an elevated heart rate, lack of concentration, difficulty focusing on a task, fatigue
    - irritability and/or sickness
    - cramps, rash, headache
    - loss of desire to drink water
    - fainting
    - skin clammy, moist and pale (severe heat exhaustion)
    - skin extremely dry and red (heat stroke);
  - ***Acclimatize*** - When high heat stress conditions arise, employees should be exposed to the heat for short work periods followed by longer periods of work. Acclimatization usually takes five (5) days and should be provided for all new employees and employees returning from an absence of two (2) weeks or more. Contact Corporate Health and Safety for proper procedures.
  - ***Hydration & Pace of Work*** - Make sure all employees intake plenty of water throughout the work day (sometimes as much as a quart per worker per hour) and let employees know where the drinking water is located. Adjust your work pace and expectations on how much work can be done during periods of high heat stress. Workers cannot do as much during periods of high heat stress compared with similar periods of low heat stress. After acclimatization, workers may be able to resume a more "normal" work pace as long as fluid intake is adequate.
  - ***Work/Rest Periods*** - If possible, heavy work should be scheduled during the cooler parts of the day (i.e., early morning) and rest periods should be taken in cool areas for longer periods.
  - ***Personal Protective Equipment (PPE)*** - Employees using PPE (i.e. Tyvek® suits or other equipment which may retain heat) can be more susceptible to heat stress due to the fact that heat/sweat often cannot escape the suits and/or the equipment. Persons wearing PPE that contributes to heat stress require more hydration, longer rest periods, or a reduced pace of work. Also, more careful monitoring of each person's health status is required by co-workers and management.
- General First Aid for Heat Stress

Mild heat stress: Immediately bring employee to a cool place and have them rest and drink liquids. Provide off-Site medical attention for employees who do not fully recover within one (1) hour.

Severe Heat Stress/Heat Stroke: If an employee faints, experiences coordination problems or appears confused or disoriented, then immediately contact emergency services. If employee is suspected of heat stroke, soak employee in their clothes in cool water and contact emergency services. A person afflicted with heat stroke WILL DIE if not promptly treated.

6.4 COLD STRESS MONITORING

The timing and location of this project may be such that heat / cold stress could pose a threat to the health and safety of Site personnel. Work / rest regimens will be employed as deemed necessary. However, subcontractor Safety Competent Persons may initiate heat/cold stress monitoring at any time as necessary to protect their employees. Special clothing and an appropriate diet and fluid intake will be recommended to all on-Site personnel to further reduce these temperature-related hazards.

Work / rest schedules must be altered to minimize the potential for cold stress. Cold stress is defined as a decrease in core body temperature to 96.8 deg. F and / or cold injury to body extremities. Decreases in core body temperature are associated with reduced mental alertness, reduction in rational decision making, or loss of consciousness in severe cases. Symptoms of cold stress include pain in extremities (i.e. hands and feet) and severe shivering. If workers experience these symptoms, then stop work and implement the following controls.

- Workers must don adequate dry insulating clothing; and
- Adjust the work / rest schedule to increase the amount of rest / rewarming time.
- Toolbox safety meetings discussing symptoms of cold stress, clothing requirements, and work breaks must be held when the wind chill temperature (see Appendix A) drops below 0 deg. F and each day the wind chill temperature is below 25 deg. F.

The wind chill index provided below shows the effective cooling on exposed skin. When the wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same, the faster the wind blows, the greater the heat loss, which results in a colder feeling. Wind chill temperatures that are **25 deg. F** below zero or are extremely dangerous. Workers must protect any exposed skin, especially the face, ears, and fingers.

Wind Chill Chart (Temperature vs Wind Speed)							
Wind Speed-mph							
Calm	**5**	**10**	**15**	**20**	**25**	**30**	**35**
Temperature (Degrees F)	**Wind Chill**						
45	43	34	29	26	23	21	20
40	37	28	23	19	16	13	12
35	32	22	16	12	8	6	4
30	27	16	9	4	1	-2	-4
25	22	10	2	-3	-7	-10	-12
20	16	3	-5	-10	-15	-18	-20
15	11	-3	-11	-17	-22	-25	-27
10	6	-9	-18	-24	-29	-33	-35
5	0	-15	-25	-31	-36	-41	-43
0	-5	-22	-31	-39	-44	-49	-52
-5	-10	-27	-38	-46	-51	-59	-64
-10	-15	-34	-45	-51	-59	-64	-67
-15	-21	-40	-51	-60	-66	-71	-74
-20	-26	-46	-58	-67	-74	-79	-82
-25	-31	-52	-65	-74	-81	-86	-89

If you would like to calculate the wind chill index for combinations of temperature and wind other than those given in the table above, you can use the formula:

WC = 91.4 - (0.474677 - 0.020425 * V + 0.303107 * SQRT(V)) * (91.4 - T)

where: WC = wind chill index; V = wind speed (mph); T = temperature (° F)

7. EMERGENCY RESPONSE PLAN

This emergency response section details actions to be taken in the event of Site emergencies. The SSL is responsible for implementation of emergency response procedures and will ensure that a **First Aid/CPR trained person is on Site always when work activities are in progress.**

7.1 EMERGENCY PHONE NUMBERS AND NOTIFICATIONS

To be posted or provided on Site. Emergencies encountered on this Site will be responded to by a combination of off-Site emergency services and Site personnel.

EMERGENCY NUMBER Fire, Explosion, Emergency Medical, and Spills that may reach surface waters	
Site Address	**Phone Number**
Mathews Ave Parcel A Bike Trail Corridor **301 Belle Isle Rd** **Solvay, NY 13209**	Level 3 – ONSITE CREW RESPONSE LEVEL 2 – ERT RESPONSE 315-715-1800 LEVEL 1 – OFF SITE RESPONSE 911

EMERGENCY NOTIFICATIONS Fire, Explosion, Emergency Medical, OSHA-Recordable Injuries, Spills		
Honeywell		
INSERT CLIENT MANAGER TITLE	Shane Blauvelt	**Phone:** 315-552-9749 **Cell:** 315-559-9740
OBG - All emergencies immediately (and first aid injuries within 24 hrs.)		
Project Manager	Jennifer Reymond	**Cell:** 315-491-3600
Construction Manager/SSL	Ed Prossner	**Cell:** 315-383-8897
Health and Safety Project Manager	Steven Thompson, CHST	**Cell:** 315-560-5018
Manager of Corporate Health & Safety	Erin Visalli, CHST	**Cell:** 315-317-5351
REGULATORY AGENCIES		
OSHA – Syracuse, NY Office	OBG to notify OSHA… ▪ Within 8 hrs for any fatality ▪ Within 24 hrs for any in-patient hospitalization, amputation, or loss of an eye	**Phone:** 315-451-0808
SPILL NOTIFICATION – NYSDEC Spill Response	All petroleum spills must be reported to the NYS Spill Hotline within 2 hours of discovery, except spills which meet **all** of the following criteria:	**Phone:** 800-457-7362

EMERGENCY NOTIFICATIONS		
	1. The quantity is known to be less than 5 gallons; and 2. The spill is contained and under the control of the spiller; and 3. The spill has not and will not reach the State's water or any land; and 4. The spill is cleaned up within 2 hours of discovery. A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete. A spill in a dirt or gravel parking lot is considered to have impacted land and is reportable.	

CONTACT NUMBERS FOR OFFSITE MEDICAL RESOURCES		
Local Hospital	Upstate Medical University 750 East Adams Street Syracuse, NY 13210-2375	**Phone:** 315-464-5611
WorkCare Incident Intervention	Call for all minor (non-emergency) injuries	**Phone:** 888-449-7787
OCCUPATIONAL CLINIC	Industrial Medical Associates 961 Canal St, Syracuse	**Phone:** 315-478-1977

7.2 EMERGENCY ROUTE

Refer to attached **Figure 1** for Hospital Route Map.

7.3 EMERGENCY INVENTORY

In addition to those items specified elsewhere, OBG will maintain the following equipment:

- First aid / Bloodborne pathogens kit – The minimum recommended size is a 25-person first aid kit.
- Fire extinguishers – located within 25 feet of hot work
- Spill Control Kit(s) – Provide all applicable spill control supplies to contain spills.

7.4 GENERAL EMERGENCY RESPONSE PLAN

7.4.1 Evacuation Signal

In addition to the Site-specific alarms, verbal/radio communications directing project personnel to evacuate or a building fire alarm will also be used. Do NOT leave Site vehicles or equipment on access roads and emergency exits such that emergency response vehicles or personnel may be obstructed. The project notification to evacuate to the muster point is *one long blast of the air horn.*

7.4.2 Muster Point

The muster points in event of an emergency that requires evacuation of the work area are the primary muster point at the Main entrance at the intersection of Belle Isle Rd and Mathews Ave. The muster point will be reviewed with all personnel during their initial Project Health and Safety Orientation. The SSL or designee will account for all project personnel at the Muster Point following an evacuation.

7.5 CALL FOR EMERGENCY SUPPORT

In the event of a Site emergency, the OBG SSL or designee will call 911. When necessary, the SSL will coordinate the arrival of on-site emergency personnel with the site owner's security, safety, and/or emergency response employees.

The SSL or designee will briefly explain the nature of the emergency and Site conditions as follows:

- Indicate his/her name
- Location of emergency (Site address)
- Description of emergency conditions that may require special rescue equipment, such as confined spaces; excavations, and elevated work platforms
- Potential chemical hazards and recommended PPE
- Emergency decontamination procedures
- Incident Command System (ICS)

7.5.1 Incident Command System (ICS)

The OBG SSL or designated alternate shall function as the initial incident Commander when the emergency plan is initiated by calling 911. The SSL will decide whether site personnel will evacuate to the Muster Point or divert site resources (personnel and equipment) to provide initial response actions in accordance with this HASP until emergency responders arrive on site. When emergency responders arrive, the SSL will identify himself or herself as "in charge" and transfer authority to the arriving Incident Commander.

7.6 FIRE AND EXPLOSION RESPONSE PLAN

> ***NOTE – Site personnel will respond to incipient stage fires using 20 lb Type ABC dry chemical fire extinguishers. Heavy water spray is best for larger fires which will be applied by the fire department responding to our "911" call.***

All fires or explosions must be reported to the OBG Health and Safety Project Manager and the OBG Project Manager. Refer to contact information in the "**Emergency Phone Numbers & Notifications**" section of this HASP.

A fire that cannot be readily extinguished with a fire extinguisher will be considered major and will require evacuation of the work area personnel to **Muster Point** areas per this HASP. However, the SSL or designee may only approach fires/explosions to the extent that fire safety considerations allow. If personal injuries result from any fire or explosion, the procedures outlined in the Personal Injury Response Plan will also be followed.

7.7 PERSONAL INJURY RESPONSE PLAN

Treatment for minor injuries will be provided on site using available first aid supplies and personnel trained in first aid. For **minor injuries** that are not life-threatening but require further medical attention, all OBG subcontractors must agree to have their employees treated by occupational physicians at occupational clinics whenever possible. Subcontractors are expected to accommodate this objective whenever feasible.

WorkCare Incident Intervention – WorkCare is a service available to OBG employees for non-emergency injuries as outlined below. Subcontractors are not able to utilize OBG's subscription to this service but are encouraged to setup a WorkCare account for their own employees.

- **All OBG employees will call WorkCare for minor injuries** that include any strains, cuts for which an employee is not confident that a band aid is sufficient, tick/insect bites for which the employee is concerned about infection or Lyme, any other work-related injury for which the employee would like to talk to a WorkCare medical professional regarding proper treatment or follow-up.
- WorkCare posters must be posted at each job site with a field office or trailer.
- Minor (not life threatening) injuries that require medical attention will be treated at the "Non-Emergency Med Treatment" clinic identified above **unless an alternate clinic is recommended by WorkCare**. If no clinic is available or identified, then default to the "Emergency Medical Treatment" facility.

The preferred occupational clinic for non-emergency medical treatment during normal business hours is **Industrial Medical Associates (IMA) 961 Canal Street Syracuse.** Emergency rooms may be used to treat minor injuries that require further medical treatment after normal business hours.

Emergency or life-threatening injuries, including puncture wounds to the head, chest, and abdomen, serious head and spinal cord injuries, and loss of consciousness must be treated at the hospital emergency room.

Route maps to the hospital (***Figure 1***) must be posted in the OBG on-site office trailer and all subcontractor office trailers (if any).

7.8 SPILL RESPONSE

Site personnel will be properly trained and equipped to handle small spills. Spill sorbents will be staged onsite in readily visible locations for emergencies. The minimum size spill kit should have the capacity to cleanup and containerize spills of **55 gallons**. Potential spills include leaking gasoline, diesel, antifreeze, hydraulic fluid, or oil from heavy equipment. If a spill of any type should occur, the SSHC or designee should report the spill immediately to a site owner representative and implement procedures in this Spill Response Plan. Site personnel will generally respond to spills as follows:

- **Stop the leak immediately** if it can be done without directly contacting the leaking material. Generally, this will consist of turning heavy equipment off to remove pressure on various fluid systems.
- Remove or stop all **ignition sources** (hot work, generators, etc.) that are within 25' of any part of the spill.
- On-site personnel should immediately secure the area to **prevent unauthorized entry** into the spill area.
- Although not likely given the anticipated types of spills, the SSHC or designee should initiate the *General Emergency Response Plan* in this HASP if a spill may cause an explosion, death, or serious injury.
- Site personnel may only respond to **incipient stage fires** regardless if such fires are associated with a spill.
- **Confined Space Issue** – If the leak occurs in an excavation where natural ventilation is limited, air monitoring will be required prior to entering the spill area. This is primarily an issue for fuel (gasoline, diesel, and kerosene) spills. The SSHC will determine if a fuel spill requires air monitoring.
- **PPE for Spills ≤55 gallons** to open areas generally requires Modified Level D PPE (poly-coat Tyvek, nitrile gloves, and boot covers or boot decontamination). Over-boots or boot covers may also be used if persons cleaning the spill would have to walk on spilled materials. Latex gloves are not acceptable and will degrade with exposure to petroleum products. Spills into confined spaces will require following PPE and other safety procedures specified on Confined Space Entry Permit (***Attachment 8***).

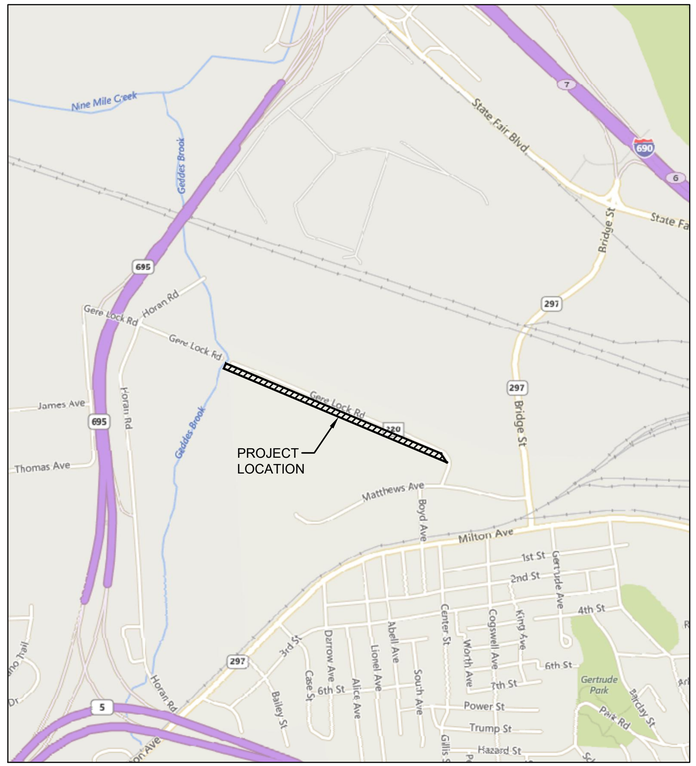
7.9 EMERGENCY REPORTING

Any emergency or accident will be reported to OBG Manager of Corporate H&S and the Site/Project Manager. The OBG Corporate Manager of Corporate H&S will review all emergency or accident reports and may further investigate any such report if necessary. The OBG Manager of Corporate H&S will see that the area officer of OSHA is notified within 8 hours should the emergency cause three (3) or more personnel to be injured and transported to the hospital, or if there is a fatality. If the Corporate Safety Manager cannot be located, then the SSHC will make such notification.

An *Incident Investigation Form* (*Attachment 11*) must be completed for all injuries, illnesses, spills, fire, explosion, or property damage greater than $1,000. The absence of an injury does not preclude the need to complete an Accident Investigation Form as such incidents will be classified as "near miss" or "other." The form must be completed or reviewed by the SSHC or designee. It will include, but is not limited to, the nature of the problem, time, location, and corrective actions taken to prevent recurrence. This **report must be completed and sent to the OBG Corporate Safety Manager and site owner's representative within 24 hours.** If all the "facts" cannot be determined in that period of time, then a draft report will be submitted and a final report will be submitted ***immediately*** upon completing the investigation.

Design Drawings

DESIGN DRAWINGS



SITE LOCATION MAP
NOT TO SCALE

NORTH

MATHEWS AVENUE
PARCEL A
BIKE TRAIL CORRIDOR

INTERIM REMEDIAL MEASURE

HONEYWELL INTERNATIONAL INC.
GEDDES, NEW YORK

AUGUST 2019

O'BRIEN & GERE ENGINEERS, INC.

INDEX TO DRAWINGS

1163.71978

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GENERAL NOTES:

1. VERIFY ALL DIMENSIONS PERTINENT TO THE WORK OF THIS CONTRACT IN THE FIELD. IF DISCREPANCIES ARE FOUND BETWEEN THE PLANS AND PHYSICAL CONDITIONS OF THE SITE, NOTIFY THE ENGINEER AND HONEYWELL.
2. THESE DRAWINGS SHOW EXISTING CONTOURS AT A 1-FT INTERVAL.
3. PROPOSED WORK IS SHOWN IN BOLD TEXT AND LINES.

TOPOGRAPHIC SURVEY AND MAPPING:

1. EXISTING TOPOGRAPHIC FEATURES, BOUNDARY INFORMATION AND EXISTING UTILITY LOCATIONS TAKEN FROM A TOPOGRAPHIC MAP PROVIDED BY HONEYWELL, INC.; ELECTRONIC DRAWING ENTITLED MATHEWS AVE TOPO (LOCUS).DWG.
2. ADDITIONAL TOPOGRAPHIC SURVEY INFORMATION FOR PORTIONS OF THE OLD ERIE CANAL AREA, AND UTILITY INFORMATION ALONG GERELOCK ROAD, MATHEWS AVENUE AND BOYD AVENUE, INCLUDING HIGH VOLTAGE OVERHEAD ELECTRIC IS FROM SURVEY PREPARED BY C.T. MALE & ASSOCIATES, INC.; ENTITLED "UTILITY & CANAL SURVEY, PORTIONS OF BELLE ISLE ROAD, GERELOCK ROAD, MATHEWS AVE." DATED DEC. 11, 2006.
3. PROPERTY LINE, RIGHT-OF-WAY AND UTILITY EASEMENTS OBTAINED FROM PROPERTY SURVEY PREPARED BY HANNIG; ENTITLED "PT OF FARM LOTS 38, 39, 43, 44 & 46 - VILLAGE OF SOLVAY, PT OF FARM LOT 7 & 69 - TOWN OF CAMILLUS, ONONDAGA CO., N.Y."; ELEC. FILE NO. PROJECTS/J851706/BASE PLAN/DWG/OVERALL MATHEWS-BELLE ISLE 3-17-06; DATED MARCH 15, 2006.
4. THE SURVEY IS IN REFERENCE TO THE FOLLOWING: HORIZONTAL DATUM IS: NAD 83, NYS PLANE, CENTRAL ZONE, US FOOT.
5. ELEVATIONS ARE BASED ON U.S.G.S. DATUM.
6. BIKE PATH DESIGN PROVIDED BY PARSONS, REFER TO ERIE CANALWAY TRAIL BID SET DATED 3/29/19.

