WSP | ENGINEERING OF NEW YORK, P.C.

May 31, 2012

Mr. Jaspal Walia
Project Manager
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

Re: Transmittal - Final Supplemental Work Plan
Fourth Street Utility Corridor Excavation
Buffalo, New York

Dear Mr. Walia:

As requested via electronic mail dated May 29, 2012, WSP Engineering of New York, P.C. has enclosed one hard copy and one electronic copy (on CD) of the Final Supplemental Work Plan for the Fourth Street utility corridor excavation for your approval.

Please call if you have any questions.

Sincerely yours,

John Black
Executive Vice President

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Enclosures

cc/encl.: Gordon Adkison, Duke
Tanya Alexander, National Fuel Gas
Martin Doster, New York State Department of Environmental Conservation
John Manzi, QLT Buffalo
Reynolds Renshaw, Renshaw Consulting Group

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FINAL SUPPLEMENTAL WORK PLAN

Fourth Street Utility Corridor Excavation

5/31/2012

WSP | ENGINEERING OF NEW YORK, P.C.

FINAL SUPPLEMENTAL WORK PLAN

Fourth Street Utility Corridor Excavation

5/31/2012

Client

QLT Buffalo LLC on behalf of National Fuel Gas Distribution Corporation

Consultant

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Drawings

Professional Engineer Certification

I certify that I am an engineer licensed in the State of New York who has received a baccalaureate and post-graduate degree in engineering and have sufficient training and experience in remediation, groundwater hydrology, and related fields, as demonstrated by state registration and completion of accredited university courses that enable me to make sound professional judgments regarding engineering design. I further certify that this Supplemental Work Plan, Fourth Street Utility Corridor Excavation, Buffalo, New York, dated May 31, 2012, was prepared under my direction.

John P. Black, P.E.
P.E. 062818

STATE OF NEW YORK
JOHN P. BLACK
No. 062818-1
LICENSED PROFESSIONAL ENGINEER

May 31, 2012
Date

1 Introduction

WSP Engineering of New York, P.C., has prepared this Supplemental Work Plan (Supplemental Work Plan) specifically to address an area located between the existing sheet pile and a proposed sheet pile wall to be located immediately east of Fourth Street. As discussed with the New York State Department of Environmental Conservation (NYSDEC) during the March 12, 2012 meeting, WSP Engineering understands that this additional work will address any outstanding issues about the property to the immediate west of the area of the previously completed actions, and that, the filing of institutional controls concerning the School property, will be the only remaining requirement before NYSDEC will issue a no further action letter with respect to the School Property Order on Consent (Index #B9-0577-00-05(A)) between the NYSDEC and National Fuel Gas Distribution Corporation (NFG, effective date February 6, 2005, modified August 31, 2005). The general scope of work (Sheets 1 through 4, attached) will include the following:

- Excavation will be conducted west of the existing sheet pile wall to a proposed sheet pile wall to be located immediately east of the edge of Fourth Street to assist in expediting the issuance of a no further action letter under the School Property Consent Order (Sheet 4, attached).
- Width of the excavation (approximately 55 feet) will be based on the width required to meet the site specific action levels (SSALs) that had been utilized on the Site east of the existing sheet pile wall.
- The existing utilities will be rerouted or protected during excavation.
- The excavation will be braced to allow excavation to rock.
- Groundwater encountered within the excavation will be recovered, treated and discharged to the Buffalo Sewer Authority (BSA) under a pre-treatment permit.
- All soils within the bracing will be removed and tested for the SSALs for potential reuse or shipped offsite for disposal.
- The portion of the excavation located below the groundwater elevation will be backfilled with flowable fill or compacted clay that meets the SSALs.
- The portion of the excavation that lies above the groundwater elevation will be backfilled with excavated soils likely from a similar location that that meet the SSALs used on the adjacent site.
- The liquids in monitoring well MW-04 will be removed and discharged with the water from the excavation in accordance with the applicable pre-treatment permit.
- Monitoring Well MW-04 will be filled with Oxygen Release Compound (ORC) socks spanning the full length of the screened interval.
- The excavation will be restored (utilities, pavement, sidewalk, earthen berm, and sod grass).

The scope of work includes the excavation and offsite disposal of soil and fill material located within the excavation below the utility corridor, located between the existing sheet pile wall installed in July of 2005 and a proposed sheet pile wall to be located immediately east of Fourth Street along the alignment of the former Wilkeson Slip as shown on Sheet 4. Dewatering activities will be conducted concurrent to soil excavation activities. Collected groundwater and storm water will be discharged to the Buffalo Sewer Authority (BSA) after satisfying pretreatment criteria via permit. Excavation will continue until the pre-determined limits of the braced cut are satisfied. Details necessary to conduct the work are presented herein.

WSP Engineering will serve as the lead engineer (Engineer) for this project. Ontario Specialty Contracting, Inc. (OSC), of Buffalo, New York, under contract to WSP Engineering, will serve as the construction contractor (Contractor) responsible for conducting the majority of the field work. Specialty subcontractors will be subcontracted by OSC (steel bracing, surveying, transportation and disposal, laboratory analyses) during the

course of the project, as necessary. The Statements of Capabilities for WSP Engineering, Ontario Specialty Contracting, and Test America (the laboratory) previously have been submitted to the NYSDEC.

2 Site Description

The Site being addressed is an area consisting of a certain portion of the utility corridor located between the existing sheet pile wall installed in July 2005 and a proposed sheet pile wall to be located immediately east of Fourth Street (Sheets 2 and 4), located on City of Buffalo property. This Supplemental Work Plan provides the scope of work for the removal and off-site disposal of soils at the Site. The Site is used for a utility corridor and is overlain by a sidewalk. The area is commercial (office building and adjacent school) in nature, and had been industrial for over 150 years prior to redevelopment.