GENERAL UTILITY:

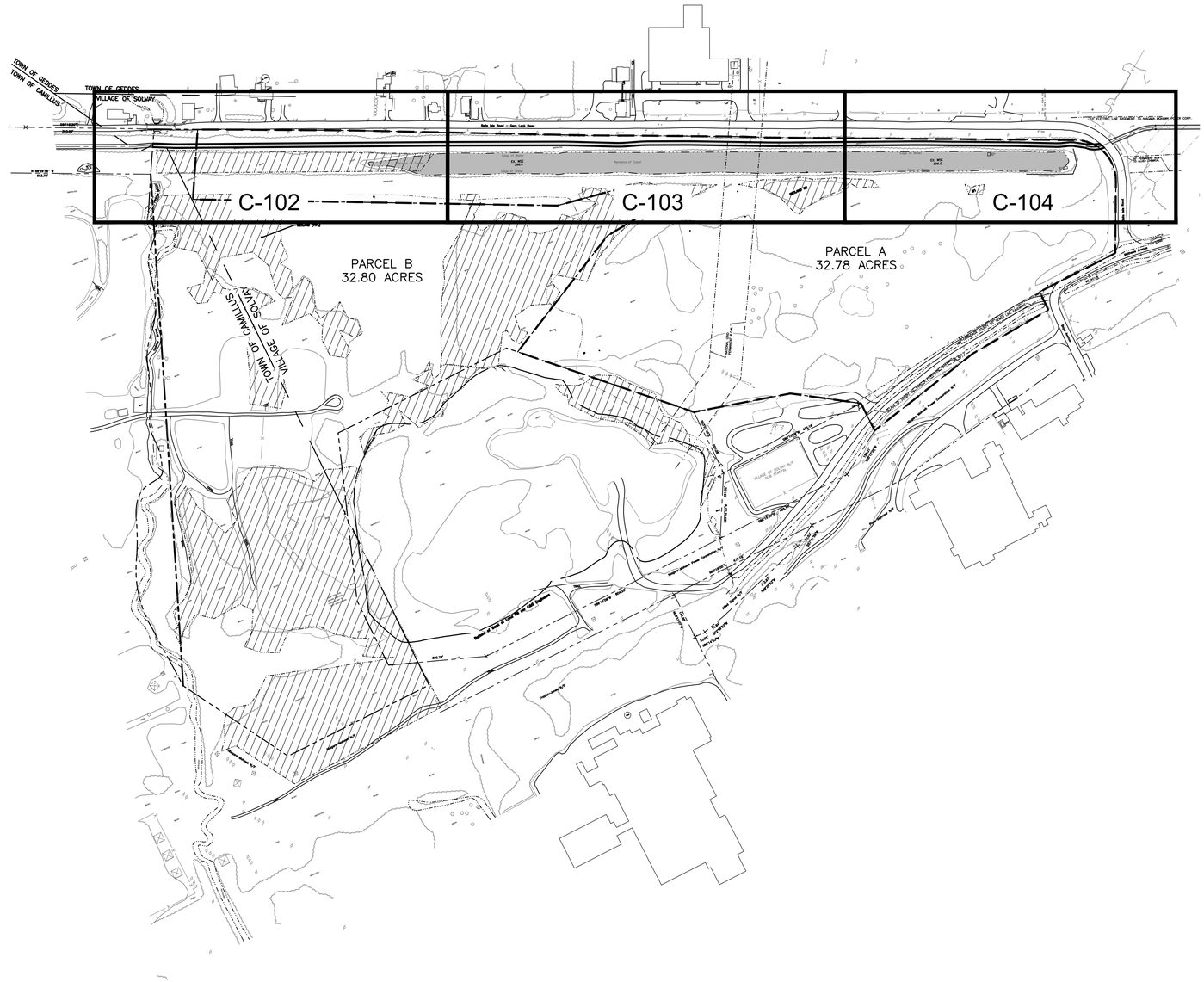
1. THE APPROXIMATE LOCATION OF KNOWN EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. VERIFY THE TRUE LOCATION PRIOR TO COMMENCING WORK.
2. COORDINATE WORK AFFECTING EXISTING UTILITIES WITH THE RESPECTIVE UTILITY COMPANY OWNER. DETAILS OF CONSTRUCTION AND/OR RELOCATION SHALL BE APPROVED BY THE UTILITY OWNERS AND OTHER APPROVING AGENCIES, IF REQUIRED.
3. STORMWATER CULVERT SHALL BE DR-17 IPS HDPE MATERIAL.

VEGETATION APPLICATION:

1. SEED SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 31 22 19.

EROSION & SEDIMENT CONTROL:

1. STABILIZED CONSTRUCTION ACCESS SHALL BE LOCATED AS REQUIRED PER CONSTRUCTION ACTIVITIES, SEE DETAIL 'E' SHEET C-501.
2. DRAINAGE FACILITIES TO REMAIN SHALL BE MAINTAINED FREE OF DEBRIS AND FOREIGN MATTER AND OPERATIONAL THROUGHOUT THE DURATION OF THE PROJECT.
3. UPON COMPLETION OF THE CONTRACT WORK, EXISTING DRAINAGE SYSTEMS TO REMAIN WITHIN THE LIMITS OF THIS CONTRACT WILL BE CLEANED FOLLOWING COMPLETION OF WORK TO ATTAIN THEIR FULL FLOW CAPABILITIES.
4. ALL WORK SHALL BE PERFORMED IN SUBSTANTIVE COMPLIANCE WITH NYSDEC SPDES GP-0-15-002 AND PURSUANT TO THE PROJECT SWPPP.



PLAN

SCALE: 1"=200'

LEGEND

410	EXISTING CONTOUR
410	PROPOSED CONTOUR
	EXISTING EASEMENT
G	EXISTING GAS LINE
SMH	EXISTING SANITARY MANHOLE
Ⓢ	PROPOSED SANITARY MANHOLE
	EXISTING ROADWAY
S	EXISTING SANITARY SEWER LINE
SAN	PROPOSED SANITARY SEWER LINE
405.4	EXISTING SPOT ELEVATION
ST	EXISTING STORM LINE
	PROPOSED STORM LINE
T	EXISTING TELEPHONE LINE
	EXISTING WATER EDGE
W	EXISTING WATERLINE
OHE	EXISTING OVERHEAD ELECTRIC
OHE	PROPOSED OVERHEAD ELECTRIC
	EXISTING WETLANDS
	EXISTING UTILITY POLE
	PROPERTY LINE
SF	SILT FENCE
	PROPOSED EOP
WV	EXISTING WATER VALVE
	STORM LINE & END SECTION
	PROPOSED SWALE
	PROPOSED WATER EDGE
	PARCEL A BOUNDARY

PRELIMINARY
NOT FOR
CONSTRUCTION
DATE: 08/06/2019

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE. DRAWING IS NOT SCALABLE IF NO SCALE BAR IS PRESENT.

IN CHARGE OF J. REYMOND
DESIGNED BY S. JOHNSON
CHECKED BY T. STANIEC
DRAWN BY S. JOHNSON

NO.	DATE	REVISION	INT.

O'BRIEN & GERE ENGINEERS, INC

HONEYWELL INTERNATIONAL INC.
MATTHEWS AVENUE PARCEL A
BIKE TRAIL CORRIDOR IRM
SYRACUSE, NEW YORK

CIVIL

GENERAL NOTES, LEGEND &
OVERALL SITE PLAN

FILE NO. 1163.71978
DATE AUGUST 2019

C-101

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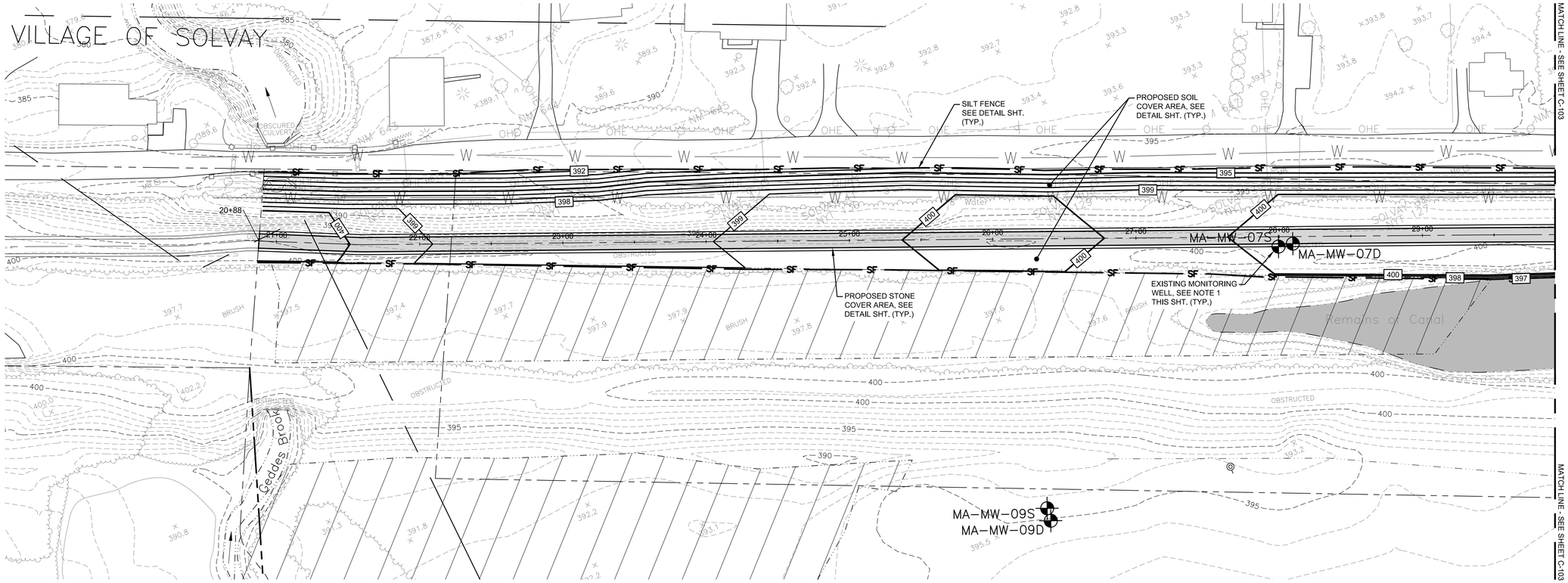


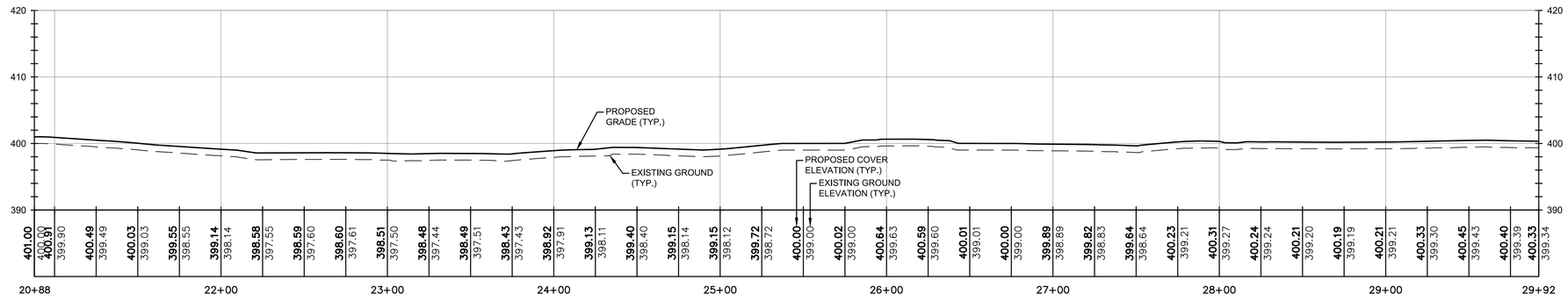
PLAN

SCALE: 1"=40'

NORTH

NOTES:

1. MONITORING WELL TO BE DECOMMISSIONED IN ACCORDANCE WITH NYSDEC POLICY CP-43: GROUNDWATER MONITORING WELL DECOMISSIONING POLICY.
2. STATIONING SHOWN PER ERIE CANALWAY TRAIL BID SET, 3/29/19.



BIKE TRAIL CENTERLINE PROFILE

SCALE: HORIZ. 1"=40'
VERT. 1"=10'

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE. DRAWING IS NOT SCALABLE IF NO SCALE BAR IS PRESENT.

PRELIMINARY NOT FOR CONSTRUCTION
DATE: 08/06/2019

IN CHARGE OF	J. REYMOND		
DESIGNED BY	S. JOHNSON		
CHECKED BY	T. STANIEC		
DRAWN BY	S. JOHNSON		

NO.	DATE	REVISION	INT.

O'BRIEN & GERE ENGINEERS, INC

HONEYWELL INTERNATIONAL INC.
MATTHEWS AVENUE PARCEL A
BIKE TRAIL CORRIDOR IRM
SYRACUSE, NEW YORK

CIVIL

GRADING PLAN & PROFILE

FILE NO. 1163.71978

DATE AUGUST 2019

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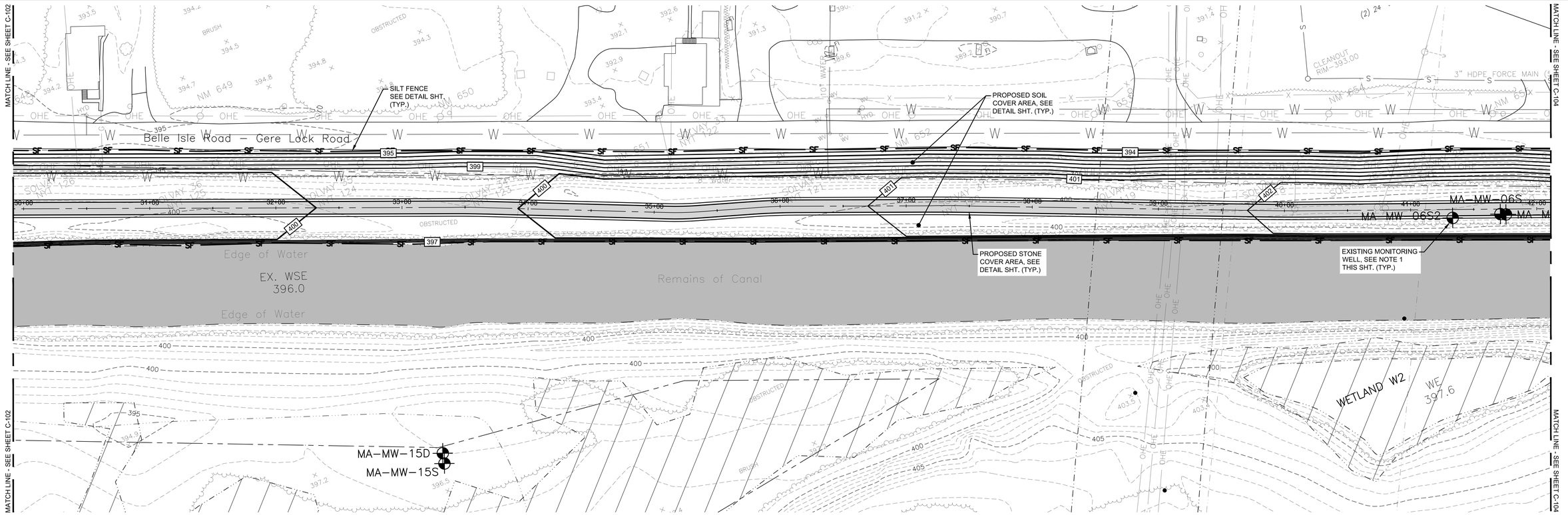


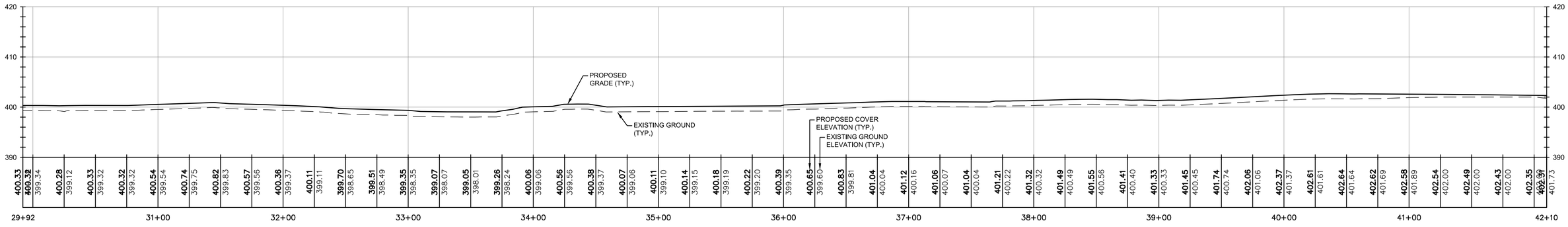
PLAN

SCALE: 1"=40'

NORTH

NOTE:

1. EXISTING MONITORING WELLS (7) TO BE DECOMMISSIONED IN ACCORDANCE WITH NYSDEC POLICY CP-43: GROUNDWATER MONITORING WELL DECOMMISSIONING POLICY.
2. STATIONING SHOWN PER ERIE CANALWAY TRAIL BID SET, 3/29/19.



BIKE TRAIL CENTERLINE PROFILE

SCALE: HORIZ. 1"=40'
VERT. 1"=10'

PRELIMINARY
NOT FOR
CONSTRUCTION
DATE: 08/06/2019

IN CHARGE OF J. REYMOND
DESIGNED BY S. JOHNSON
CHECKED BY T. STANIEC
DRAWN BY S. JOHNSON

NO.	DATE	REVISION	INT.

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HONEYWELL INTERNATIONAL INC.
MATTHEWS AVENUE PARCEL A
BIKE TRAIL CORRIDOR IRM
SYRACUSE, NEW YORK

CIVIL

GRADING PLAN & PROFILE

FILE NO. 1163.71978

DATE AUGUST 2019

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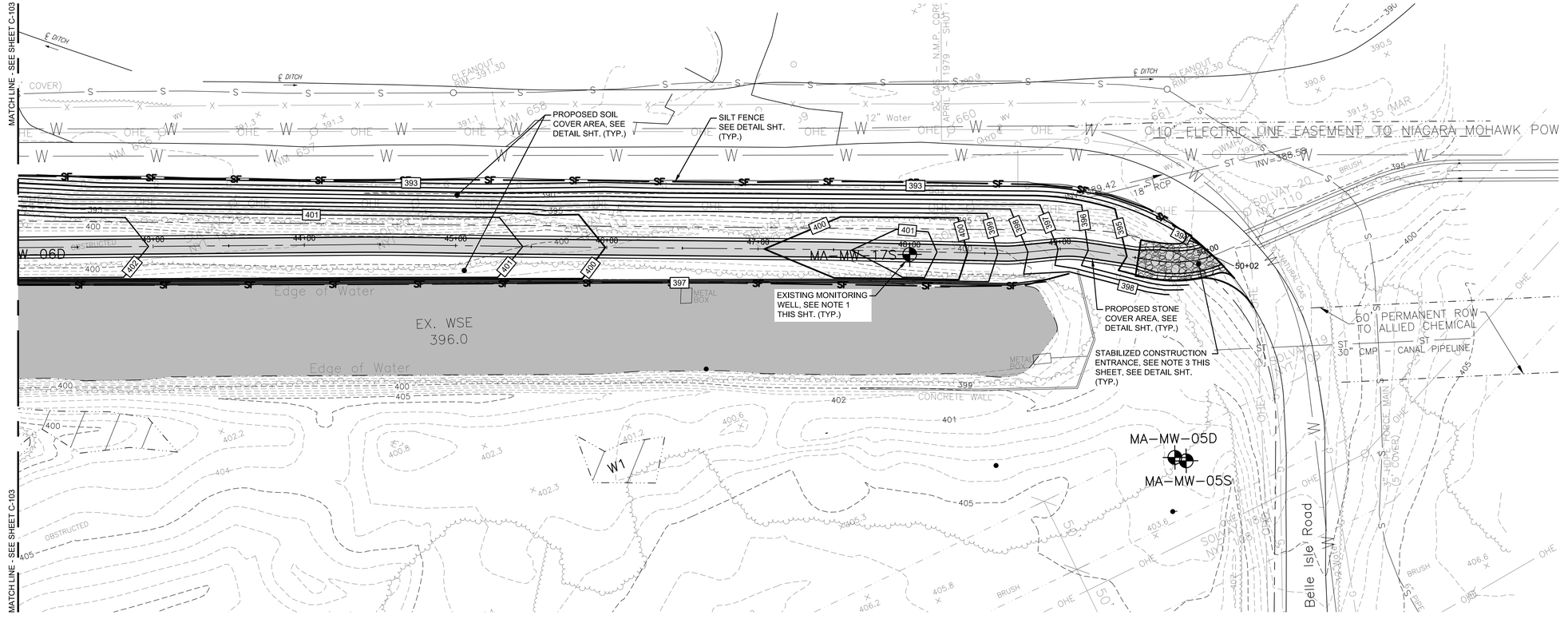
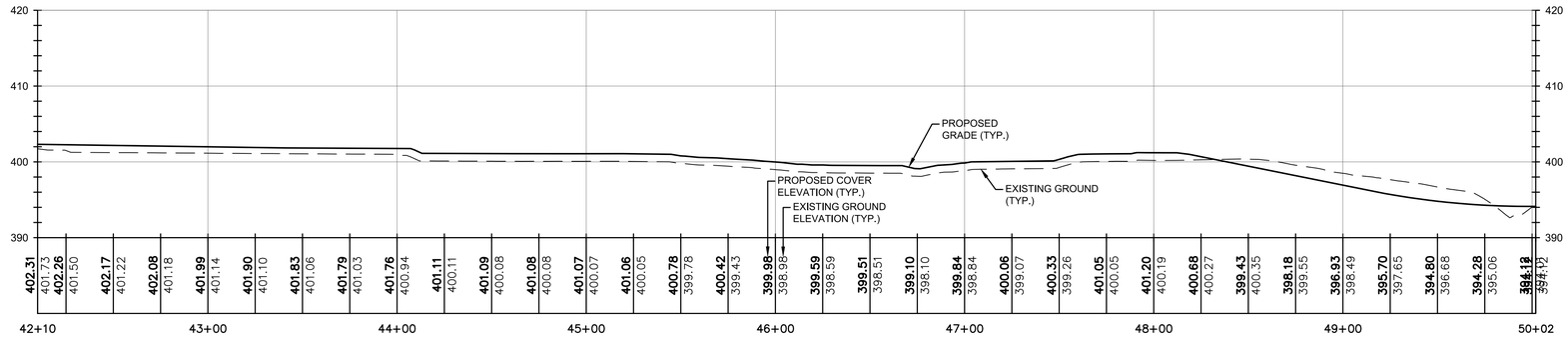


PLAN

SCALE: 1"=40'

NOTE:

1. EXISTING MONITORING WELLS (7) TO BE DECOMMISSIONED IN ACCORDANCE WITH NYSDEC POLICY CP-43: GROUNDWATER MONITORING WELL DECOMMISSIONING POLICY.
2. STATIONING SHOWN PER ERIE CANALWAY TRAIL BID SET, 3/29/19.
3. ADDITIONAL STABILIZED CONSTRUCTION ENTRANCE MAY BE CONSTRUCTED AS NEEDED, CONTRACTOR TO FIELD LOCATE WITH ENGINEER APPROVAL.