The conditions within and adjacent to the former Wilkeson Slip had been investigated since 1989. The Site is underlain by fill, soil, and bedrock. Prior to the adjacent remediation in 2005, concentrations of constituents of interest (COIs) in fill and soil at the Site east of the existing sheet pile wall exceeded SSALs. Total benzene, toluene, ethylbenzene, and xylenes (BTEX) and total polycyclic aromatic hydrocarbons (PAHs) represent the COIs. Subsurface fill material covered the majority of the adjacent site in thickness ranging from 4 to 14 feet. The Wilkeson Slip was filled by others with materials from unknown sources many decades ago, and represented the deepest accumulations of fill at the adjacent site. Near the existing sheet pile wall leading to the excavation location, the fill consisted primarily of silty sand, gravel, brick fragments, concrete and metal debris, and also contained varying amounts of inert coal gasification residuals such as cinders, slag, ash, and coal fragments. The soils exceeding SSALs at the adjacent location were primarily in a 2 foot thick layer from approximately 13 to 15 feet below ground surface (ft-bgs).

Underlying the fill was a low-permeability alluvium unit comprised predominantly of fine sand to clayey silt throughout the majority of the adjacent site. However, in some areas, a silty clay unit was found just above the bedrock. The thickness of the alluvium unit ranged from 2 to 12 feet. Bedrock was encountered below the alluvium at depths from 18 to 25 feet below ground surface (ft-bgs). The first bedrock unit is dark gray fractured limestone. Groundwater was found between 2 to 8 ft-bgs in the overburden materials.

3 Preparation and Mobilization

The preparation and mobilization for the Supplemental Work Plan of the utility corridor excavation Site includes:

- Permits and Approvals – Permits for discharge of recovered groundwater, excavation, and traffic controls.
- Access agreements from the owner of the HealthNow/Blue Cross Blue Shield office complex and the City of Buffalo
- Mobilization and Site Setup – Procuring materials and equipment, moving equipment to the site, and establishing the site infrastructure.
- Temporary Facilities – Requirements for parking, utilities, and traffic flow.
- Contractors Temporary Facilities – Contractors office and storage requirements.
- Engineer's Field Trailer – Requirements for the WSP Engineering onsite office and sample preparation area.
- Erosion and Sedimentation Control – Requirements for management of site storm water during the excavation.
- Health and Safety Plan/Community Air Monitoring Plan – Plan requirements to protect on-site workers and the public.
- Equipment Decontamination – Requirements for decontamination of all equipment moving from the exclusion zones to clean zones during the excavation.
- Spill And Discharge Control – Control and management of liquids during the course of the project
- Survey Requirements – Requirements for surveying to define pre-excavation conditions.

3.1 Permits and Approvals

The Contractor will be responsible for obtaining the permits and approvals necessary to allow for the proper execution of this Supplemental Work Plan. WSP Engineering will be responsible for obtaining approval of this Supplemental Work Plan from NYSDEC. WSP Engineering will provide technical support to the Contractor, as necessary.

Currently, the following permits and approvals are expected and will be sought:

- BSA water discharge permit
- local construction permits (excavation and traffic)
- landfill acceptance for disposition of excavated soil and fill material
- others as identified by Contractor

3.2 Access Agreements

WSP Engineering and QLT Buffalo will arrange for access to the Site. Access Agreements anticipated include the following:

- HealthNow/Coles/Duke Realty – The tenant, current owner, and former owner of the adjacent commercial site;
- City of Buffalo, owner of the property to be excavated and the property required for access within the Fourth Street Right of Way; and
- City of Buffalo and the Buffalo School district for use of the school parking lot areas for temporary location of administrative offices and temporary equipment and material storage.

3.3 Mobilization and Site Setup

The Contractor will be responsible for mobilization and site set up. The Contractor will procure and transport the necessary resources to accommodate the project requirements (e.g., labor, materials, and equipment). The requirements will include, but not be limited to, the information provided in this section. Other requirements not specifically provided herein, but necessary for the successful conduct and completion of the work, will be provided by the Contractor.

Site preparation activities include mobilizing equipment, materials, supplies, and personnel to the project site. These resources will be utilized to perform the following operations:

- establish site security and entry and exit protocols
- place and install temporary office trailers and associated utilities
- establish a communications system including telephone, facsimile, two-way radios, and emergency warning systems
- establish personnel and equipment decontamination stations and delineate areas with barriers and signage
- mobilize earthmoving equipment
- establish dust and vapor control operations and air monitoring locations
- construct temporary water collection and discharge systems
- construct temporary groundwater dewatering, water collection, treatment, and discharge systems
- locate, mark, and relocate underground utilities that would be affected during site work

Equipment anticipated for the excavation includes hydraulic excavators, loaders, skid steer equipment, compaction equipment, grading equipment, highway trucks, and water trucks or other conveyance systems for dust and vapor control. Additional equipment will be required for personnel safety, air monitoring, equipment decontamination, and field sampling.

3.4 Temporary Facilities

The Contractor will prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. The Contractor will also indicate if the use of a supplemental or other staging area is desired.

3.4.1 Employee Parking

Contractor employees will park privately owned vehicles in a designated area on the Waterfront School Property, pending access. This area will be off street to avoid occupying on-street parking currently used by residents and employees working in the area. This area will be within reasonable walking distance of the construction areas.

3.4.2 Availability and Use of Utility Services

The Contractor is responsible for providing all temporary utility services required during construction. Utilities include electrical service, air conditioning, ventilation, lighting, heat, telephone, water connections, and sanitation facilities. The Contractor will procure these services from the local utility provider in Buffalo, New York.

3.4.3 Bulletin Board, Project Sign, and Project Safety Sign

Immediately upon beginning work, the Contractor will provide a bulletin board for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information required by federal laws.

The Contractor will also display a project safety sign clearly communicating that Safety Is Our First Priority and listing the safe work practices and record for the site.

3.4.4 Protection and Maintenance of Traffic

During construction the Contractor will provide access and temporary detours as necessary to maintain traffic. The Contractor will maintain and protect traffic on all affected roads during the construction period. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, will be as required by the State and local authorities having jurisdiction. The traveling public will be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site will interfere as little as possible with public traffic. The Contractor will investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor will be responsible for the repair of any damage to roads caused by construction operations.

3.4.5 Haul Roads

The Contractor will construct temporary access and haul roads as required for construction activities. Haul roads will be constructed with suitable grades and widths; sharp curves, steep slopes, blind corners, and dangerous cross traffic will be avoided. The Contractor will provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. Dust and vapor control will be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and haul roads will be subject to approval by the Engineer. Lighting will be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads will be removed and the areas will be restored to conditions similar to those that exist prior to remediation.

3.5 Contractors' Temporary Facilities

The contractors' temporary facilities will be established to facilitate safe work habits and efficient execution of the Supplemental Work Plan. The minimum requirements for the contractors' facilities follow.