BIKE TRAIL CENTERLINE PROFILE

SCALE: HORIZ. 1"=40'
VERT. 1"=10'

PRELIMINARY NOT FOR CONSTRUCTION
DATE: 08/06/2019

IN CHARGE OF J. REYMOND
DESIGNED BY S. JOHNSON
CHECKED BY T. STANIEC
DRAWN BY S. JOHNSON

NO.	DATE	REVISION	INT.

O'BRIEN & GERE ENGINEERS, INC

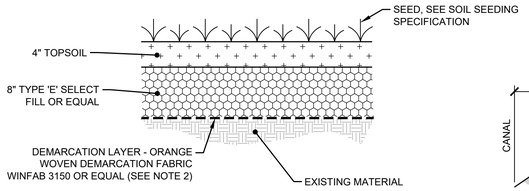
HONEYWELL INTERNATIONAL INC.
MATTHEWS AVENUE PARCEL A
BIKE TRAIL CORRIDOR IRM
SYRACUSE, NEW YORK

CIVIL

GRADING PLAN & PROFILE

FILE NO. 1163.71978
DATE AUGUST 2019

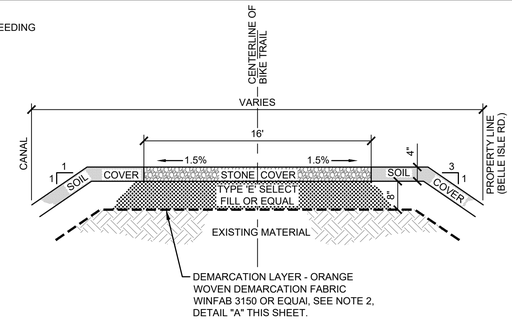
C-104



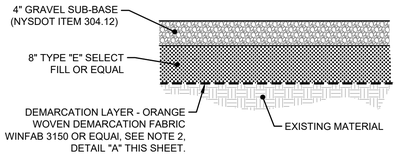
NOTE:

1. AREAS RECEIVING SOIL COVER TO BE SEEDED USING SEED MIX FROM TABLE 1 IN TOP SOIL AND SEEDING SPECIFICATION 31 22 19, UNLESS WITHIN CHANNEL.
2. INSTALL DEMARCATION LAYER PER MANUFACTURER RECOMMENDATIONS OR AS APPROVED BY ENGINEER.

A SOIL COVER DETAIL
NOT TO SCALE



C TYPICAL COVER CROSS SECTION DETAIL
NOT TO SCALE



B STONE COVER DETAIL
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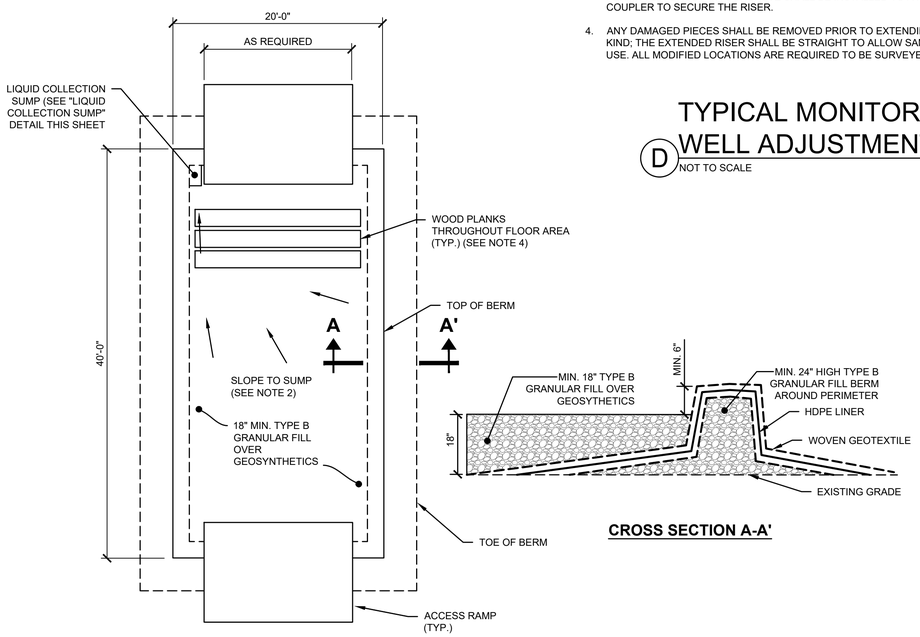


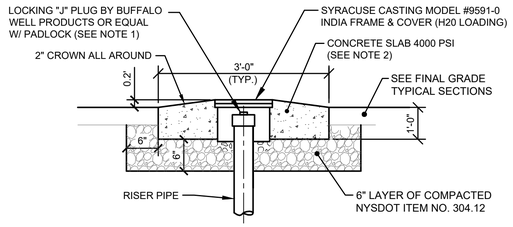
PLAN VIEW

CROSS SECTION A-A'

NOTES:

1. THE SUB-GRADE SURFACE SHALL BE UNIFORM AND FREE OF DELETERIOUS MATERIALS (E.G., SHARP STONES, WOODY DEBRIS, ETC.) THAT COULD DAMAGE THE HDPE LINER.
2. THE DECONTAMINATION PAD (INCLUDING HDPE LINER) SHALL BE SLOPED TOWARD A COLLECTION SUMP TO FACILITATE THE REMOVAL OF LIQUIDS. LIQUIDS SHALL BE DISPOSED OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
3. COMPACTION OF TYPE "E" SELECT FILL MATERIAL SHALL BE SUFFICIENT DENSITY TO PROVIDE A FIRM AND UNIFORM SURFACE. PLACEMENT AND COMPACTION OF FILL MATERIAL ABOVE GEOSYNTHETICS SHALL BE PERFORMED IN A MANNER AND USING APPROPRIATE EQUIPMENT THAT AVOIDS DAMAGING THE GEOSYNTHETICS.
4. WOOD PLANKS SHALL BE PLACED ABOVE THE TYPE "C" SELECT FILL LAYER THROUGHOUT THE WORKING SURFACE OF THE DECONTAMINATION PAD TO PROVIDE A STABLE SURFACE FOR VEHICLES AND EQUIPMENT TO BE DECONTAMINATED. WOOD PLANKS DAMAGED DURING USE SHALL BE REPLACED TO MAINTAIN A STABLE WORKING SURFACE.
5. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, THE DECONTAMINATION PAD (INCLUDING GEOSYNTHETICS AND FILL MATERIALS) SHALL BE DISPOSED OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

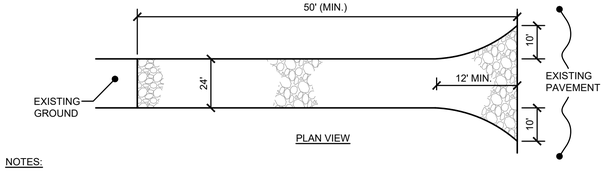
F DECONTAMINATION PAD PLAN
NOT TO SCALE



NOTES:

1. PROVIDE PADLOCK, MASTER LOCK CO. MODEL 1KA (KEY 2537). ALL LOCKS TO BE KEYED THE SAME. PROVIDE 2 EXTRA LOCK SETS TOTAL.
2. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI AND A MAXIMUM WATER-CEMENT RATIO OF 0.45. FIBER REINFORCEMENT SHALL BE FIBERMESH 300, APPLIED AT A RATE OF 1.5 LBS PER CUBIC YARD OF CONCRETE. FIBER REINFORCEMENT SHALL BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. PVC COUPLERS OR FERNCO COUPLERS SHALL BE USED TO EXTEND RISERS, GLUE IS NOT PERMITTED. GROUT OR CONCRETE SHALL BE INSTALLED TO A MINIMUM OF 6-INCHES ABOVE THE COUPLER TO SECURE THE RISER.
4. ANY DAMAGED PIECES SHALL BE REMOVED PRIOR TO EXTENDING THE RISER AND REPLACED IN KIND; THE EXTENDED RISER SHALL BE STRAIGHT TO ALLOW SAMPLE MONITORING EQUIPMENT USE. ALL MODIFIED LOCATIONS ARE REQUIRED TO BE SURVEYED TO AN ACCURACY OF 0.01 FT.

D TYPICAL MONITORING WELL ADJUSTMENT DETAIL
NOT TO SCALE

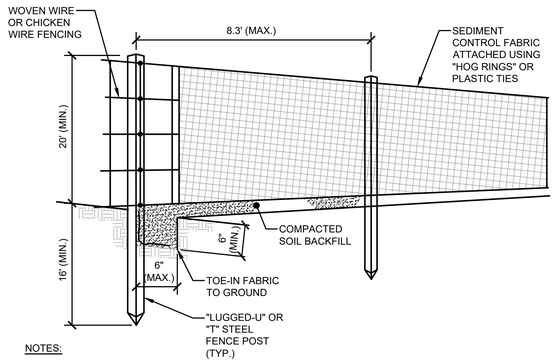


PLAN VIEW

NOTES:

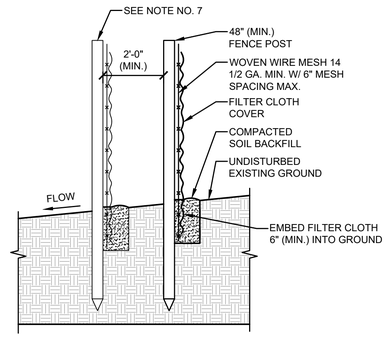
1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET
3. THICKNESS - NOT LESS THAN 6".
4. WIDTH 24' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE EGRESS OCCURS.
5. FILTER FABRIC (MIRAFI 140N OR EQUAL) - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARDS CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS NOT POSSIBLE, A MOUNTABLE BERM 3' WIDE (MIN.) WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC OP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO ADJACENT SEDIMENT BASINS.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT STORM WATER POLLUTION PREVENTION PLAN.
10. CONTRACTOR SHALL FIELD LOCATE AS REQUIRED WITH APPROVAL BY THE OWNER'S REPRESENTATIVE.

E STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE



NOTES:

1. SILT FENCE SHALL BE PLACED AS INDICATED ON THE EROSION CONTROL PLANS.
2. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
4. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER- LAPPED BY SIX INCHES AND FOLDED.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
6. FENCE TO BE ALIGNED ALONG CONTOUR AS CLOSELY AS POSSIBLE.
7. FENCE SHALL BE DOUBLED AT THE TOE OF ALL SLOPES GREATER THAN 15 PERCENT, AND ADJACENT TO WATER BODIES, WETLANDS AND ALL ENVIRONMENTAL SENSITIVE AREAS.



SECTION DETAIL

POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD

FENCE: WOVEN WIRE 14.5 GAUGE 6" MAX. MESH OPENING

FILTER CLOTH: MINIMUM TENSILE STRENGTH OF 120LBS. (ASTM D-16826)

PREFABRICATED UNIT: MIRAFI ENVIROFENCE, OR APPROVED EQUAL

G SILT FENCE DETAIL
NOT TO SCALE

PRELIMINARY NOT FOR CONSTRUCTION
DATE: 08/06/2019

IN CHARGE OF J. REYMOND
DESIGNED BY S. JOHNSON
CHECKED BY T. STANIEC
DRAWN BY S. JOHNSON

NO.	DATE	REVISION	INT.

O'BRIEN & GERE ENGINEERS, INC

HONEYWELL INTERNATIONAL INC.
MATTHEWS AVENUE PARCEL A
BIKE TRAIL CORRIDOR IRM
SYRACUSE, NEW YORK

CIVIL

MISCELLANEOUS DETAILS

FILE NO. 1163.71978
DATE AUGUST 2019

C-501

Specifications

SECTION 31 01 01
EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes excavation and backfilling including loosening, removing, refilling, transporting, storage and disposal of all materials classified as “earth” necessary to be removed for the construction and completion of all work under the Contract, and as shown on the Design Drawings, specified or directed.

1.2 REFERENCES

A. Comply with the latest revision of the following codes, standards and specifications, except where more stringent requirements have been specified herein:

1. American Society for Testing and Materials (ASTM)

a. D1556 Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

b. D1557 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3) (2,700 kN-m/m^3)

c. D6398 Test Methods for Density of Soil and Soil-aggregate in Place by Nuclear Methods (Shallow Depth)

1.3 DEFINITIONS

A. Earth

1. All materials such as sand, gravel, clay, loam, ashes, cinders, pavements, muck, roots or pieces of timber, soft or disintegrated rock, not requiring blasting, barring, or wedging from their original beds, and specifically excluding all ledge or bedrock and individual boulders or masonry larger than one-half cubic yard in volume.

1.4 COORDINATION REQUIREMENTS

A. Coordinate layout and installation of all Contract work with earthwork activities and space requirements.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

3.1 UNAUTHORIZED EXCAVATION

A. Whenever excavations are carried beyond or below the lines and grades shown on the Contract Drawings, or as given or directed by the Engineer, all such excavated space shall be refilled with select fill, controlled low strength material, concrete or other materials as the Engineer may direct.

3.2 BACKFILLING

A. General

1. All excavations shall be backfilled to the original surface of the ground or to such other grades as may be shown, specified or directed.

2. Backfilling shall be done with suitable excavated materials that can be satisfactorily compacted during refilling of the excavation. In the event the excavated materials are not suitable, Select Fill as specified on Contract Drawings shall be used for backfilling.

B. Unsuitable Materials

1. Stones and pieces of rock greater than 3 inches in any single dimension shall not be used in any portion of the backfill.

2. Pieces of pavement, frozen earth, or other miscellaneous debris shall not be allowed in any part of the backfill.

C. Compaction and Density Control

1. Compaction and density control not applicable for top soil application. Refer to Top Soil and Seeding Specification for application direction.

2. If compaction is accomplished with a vibratory drum roller, the compaction shall be performed using a minimum 12 ton vibratory drum compactor. This type of compactor is defined as a machine which primarily develops its compactive effort from the vibrations create and is classified for use according to the developed compactive force rating per linear inch of drum width (PLI). The minimum effective compactive force, PLI, used shall be 740 PLI and the minimum effort shall be 6 passes of 4.5 feet per second. Each lift shall not exceed a loose lift thickness of 6-inches.

3. If a sheepsfoot roller is used the minimum effort will be 6 passes at a maximum of 15 feet per second, and compaction shall continue until the sheepsfoot roller can "walk out" of the compacted material.

4. Other types of compactors may be employed, subject to acceptance by the Engineer. Acceptance will be based upon the results of on-site demonstrations.

5. Where required, to assure adequate compaction, in-place density test shall be made by an approved testing laboratory.

   a. The moisture-density relationship of the backfill material shall be determined by ASTM D698, Method D.

      1) Compaction curves for the full range of materials used shall be developed.

   b. In-place density shall be determined by the methods of ASTM D1556 or ASTM D2922 and shall be expressed as a percentage of maximum dry density.

6. In areas outside the limits of the Erie Canalway Bike Trail, the Engineer shall witness adequate compaction has been achieved of a given area on a daily basis by using a fully loaded 10 wheeled dump truck as the proof rolling test. If the referenced dump truck leaves a rut that is greater than ½ inch deep or the backfill material develops a wave in front of the test truck tires then the area must be continued to be compacted.

7. Where required, to obtain the optimum moisture content add sufficient water during compaction to assure the density of the backfill. If, due to rain or other causes, the material exceeds the optimum moisture content, it shall be allowed to dry, assisted if necessary, before resuming compaction or filling efforts.

1.2 OTHER REQUIREMENTS

A. Unfinished Work

1. When, for any reason, the work is to be left unfinished, all roadways, sidewalks and work areas shall be left unobstructed with their surfaces in a safe and satisfactory condition.

B. Hauling Material over Public Roads and Streets

1. Site material shall not be hauled over public streets or pavements.
2. When it is necessary to haul imported material over public streets or pavements, the Contractor shall provide suitable, tight vehicles so as to prevent deposits on the streets or pavements. In all cases where any materials are dropped from the vehicles, the Contractor shall clean up the same as often as required to keep the crosswalks, streets and pavements clean and free from dirt, mud, stone and other hauled material.

A. Dust Control

1. Calcium chloride and petroleum products shall <u>not</u> be used for dust control.

END OF SECTION

SECTION 31 05 14
SELECT FILL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes select fill materials used as either embedment or special backfill, as specified, as directed by the Owner's Representative, or as shown on the Design Drawings.

1.2 REFERENCES

A. Materials and installation shall comply with the latest revision of the following codes, standards and specifications, except where more stringent requirements have been specified herein:

1. American Society for Testing and Materials (ASTM)

    a. D422 - Method for Particle-Size Analysis of Soil

1.3 SUBMITTALS

A. Submit the following as specified in the IRM WP:

1. The name and location of the source of each material.
2. An affidavit from the Owner for each product stating that the site of the source was never used as a dump site for chemical, toxic, hazardous, or radioactive materials and it is not now or ever been listed as a suspected depository for chemical toxic, hazardous, or radioactive materials by any federal, state, or other governmental agency, department, or bureau.
3. Samples and test reports of each material, including analytical data results as applicable.

1.4 DEFINITIONS

A. Special Granular Material

1. Special granular material shall mean any of the granular materials listed below or other materials ordered by the Owner.

PART 2 - PRODUCTS

2.1 SELECT FILL MATERIALS

A. Type A Select Fill

1. Crushed Gravel
    a. Thoroughly crushed, durable, sharp angled fragments of gravel free from coatings. Crushed particles shall be a minimum of 90% by weight of the particles with at least two fractured faces. The total area of each fractional face shall exceed 25% of the maximum cross-sectional area of the particle. Results of aggregate soundness loss test shall not exceed 18%. Losses from LA Abrasion tests shall not exceed 40%.

b. Crushed Gravel shall have the following gradation by weight:

% Passing	SIEVE
100	2-inch
90-100	1½-inch
0-10	¾-inch
0-5	½-inch

B. Type B Select Fill

1. Crushed Stone

a. Thoroughly washed clean, sound, tough, hard crushed limestone or approved equal free from coatings. Gradation for crushed stone shall be the same as specified for Type A Select Fill.

C. Type C Select Fill

1. Crushed Stone

a. Thoroughly washed, clean, sound, tough, hard, crushed limestone or equal free from coatings. It shall have the following gradation by weight:

% Passing	SIEVE
100	1½-inch
90-100	1½-inch
0-15	1/4-inch

D. Type E Select Fill

1. Run-of-Bank Gravel

a. Run-of-bank gravel or other acceptable granular material free from organic matter with the following gradation by weight, as determined by washing through the sieve in accordance with ASTM D422.

% Passing	SIEVE
100	1-1/2-inch
30–65	1/4-inch
0–10	No. 200

E. Type F Select Fill

1. Run-of-crusher Stone

a. Run-of-crusher hard durable limestone, or equal, having the following gradation by weight:

% Passing	SIEVE
100	2-inch
30-65	¼-inch
5 - 40	No. 40
0–10	No. 200

F. Type J Select Fill

1. Stone Substrate

   a. Washed stone substrate shall be thoroughly washed, clean, non-angular, sound, hard, round, cobbley, "river stone" or "river rock" or other equal material free from coatings and organic matter. Washed stone substrate shall have the following gradation by weight:

% Passing	SIEVE
100	4 inch
5-20	1 1/2 inch
0-10	½ inch
0 - 5	No. 200

END OF SECTION

SECTION 31 22 19
TOPSOIL AND SEEDING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes topsoil, seed, mulch, and associated work.

1.2 REFERENCES

A. Analytical References

1. pH – ASTM D4972
2. Organic Matter – ASTM D22974
3. Particle size distribution – ASTM D422
4. Organic mulch testing – AASHTO Designation MP 10-03

1.3 PERFORMANCE REQUIREMENTS

A. The Contractor shall comply with all applicable Federal, State and Local codes, ordinances, regulations, statutes and standards.

B. The Contractor shall meet or exceed all guidelines provided herein and perform corrective actions in a timely manner to achieve performance criteria given in Section 3.2.

1.4 SUBMITTALS

A. The following items shall be submitted:

1. The name and location of source and data (pH, organic matter, particle size distribution) for off-site soil.
2. Samples and test reports of each material shall include analytical data that complies with Part 375 Restricted Use Commercial; Soil Cleanup Objectives.
3. An affidavit from the Owner for each product stating that the site of the source was never used as a dump site for chemical, toxic, hazardous, or radioactive materials and it is not now or ever been listed as a suspected depository for chemical toxic, hazardous, or radioactive materials by any federal, state, or other governmental agency, department, or bureau.
4. Latin name, source and content data for seed mixes. Data for each container of seed used shall be submitted; data submitted as representative of multiple containers will not be accept
5. Should hydromulching be used, the Contractor shall submit data including material and application rates.
6. Invoices for seed procured for the project shall be submitted.
7. Should organic mulch be used source and testing data (per AASHTO Designation MP 10-03) shall be submitted.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil shall have moderate pH (5 to 7.5) and organic matter concentration ranging from 3 to 6%.

1. Topsoil shall be natural, friable and fertile soil that meets the USDA basic soil texture classes of loam, silt loam or sandy loam to be recovered from the A horizon of an in-place soil. Topsoil shall be capable of sustaining healthy plant life. Topsoil shall be unscreened but be reasonably free of subsoil, heavy or stiff clay, brush, weeds, foreign material, stones larger than 4 inches in greatest dimension. Topsoil as delivered to the site or stockpiled shall meet the following requirements:

    a. Topsoil shall be well graded and have the following particle size distribution (by weight):

        1) 85 to 100 percent passing 1 inch, 65 to 100 percent passing 1/4 inch, and 15 to 80 percent passing a Number 200 sieve (0.075 mm, 0.003 inch). The 2 micron particle size shall not be greater than 20 percent of the total sample mass, as determined by hydrometer analysis.

        2) Organic materials used in the manufacture of topsoil shall meet the requirements of NYSDOT 713-15.

        3) Each load of topsoil shall be inspected by the Owner's Representative and is subject to rejection.

B. Seed

1. Seed mixtures shall be of commercial stock of the current or prior season's crop and shall be delivered in unopened containers bearing the guaranteed analysis of the mix. Seed shall be labeled true to species and variety. The percent of pure live strain of the seed shall be submitted with the seed mixture.

2. The nursery shall provide a seed analysis report including certified analyses of percent viability, percent weed seeds, and percent of other crop seed. The certifying laboratory shall be indicated on the seed tag or on associated nursery submittals.

3. The state of origin of the seed shall be indicated on the seed tag or on associated nursery submittals.

4. The following weed seeds shall not be present in seed mix:

    a. smooth brome

    b. purple loosestrife

    c. common reed

    d. cattail

    e. reed canarygrass

    f. others included in the Federal Noxious Weeds list

    g. others included in the following citation: http://www.dec.ny.gov/docs/lands_forests_pdf/islist.pdf

    Seed shall meet the standards of germination and purity set by New York State or the Association of Official Seed Certifying Agencies (AOSCA).

C. Compost, equivalent, or hydromulch shall be applied with the seed mix

1. Compost to accompany permanent seeding shall meet the requirements of AASHTO Designation MP 10-03 and as follows:

a. Minimum organic matter content 25% - 65% (dry weight basis) for surfaces to be vegetated.

b. Graded so that 100% of the material passes a 3-inch size sieve, 90-100% passes a 1-inch size sieve, 65-100% passes a ¾-inch sieve, and 0-75% passes a ¼-inch sieve. Maximum particle length shall be 6-inches.

c. Soluble salt concentrations shall be less than or equal to 5 mmhos/cm.

d. Compost shall be stable to very stable according to the current test method.

e. pH shall be between 5.0 – 8.5.

D. Seed mixes shall be as specified in Tables 1 and 2, in areas defined in the Contract Drawings.

Table 1. Successional Old Field Seed Mix[1]

Common name	Latin name	Weight percent
Oats	*Avena sativa*	32
Indiangrass	*Sorghastrum nutans*	13
Switchgrass	*Panicum virgatum*	9
Canada wildrye	*Elymus canadensis*	8
Big blustem	*Andropogon gerardii*	8
Little bluestem	*Schizachyrium scoparium*	5
American senna	*Senna hebecarpa*	4
Autumn bentgrass	*Agrostis perennans*	4
Blackeyed Susan	*Rudbeckia hirta*	4
Purple bergamot	*Monarda media*	4
Grass Leaved goldenrod	*Euthamia graminifolia*	3
New England aster	*Aster novae-angliae*	2
Annual sunflower	*Helianthus annuus*	2
Partridge pea	*Chamaecrista fasciculata*	1
Maximilian's Sunflower	*Helianthus maximilianii*	1

[1]If seed mix is applied in the fall (October 15 to December 1), add 10 pounds per acre of winter wheat (*Triticum aestivum*).

Apply seed mix at 40lb/ac

Table 2. Channel Seed Mix.[1]

Common name	Latin name	Weight percent
Oats	*Avena sativa*	21
Redtop	*Agrostis alba*	12
Virginia wildrye	*Elymus virginicus*	17
Creeping bentgrass	*Agrostis stolonifera*	14
Alkaligrass	*Puccinellia distans*	5

Table 2. Channel Seed Mix.[1]		
Common name	**Latin name**	**Weight percent**
Fox Sedge	*Carex vulpinoidea*	5
Softstem bulrush	*Schoenoplectus tabernaemontani*	5
Hardstem bulrush	*Schoenoplectus acutus*	5
Eastern bur reed	*Sparganium americanum*	5
Fowl bluegrass	*Poa palustris*	5
Ticklegrass	*Agrostis scabra*	2
Autumn bentgrass	*Agrostis perennans*	2
Path rush	*Juncus tenuis*	2
[1]If seed mix is applied in the fall (October 15 to December 1), add 10 pounds per acre of winter wheat (*Triticum aestivum*). **Apply seed mix at 30lb/ac**		

PART 3 - EXECUTION

3.1 INSTALLATION

A. Topsoil shall be applied to the required depth, as defined in Contract Drawings, and tracked perpendicular to the slope gradient.

B. Install the Successional Old Field Seed Mix (Table 1) or Channel Seed Mix (Table 2) to areas of the Site as defined in the Contract Drawings.

C. Seeding procedures

1. Seeding shall be performed during two seasonal windows: April 1 to June 15, October 15 through December 1, or as otherwise practicable and reviewed by the Owner's Representative. If site soils require stabilization at times outside of these dates, they shall be temporarily mulched using two tons per acre of straw.
2. Seeding shall not be done during windy weather (greater than 5 mph or as reviewed by the Owner's Representative).
3. Seed and compost/hydromulch shall be spread to form a continuous blanket over the prepared seed bed:
    a. If compost is used, it should be applied one to two inches thick with seed incorporated throughout the mulch profile.
    b. If hydromulch is used it shall be applied at a rate according to manufacturer's recommendations for a given slope percentage.
        1) The first pass shall include all seed and enough hydromulch for visual metering.
        2) The second pass shall include the remaining hydromulch.
    c. In areas, that are only temporarily seeded, broadcast seeding with straw placement (2 tons per acre) is also acceptable in order to prevent erosion of the soil prior to the placement of mulch and the permanent seed mix.

4. If seed is hand broadcast, soil shall be lightly raked to the extent possible to cover seed with less than 1/8th" of topsoil and to improve seed/soil contact.

3.2 MAINTENANCE

A. Restored areas shall be monitored after construction is complete and corrective measures taken to maintain 80% vegetative cover in accordance with the NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (GP-0-15-002) and areas are accepted by the Owners' Representative. Maintenance responsibilities begin immediately after seeding and continue through at least the first full growing season following the year of installation.

B. Additional maintenance and monitoring activities may be performed in accordance with the project Site Management Plan or as directed by the Owner.

END OF SECTION

SECTION 31 23 00
EXCAVATION AND FILL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes excavation and backfill as required for pipe installation or other construction in the excavation or trench, and removal and disposal of water, in accordance with the applicable provisions of the Section entitled "Earthwork" unless modified herein, or as shown on the Contract Drawings.

1.2 SUBMITTALS

A. None.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 EXCAVATION

A. The trench excavation shall be located as shown on the Contract Drawings or as specified. Under ordinary conditions, excavation shall be by open cut from the ground surface. Where the depth of trench and soil conditions permit, tunneling may be required beneath cross walks, curbs, gutters, pavements, trees, driveways, railroad tracks and other surface structures. No additional compensation will be allowed for such tunneling over the price bid for open cut excavation of equivalent depths below the ground surface unless such tunnel excavation is specifically provided for in the Contract Documents.

B. Trenches shall be excavated to maintain the depths as shown on the Contract Drawings or as specified for the type of pipe to be installed.

C. The alignment and depth shall be determined and maintained by the use of a string line installed on batter boards above the trench, a double string line installed along side of the trench or a laser beam system.

D. The minimum width of trench excavation shall be 6 inches on each side of the pipe hub for 21-inch diameter pipe and smaller and 12 inches on each side of the pipe hub for 24-inch diameter pipe and larger.

E. Trenches shall not be opened for more than 300 feet in advance of pipe installation nor left unfilled for more than 100 feet in the rear of the installed pipe when work is in progress without the consent of the Engineer. Open trenches shall be protected and barricaded as required.

F. Bridging across open trenches shall be constructed and maintained where required.

3.2 SUBGRADE PREPARATION FOR PIPE

A. Where pipe is to be laid on undisturbed bottom of excavated trench, mechanical excavation shall not extend lower than the finished subgrade elevation at any point.

B. Where pipe is to be laid on special granular material the excavation below subgrade shall be to the depth specified or directed. The excavation below subgrade shall be refilled with special

granular material as specified or directed, shall be deposited in layers not to exceed 6 inches and shall be thoroughly compacted prior to the preparation of pipe subgrade.

C. The subgrade shall be prepared by shaping with hand tools to the contour of the pipe barrel to allow for uniform and continuous bearing and support on solid undisturbed ground or embedment for the entire length of the pipe.

D. Pipe subgrade preparation shall be performed immediately prior to installing the pipe in the trench. Where bell holes are required they shall be made after the subgrade preparation is complete and shall be only of sufficient length to prevent any part of the bell from becoming in contact with the trench bottom and allowing space for joint assembly.

3.3 STORAGE OF MATERIALS

A. Traffic shall be maintained at all times.

B. Where conditions do not permit storage of materials adjacent to the trench, the material excavated from a length as may be required, shall be removed by the Contractor, at his cost and expense, as soon as excavated. The excess material shall be removed to locations selected and obtained by the Contractor.

1. The Contractor shall, at his cost and expense, bring back adequate amounts of satisfactory excavated materials as may be required to properly refill the trenches.

C. The Contractor shall refill trenches with Select Fill or other suitable materials and excess excavated materials shall be disposed of as spoil.

3.4 REMOVAL OF WATER AND DRAINAGE

A. The Contractor shall at all times provide and maintain proper and satisfactory means and devices for the removal of all water entering the trench, and shall remove all such water as fast as it may collect, in such manner as shall not interfere with the prosecution of the work.

B. The removal of water shall be in accordance with the Section entitled "Earthwork".

3.5 PIPE EMBEDMENT

A. All pipe shall be protected from lateral displacement and possible damage resulting from superimposed backfill loads, impact or unbalanced loading during backfilling operations by being adequately embedded in suitable pipe embedment material. To ensure adequate lateral and vertical stability of the installed pipe during pipe jointing and embedment operations, a sufficient amount of the pipe embedment material to hold the pipe in rigid alignment shall be uniformly deposited and thoroughly compacted on each side, and back of the bell, of each pipe as laid.

B. Concrete cradle and encasement of the class specified shall be installed where and as shown on the Contract Drawings or ordered by the Engineer. Before any concrete is placed, the pipe shall be securely blocked and braced to prevent movement or flotation. The concrete cradle or encasement shall extend the full width of the trench as excavated unless otherwise authorized by the Engineer. Where concrete is to be placed in a sheeted trench it shall be poured directly against sheeting to be left in place or against a bond-breaker if the sheeting is to be removed.

C. Embedment materials placed above the centerline of the pipe or above the concrete cradle to a depth of 12 inches above the top of the pipe barrel shall be deposited in such manner as to not damage the pipe. Compaction shall be as required for the type of embedment being installed.

3.6 BACKFILL ABOVE EMBEDMENT

A. The remaining portion of the pipe trench above the embedment shall be refilled with suitable materials compacted as specified.

1. The trench shall be refilled in horizontal layers not more than 8 inches in thickness.

2. Hand tamping shall be required around buried utility lines or other subsurface features that could be damaged by mechanical compaction equipment.

B. Backfilling of trenches beneath, across or adjacent to drainage ditches and water courses shall be done in such a manner that water will not accumulate in unfilled or partially filled trenches and the backfill shall be protected from surface erosion by adequate means.

1. Where trenches cross waterways, the backfill surface exposed on the bottom and slopes thereof shall be protected by means of stone or concrete rip-rap or pavement.

C. All settlement of the backfill shall be refilled and compacted as it occurs.

D. Surfaces shall be restored as specified or directed.

END OF SECTION

SECTION 33 08 01
LEAKAGE TESTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes leakage tests of all hydraulic structures and non-pressure piping for leakage as specified.

1. The Contractor shall furnish all labor, equipment, test connections, vents, water and materials necessary for carrying out the pressure and leakage tests.

B. All testing shall be witnessed by the Engineer.

1.2 SUBMITTALS

A. In addition to those submittals identified in the Contract Documents, the following items shall be submitted:

1. Reports of test results.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

TESTS ON LINED PRECAST CONCRETE STRUCTURES AND OTHER MANHOLES, VAULTS AND STRUCTURES

A. General

1. Structures and manholes designed to collect, store, or transport ground water shall be tested hydrostatically and for leakage prior to being placed in service. This includes, but is not necessarily limited to manholes, and catch basins. 2.

3. All fittings and appurtenances must be properly braced and harnessed before the structure is filled.

4. If the structure fails the test, the cause of the leakage shall be evaluated and after repairs have been made the structure shall be retested. This procedure shall be repeated until the structure complies.

B. Leakage Test

Exfiltration test may be performed prior to or after backfilling. The test shall be made by filling the structure with water and observing the level for a minimum of 12 hours.

Infiltration tests shall be performed when the groundwater level is above the joint of the top section of a precast manhole.

1. The rate of leakage shall initially be determined at intervals by means of volumetric measurement of the makeup water added to maintain the water level in the structure. Test water shall be added until the rate of leakage has stopped such that the level can be maintained without change. After this, the test water level shall be maintained for at least 12-hours, unless a longer period is determined to be required by the Engineer.

2. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.

3. The allowable leakage for structures shall not exceed the following in gallons per 24 hours per structure:

TYPE OF STRUCTURE	ALLOWABLE LEAKAGE
All structures	0

4. Any visible leaks shall be permanently stopped and the structure will require retesting until it has passed.

TEST FOR NON-PRESSURE PIPELINES FOR TRANSPORT STORMWATER

A. General

1. Pipelines designed to carry storm water in open channel flow or at minimal pressures shall be tested for leakage prior to being placed in service.
2. The leakage shall be determined by exfiltration, infiltration or low pressure air.
   a. The testing method directed by the Engineer shall take into consideration the groundwater elevation of the section of pipe being tested.
   b. The maximum non-pressure pipeline to be tested for leakage shall be the section of pipe through the valve vault and at the anti-seep collar or as directed by the Engineer.
3. Intermediate leakage tests during construction shall be performed as required. Upon completion of any pipeline, the entire system including manholes shall be tested for compliance to allowable leakage.
4. If the line fails the test, the cause of the leakage shall be evaluated and after repairs have been made the line shall be retested. This procedure shall be repeated until the pipe complies.

B. Exfiltration Testing

1. Exfiltration tests shall be made by filling a section of pipeline with water and measuring the quantity of leakage.
2. The head of water at the beginning of the test shall be at least 2 feet above the highest pipe within the section being tested.
   a. Should groundwater be present within the section being tested, the head of water for the test shall be 2 feet above the hydraulic gradient of the groundwater.
   b. Should the requirement of 2 feet of water above the highest pipe subject any joint at the lower end of the test section to a differential head of greater than 11.5 feet another method of testing shall be employed.
3. Stormwater conveyance pipes shall be tested at 10 psig.

C. Infiltration Testing

1. Infiltration tests will be allowed only when the water table gauges indicated that the groundwater level to be 2 feet or more above the highest pipe of the section being tested.
2. Infiltration test shall be made by measuring the quantity of water leaking into a section of pipeline.

3. Measurement of the infiltration shall be by means of a calibrated weir constructed at the outlet of the section being tested.

D. Allowable Leakage for Non-Pressure Pipelines

The allowable leakage (exfiltration or infiltration) for non- pressure pipelines shall not exceed the following in gallons per 24 hours per inch of diameter per 1000 feet of pipe:

TYPE OF PIPE	ALLOWABLE LEAKAGE
HDPE	0

Regardless of the above allowable leakage any spurting leaks detected shall be permanently stopped.

E. Air Testing

For the acceptance of air testing in lieu of hydrostatic testing (exfiltration or infiltration), the hydrostatic and air tests shall be performed on at least three sections of pipeline for each type of pipe being used. The Engineer shall select the sections for the corroborative tests. If these duel tested sections indicate the same results, that is, acceptance under both tests, air testing will be allowed in lieu of hydrostatic testing to meet the project requirements.

Air testing for acceptance shall not be performed until the backfilling has been completed.

Low pressure air tests shall conform to ASTM C 828 except as specified herein and shall not be limited to type or size of pipe.

Air testing of exposed (non-buried) fiberglass, PVC or other plastic or non-metal piping is prohibited.

All sections of pipelines shall be cleaned and flushed prior to testing.

The air test shall be based on the average holding pressure of 3 psi gauge, a drop from 3.5 to 2.5 psi, within the period of time allowed for the size of pipe and the length of the test section. The time allowed for the 1 psi drop in pressure, measured in seconds, will be computed by the Engineer and will be based on the limits of ASTM C 828.

a. When groundwater is present the average test pressure of 3 psig shall be above any back pressure due to the groundwater level.

b. The maximum pressure allowed under any condition in air testing shall be 10 psig. The maximum groundwater level for air testing is 13 feet above the top of the pipe.

7. The equipment required for air testing shall be furnished by the Contractor and shall include the necessary compressor, valves and gauges to allow for the monitoring of the pressure, release of pressure and a separable test gauge.

a. The test gauge shall be sized to allow for the measuring of the one psig loss allowed during the test period and shall be on a separate line to the test section.

END OF SECTION

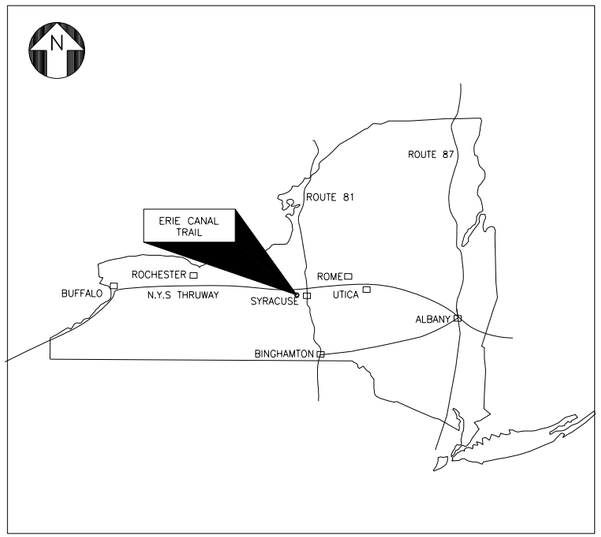
Exhibits

Erie Canalway Trail Design Drawings (Selected)

ERIE CANALWAY TRAIL
TOWN OF CAMILLUS, TOWN OF GEDDES, VILLAGE OF SOLVAY
ONONDAGA COUNTY

Prepared For:

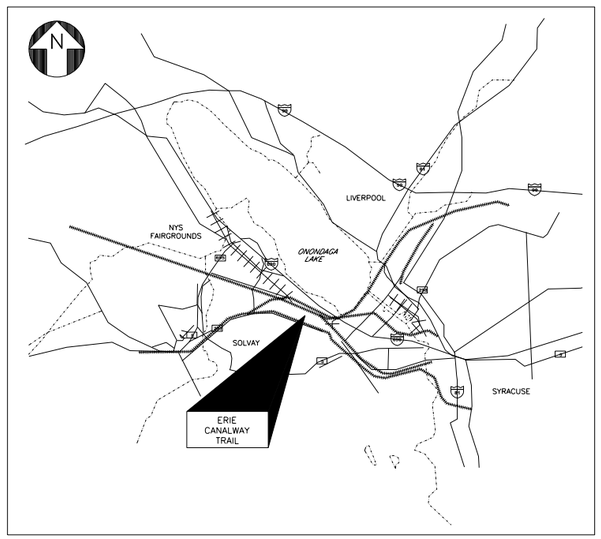
HONEYWELL



THE STATE OF NEW YORK
NOT TO SCALE

DRAWING INDEX

DRAWING TITLE	DRAWING NO.
TITLE SHEET AND DRAWING INDEX	TI-01
GENERAL NOTES	GN-01 THRU GN-02
LEGEND & ABBREVIATIONS	LG-01
TYPICAL SECTIONS	TS-01 THRU TS-09
TABLES AND DETAILS	DT-01 THRU DT-09
KEY PLAN	KP-01
GENERAL PLAN	GP-01 THRU GP-18
DETAILED PLANS	DP-01 THRU DP-10
PROFILES	PR-01 THRU PR-10



SITE LOCATION MAP
NOT TO SCALE

DRAWING IS HALF-SIZE IF PLOTTED 11x17

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
0	ISSUED FOR BID	03/29/19	SLC	MRP	

DRAWN BY: SLC — DATE
CHECKED BY: AM — DATE
APPROVED BY: MRP — DATE
PROJECT MGR.: MB — DATE

SEAL: MARK R. PARSONS — STATE OF NEW YORK — No. 090905-1 — LICENSED PROFESSIONAL ENGINEER

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB
WBS

PROJECT TITLE
Honeywell
ERIE CANALWAY TRAIL
ONONDAGA COUNTY, NEW YORK

DRAWING TITLE
ERIE CANALWAY TRAIL
TITLE SHEET AND
DRAWING INDEX

SCALE: AS SHOWN (IF PRINTED ON 22x34 SHEET)

DRAWING NO.: TI-01
REV.: 0

FILE NAME: P:\HONEYWELL -SYR\450817 NRD PROJECTS SUPPORT\10.0 TECHNICAL CATEGORIES\PARSONS SW SHORE TRAIL DRAWINGS\CADD\CIVIL 3D\XREF\450817-22X34 DESIGN BRDR.DWG
PLOT DATE: 1/7/2010 1:36 PM PLOTTED BY: RUSSO, JILL

GENERAL NOTES

THE WORDS "SHALL", "SHOULD", AND "WAY", AS USED IN THE CONTRACT DOCUMENTS, HAVE THE FOLLOWING MEANINGS:

SHALL - A MANDATORY CONDITION IN THE DESIGN, APPLICATION OR LOCATION OF DEVICES REQUIREMENTS HAVING "SHALL"STIPULATIONS ARE MANDATORY. NO DISCRETION IN FOLLOWING THEM IS ALLOWED.
SHOULD - AN ADVISORY CONDITION. WHERE "SHOULD" IS USED IN RELATION TO A PROVISION, THAT PROVISION IS RECOMMENDED, AND NORMALLY IS TO BE ALLOWED, BUT IS NOT MANDATORY. DEVIATION FROM SUCH PROVISIONS IS PERMISSIBLE IF, AND TO THE EXTENT, THERE IS JUSTIFIABLE CAUSE TO DO SO.
WAY - A PERMISSIVE CONDITION. NO REQUIREMENT FOR DESIGN OR APPLICATION IS INTENDED.