3.5.1 Administrative Field Offices

The Contractor will provide and maintain administrative field office facilities within the construction area at the designated site. A single field office trailer will be securely anchored to the ground at all four corners to guard against movement during high winds. Access to the trailer will meet all state and federal requirements.

Office space will provide space for project meetings with tables and chairs to accommodate eight persons, drawings table, and drawing storage area. Ample space will be provided for Health and Safety, Construction Quality Control, and Site Supervisory personnel. will

3.5.2 Storage Area

The Contractor will construct a temporary 6-foot high chain link fence around trailers and materials. Additional secure areas may be constructed as required by the locations of construction activities. Materials will not be

stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as excavators, wheeled lifting equipment, trucks, and like equipment, will be parked within the fenced area at the end of each work day.

3.5.3 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes will present a clean and neat exterior appearance and will be in a state of good repair.

3.5.4 Maintenance of Storage Area

Fencing will be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas will be covered with gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways.

3.5.5 Security Provisions

Adequate outside security lighting will be provided at the Contractor's temporary facilities. The Contractor will be responsible for the security of its own equipment and to the extent practicable all equipment stationed onsite by WSP Engineering. While there is an open excavation, the contractor will be responsible to ensure the safety of the public.

In addition, the Contractor will notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

3.5.6 Fueling Stations

Temporary above-ground fuel tanks will be installed in accordance with all local, state, and federal requirements. Dispensing equipment will be locked out when not in use. Tanks will be placed on a 40-mil (minimum) liner with the side berms or other secondary containment measures to contain the maximum volume of the tank. Spill control equipment including shovels, brooms, absorbent materials, and waste containers will be provided at the refueling stations.

3.5.7 Cleanup

Construction debris, waste materials, packaging material and the like will be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways will be cleaned as soon as practicable. Stored material not in trailers, will be neatly stacked when stored.

3.5.8 Restoration of Storage Area

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, areas used by the Contractor for the storage of equipment or material, or other use, will be restored to the original or better condition.

3.6 Engineer's Field Office

Full-time supervision by the engineer will be provided. To ensure adequate facilities, the following minimum requirements will be satisfied.

The Contractor will provide the Engineer with a lockable office, providing operable space, heat, air conditioning, electric, telephone connections (two lines), desk, one four-drawer filing cabinet, drawing table, and access to drinking water and sanitation facilities.

3.7 Erosion and Sedimentation Control

Erosion and sedimentation controls will be incorporated into the overall scope of work as a Best Management Practice and to re-establish vegetation. Due to the nature of an excavation project, the majority of surface water that contacts disturbed areas of the site will be trapped by the excavation and prevented from leaving the site except under the controlled conditions required by the BSA pre-treatment permit. The proposed braced cut area is approximately 2,400 square feet.

During excavation activities, erosion and sedimentation controls will be incorporated to minimize surface water contacting disturbed areas and to control runoff. A silt fence will be installed at strategic locations determined in the field. Water that accumulates in the excavations will be collected and managed in accordance with BSA discharge requirements.

Additional erosion and sedimentation controls will be necessary for the stockpile areas, haul roads for excavated materials, and after the excavations are backfilled. These controls include placing sod on all disturbed areas of the site that remain exposed to the elements after work is completed.

3.8 Health and Safety Plan/Community Air Monitoring Plan

This section provides requirements for preparing and implementing the Site Health and Safety Plan (HASP). The requirements will apply to all work performed by the Contractor.

The following will be submitted in advance of field work and will become a major component of this Supplemental Work Plan:

- corporate health and safety program
- HASP
- worker training certification and medical clearance
- air monitoring logs
- equipment decontamination plan
- spill and discharge control plan

3.8.1 Regulatory Requirements

Work performed under this contract will comply with applicable Federal, state, and local safety and occupational health laws and regulations. This includes, but is not limited to, Occupational Health and Safety Administration (OSHA) standards, 29 Code of Federal Regulations (CFR) 1910.120, "Hazardous Waste Site Operations and Emergency Response" and 29 CFR 1926.65, "Hazardous Waste Site Operations and Emergency Response." Matters of interpretation of standards will be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this Supplemental Work Plan, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements will apply.

3.8.2 Safety and Health Program

OSHA Standards 29 CFR 1910.120(b) and 29 CFR 1926.65(b) requires employers to develop and implement a written Health and Safety Program for employees involved in hazardous waste operations. The site-specific program requirements of the OSHA Standards will be integrated into one site-specific document, the HASP. The HASP will interface with the employer's overall Health and Safety Program. Any portions of the overall Health and Safety Program that are referenced in the HASP will be included as appendices to the HASP.

3.8.3 Site Health and Safety Plan

A HASP will be prepared covering work to be performed by the Contractor and all subcontractors. The Health and Safety Manager will be responsible for the development, implementation and oversight of the HASP. The HASP will establish, in detail, the protocols necessary for the anticipation, recognition, evaluation, and control of hazards associated with each task performed. The HASP will address site-specific health and safety requirements and procedures based upon site-specific conditions. The level of detail provided in the HASP will be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted. Therefore, the HASP will address, in as much detail as possible, anticipated tasks, their related hazards, and anticipated control measures.

The HASP will be submitted to the Engineer within 21 days of Notice to Proceed, or otherwise agreed upon timeframe. Deficiencies in the HASP will be revised to correct the deficiencies and resubmitted for acceptance. Onsite work will not begin until the plan has been accepted. A copy of the written HASP will be maintained onsite. As work proceeds, the HASP will be adapted to new situations and new conditions. Changes and modifications to the accepted HASP will be made with the knowledge and concurrence of the Health and Safety Manager, the Site Superintendent, and the Engineer. Should any unforeseen hazard become evident during the performance of the work, the Site Health and Safety Officer will bring such hazard to the attention of the Health and Safety Manager, the Site Superintendent, and the Engineer, both verbally and in writing, for resolution as soon as possible. In the interim, necessary action will be taken to re-establish and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment. Disregard for the provisions of the accepted HASP will be cause for stopping work until the matter has been rectified.

Topics required by 29 CFR 1910.120(b) (4) and 29 CFR 1926.65 (b) (4) and those described in this section will be addressed in the HASP. Where the use of a specific topic is not applicable to the project, the HASP will include a statement to justify its omission or reduced level of detail and establish that adequate consideration was given the topic. At a minimum, the following topics will be addressed:

- health and safety organization
- site description and hazard evaluation
- health and safety risk or hazard analysis
- provisions for employee training
- use of personal protective equipment
- medical surveillance requirements
- air monitoring requirements (personnel and community)
- site control measures
- personnel and equipment decontamination procedures
- standard operating work practices
- confined space entry procedures
- emergency response procedures

- first aid procedures
- temperature extremes monitoring

Action levels will be established for the situations listed below, at a minimum. The action levels and required actions (engineering controls, changes in personal protective equipment [PPE], etc.) will be presented in the HASP in both text and tabular form.

- implementation of engineering controls and work practices
- upgrade or downgrade in level of personal protective equipment
- work stoppage and/or emergency evacuation of onsite personnel
- prevention and/or minimization of public exposures to hazards created by site activities

The Site HASP will detail the minimum PPE ensembles (including respirators) and specific materials from which the PPE components are constructed for each site-specific task and operation to be performed based upon the hazard/risk analysis. Components of levels of protection (B, C, D, and modifications) must be relevant to site-specific conditions, including heat and cold stress potential and safety hazards. Only respirators approved by the National Institute for Occupational Safety and Health will be used. Onsite Contractor personnel will be provided with appropriate personal protective equipment. Protective equipment and clothing will be kept clean and well maintained. The PPE section of the HASP will include site-specific procedures to determine PPE program effectiveness and for onsite fit-testing of respirators, cleaning, maintenance, inspection, and storage of PPE.

The Health and Safety Manager will establish appropriate levels of protection for each work activity based on review of historical site information, existing data, an evaluation of the potential for exposure (inhalation, dermal, ingestion, and injection) during each task, past air monitoring results, and a continuing health and safety monitoring program. The Health and Safety Manager will also establish action levels for upgrade or downgrade in levels of PPE from the following specified minimum levels of protection. Protocols and the communication network for changing the level of protection will be described in the HASP. The PPE reassessment protocol will address air monitoring results, potential for exposure, changes in site conditions, work phases, job tasks, weather, temperature extremes, individual medical considerations, etc.

The Health and Safety Manager will prepare and implement an exposure monitoring/air sampling program to identify and quantify health and safety hazards and airborne levels of site-related substances in order to assure proper selection of engineering controls, work practices and personal protective equipment for affected site personnel. Available site information will be reviewed and the exposure monitoring/air sampling program will be expanded and/or revised for submittal as part of the HASP.

At a minimum, the personnel breathing zone and downwind perimeters of the work areas will be monitored using real-time dust and vapor monitoring equipment. Action levels for airborne dust and vapor will be determined for each COI. Action levels to trigger dust operations will not be less than 380 micrograms/cubic meter (µg/m3) average 1-hour standard (equivalent to 150 µg/m3 for assessing 24-hour standard) or visible dust near the fence line.

3.8.4 Community Air Monitoring Plan

In addition to air monitoring to protect site personnel, the New York State Department of Health (NYSDOH) requires the implementation of a Community Air Monitoring Plan (CAMP) for activities, including contaminated soil excavation and handling. This plan will be prepared by the Contractor, in conjunction with the development of the HASP. The CAMP will comply with the NYSDOH Generic CAMP (Appendix B) and shall include real-time monitoring for both COIs and particulate both upwind and downwind of certain work activities at the site. The CAMP is not intended to establish safe working conditions for personnel onsite; it is meant to protect offsite receptors (including the Waterfront School, residences and businesses) from potential airborne releases. The contents of the CAMP will be based on the type of work being performed onsite (i.e., excavation, loading, and transportation of soil). The CAMP will include, but not be limited to, the information contained in Appendix B.

VOCs must be monitored at the down wind perimeter of the immediate work area on a continuous basis. Upwind concentrations should be measured at the start of each work day and periodically thereafter to establish background conditions. The equipment should be capable of calculating 15-minute running average concentrations. Action levels for VOCs include the following:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continuous monitoring.
- If total organic vapor levels at the downwind perimeter of the work or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
- All 15-minute readings must be recorded and made available for NYSDEC and NYSDOH personnel to review.

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15-minutes. Action levels for particulates include the following:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be deployed. Work may continue as long as particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level, provided that no visible dust is migrating from the work area.
- If dust suppression techniques do not reduce the downwind PM-10 levels to less than 150 $\mu g/m^3$ above the upwind level, work must stop and procedures re-evaluated. Work can only resume if suppression measures are successful in reducing the particulate levels.
- All readings must be recorded and made available for NYSDEC and NYSDOH personnel to review.
- Selection of CAMP monitoring locations - monitoring locations will be positioned at the property boundary, one upwind and one down wind, of potential COI-generating activities. Monitoring will be performed at these locations. The Contractor will identify each monitoring location and the rationale for its placement. In addition, the Contractor will include a contingency for moving the monitoring locations based on the prevailing wind direction during site activities.

3.9 Equipment Decontamination

Vehicles and equipment that come into contact with affected media will be decontaminated prior to leaving the exclusion zone established for the work area. Decontamination measures should be taken to prevent tracking of mud onto the public roads. Any tracked mud will be cleaned immediately. The procedures for decontamination of vehicles and equipment will be addressed in the HASP.

3.10 Spill and Discharge Control

The HASP will include a Spill and Discharge Control Plan to be implemented in the event of an accidental release of potentially hazardous materials. The Spill and Discharge Control Plan will contain the following elements:

1. Preventive Measures: The Contractor will provide methods, means, and facilities required to prevent contamination of soil, water, atmosphere, uncontaminated structures, equipment, or material by the discharge of wastes from spills due to the Contractor's operations. Shovels, brooms, non-combustible absorbent materials, polyethylene sheeting, and PPE will be maintained in accessible locations.
2. Emergency Measures: The Contractor will provide equipment and personnel to perform emergency measures required to contain any spillage and to remove spilled materials, soils, or liquids that become contaminated due to spillage. The collected spill materials will be properly disposed of at the Contractor's expense.
3. Decontamination Measures: The Contractor will provide the equipment and personnel to perform decontamination measures that may be required to remove spillage from previously uncontaminated structures, equipment, or material. Disposal of decontamination residues and confirmation samples will be performed at the Contractor's expense.
4. Notification Procedures: The Contractor will notify the Engineer immediately after the release of potentially hazardous materials as well as the National Response Center and NYSDEC Hotline, as required (applicable phone numbers must be listed in the HASP).