THE COST OF WATER USED FOR COMPACTION OF SELECT STRUCTURE FILL ITEMS SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 203.21.

TRAIL EMBANKMENT MATERIAL, AND/OR SELECT STRUCTURE FILL, ITEM 203.21, SHALL BE PLACED SIMULTANEOUSLY, IN CONTRACT, ON BOTH SIDES OF THE VERTICAL PAYMENT LINE. SHEETING OR OTHER MEANS SHALL NOT BE USED TO SEPARATE THE MATERIALS.

THE INSTALLATION OF SELECT STRUCTURE FILL, ITEM 203.21, AS SHOWN ON THE STRUCTURE PLANS, SHALL BE DONE IMMEDIATELY FOLLOWING THE INSTALLATION OF THE PREFABRICATED STRUCTURE.

SHOULD THE CONTRACTOR ELECT TO LAY BACK A PORTION OF THE EXISTING EARTH ADJACENT TO AN EXCAVATION PARTIALLY SURROUNDED BY A COFFERDAM, ANY REQUIRED EXTENSIONS OF THE COFFERDAM NECESSARY TO KEEP WATER FROM ENTERING THE EXCAVATION SHALL BE FURNISHED AND PLACED AT NO ADDITIONAL COST.

THE PROPOSED TRAIL WILL BE CLOSED TO ALL TRAFFIC DURING CONSTRUCTION.

THE CONTRACTOR IS TO VISIT THE SITE BEFORE BIDDING, TO FAMILIARIZE THEMSELVES WITH THE FIELD CONDITIONS AND TO JUDGE FOR THEMSELVES THE EXTENT AND NATURE OF THE WORK TO BE DONE UNDER THIS CONTRACT. NO EXTRA COMPENSATION WILL BE ALLOWED THEM BECAUSE OF THEIR FAILURE TO INCLUDE IN THEIR BID ALL ITEMS AND MATERIALS WHICH THEY ARE REQUIRED TO FURNISH IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

DESIGN SPECIFICATIONS

CURRENT NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, FOR DESIGN PURPOSES THE COMPRESSIVE STRENGTH OF CONCRETE FOR SUBSTRUCTURES AT TWENTY-EIGHT (28) DAYS IS F'C = 21 Mpa.

MATERIAL AND CONSTRUCTION SPECIFICATIONS

STANDARD SPECIFICATIONS, CONSTRUCTION AND MATERIALS, METRIC UNITS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, OFFICE OF ENGINEERING WITH CURRENT ADDITIONS AND MODIFICATIONS.

ALL BAR REINFORCEMENT SHALL BE ASTM AG15M GRADE 420.

SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AS INDICATED IN THE SPECIFICATIONS. THE CONTRACTOR SHALL REVIEW AND APPROVE SHOP DRAWINGS BEFORE THEY ARE FORWARDED TO THE ENGINEER FOR REVIEW AND CONSIDERATION.

CONSTRUCTION JOINTS OTHER THAN THOSE INDICATED ON THE PLANS WILL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION OF THE ENGINEER.

THE COST OF ALL JOINT MATERIAL SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS ITEMS OF THE CONTRACT, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

ALL SITE WORK MUST SATISFY REQUIREMENTS OF THE WILLIS-SEMET IRM CONSENT ORDER (APRIL 2002) AND THE WASTEBED 13/HARBOR BROOK CONSENT ORDER (DECEMBER 2003).

RESTRICTIONS

CONSTRUCTION ACTIVITIES ON THE MATHEWS AVE SEGMENT (STATION 21+50 TO 50+92) SHALL BE COORDINATED WITH HONEYWELL AND O'BRIEN AND GERE PRIOR TO THE START OF WORK.

MISCELLANEOUS PAVING

FOR MISCELLANEOUS PAVEMENT AREAS USE ITEM 608.020102. THE HOT MIX ASPHALT MIXTURE USED SHALL BE DESIGNED FOR A 20 YEAR (ESTIMATED TRAFFIC) LEVEL OF < 0.3 MILLION 80 Kn ESALS. THE PC BINDER USED IN THIS MIX SHALL BE A CONVENTIONAL PC64-22.

SURVEY

HORIZONAL DATUM: STATE PLANE COORDINATE SYSTEM BASED ON NORTH AMERICAN DATUM OF 1983 (NAD 83)

VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

SAWCUT

ITEM 627.50140008, CUTTING PAVEMENT IS INTENDED FOR AREAS WHERE PAVEMENT RECONSTRUCTION MEETS EXISTING PAVEMENTS THAT WILL REMAIN AFTER THE COMPLETION OF THIS PROJECT AND AREAS WHERE THE CONTRACTOR WILL CREATE A STAGE/PHASE LINE BETWEEN A WZTC WORK ZONE AND LIVE TRAFFIC. NO QUANTITIES WILL BE MEASURED OR PAID FOR SAWCUTS USED TO COMPLETE UTILITY TRENCHING OR OTHER INCIDENTAL SUBSURFACE RECONSTRUCTION (THIS WORK SHALL BE PAID UNDER VARIOUS ITEMS OF THE CONTRACT). THIS DOES NOT ELIMINATE THE ENGINEER'S RIGHT TO REQUIRE CLEAN TRENCHING CUT LIMITS WHERE TRAFFIC MAY BE TEMPORARILY PLACED OVER THESE AREAS AFTER TRENCH RECONSTRUCTION AND PRIOR TO FINAL PAVING. IF THE CONTRACTOR IMPLEMENTS THESE SCHEMES, THEN SAW CUTTING SHALL BE ACCOUNTED FOR IN THEIR BID.

SITE PROTECTION NOTES

CONTRACTOR SHALL PRESERVE AND MAINTAIN ALL EXISTING FACILITIES INCLUDING SIDEWALKS, SURVEY MONUMENTS, LIGHTING, CURBING AND PAVEMENT WITHIN THE PROJECT LIMITS.

CONTRACTOR SHALL REMOVE, OR PROPERLY CONTAINERIZE UNNECESSARY CONSTRUCTION DEBRIS AT THE END OF EACH WORK DAY.

NOTIFY DIG SAFELY NEW YORK TWO (2) WORKING DAYS PRIOR TO DIGGING, DRILLING OR BLASTING, CALL 811.

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN AT ALL TIMES A SAFE AND ADEQUATE INGRESS AND EGRESS TO AND FROM ALL PRIVATE AND PUBLIC PLACES OF BUSINESS. COST FOR THIS WORK IS INCLUDED UNDER ITEM 619.01 BASIC WORK ZONE TRAFFIC CONTROL.

THE CONTRACTOR SHALL BE PERMITTED TO REMOVE SUCH PORTIONS OF EXISTING FENCING AS MAY BE REQUIRED FOR THEIR OPERATIONS DURING WORKING HOURS, PROVIDING THAT THE PUBLIC IS CONTINUOUSLY SAFEGUARDED BY OTHER SATISFACTORY MEANS DURING THESE OPERATIONS. IN ALL SUCH CASES THE FENCE MUST BE RESTORED AT THE END OF EACH WORK DAY.

WARNING SIGNS READING "DANGER" "KEEP OUT" SHALL BE MOUNTED ON THE FENCE AS REQUIRED BY THE ENGINEER, AT NO MORE THAN 60 FEET INTERVALS. SIGN WILL BE 16" HIGH X 24" WIDE. THE LOWER PORTION OF THE SIGN SHALL BE WHITE WITH 5" BLACK LETTERS. THE UPPER PORTION OF THE SIGN SHALL BE PREDOMINANTLY RED WITH 5"WHITE LETTERING. THE LETTERING SHALL BE ENCLOSED BY AN APPROXIMATELY ELLIPTICAL, WHITE RING AND THE ENTIRE SIGN BORDERED IN BLACK.

SITE PROTECTION NOTES (CONT.)

TEMPORARY FENCING MAY BE USED WHERE EXISTING FENCING HAS BEEN REMOVED PRIOR TO THE INSTALLATION OF PERMANENT FENCING. FENCE SHALL INCLUDE STEEL OR WOOD TOP RAIL. PAID FOR UNDER ITEM 619.01.

TEMPORARY FENCING SHALL NOT BE LESS THAN 5 FEET IN HEIGHT, MOUNTED ON STEEL ANGLE POST, WOOD POST OR OTHER SATISFACTORY MEANS OF SUPPORT SPACED AT INTERVALS OF NOT MORE THAN 10 FEET.

THE CONTRACTOR SHALL FURNISH, ERECT, RELOCATE, MAINTAIN AND REMOVE ALL TEMPORARY FENCE AND WARNING SIGNS REQUIRED.

THE CONTRACTOR SHALL COORDINATE WITH ANY AND ALL CONTRACTORS PERFORMING WORK ON THIS OR IMMEDIATELY ADJACENT TO THIS JOB SITE.

THE CONTRACTOR SHALL AT THEIR OWN EXPENSE, RESTORE LAWNS, DRIVEWAYS, CULVERTS, FENCES, GUIDERAILS, SIGNS AND OTHER PUBLIC AND PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISRUPTED.

EXCAVATED SPOILS NOT DESIGNED FOR USE ON SITE SHALL BE REMOVED AT THE END OF EACH WORK DAY.

ALL BACKFILL MATERIAL STORED ON SITE SHALL BE COVERED TO PREVENT DUST AND MOISTURE INCREASE.

ALL TRUCKS ENTERING AND LEAVING THE SITE SHALL BE COVERED BY LAW TO REDUCE DUST AND ODOR. ALL MATERIALS (HAZARDOUS) SHALL BE LOCKED IN APPROPRIATE STORAGE UNITS.

THE CONTRACTOR SHALL NOTIFY HONEYWELL TWO WORKING DAYS PRIOR TO PERFORMING ANY WORK THAT IMPACTS HONEYWELL'S UTILITIES.

CONTRACTOR SHALL MAINTAIN A CLEAN WORK SITE AT ALL TIMES. AT THE END OF THE WORK DAY ALL EQUIPMENT AND MATERIALS SHALL BE STORED IN A DESIGNATED STAGING AREA AS COORDINATED WITH HONEYWELL. ALL SOIL, DUST AND MUD SHALL BE REMOVED FROM THE PROJECT AREA AND OUTSIDE THE PROJECT AREA. AT THE END OF THE DAY, TIRES OF CONSTRUCTION VEHICLES SHALL BE CLEANED OF SOIL AND MUD BEFORE BEING ALLOWED ON PUBLIC STREETS. ANY SOIL OR MUD DEPOSITED ON PUBLIC STREETS BY CONSTRUCTION VEHICLES SHALL BE REMOVED IMMEDIATELY.

SIGNS

WHEN A NEW SIGN IS INSTALLED TO REPLACE AN EXISTING SIGN, THE EXISTING SIGN SHALL BE IMMEDIATELY REMOVED UPON COMPLETION OF THE NEW SIGN INSTALLATION.

GROUND-MOUNTED SIGN PANELS INSTALLED OR RELOCATED UNDER THIS CONTRACT SHALL MEET THE FOLLOWING MOUNTING HEIGHT CRITERIA WHICH MEET OR EXCEED THE REQUIREMENTS SHOWN ON STANDARD SHEETS 645-03 AND 645-10:

THE VERTICAL DISTANCE FROM THE EDGE OF TRAVEL LANE TO BOTTOM OF ALL PRIMARY SIGN PANELS SHALL BE 7'-0" MINIMUM.

THE VERTICAL DISTANCE FROM THE EDGE OF TRAVEL LANE TO BOTTOM OF ALL SECONDARY (SUPPLEMENTARY) SIGN PANELS SHALL BE 6"-0"MINIMUM. IN ADDITION, THE 7'-0" MINIMUM GROUND CLEARANCE REQUIREMENT FOR ALL POST TYPES NOTED ON STANDARD SHEET 645-03 AND SHOWN ON STANDARD SHEET 645-10 STILL APPLIES.
THE CONTRACTOR SHALL TAKE THE ABOVE REQUIREMENTS INTO ACCOUNT WHEN BIDDING ALL AFFECTED SIGN POST ITEMS.

RECONSTRUCTION NOTES

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT, DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO THE COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE OWNER, WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE OWNER, THE DAMAGED MATERIALS SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT THE EXPENSE OF THE CONTRACTOR.

WHENEVER ITEMS IN THE CONTRACT REQUIRE MATERIALS TO BE REMOVED AND DISPOSED OF, THE COST OF SUPPLYING A DISPOSAL AREA AND TRANSPORTATION TO THAT AREA SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THOSE ITEMS.

THE COST OF FURNISHING, INSTALLING, MAINTAINING, REMOVING AND DISPOSING OF ALL PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE APPROPRIATE ITEMS OF THE CONTRACT.

DIMENSIONS SHOWN ARE BASED ON AVAILABLE RECORDS AND LIMITED FIELD MEASUREMENT. CONTRACTOR IS TO VERIFY.

CONTAMINATED SOILS

THE CONTRACTOR SHALL BE PREPARED TO HANDLE CONTAMINATED SOILS/NON-HAZARDOUS WASTE AS STATED IN ITEM 205.0201 SEGREGATION AND STORAGE OF CONTAMINATED MATERIALS, ENGINEERING INSTRUCTION 07-034 AND ENGINEERING INSTRUCTION 07-035. AS SUCH, THE CONTRACTOR SHALL PREPARE A COMMUNITY AIR MONITORING PLAN (CAMP) WHICH INCLUDES INFORMATION DESCRIBING OPERATIONS TO BE USED TO EXCAVATE, FIELD IDENTIFY, MOVE, DISPOSE OF SOIL AND WHICH ADDRESSES PERSONNEL SAFETY AND ENVIRONMENTALCONSIDERATIONS.

SOILS AND SOLID WASTE THAT ARE VISIBLY CONTAMINATED (E.G. STAINING, ODORS) SHALL BE SCREENED, BY AN INDEPENDENT FIRM HIRED BY THE CONTRACTOR, VIA FIELD VAPOR MONITORING EQUIPMENT AND BY VISUAL AND OLFACTORY MEANS AS STATED IN ITEM 205.03 FIELD ORGANIC VAPOR MONITORING ENGINEERING INSTRUCTION 07-034 AND ENGINEERING INSTRUCTION 07-035. SOILS DEEMED CONTAMINATED SHALL BE SEPARATED FROM OTHER SPOIL MATERIAL FOR REGULATORY CLASSIFICATION TO DETERMINE THE PROPER HANDLING, TRANSPORTATION, TREATMENT AND DISPOSAL METHODS AND REQUIREMENTS. IF VISIBLY CONTAMINATED MATERIALS ARE ENCOUNTERED THE NYSDEC SHALL BE CONTACTED.

ALL APPLICABLE COSTS ASSOCIATED WITH BUT NOT NECESSARILY LIMITED TO, THE FOLLOWING SHALL BE INCLUDED IN ITEM 205.050101: DISPOSAL PLAN, SAMPLING PLAN, SAMPLING, ANALYSIS (TESTING), TRANSPORT AND DISPOSAL OF CONTAMINATED SOIL OR MATERIAL, COMPLETING OTHER RELATED ACTIVITY IN ACCORDANCE WITH THE ACCEPTED DISPOSAL PLAN.
HONEYWELL SHALL BE CONTACTED PRIOR TO ANY OFF-SITE DISPOSAL OF MATERIAL.

THE ITEMS DESCRIBED HEREIN ARE INTENDED TO COMPENSATE THE CONTRACTOR FOR THE SPECIAL HANDLING AND ADDITIONAL EFFORTS ABOVE WHAT WOULD HAVE BEEN REQUIRED FOR THE SAME WORK IN NON-CONTAMINATED SOIL. SOIL EXCAVATION IS NOT INCLUDED.

EXISTING DRAINAGE FACILITIES

THE CONTRACTOR SHALL BECOME ACQUAINTED WITH THE DRAINAGE CHARACTERISTICS OF THE AREA IN ORDER TO PROGRESS WORK EFFICIENTLY WITH FULL KNOWLEDGE OF THE POTENTIAL DRAINAGE PROBLEMS.

THE CONTRACTOR MUST ACQUAINT THEMSELVES WITH DRAINAGE CHARACTERISTICS OF THE AREA SO THAT THEY WILL PROGRESS THEIR WORK EFFICIENTLY WITH FULL KNOWLEDGE OF THE POTENTIAL DRAINAGE PROBLEMS.

THERE WILL BE NO PAYMENT MADE FOR THE INSTALLATION OF TEMPORARY SHEETING REQUIRED ON THIS PROJECT, THE CONTRACTOR SHALL INCLUDE ANY COSTS FOR THIS WORK IN THE PRICE BID FOR ITEM 206.0201 TRENCH AND CULVERT EXCAVATION.

ALL EXCAVATION AND SHEETING SHALL COMPLY WITH ALL PROVISIONS OF THE FEDERAL REGULATIONS AS PROVIDED FOR IN "FEDERAL STANDARD 29-CFR-1926 SUBPART P EXCAVATIONS".

ALL EXISTING DRAINAGE SYSTEMS, INCLUDING DITCHES AND CULVERTS, WITHIN THE CONTRACT LIMITS SHALL BE CLEANED AND KEPT CLEAN AND FREE FLOWING FOR THE DURATION OF THE CONTRACT. THIS WORK SHALL BE PAID FOR UNDER ITEM 203.02, UNCLASSIFIED EXCAVATION AND DISPOSAL.
PAYMENT LINES NOT SHOWN ON THE PLANS SHALL BE DETERMINED BY THE ENGINEER IN CHARGE.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
1	ISSUED FOR BID	03/29/19	SLC	MRP	

DRAWN BY	SLC	DATE
CHECKED BY	AM	DATE
APPROVED BY	MRP	DATE
PROJECT MGR.	MB	DATE

SEAL

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB

WBS

PROJECT TITLE

Honeywell
ERIE CANALWAY TRAIL
ONONDAGA COUNTY, NEW YORK

DRAWING TITLE

ERIE CANALWAY TRAIL
GENERAL NOTES

SCALE: AS SHOWN (IF PRINTED ON 22x34 SHEET)

DRAWING NO.: GN-01

REV.: 0

FILE NAME: P:\HONEYWELL -SYR\450817 NRD PROJECTS SUPPORT\10.0 TECHNICAL CATEGORIES\PARSONS SW SHORE TRAIL DRAWINGS\CADD\CIVIL 3D\XREF\450817-22X34 DESIGN BRDR.DWG
PLOT DATE: 1/7/2010 1:36 PM PLOTTED BY: RUSSO, JILL

UTILITIES

THE APPROXIMATE LOCATION OF THE UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE TRUE LOCATION BEFORE COMMENCING WORK.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES ENCOUNTERED IN THIS WORK. WHERE NECESSARY THE CONTRACTOR SHALL PROVIDE TIMBER, OR OTHER APPROVED MATERIALS, AND SECURELY BRACE AND PROTECT THESE UTILITIES. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS ITEMS IN THE CONTRACT.

THE FOLLOWING UTILITIES MAY BE ENCOUNTERED IN THE FIELD:

- ELECTRIC - NATIONAL GRID, SOLVAY ELECTRIC
- TELEPHONE - VERIZON
- CABLE TV - SPECTRUM
- GAS- NATIONAL GRID
- WATER - OCWA
- SANITARY - ONONDAGA COUNTY
- FORCE MAIN - HONEYWELL

THE DEGREE OF ACCURACY FOR ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS IS QUALITY LEVEL C. RECORD INFORMATION PROVIDED BY UTILITY OWNER WAS PLOTTED ON THE CONTRACT PLANS. DEPTHS TO UTILITIES HAVE NOT BEEN FIELD VERIFIED.

THE CONTRACTOR SHALL NOTIFY "DIG SAFELY NEW YORK" AT 1-800-962-7962 PRIOR TO COMMENCING EXCAVATION OR DRIVING ANY POSTS. IN ADDITION, THE CONTRACTOR SHALL CONTACT HONEYWELL PRIOR TO COMMENCING EXCAVATION OR DRIVING ANY POSTS AS HONEYWELL HAS SEVERAL BURIED UTILITIES ON-SITE WHOSE LOCATIONS ARE TO BE COORDINATED WITH HONEYWELL.

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES ENCOUNTERED IN THE WORK, WHERE NECESSARY, THE CONTRACTOR SHALL PROVIDE TIMBER, PLANK, OR OTHER APPROVED MATERIALS AND SECURELY BRACE AND PROTECT THESE UTILITIES. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS IN THE CONTRACT.

THE CONTRACTOR SHALL COOPERATE IN EVERY WAY WITH THE UTILITY OWNER AND WILL SCHEDULE HIS WORK IN SUCH A WAY AS TO COMPLY WITH THE SHUT-DOWN TIMES AND ANY OTHER REQUIREMENTS OF THE UTILITY OWNER, NO ADDITIONAL PAYMENT WILL BE MADE FOR ANY COSTS INCURRED DUE TO COMPLYING WITH UTILITY OWNER5/32S REQUIREMENTS. SUCH COSTS WILL BE INCLUDED IN THE PRICE BID FOR ITEMS IN THIS CONTRACT.

BENCHING

EARTH BENCHING MAY BE ALLOWED WHERE SLOPES ARE STEEPER THAN 1 ON 3. MAXIMUM RISE SHALL BE 4 FT PER BENCH. EMBANKMENT SHALL BE BROUGHT UP BY STAGE WITH THE BENCHING AND COMPACTED PARALLEL TO THE BENCHES. SLOPE PROTECTION-PIPE DRAINS ARE NOT ADVISED. ANY MODIFICATIONS IN THE DESIGN SHALL BE BASED ON THE WRITTEN APPROVAL OF THE ENGINEER IN CHARGE.

THE QUANTITY OF BENCHING TO BE PAID FOR SHALL BE DETERMINED BY USING A FIXED VOLUME OF 53 CUBIC FEET OF BENCH MULTIPLIED BY THE MEASURED LENGTH OF THE BENCH REGARDLESS OF THE WIDTH OF THE BENCH. PAYMENT SHALL BE MADE UNDER THE APPROPRIATE ITEMS FOR EXCAVATION AND EMBANKMENT.

CONTRACT STATIONING

THE CONTRACT STATIONING IS BASED ON PROPOSED CENTERLINE OF IMPROVEMENTS.

TRAIL DEVELOPMENT

UPON COMPLETION AND ACCEPTANCE OF THIS CONTRACT, THE TRAIL SHALL BE MAINTAINED BY HONEYWELL.

TRAIL CONSTRUCTION

ALL EXISTING VEGETATION WITHIN THE FOOTPRINT OF THE TRAIL AND SIDE SLOPES SHALL BE REMOVED. ALL TREES AND SHRUBS ON EITHER SIDE OF THE CENTERLINE OF THE TRAIL, SHALL BE REMOVED AS DIRECTED BY THE ENGINEER. ALL TREES WITHIN THE LIMITS OF WORK WHICH ARE HAZARDOUS OR IN OTHERWISE UNHEALTHY CONDITION SHALL BE REMOVED AS DIRECTED BY THE ENGINEER. ALL REMAINING TREES AND SHRUBS SHALL BE PROTECTED IN ACCORDANCE WITH THE SPECIFICATIONS.

ALL SPOILS AND CLEARING AND GRUBBING MATERIALS AS A RESULT OF THE PROPOSED IMPROVEMENTS SHALL BE MANAGED ONSITE. THE STORAGE AND STAGING OF THESE MATERIALS IS TO BE COORDINATED WITH HONEYWELL IN ADVANCE OF PROJECT CONSTRUCTION AND SHALL BE IN COMPLIANCE WITH THE PROJECT'S SOIL MANAGEMENT PLAN.

SITE ACCESS

THE OWNER HAS ESTABLISHED ACCESS TO THE SITE FROM BRIDGE STREET, GERELOCK ROAD AND WARNERS ROAD. THE CONTRACTOR WILL BE REQUIRED TO COORDINATE ACCESS NEEDS WITH HONEYWELL AND OTHER CONTRACTORS PERFORMING WORK ON THE SITE.

SPILL PREVENTION

POTENTIAL IMPACTS TO WETLANDS CAN BE ELIMINATED THROUGH THE INCORPORATION OF BEST MANAGEMENT PRACTICES DURING CONSTRUCTION. THESE WILL INCLUDE APPROPRIATE CONSTRUCTION, MANAGEMENT, AND HANDLING PROCEDURES FOR REFUELING STATION AND/OR CHEMICAL STORAGE AREAS (IF APPLICABLE), PROCEDURES TO HANDLE, STORE, AND DISPOSE OF ALL WASTE CONSTRUCTION DEBRIS AND MATERIALS, AND THE SETUP AND MAINTENANCE OF EMERGENCY RESPONSE STATIONS FOR THE STORAGE OF ABSORBENT MATERIALS, PADS, AND BOOMS IN THE EVENT OF PETROLEUM AND/OR CHEMICAL SPILLS. IN THE EVENT THAT A RELEASE OF PETROLEUM OR HAZARDOUS MATERIALS DOES OCCUR, THE NYSDEC OIL SPILL OR HAZARDOUS MATERIAL SPILL (24 HOUR HOTLINE) AT 1-800-457-7362 WILL BE IMMEDIATELY NOTIFIED FOR DIRECTION OF IMMEDIATE CONTAINMENT PROCEDURES.

PROJECT HEALTH AND SAFETY PLAN

THE CONTRACTOR IS REQUIRED TO ADOPT THE HEALTH AND SAFETY PLAN PREPARED BY HONEYWELL CORPORATION FOR WORK TO BE PERFORMED ON THE PROJECT. A COPY OF THE HEALTH AND SAFETY PLAN WILL BE MADE AVAILABLE TO THE SUCCESSFUL CONTRACTOR.

SOIL EROSION AND SEDIMENT CONTROL

THE CONTRACTOR SHALL EMPLOY EFFECTIVE EROSION AND SEDIMENT CONTROL PRACTICES DURING CONSTRUCTION, AS SET FORTH IN THE NYSDOT'S AND NYSDEC'S STATEWIDE STORMWATER AND EROSION CONTROL SPECIFICATIONS, STANDARD CONSTRUCTION DETAILS AND CONSTRUCTION GUIDANCE PROCEDURES. AN EROSION AND SEDIMENT CONTROL PLAN WILL BE DEVELOPED FOR THIS PROJECT.

ALL AREAS OF SOIL DISTURBANCES RESULTING FROM THIS PROJECT SHALL BE SEEDED WITH AN APPROPRIATE NATIVE PERENNIAL SEED MIX AND MULCHED WITH STRAW WITHIN 7 DAYS OF FINAL GRADING. SEED AND MULCH SHALL BE MAINTAINED UNTIL A SUITABLE COVER IS ESTABLISHED. ANY DISTURBED AREA LEFT EXPOSED FOR GREATER THAN 7 DAYS SHALL RECEIVE TEMPORARY SEED AND MULCH, ITEM 209.1003.

INLET PROTECTION SHALL BE INSTALLED AROUND EXISTING STORM DRAIN INLETS WITH CONTRIBUTING DISTURBED AREAS UNLESS EXISTING GRATE ELEVATIONS ARE ABOVE ROUGH GRADE. IN AREAS WHERE PERMANENT PAVEMENT IS TO REMAIN, DROP INLET PROTECTION IS TO BE INSTALLED AS PER ITEM 209.1703.

INSPECTION, PERIODIC CLEANING AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONDUCTED BY THE CONTRACTOR ON A WEEKLY AND POST-RAINFALL BASIS. MAINTENANCE REPAIRS SHALL BE CONDUCTED WITHIN 24-HOURS.

ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED AND OPERATIONAL PRIOR TO UPGRADIENT EARTHWORK OPERATIONS. PRACTICES SHALL REMAIN OPERATIONAL UNTIL STABILIZATION OF CONTRIBUTING AREA.

CONTRACTOR RESPONSIBLE FOR DUST SUPPRESSION TO PREVENT OFF-SITE DUST MIGRATION AS ORDERED BY THE ENGINEER.

CONTRACTOR SHALL NOT ALLOW VEHICLE SEDIMENT TRACKING ONTO PUBLIC ROADWAYS.

CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE CLEAN WATER ACT. ANY PENALTIES OR FINES ASSOCIATED WITH EROSION AND SEDIMENT CONTROL OR STORMWATER MANAGEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL INSTALL ADDITIONAL PRACTICES AS NECESSARY TO PREVENT OFF-SITE SEDIMENT MIGRATION OR WATER QUALITY VIOLATIONS.

A STABILIZED CONSTRUCTION ENTRANCE AND GRAVEL WASH AREAS SHALL BE USED AT ALL POINTS OF INGRESS TO AND EGRESS FROM THE SITE.

SEDIMENT FILTER LOGS SHALL BE INSTALLED AND MAINTAINED DOWNGRADIENT OF ALL ACTIVE CONSTRUCTION AREAS THROUGHOUT THE DURATION OF CONSTRUCTION.

ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT CONTAMINATION OF ANY STREAMS OR WATERWAYS BY SILT, SEDIMENTS, FUEL SOLVENTS, LUBRICANTS, EPOXY COATINGS, CONCRETE LEACHATE, OR ANY OTHER POLLUTANT ASSOCIATED WITH CONSTRUCTION AND CONSTRUCTION PROCEEDINGS.

DURING CONSTRUCTION, NO WET OR FRESH CONCRETE SHALL BE ALLOWED TO ESCAPE INTO ANY WATERS, NOR SHALL WASHINGS FROM CONCRETE TRUCKS, MIXERS, OR OTHER DEVICES BE ALLOWED TO ENTER ANY WATERS.

ALL DRAINAGE DITCHES AND/OR PIPES DISTURBED BY CONSTRUCTION ON OR ADJACENT TO THIS SITE SHALL BE CLEANED AND FUNCTIONING PROPERLY AT COMPLETION OF GRADING AND CONSTRUCTION.

DURING DEWATERING OPERATIONS, SETTLING BASIN OR FILTRATION SYSTEM SHALL BE REQUIRED UNLESS THE PUMP DISCHARGE IS AS CLEAN AND FREE OF SEDIMENT AS THE RECEIVING WATER. THE CONTRACTOR SHALL PROVIDE SEDIMENT BASINS, TEMPORARY SEDIMENT TANKS, OR FILTRATION SYSTEMS FOR ALL DEWATERING OPERATIONS IN ACCORDANCE WITH THE NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

THE COST OF INSTALLING, CLEANING, AND REMOVING TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES SHALL BE INCLUDED UNDER THE CONTRACT.

CONTRACTOR AND ALL SUBCONTRACTORS ARE REQUIRED TO SIGN AND CERTIFY SWPPP PRIOR TO COMMENCING ANY EARTHWORK. THE CONTRACTOR SHALL DESIGNATE TO THE ENGINEER AN EROSION AND SEDIMENT CONTROL SUPERVISOR WITH ADEQUATE TRAINING, EXPERIENCE, AND AUTHORITY TO IMPLEMENT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES, AS PER THE REQUIREMENTS OF THE SWPPP AND ALL ASSOCIATED FEDERAL AND STATE LAWS AND REGULATIONS. THIS INDIVIDUAL WILL BE RESPONSIBLE FOR MONITORING IMPENDING WEATHER CONDITIONS THAT MAY HAVE AN AFFECT ON DAILY CONSTRUCTION OPERATIONS AND THE NEED TO PROVIDE THE REQUIRED EROSION AND SEDIMENT CONTROLS.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
1	ISSUED FOR BID	03/29/19	SLC	MRP	

DRAWN BY	SLC
CHECKED BY	AM
APPROVED BY	MRP
PROJECT MGR.	MB

SEAL: STATE OF NEW YORK, MARK R. PARROS (?), No. 060205-1, LICENSED PROFESSIONAL ENGINEER

PARSONS

OFFICE: 301 PLAINFIELD ROAD, SYRACUSE, NY 13212, (315) 451-9560

JOB

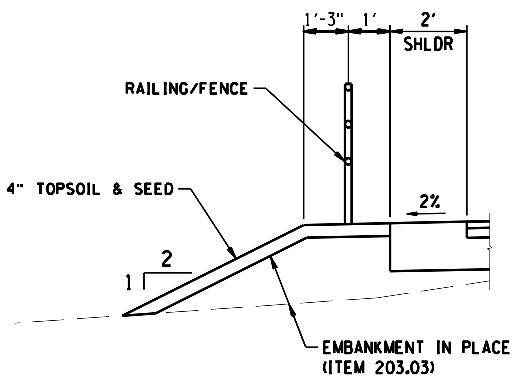
WBS

PROJECT TITLE: Honeywell
ERIE CANALWAY TRAIL
ONONDAGA COUNTY, NEW YORK

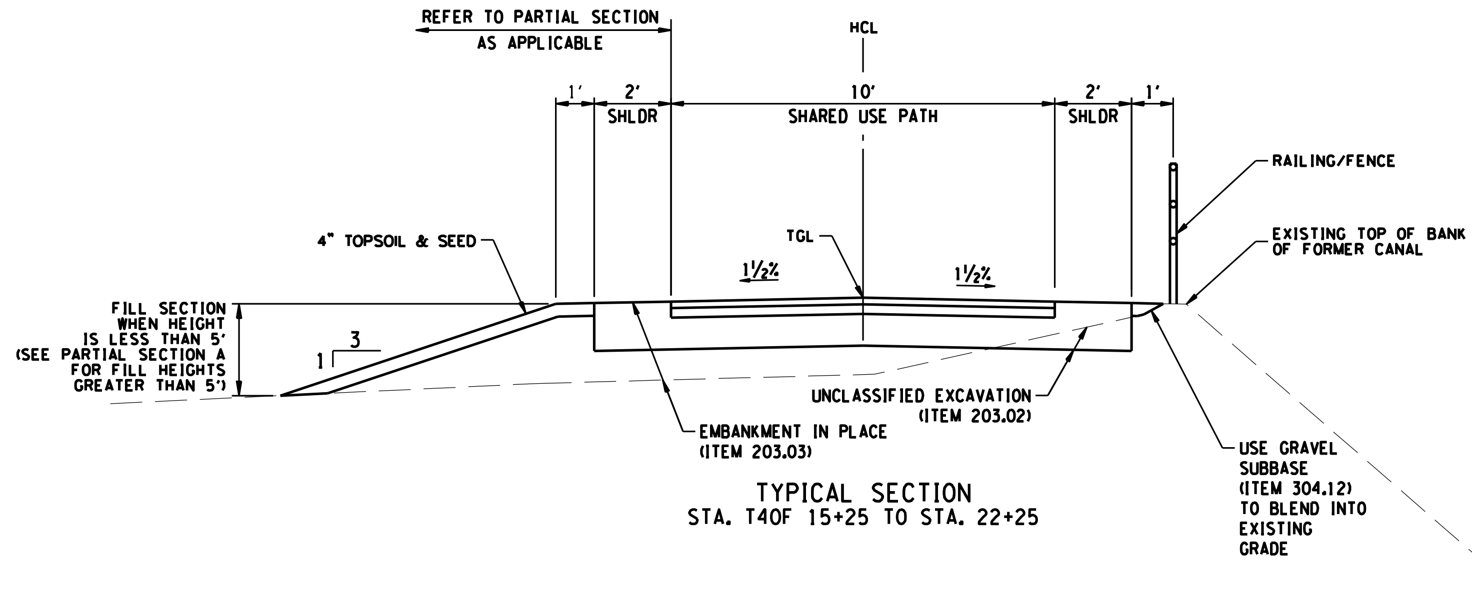
DRAWING TITLE: ERIE CANALWAY TRAIL GENERAL NOTES

SCALE: AS SHOWN (IF PRINTED ON 22x34 SHEET)

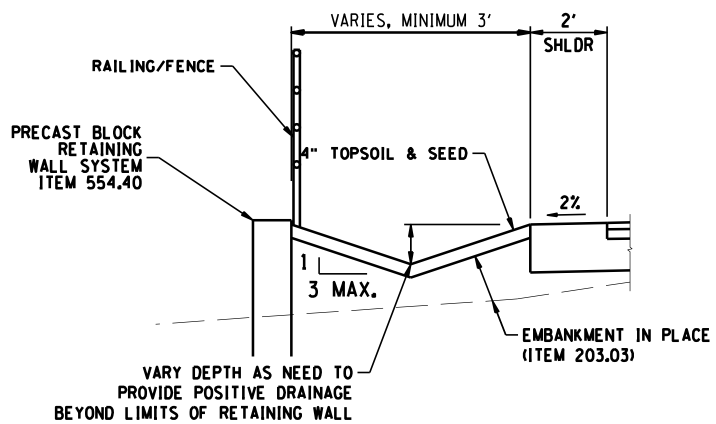
DRAWING NO. GN-02 REV. 0



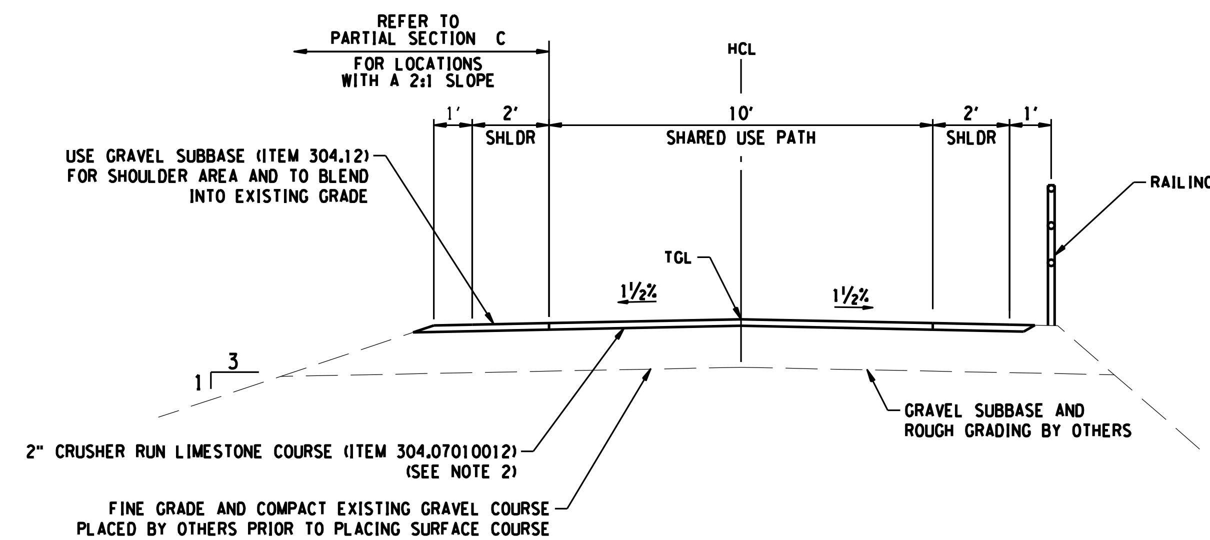
PARTIAL SECTION A
FOR FILL HEIGHT
GREATER THAN 5 FEET



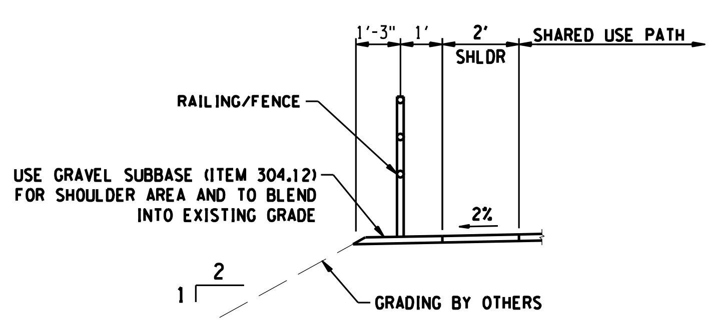
TYPICAL SECTION
STA. T40F 15+25 TO STA. 22+25