The Contractor will be responsible for implementing the site HASP and CAMP. The plans will ultimately become a component of this Supplemental Work Plan. These plans will be prepared by the Contractor with support from WSP Engineering. The Contractor will be responsible for conducting the air monitoring and taking appropriate action based on the results. During mobilization and site setup activities, equipment and materials for health and safety, vapor and dust suppression, and air monitoring equipment will be transported to the site and assembled to satisfy the plan requirements.

3.11 Survey Requirements

The Contractor will be responsible for the survey requirements associated with the proper execution of this project. The survey requirements will include, but not be limited to, the following:

- existing conditions, including identification of site features (subsurface utilities, manholes/sewer inlets, Fourth Street location, and property boundaries) and topographic contours
- as-built drawings, depicting final approved excavation contours, final backfill contours, and any permanent installations (including utilities) required by the project

The Contractor will provide all materials, labor, and equipment required to conduct all survey work necessary for the project. The Contractor will establish benchmarks as required to perform the work to the lines and grades indicated on the Drawings. The benchmarks will be tied into the New York State Plane coordinate datum, or otherwise approved by the Engineer.

The Contractor will use only independent New York-registered professional surveyors for surveying required to produce final products and measure quantities for payment purposes. Interim survey work may be conducted by the Contractor during the course of the project.

References will be set and measurements taken using standard accepted surveying methods and equipment. The accuracy of the survey layout data will be ±0.10 foot horizontal and ±0.10 foot vertical or as approved by the Engineer.

4 Remedial Activities

The actions to be completed under this Supplemental Work Plan include removal and offsite disposal of soil located between the existing sheet pile wall and the proposed sheet pile wall along the east side of Fourth Street that exceeds SSALs. The excavation will be supported by a braced cut steel shoring system. Within the braced cut area, soil that will be tested for offsite disposal is defined by the vertical interval between elevation 581 and the elevation of bedrock. Soil above elevation 581 that meets SSALs will be temporarily stockpiled and used to re-establish existing grades after excavation is completed. Confirmation samples will not be collected at the base of the excavation. Excavation will take place within the limits of the braced cut shoring system and extend to bedrock. The work is described in the following sections.

4.1 Groundwater Management

Groundwater in the vicinity of the excavation will be managed through a treatment system installed and operated by the Contractor. Groundwater will be extracted via temporary sumps within the excavation.

The casing for former monitoring well MW-04 will be excavated during the excavation program. As the berm is removed around the MW-04 casing, the piping will be cut to ensure it does not break in an uncontrolled position. The cut down casing will be temporarily capped and the location shall be marked with a bright colored marker (e.g. traffic cone). Section 4.8 describes the use of the MW-04 casing during the implementation of this Work Plan.

Groundwater flow into the excavation will be reduced by the steel sheeting installed for the braced cut shoring.

4.1.1 Treatment System Installation

The pre-treatment system will be designed and fabricated by a specialty contractor under contract to the Contractor. The pre-treatment system will be capable of separating free phase liquids (light non-aqueous phase liquids [LNAPL] and dense non-aqueous phase liquids [DNAPL]) at a flow rate of up to 25 GPM of groundwater while satisfying treated effluent concentrations that are one half of the BSA discharge limits (Sheets 3).

- The pre-treatment system may consist of:
  - Equalization Tank
  - Oil water separator for LNAPL and DNAPL
  - Stacked Tray Air Stripper
  - Bag Filters (to protect Granular Activated Carbon [GAC] and remove solids)
  - GAC Filled Drums (50 gpm capacity so one set can be off line for change out without interrupting flow)
  - Final Holding Tank

The system will be skid mounted and installed in an enclosed compound to protect the systems from damage during earthmoving activities.

4.1.2 Operation and Maintenance

The dewatering and treatment systems will be maintained in accordance with the manufacturers' requirements. Sampling will be conducted at the frequency required by the BSA. If the groundwater consistently meets the BSA criteria without treatment, the system bypass will be used to discharge directly to the BSA system. The system will

likely only require operation during work hours. However, as a contingency, measures will be taken to operate the system 24-hours per day if deemed necessary to avoid excavation delays.

4.2 Fourth Street Utility Corridor Excavation Soil Management

Potentially affected soils excavated from within the braced cut area will be properly characterized and shipped offsite to a disposal facility permitted to accept the soil. Overburden soil will be temporarily stockpiled and be used to restore the area to approximate pre-existing grades. Soils removed from above elevation 581 were placed after the adjacent remediation program. Although these soils are believed to have come from a clean source, they will be tested to confirm that they are suitable for placement in the reconstructed berm. Discrete samples of soil from elevation 581 to the bedrock surface will be tested and if the SSALs achieved on the east side of the current sheet pile wall are exceeded, will be transported offsite for proper disposal.

Before excavation work begins at these locations, the Contractor will prepare the area as follows:

- delineate work zones
- notify the Utility Location Services in the area to identify all public utilities

4.3 Utility Relocation

All utilities along Fourth Street that will be potentially affected by the installation of the braced cut shoring system or excavation will be relocated or supported throughout the excavation. The Contractor will work with each of the applicable utility companies and coordinate relocation. The field work associated with the excavation will not commence until the utility relocation work is completed. Based on historical information gathered during previous work, WSP Engineering understands that the subsurface utilities present along Fourth Street include, but may not be limited to, electric, gas, water, sanitary, and possibly storm conveyance lines.

4.4 Braced Cut Steel Shoring System

The limit of the excavation for this project is defined by the area of the proposed braced cut shoring system located to the west of the existing sheet pile wall to the proposed sheet pile walls shown on Sheet 4. The locations of the North and South limits of the excavation were selected to encompass the area required to achieve SSALs on the east side of the current sheet pile wall. The final location of the north and south sheet pile walls will be selected based on soil borings advanced at the selected locations no less than three days prior to driving the sheeting. Continuous soils samples will be collected at these locations and screened for VOCs and non-aqueous phase liquids (NAPL). Two samples of the soils with the highest field photoionization detector (PID) readings from each boring will be sent to an offsite laboratory for testing of the SSAL compounds (BTEX and PAHs).

The braced cut shoring system will be installed at the approximate location shown on Sheet 4 or adjusted based on the sampling results described above. The bracing will be extended to the bedrock surface. The design and installation of the bracing system will be conducted by a specialty subcontractor under contract to OSC.

4.5 Temporarily Relocate “Clean” Material

In accordance with the approved Work Plan for the 2005/2006 remedial activities, soil was placed in the vicinity of the proposed excavation area to meet then applicable residential soil criteria and to satisfy overall site development topography. Soils above this elevation placed by others are understood to meet the same criteria. Discrete samples of the soil between elevations 581 and 587 will be temporarily relocated, tested and if the soils meet the criteria in 6 NYCRR 375-6.7(d) these soils will be used as backfill.

4.6 Subsurface Soil Removal

The Contractor will excavate soil and fill material from elevation 581 to the surface of bedrock within the area supported by the braced cut system. Soil from elevation 581 to elevation 576 is identified for testing and potential offsite transportation and disposal. All soil from this elevation interval that exceeds SSALs will be transported offsite for disposal. It is likely that the soils from this elevation interval will meet SSALs. Excess soils that cannot be placed over the flowable fill and clay may also be shipped offsite for use as daily landfill cover.

To determine if the soil between elevations 581 and 576 satisfy the SSALs and can be used for backfill, WSP Engineering proposes to perform *in situ* sampling and analysis. The area within the braced cut consists of horizontal dimensions of approximately 40 feet by 60 feet. The volume of soil between elevations 581 and 576 is approximately 350 cubic yards. Samples collected from 5 discrete locations randomly chosen between elevations 581 and 576 will be analyzed for SSALs.

Subsurface Soil	10 mg/Kg total BTEX, 500 mg/Kg total PAHs, 1 mg/Kg individual BTEX compounds, 50 mg/Kg individual PAHs, Presence of NAPL

The analytical results will determine if this volume of soil will be shipped offsite for disposal or stockpiled and used for backfill. If the concentrations are less than the SSALs, the material will be used for backfill. If the concentrations are greater than the SSALs, the material will be shipped offsite for disposal.

Soil and fill material from elevation 576 to the top of rock will be characterized, excavated, and directly loaded onto trucks and shipped offsite for disposal. Soil below elevation 576 will not be evaluated for future use as backfill.

4.7 Waste Management

The Contractor identified to conduct the excavation activities will be responsible for the characterization and transportation and disposal of the soil and material removed from the site. As part of this role, the contractor will designate one person to act as the Transportation and Disposal Coordinator (TDC) for this Work Plan. The TDC will coordinate the transportation and disposal requirements associated with this project. Based on existing data, the material proposed for excavation from within the proposed braced cut area will be disposed offsite as a nonhazardous waste. The Contractor will obtain approval from the disposal facility using the existing database or coordinate additional characterization requirements with the disposal facility to obtain approval before excavation below elevation 581 begins. A “direct load” approach is planned, as performed previously.

4.7.1 Transportation and Disposal Coordinator

The TDC will serve as the single point of contact for transportation, disposal, and regulatory matters associated with waste management. The TDC will be responsible for environmental compliance at the site including, but not limited to:

- determination of proper shipping names
- identification of marking, labelling, and placard requirements
- completion of appropriate waste profiles, hazardous waste manifests (as contingency only), and bills of lading for non-hazardous waste material, as necessary

- obtaining disposal facility weight slips
- any other environmental documentation as required by local, state, and/or federal law

The TDC will have, at a minimum, one year of experience in the management and transportation of hazardous waste. The TDC will coordinate transportation and disposal activities with WSP Engineering oversight representatives. Consistent with the procedures for the School Property project, NFG must approve the disposal facility and WSP Engineering will sign all transportation documentation as agent for NFG.

4.7.2 Laws and Regulations

The proposed Work Plan effort will meet or exceed minimum requirements established by federal, state, and local laws and regulations, as applicable. These requirements are amended frequently, so the Contractor will be responsible for complying with such amendments, as necessary.

4.7.3 Transportation

The Contractor will use manifests for transporting hazardous wastes as required by 40 CFR 263 and any applicable state or local law or regulation. Transportation will also comply with all requirements in the Department of Transportation 49 CFR regulations. The Contractor will provide WSP Engineering with the EPA ID numbers, names, locations, and telephone numbers of each proposed waste transporter along with the bid documents for this work. Alternate transporters may not be considered acceptable, depending on the justification for use. All non-hazardous shipments will be accompanied by a bill of lading that documents shipping information, including transporter and disposal facility names and locations.

4.7.4 Treatment and Disposal of Material Failing TCLP for Benzene

The Contractor will be prepared to address potential areas that contain NAPL or tar. Visible pockets of NAPL or tar will be excavated and segregated from the nonhazardous material. Any such material will be characterized separately and disposed of accordingly. Benzene is the only COI identified at the site with concentrations that approached the concentrations characteristic of hazardous waste during the adjacent remediation.

The Contractor will provide WSP Engineering with the EPA ID numbers, names, locations, and telephone numbers of each proposed waste treatment and disposal facility along with the bid documents for this effort. WSP Engineering and NFG must approve the use of the selected disposal facilities (Modern Landfill) before commencement of the Work Plan activities. The Contractor will ship hazardous wastes only to facilities that are properly permitted to accept such waste and are pre-approved by WSP Engineering and NFG.

For any soil or waste material failing TCLP for benzene only, the Contractor will consider the exemption provided by NYSDEC DER-4 for disposition of such material. This guidance outlines the criteria wherein coal tar waste and soils and sediment that have been contaminated with coal tar waste from former MGPs only exhibiting the toxicity characteristic for benzene (D018) may be conditionally excluded from management as a hazardous waste when they are destined for permanent thermal treatment.

4.7.5 Non-hazardous Waste Disposal

All non-hazardous waste will be shipped to Modern Landfill, an approved RCRA Subtitle D landfill, in Model City, New York. The Contractor will ship non-hazardous wastes only to facilities that are properly permitted to accept said waste streams and are pre-approved by WSP Engineering and NFG.

4.7.6 Waste Minimization

The Contractor will minimize the generation of hazardous and non-hazardous waste to the maximum extent practicable. The Contractor will take all necessary precautions to avoid mixing clean materials with suspected contaminated wastes.