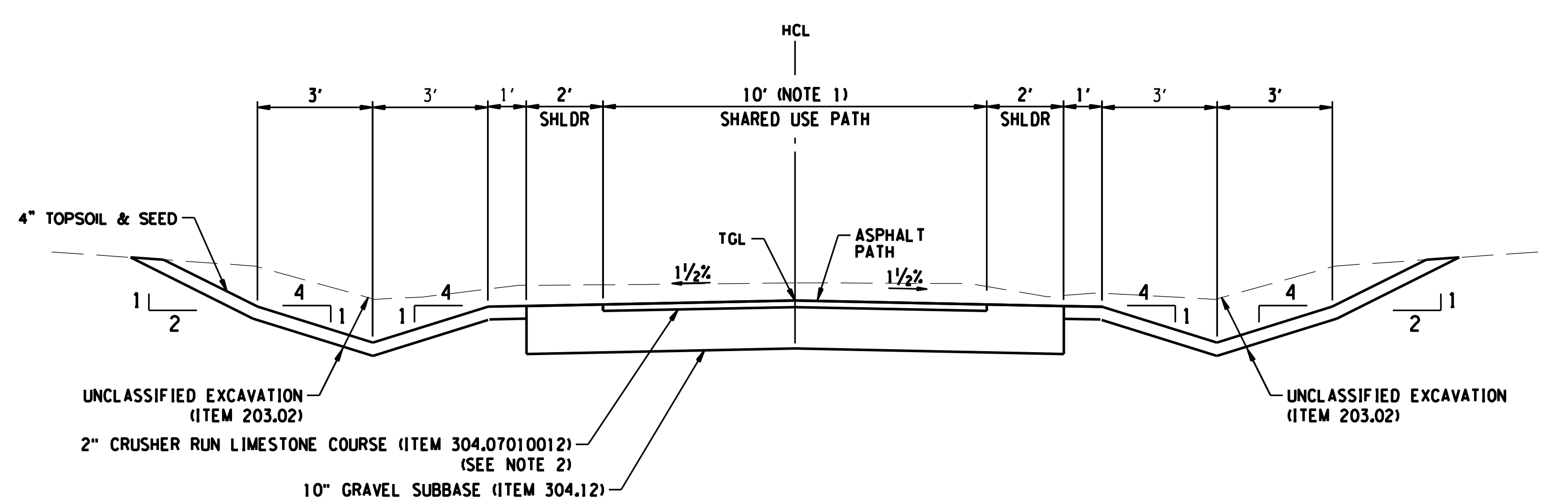
PARTIAL SECTION B
STA. T40F 20+20 TO 22+00



TYPICAL SECTION
STA. T40F 22+25 TO STA. 48+00



PARTIAL SECTION C



TYPICAL SECTION
STA. T40F 48+00 TO STA. 50+09

NOTES:

1. NORMAL TRAIL WIDTH IS 10 FEET, BUT VARIES AT SPLITTER ISLAND LOCATIONS. REFER TO GENERAL PLANS FOR SPLITTER ISLAND LOCATIONS.
2. ASPHALT TRAIL SECTION TO BE UTILIZED IN LEU OF STONE DUST TRAIL SECTION WHERE THE PROFILE GRADE EXCEEDS 3%. SEE TABLE OF LOCATIONS ON DWG. NO. DT-07.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
0	ISSUED FOR BID	03/29/19	SLC	MRP	

DRAWN BY: SLC
CHECKED BY: AM
APPROVED BY: MRP
PROJECT MGR.: MB

SEAL: STATE OF NEW YORK — MARK R. PAWLICK — No. 062005-1 — LICENSED PROFESSIONAL ENGINEER

PARSONS

OFFICE
301 PLAINFIELD ROAD
SYRACUSE, NY 13212
(315) 451-9560

JOB
WBS

PROJECT TITLE
Honeywell
ERIE CANALWAY TRAIL
ONONDAGA COUNTY, NEW YORK

DRAWING TITLE
ERIE CANALWAY TRAIL
TYPICAL SECTIONS

SCALE: NOT TO SCALE
(IF PRINTED ON 22x34 SHEET)

DRAWING NO.: TS-07
REV.: 0

FILE NAME: P:\HONEYWELL -SYR\450817 NRD PROJECTS SUPPORT\10.0 TECHNICAL CATEGORIES\PARSONS SW SHORE TRAIL DRAWINGS\CADD\CIVIL 3D\XREF\450817-22X34 DESIGN BRDR.DWG
PLOT DATE: 1/7/2010 1:36 PM PLOTTED BY: RUSSO, JILL

T40A CONTROL LINE TABLE

ELEMENT	STATION	COORDINANTS NORTHING	COORDINANTS EASTING	RADIUS (FEET)	LENGTH (FEET)	DELTA (DEGREES)
PI T40A-1 POB	T40A 2+80.05	1116331.252	904269.08	---	---	---
CURVE T40A-1 PC	T40A 3+33.92	1116354.15	904317.85	75.00'	46.42'	35°27'46" RT
CURVE T40A-1 PT	T40A 3+80.34	1116360.04	904363.15			
CURVE T40A-2 PC	T40A 4+38.14	1116349.69	904420.01	75.00'	34.17'	26°06'11" LT
CURVE T40A-2 PT	T40A 4+72.31	1116351.31	904453.85			
CURVE T40A-3 PC	T40A 8+96.02	1116466.59	904861.57	80.00'	20.00'	14°19'18" LT
CURVE T40A-3 PT	T40A 9+16.02	1116474.37	904879.94			
CURVE T40A-4 PC	T40A 9+81.36	1116507.15	904936.47	80.00'	12.37'	8°51'44" RT
CURVE T40A-4 PT	T40A 9+93.74	1116512.50	904947.61			
CURVE T40A-5 PC	T40A 1+50.26	1116569.23	905093.50	100.00'	145.62'	83°25'59" RT
CURVE T40A-5 PT	T40A 1+95.88	1116522.68	905218.18			
CURVE T40A-6 PC	T40A 1+84.39	1116267.51	905352.80	150.00'	213.71'	81°37'50" LT
CURVE T40A-6 PT	T40A 1+98.10	1116196.06	905535.40			
CURVE T40A-7 PC	T40A 1+44.54	1116211.52	905579.20	100.00'	68.56'	39°16'50" RT
CURVE T40A-7 PRC	T40A 1+13.10	1116211.29	905646.43			
CURVE T40A-8 PRC	T40A 1+13.10	1116211.29	905646.43	100.00'	68.63'	39°19'26" LT
CURVE T40A-8 PT	T40A 1+81.74	1116211.09	905713.72			
CURVE T40A-9 PC	T40A 2+59.29	1116236.96	905786.83	100.00'	36.25'	20°46'12" RT
CURVE T40A-9 PRC	T40A 2+95.54	1116242.66	905822.43			
CURVE T40A-10 PRC	T40A 2+95.54	1116242.66	905822.43	100.00'	37.53'	21°30'05" LT
CURVE T40A-10 PT	T40A 2+33.07	1116248.80	905859.23			
CURVE T40A-11 PC	T40A 2+61.69	1116362.37	906167.60	200.00'	117.08'	33°32'25" LT
CURVE T40A-11 PRC	T40A 2+78.77	1116431.82	906259.79			
CURVE T40A-12 PRC	T40A 2+78.77	1116431.82	906259.79	150.00'	73.00'	27°53'03" RT
CURVE T40A-12 PT	T40A 2+51.77	1116478.10	906315.31			
CURVE T40A-13 PC	T40A 2+83.30	1116579.14	906523.63	100.00'	66.35'	38°00'55" RT
CURVE T40A-13 PRC	T40A 2+49.65	1116586.93	906588.30			
CURVE T40A-14 PRC	T40A 2+49.65	1116586.93	906588.30	100.00'	86.52'	49°34'20" LT
CURVE T40A-14 PT	T40A 3+36.17	1116605.29	906670.11			
CURVE T40A-15 PC	T40A 3+48.09	1116673.31	906758.98	100.00'	34.39'	19°42'17" RT
CURVE T40A-15 PT	T40A 3+82.48	1116689.16	906789.31			
CURVE T40A-16 PC	T40A 3+18.20	1116730.49	906918.60	100.00'	3.97'	2°16'24" RT
CURVE T40A-16 PT	T40A 3+22.17	1116731.62	906922.40			
CURVE T40A-17 PC	T40A 3+06.17	1116860.59	907388.89	200.00'	34.53'	9°53'31" LT
CURVE T40A-17 PT	T40A 3+40.70	1116872.61	907421.22			
CURVE T40A-18 PC	T40A 4+28.33	1117124.16	907952.28	100.00'	4.29'	2°27'27" RT
CURVE T40A-18 PT	T40A 4+32.61	1117125.91	907956.20			
CURVE T40A-19 PC	T40A 4+57.58	1117252.31	908255.58	100.00'	49.20'	28°11'27" LT
CURVE T40A-19 PRC	T40A 4+06.79	1117281.61	908294.49			
CURVE T40A-20 PRC	T40A 4+06.79	1117281.61	908294.49	100.00'	47.12'	26°59'42" RT
CURVE T40A-20 PT	T40A 4+53.90	1117310.08	908331.48			
CURVE T40A-21 PC	T40A 5+35.74	1117425.09	908588.79	40.00'	73.69'	105°33'27" RT
CURVE T40A-21 PT	T40A 5+09.44	1117394.51	908644.67			
CURVE T40A-22 PC	T40A 5+13.42	1117291.67	908660.09	40.00'	27.33'	39°09'07" LT
CURVE T40A-22 POE	T40A 5+40.76	1117268.02	908672.71			

T40B CONTROL LINE TABLE

ELEMENT	STATION	COORDINANTS NORTHING	COORDINANTS EASTING	RADIUS (FEET)	LENGTH (FEET)	DELTA (DEGREES)
PI T40B-1 POB	T40B 10+00.00	1119473.17	921367.02	---	---	---
CURVE T40B-1 PC	T40B 10+20.00	1117230.56	908713.85	100.00'	121.77'	69°46'15" RT
CURVE T40B-1 PT	T40B 11+41.77	1117119.01	908739.18			
CURVE T40B-2 PC	T40B 12+16.55	1117049.73	908711.06	100.00'	77.96'	44°40'01" LT
CURVE T40B-2 PT	T40B 12+94.51	1116973.73	908711.38			
CURVE T40B-3 PC	T40B 15+83.96	1116706.45	908822.50	100.00'	59.19'	33°54'58" LT
CURVE T40B-3 PT	T40B 16+43.16	1116661.46	908859.63			
CURVE T40B-4 PC	T40B 20+08.57	1116459.73	909164.30	100.00'	2.56'	1°27'58" RT
CURVE T40B-4 PT	T40B 20+11.13	1116458.29	909166.42			
CURVE T40B-5 PC	T40B 21+54.11	1116376.32	909283.58	82.00'	90.76'	63°25'02" LT
CURVE T40B-5 PT	T40B 22+44.87	1116371.41	909369.64			
PI T40B-2 POE	T40B 32+53.17	1117921.93	922976.34	---	---	---

T40C CONTROL LINE TABLE

ELEMENT	STATION	COORDINANTS NORTHING	COORDINANTS EASTING	RADIUS (FEET)	LENGTH (FEET)	DELTA (DEGREES)
PI T40C-1 POB	T40C 10+10.48	1116475.03	909560.95	---	---	---
CURVE T40C-1 PC	T40C 10+51.54	1116494.59	909597.06	200.00'	146.56'	41°59'12" RT
CURVE T40C -1 PT	T40C 11+98.10	1116513.17	909739.16			
CURVE T40C-2 PC	T40C 18+51.22	1116360.20	910374.10	1404.00'	1111.55'	45°21'41" LT
CURVE T40C-2 PCC	T40C 29+62.77	1116532.11	911443.12			
CURVE T40C-3 PCC	T40C 29+62.77	1116532.11	911443.12	150.00'	102.83'	39°16'43"LT
CURVE T40C-3 POE	T40C 30+65.60	1116610.97	911505.95			

T40D CONTROL LINE TABLE

ELEMENT	STATION	COORDINANTS NORTHING	COORDINANTS EASTING	RADIUS (FEET)	LENGTH (FEET)	DELTA (DEGREES)
PI T40D-1 POB	T40D 10+00.00	1116610.97	911505.95	---	---	---
CURVE T40D-1 PC	T40D 10+90.19	1116696.29	911535.17	150.00'	69.07'	26°22'59" LT
CURVE T40D-1 PT	T40D 11+59.26	1116764.41	911541.98			
CURVE T40D-2 PC	T40D 14+04.46	1117007.54	911510.07	150.00'	21.61'	8°15'16" LT
CURVE T40D-2 PT	T40D 14+26.07	1117028.69	911505.73			
CURVE T40D-3 PC	T40D 15+42.79	1117141.03	911474.08	150.00'	142.18'	54°18'26" RT
CURVE T40D-3 PT	T40D 16+84.96	1117275.23	911501.19			
CURVE T40D-4 PC	T40D 18+91.49	1117436.69	911629.97	150.00'	101.82'	38°53'36" LT
CURVE T40D-4 PT	T40D 19+93.32	1117531.06	911662.70			
CURVE T40D-5 PC	T40D 21+22.27	1117660.01	911661.98	150.00'	38.57'	14°44'04" LT
CURVE T40D-5 PT	T40D 21+60.85	1117698.14	911656.84			
CURVE T40D-6 PC	T40D 22+61.41	1117795.25	911630.72	150.00'	28.87'	11°01'38" RT
CURVE T40D-6 PT	T40D 22+90.28	1117823.67	911625.94			
CURVE T40D-7 PC	T40D 25+22.31	1118055.13	911609.65	150.00'	23.99'	9°09'44" RT
CURVE T40D-7 PT	T40D 25+46.30	1118079.09	911609.89			
CURVE T40D-8 PC	T40D 27+18.60	1118250.71	911625.31	400.00'	82.78'	11°51'24" LT
CURVE T40D-8 PT	T40D 28+01.38	1118333.33	911624.17			
CURVE T40D-9 PC	T40D 28+71.03	1118402.50	911616.02	82.00'	128.78'	89°59'02" RT
CURVE T40D-9 PT	T40D 29+99.81	1118493.53	911687.84			
PI T40D-2 POE	T40B 29+99.82	1118493.53	911687.84	---	---	---

T40F CONTROL LINE TABLE

ELEMENT	STATION	COORDINANTS NORTHING	COORDINANTS EASTING	RADIUS (FEET)	LENGTH (FEET)	DELTA (DEGREES)
PI T40F-1 POB	T40E 9+60.45	1118407.38	913458.12	---	---	---
CURVE T40F-1 PC	T40E 10+32.73	1118377.66	913524.01	150.00'	17.86'	6°49'23" RT
CURVE T40F-1 PT	T40E 10+50.59	1118369.37	913539.82			
CURVE T40F-2 PC	T40E 11+42.48	1118321.91	913618.50	150.00'	20.94'	7°59'58" LT
CURVE T40F-2 PT	T40E 11+63.42	1118312.38	913637.13			
CURVE T40F-3 PC	T40E 15+82.93	1118147.79	914023.01	1500.00'	34.00'	1°17'55" RT
CURVE T40F-3 PT	T40E 16+16.94	1118134.10	914054.13			
CURVE T40F-4 PC	T40E 16+79.04	1118108.44	914110.69	1500.00'	41.95'	1°36'09" LT
CURVE T40F-4 PT	T40E 17+20.99	1118091.65	914149.13			
CURVE T40F-5 PC	T40E 20+30.55	1117971.71	914434.52	100.00'	7.90'	4°31'43" LT
CURVE T40F-5 PT	T40E 20+38.46	1117968.94	914441.92			
CURVE T40F-6 PC	T40E 20+74.39	1117957.68	914476.03	100.00'	11.85'	6°47'18" RT
CURVE T40F-6 PT	T40E 20+86.24	1117953.31	914487.04			
CURVE T40F-7 PC	T40E 21+56.24	1117923.67	914550.45	150.00'	6.69'	2°33'19" LT
CURVE T40F-7 PT	T40E 21+62.93	1117920.97	914556.57			
CURVE T40F-8 PC	T40E 29+43.16	1117622.39	915277.41	2500.00'	13.75'	0°18'55" RT
CURVE T40F-8 PT	T40E 29+56.91	1117617.09	915290.11			
CURVE T40F-9 PC	T40E 33+39.59	1117468.70	915642.84	1000.00'	29.74'	1°42'15" RT
CURVE T40F-9 PT	T40E 33+69.33	1117456.76	915670.08			
CURVE T40F-10 PC	T40E 35+10.28	1117398.27	915798.32	250.00'	24.57'	5°37'48" LT
CURVE T40F-10 PT	T40E 35+34.85	1117389.19	915821.14			
CURVE T40F-11 PC	T40E 35+78.45	1117375.07	915862.39	500.00'	34.26'	3°55'33" RT
CURVE T40F-11 PT	T40E 36+12.71	1117362.88	915894.40			
CURVE T40F-12 PC	T40E 37+16.60	1117322.59	915990.17	2000.00'	37.74'	1°04'53" RT
CURVE T40F-12 PT	T40E 37+54.35	1117307.63	916024.82			
CURVE T40F-13 PC	T40E 39+75.96	1117217.86	916227.43	2000.00'	48.93'	1°24'07" LT
CURVE T40F-13 PT	T40E 40+24.89	1117198.58	916272.41			
CURVE T40F-14 PC	T40E 44+26.57	1117044.91	916643.52	2000.00'	47.52'	1°21'41" RT
CURVE T40F-14 PT	T40E 44+74.09	1117026.20	916687.20			
CURVE T40F-15 PC	T40E 45+43.57	1116998.10	916750.75	2500.00'	12.90'	0°17'45" LT
CURVE T40F-15 PT	T40E 45+56.47	1116992.91	916762.57			
CURVE T40F-16 PC	T40E 47+44.44	1116917.78	916934.86	300.00'	3.93'	0°45'00" RT
CURVE T40F-16 PT	T40E 47+48.37	1116916.19	916938.45			
CURVE T40F-17 PC	T40E 48+62.60	1116869.16	917042.56	75.00'	9.11'	6°57'45" LT
CURVE T40F-17 PT	T40E 48+71.72	1116865.92	917051.07			
CURVE T40F-18 PC	T40E 48+97.69	1116858.18	917075.86	75.00'	18.70'	14°17'05" RT
CURVE T40F-18 PT	T40E 49+16.39	1116850.44	917092.84			
CURVE T40F-19 PC	T40E 49+65.03	1116824.93	917134.25	75.00'	41.39'	31°37'11" LT
CURVE T40F-19 PT	T40E 50+06.42	1116813.79	917173.57			
PI T40F-2 POE	T40E 50+09.26	1116813.79	917176.41	---	---	---

T40E CONTROL LINE TABLE

ELEMENT	STATION	COORDINANTS NORTHING	COORDINANTS EASTING	RADIUS (FEET)	LENGTH (FEET)	DELTA (DEGREES)
PI T40E-1 POB	T40E 10+35.59	1118493.53	911687.84	---	---	---
CURVE T40E-1 PC	T40E 19+44.04	1118600.09	912590.02	900.00'	196.99'	12°32'27" RT
CURVE T40E-1 PT	T40E 21+41.03	1118601.68	912786.61			
CURVE T40E-2 PC	T40E 21+90.64	1118596.67	912835.97	200.00'	17.11'	4°54'03" RT
CURVE T40E-2 PT	T40E 22+07.75	1118594.21	912852.89			
PI T40E-2	T40E 23+98.04	1118558.86	913039.87	---	---	---
PI T40E-3	T40E 24+18.54	1118553.53	913059.67	---	---	---
PI T40E-4	T40E 26+29.55	1118488.59	913260.43	---	---	---
PI T40E-5	T40E 26+49.57	1118481.48	913279.15	---	---	---
CURVE T40E-3 PC	T40E 27+60.46	1118435.56	913380.08	150.00'	15.97'	6°06'04" LT
CURVE T40E-3 PT	T40E 27+76.43	1118429.73	913394.94			
PI T40E-6 POE	T40E 27+97.56	1118423.07	913415.00	---	---	---

T40G CONTROL LINE TABLE

ELEMENT	STATION	COORDINANTS NORTHING	COORDINANTS EASTING	RADIUS (FEET)	LENGTH (FEET)	DELTA (DEGREES)
PI T40G-1 POB	T40E 10+00.00	1116813.79	917196.07	---	---	---
CURVE T40G-1 PC	T40E 10+86.69	1116813.79	917282.76	150.00'	59.55'	22°44'43" RT
CURVE T40G-1 PT	T40E 11+46.24	1116802.12	917340.75			
CURVE T40G-2 PC	T40E 12+89.46	1116746.75	917472.84	150.00'	67.49'	25°46'47" LT
CURVE T40G-2 PT	T40E 13+56.95	1116735.29	917538.78			
CURVE T40G-3 PC	T40E 14+25.07	1116738.90	917606.79	150.00'	63.06'	24°05'15" RT
CURVE T40G-3 PT	T40E 14+88.13	1116729.10	917668.62			
CURVE T40G-4 PC	T40E 16+14.45	1116683.72	917786.51	250.00'	69.76'	15°59'13" LT
CURVE T40G-4 PT	T40E 16+84.21	1116668.00	917854.25			
CURVE T40G-5 PC	T40E 17+49.97	1116662.20	917919.75	100.00'	22.47'	12°52'20" LT
CURVE T40G-5 PT	T40E 17+72.44	1116662.73	917942.16			
CURVE T40G-6 PC	T40E 18+85.74	1116678.12	918054.41	100.00'	2.74'	1°34'08" RT
CURVE T40G-6 PT	T40E 18+88.47	1116678.46	918057.13			
PI T40G-2 POE	T40E 19+15.13	1116681.35	918083.63	---	---	---

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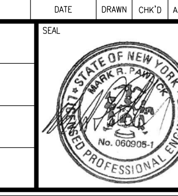

PARSONS

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DRAWING TITLE
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DETAILS AND TABLES