4.7.7 Backfill

As indicated on the Drawings (bound separately), the excavation will be backfilled with varying layers of material, each serving a dedicated purpose. The following material will be incorporated into the backfill operations:

Flowable fill or compacted clay will be placed into the bottom of the excavation to elevation of at least 576, approximately 5 feet above the saturated thickness of this location. The flowable fill will be comprised of a fly ash/cement mixture with a design compressive strength within a 50 to 100 pound-per-square-inch (psi) range. Use of flowable fill will facilitate backfill and compaction operations within the braced cut shoring system and provide a lower permeability material as compared to common soil. Clay compacted to 90 percent of the maximum dry density of the material as determined by ASTM D 698 can be used in place of, or in conjunction with, the flowable fill as long as the materials can be properly placed and meet the requirements of the utilities. Flowable fill is required below National Grid power conduits. Clean common fill (imported or from the excavation) will be used to backfill the excavation to approximate elevation 581. All imported fill shall meet the requirements of 6 NYCRR 375-6.7(d). Offsite common fill will be classified as a sand, silt, clay, or loam material as determined by ASTM D 2487. The loose lift thickness of each lift of common fill will be no greater than 12 inches. Each loose lift thickness will be compacted to provide for an in-place density at or greater than 90 percent of the maximum dry density of the material as determined by ASTM D 698. One test per borrow source is required to determine the moisture density relationship of the material. Field density measurements will be obtained via ASTM D 2922. Field compaction testing will be conducted prior to placement of the topsoil.

Stockpiled overburden material will be used to backfill the excavation from approximate elevation 581 to the topography necessary to approximately match pre-existing conditions. The loose lift thickness of each lift will be no greater than 12 inches. Each loose lift thickness will be compacted to provide for an in-place density at or greater than 90 percent of the maximum dry density of the material as determined by ASTM D 698. One test of the stockpiled material is required to determine the moisture density relationship of the material. Field density measurements will be obtained via ASTM D 2922. Field compaction testing will be conducted at a frequency of 2 tests per lift, at randomly chosen locations.

The common fill imported for use as backfill will be tested and determined free of contamination before the material will be approved for use. All imported fill shall meet the requirements of 6 NYCRR 375-6.7(d). One composite sample of the borrow source proposed for common fill will be collected and analyzed for the following parameters:

- VOCs — Method 8260
- semivolatile organic compounds — Method 8270
- pesticides — Method 8081
- polychlorinated biphenyls — Method 8082
- target analyte list metals — Method 6010/335.3

Laboratory test results will be compared to NYSDEC Part 375 Soil Cleanup Objective for Unrestricted Use to determine if the material is acceptable for use for this project. All constituent concentrations must be below the relevant criteria for the material to be acceptable.

After backfilling operations are complete, the ground surface will be restored via placing sod over all disturbed areas using lawn-type species of grass vegetation commonly used in the Buffalo area. The Contractor will coordinate the work with a local landscaper for specific application and fertilizer requirements. Soil amendments may be incorporated as necessary.

4.8 In-situ Treatment for Former MW-04

MW-04 is located within the berm excavation that will be conducted for the project (Sheet 4). As a result, as the berm is excavated, the well casing will be cut down to ensure the casing does not break off. The well will be pumped continuously during excavation to limit flow from this area. After the excavation reaches grade at the MW-04 location, the well casing will be clearly marked. The water from the MW-04 casing will be pumped to the onsite groundwater management system no less than two times. All extracted water will be managed in accordance with the Buffalo Sewer Authority Permit.

After the excavation has been backfilled, but prior to reconstruction of the berm, WSP proposes to stimulate native microbes to biodegrade dissolved phase petroleum constituents detected in samples from MW-04 by increasing dissolved oxygen concentrations in the MW-04 well and surrounding area. Following the placement of the flowable fill, ten ORC Advanced® oxygen diffusion socks will be strung together, tethered to the top of the remaining casing, and hung to span the screened interval within the former monitoring well MW-04 casing.

ORC Advanced® socks are manufactured by Regenesis of San Clemente, California. The socks are 1-foot long permeable fabric (Naltex™) sleeves that contain calcium oxyhydroxide that is engineered to slowly release oxygen over a 9 month to 1 year period. Microbes that utilize petroleum as a food source are ubiquitous and have been shown to be present in large numbers in the saturated zone at the site. The biodegradation of petroleum compounds is most efficiently completed in aerobic conditions where dissolved oxygen is used as the respiration source material. Often biodegradation is limited by the availability of dissolved oxygen. Dissolved oxygen concentrations measured in monitoring well MW-04 have shown an oxygen-depleted condition (i.e., anaerobic). Placement of the socks is expected to increase dissolved oxygen levels in groundwater in the vicinity of MW-04 and promote aerobic biodegradation.

Prior to placement and compaction of the backfill to reconstruct the berm, the former MW-04 casing will be capped to permanently seal the casing. The fill will be placed to restore the ground surface.

4.9 Construction Quality Assurance/Quality Control

The Contractor is responsible for quality control and will establish and maintain an effective quality control system. The quality control system will consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system will cover all construction operations, both onsite and offsite, and will be keyed to the proposed construction schedule. The site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Engineer for non-compliance with the quality requirements specified in the contract and work plans. The site project superintendent in this context will be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent will maintain a physical presence at the site at all times, except as otherwise acceptable to the Engineer, and will be responsible for all construction and construction related activities at the site. The work will conform to the documents approved for construction, including all work plans and drawings.

The Contractor and its subcontractors will comply with the construction documents prepared by the Engineer and HASP prepared by the Contractor, including the worker air monitoring and CAMP requirements. The Contractor is responsible for providing quality control during all phases of work. The Engineer is responsible for quality assurance.

Changes significantly affecting the approved construction documents or project schedule will be brought promptly to NFG's and NYSDEC's attention by the Engineer. Work found to be out of compliance with approved construction documents will be reviewed and halted, if necessary, until a satisfactory resolution is achieved.

WSP Engineering will provide Construction Quality Assurance (CQA) personnel during implementation of the remediation activities.

4.9.1 Responsibilities

The principal organizations involved in implementing the remediation at the site include, NYSDEC, the Engineer, and the Contractor. Specific responsibilities and authority are delineated below to establish the lines of communication required to produce an effective decision-making process during execution of the work.