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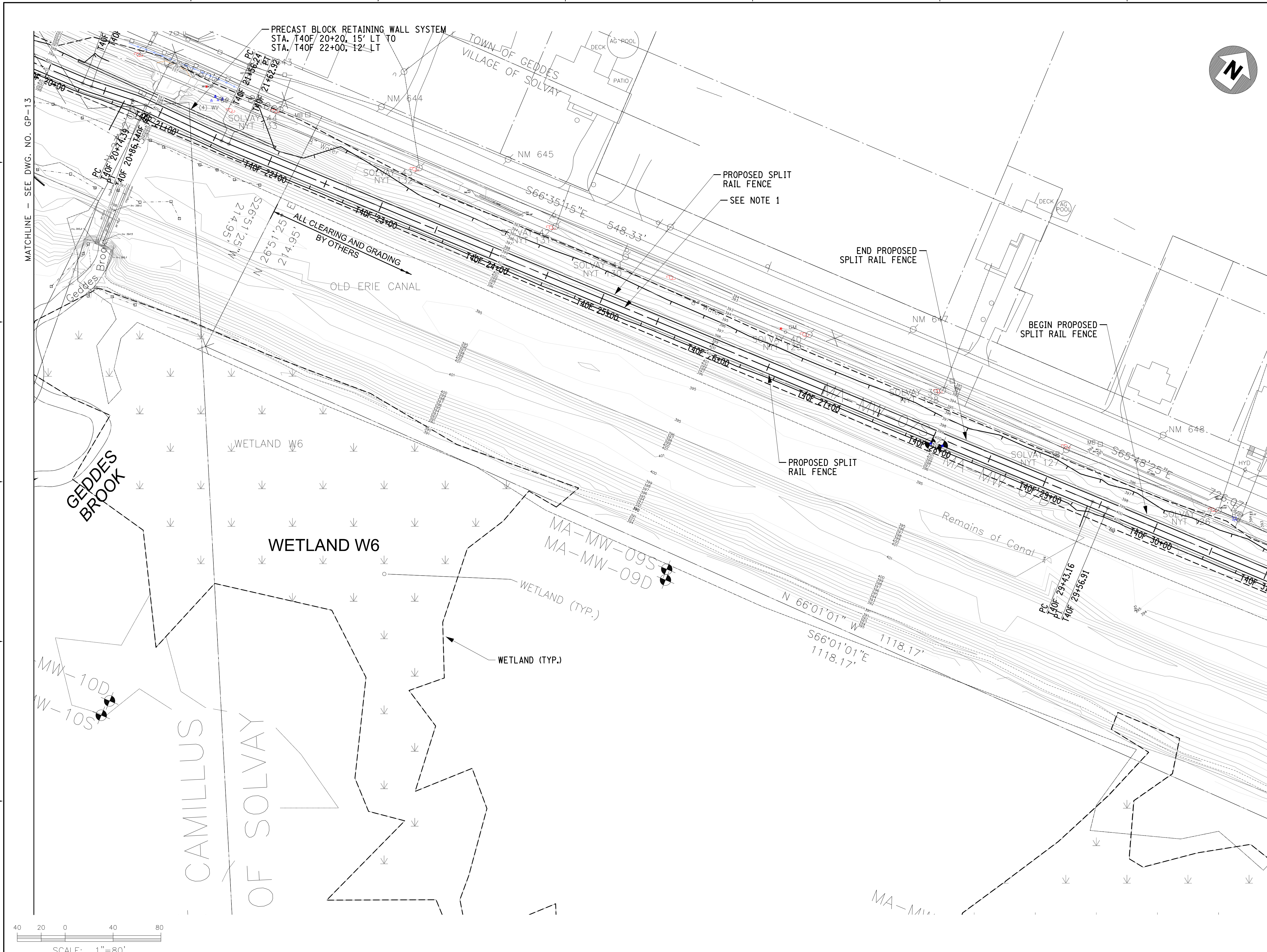

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X-X SIGN LOCATION NUMBER

NOTES

1. REFER TO HORIZONTAL ALIGNMENT CONTROL TABLES ON DWG. NOS. DT-06 AND DT-07.
2. REFER TO UTILITY CONFLICT AND COORDINATION TABLE ON DWG. NO. DT-09.

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WBS: 08220

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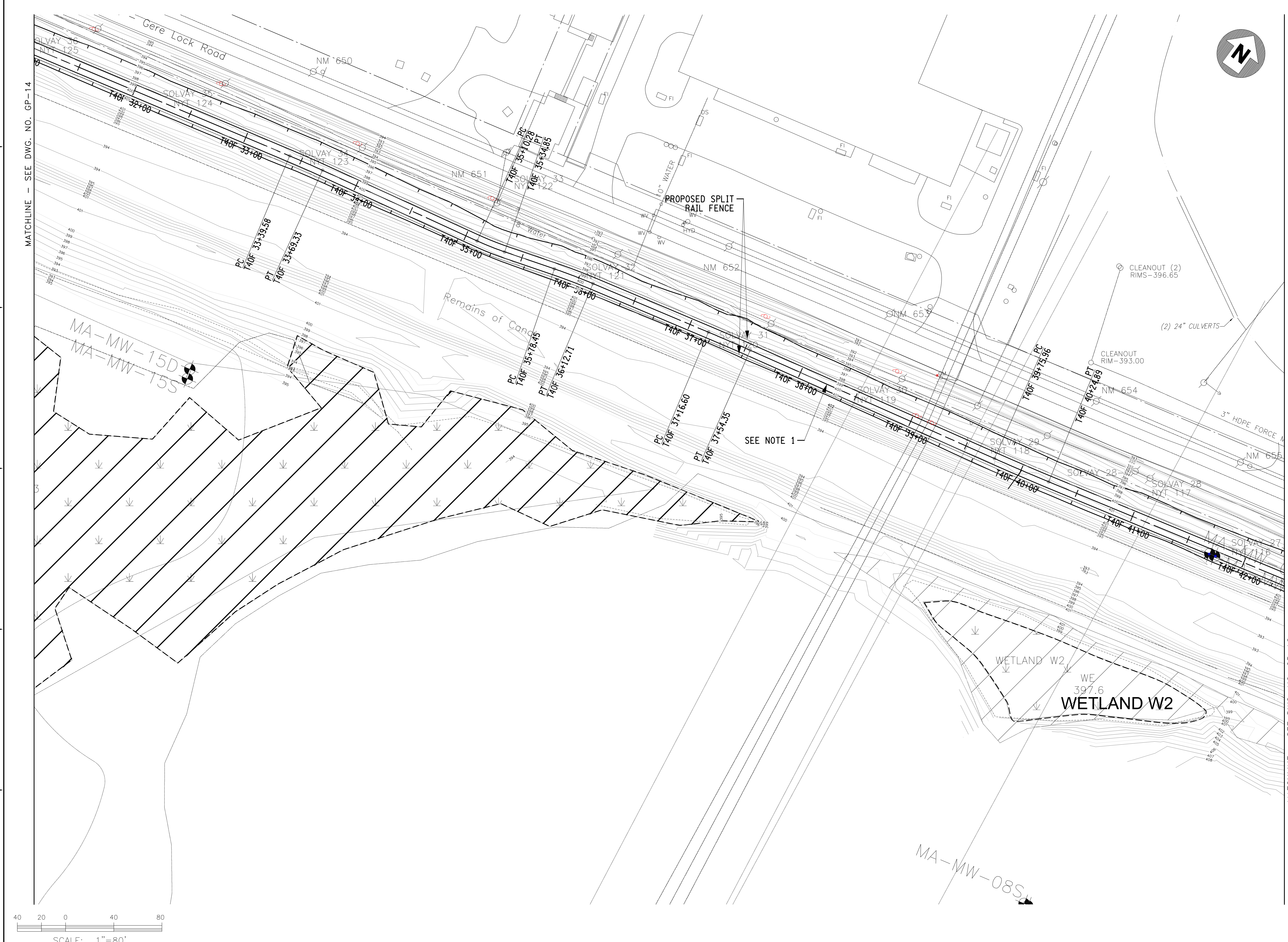

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NOTES

1. REFER TO HORIZONTAL ALIGNMENT CONTROL TABLES ON DWG. NOS. DT-06 AND DT-07.
2. REFER TO UTILITY CONFLICT AND COORDINATION TABLE ON DWG. NO. DT-09.

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PROJECT MGR.	MB

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WBS: 08220

PROJECT TITLE:
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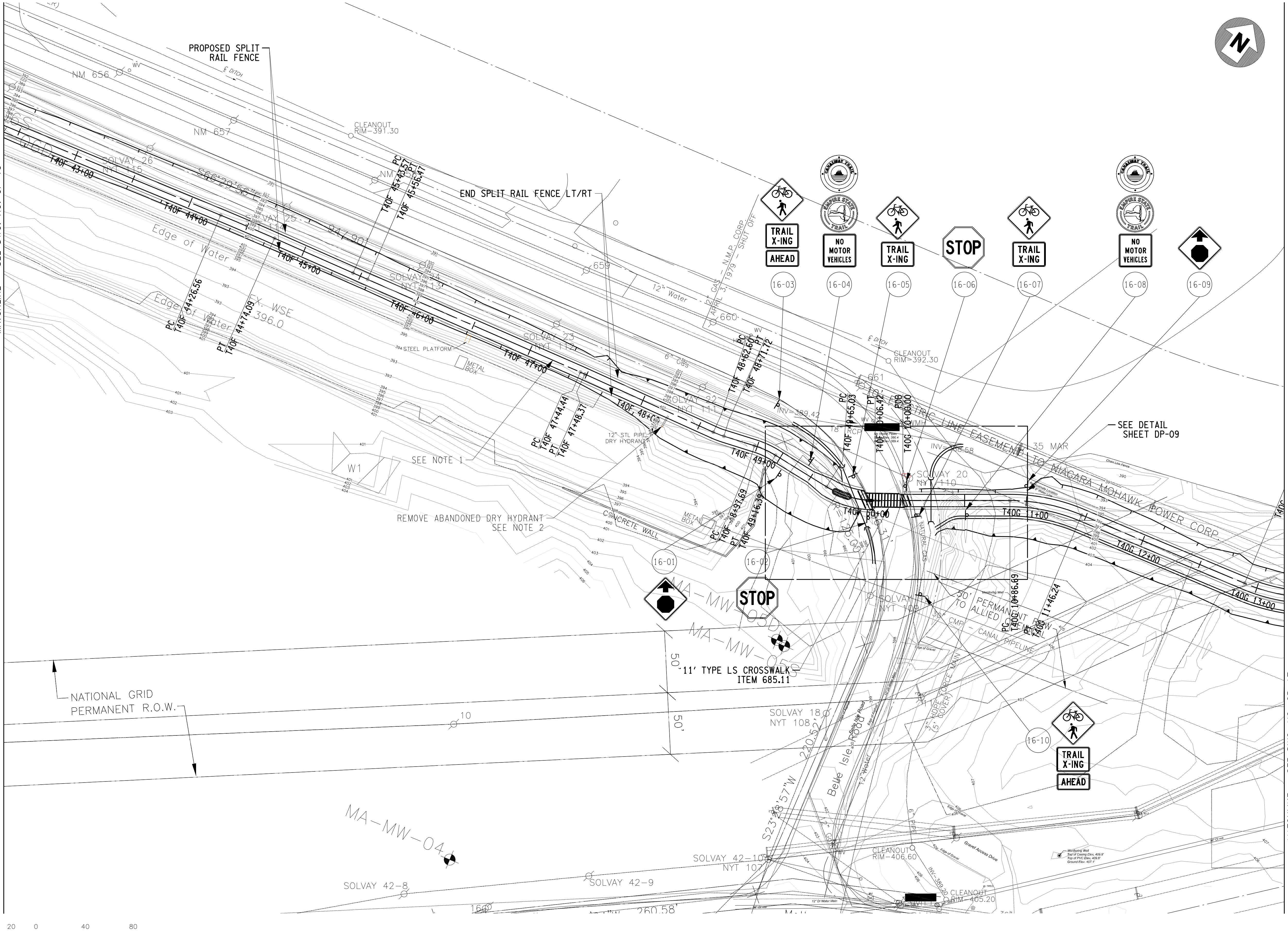

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NOTES

1. REFER TO HORIZONTAL ALIGNMENT CONTROL TABLES ON DWG. NOS. DT-06 AND DT-07.
2. REFER TO UTILITY CONFLICT AND COORDINATION TABLE ON DWG. NO. DT-09.

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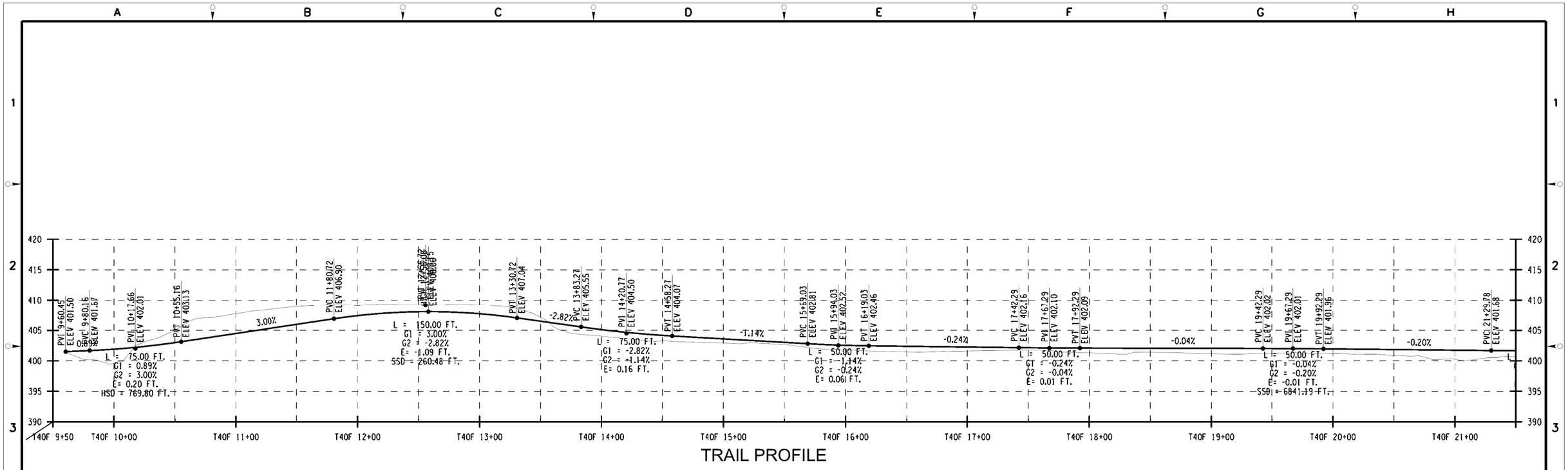

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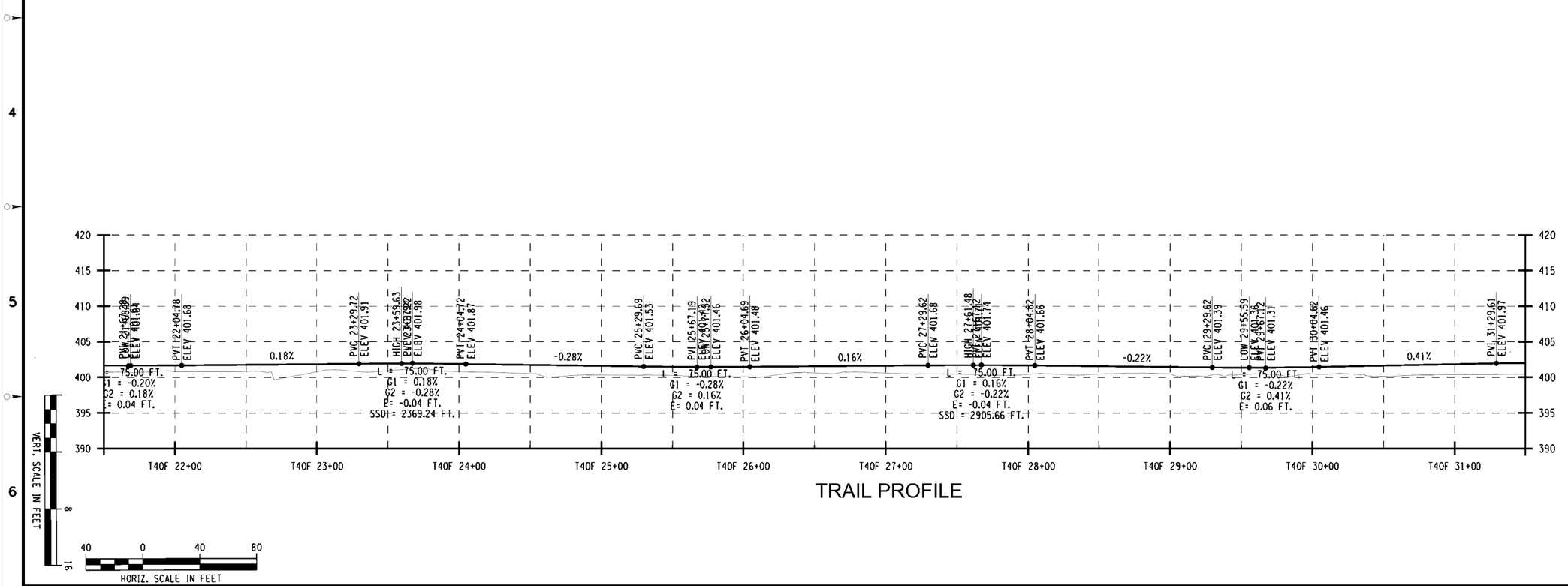

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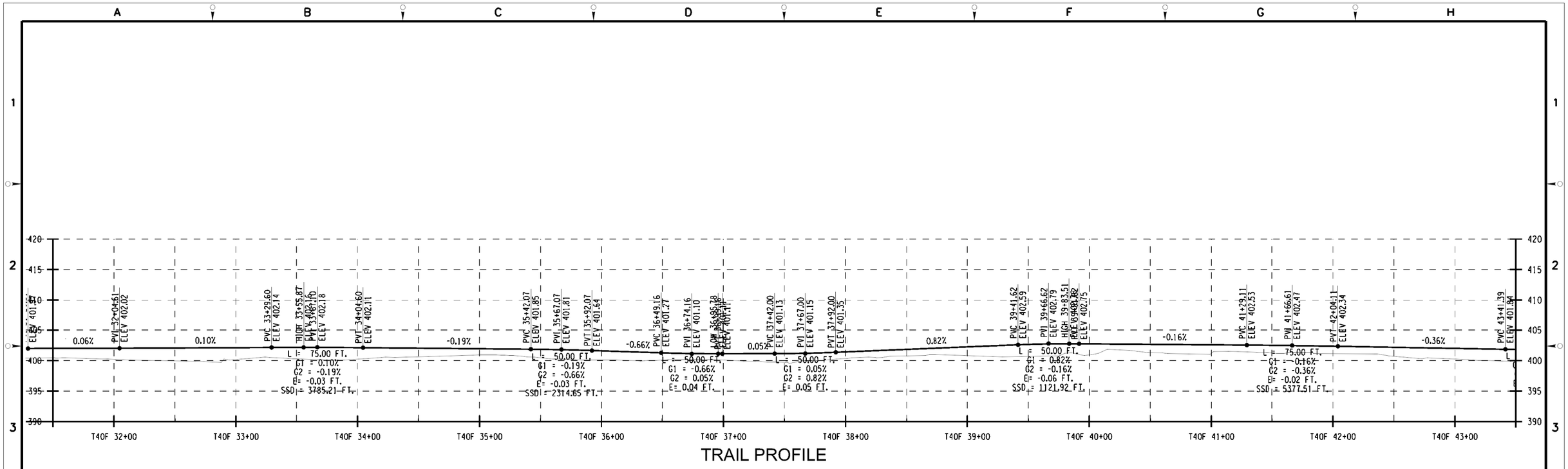

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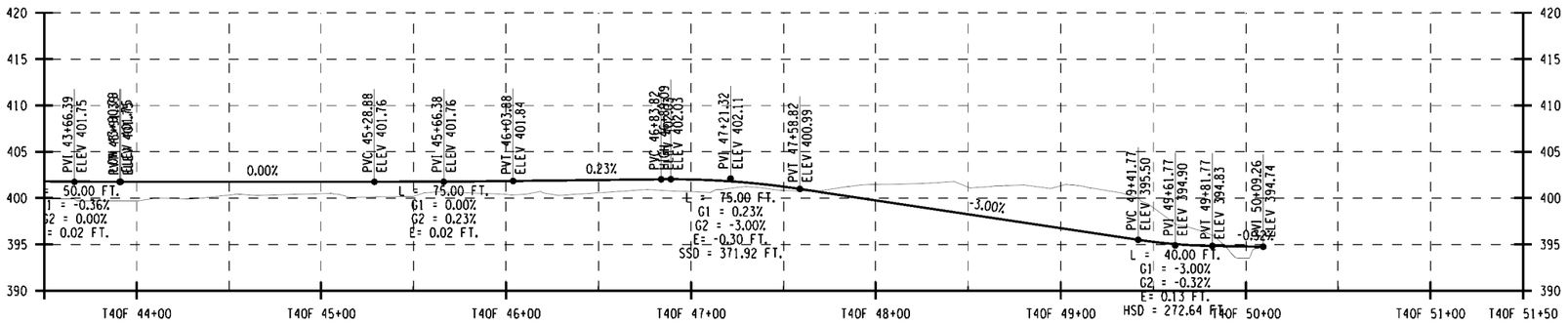

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