4.9.1.1 Regulatory Agency

The lead regulatory agency involved with this project is the NYSDEC. In this capacity, the NYSDEC will review construction documents for conformance with applicable requirements. The NYSDEC also has the authority and responsibility to review documentation to confirm that the work was effectively implemented.

4.9.1.2 Engineer

WSP Engineering will function as Project Engineer and will provide CQA personnel. WSP Engineering's responsibilities under these separate functions are defined below.

As the Project Engineer, WSP Engineering's primary responsibilities will be to provide engineering technical support for QLT Buffalo during construction. In this capacity, WSP Engineering will be responsible for monitoring of construction work and providing the contractor feedback from questions regarding the construction documents. In addition, WSP Engineering will be responsible for identifying, documenting, and correcting deviations from these documents.

WSP Engineering has the responsibility to review proposed design revisions associated with field changes that deviate from the construction documents. They have the authority to approve the revisions on behalf of WSP Engineering and submit the proposed revisions to QLT Buffalo, NFG and the NYSDEC for approval.

WSP Engineering will provide CQA personnel during implementation of the remediation activities. The responsibilities of the CQA personnel are to perform the verification activities to provide confidence that activities are performed in accordance with the construction documents. The CQA personnel for this project will consist of a CQA Officer and a CQA Inspector(s). The CQA Officer, Glen Rieger, has the responsibility and authority to halt any remediation activity or work that is not in conformance with the approved construction documents. Site-assigned CQA Inspectors performing verification activities report directly to the CQA Officer and have the responsibility to notify the CQA Officer of any deviation from the construction documents. The CQA Inspectors have the responsibility to report and the authority to investigate all deviations and nonconforming conditions to determine the source or root cause. The CQA Officer's responsibilities include:

- reviewing construction documents for clarity and completeness so that the work can be implemented correctly in a timely fashion
- educating CQA personnel
- scheduling and coordinating CQA inspection activities
- verifying and documenting that the test and monitoring equipment used is of the appropriate type and has been properly calibrated
- confirming that the test data, inspection, and monitoring activities have been properly documented and confirming that their results satisfy the construction documents, including the HASP
- providing QLT Buffalo and NFG with CQA updates, identifying deficient work, and providing recommended corrective action measures, if necessary
- ensuring that any changes in testing equipment, personnel, or procedures do not adversely impact the inspection process

CQA Inspector responsibilities include:

- performing onsite inspections of the remediation to ensure compliance with construction documents
- verifying required tests, including the submitting of test samples (if required) to qualified laboratories for acquiring test results
- documenting the results of all inspection, test, and monitoring activities
- reporting nonconforming conditions as well as other deviations from the construction documents to the CQA Officer
- verifying the implementation of any corrective action measures.

4.9.1.3 Contractor

The Contractor's (OSC's) responsibility is to perform the work in accordance with the construction documents. Construction personnel, including the Contractor's Project Manager, will coordinate their work with the WSP Engineering CQA Officer and CQA Inspector(s).

4.9.1.4 Site Meetings

Periodic (a minimum of once per week) CQA meetings will be held during the implementation of the construction. As availability allows, meeting attendees will include the Contractor Project Manager and WSP Engineering's CQA Officer and/or Inspector, Health and Safety Officer, and Engineer. Representatives of the NYSDEC may also attend, as necessary. Parties may participate by teleconference, as necessary.

Additional CQA meetings may be held at the site or via a telephone conference and will be used to discuss the project progress, construction issues and unanticipated site conditions, and deviations from the construction documents. Each meeting will be documented by the CQA Officer or CQA Inspector.

4.9.1.5 Initial Construction Quality Assurance Meeting

The initial CQA meeting will be conducted onsite prior to initiating work. Subjects proposed to be covered during this meeting include:

- providing appropriate parties with the finalized construction documents and HASP
- reviewing the responsibilities and authority of each party
- reviewing lines of authority and communication
- resolving identified conflicts within the construction documents
- reviewing the procedures and requirements for the tests and inspections to be performed
- reviewing methods for documenting and reporting inspection data (e.g., field book entries)
- reviewing storage of documents
- reviewing procedures for identifying and correcting deviations
- discussing proper storage requirements for construction materials
- reviewing the site health and safety plan as needed
- conducting a site walk to review and discuss work issues
- discussing the overall project schedule
- reporting of key submittals to the Engineer (if any)

4.9.1.6 Weekly Construction Quality Assurance Meetings

At the end of each work week, the CQA Inspector will communicate with the CQA Officer to discuss project activities. Discussion topics will include:

- previous week's activities and progress
- following week's planned activities
- anticipated or potential construction issues
- review of testing procedures, submittals, or inspection activities required for the current week's work
- coordination of CQA monitoring and inspection activities with the Contractor Project Manager.

The weekly meetings/telephone conferences will be documented by a CQA Inspector. The documentation (minutes) will be distributed to all participants and other project team members not available to participate.

5 Schedule

Due to the need to complete all work during the summer months while the Waterfront School is out of session, WSP has identified an aggressive schedule requiring short deadlines governing the conduct of all relevant parties. The detailed schedule associated with implementation of this Supplemental Work Plan is presented as Appendix A. Major milestones that must be satisfied to accommodate the overall project schedule include the following:

- establish contracts with Contractor — April 6, 2012
- submit Work Plan to NYSDEC — April 24, 2012
- submit revised Work Plan to NYSDEC — May 22, 2012
- NYSDEC approval of Work Plan — June 1, 2012
- obtain permits/access — June 1, 2012
- sheet pile installation completed — Late July 2012
- excavation completed — Early August 2012
- backfill completed — August 20, 2012
- school resumes — September 4, 2012

6 Project Closeout

As field work comes to an end, WSP Engineering will schedule a site walk through with NYSDEC. Any remaining work necessary to satisfy the intent of the Supplemental Work Plan will be identified and documented for follow-up action.

WSP Engineering will prepare a report that includes a description of activities conducted to comply with the requirements of this Supplemental Work Plan. The report will include a certification by a Professional Engineer that the work was conducted in full accordance with the approved Supplemental Work Plan. Based on input from the NYSDEC, the report will be made final and submitted to NYSDEC in furtherance of the issuance of an NFA under the School Property Order on Consent.

7 References

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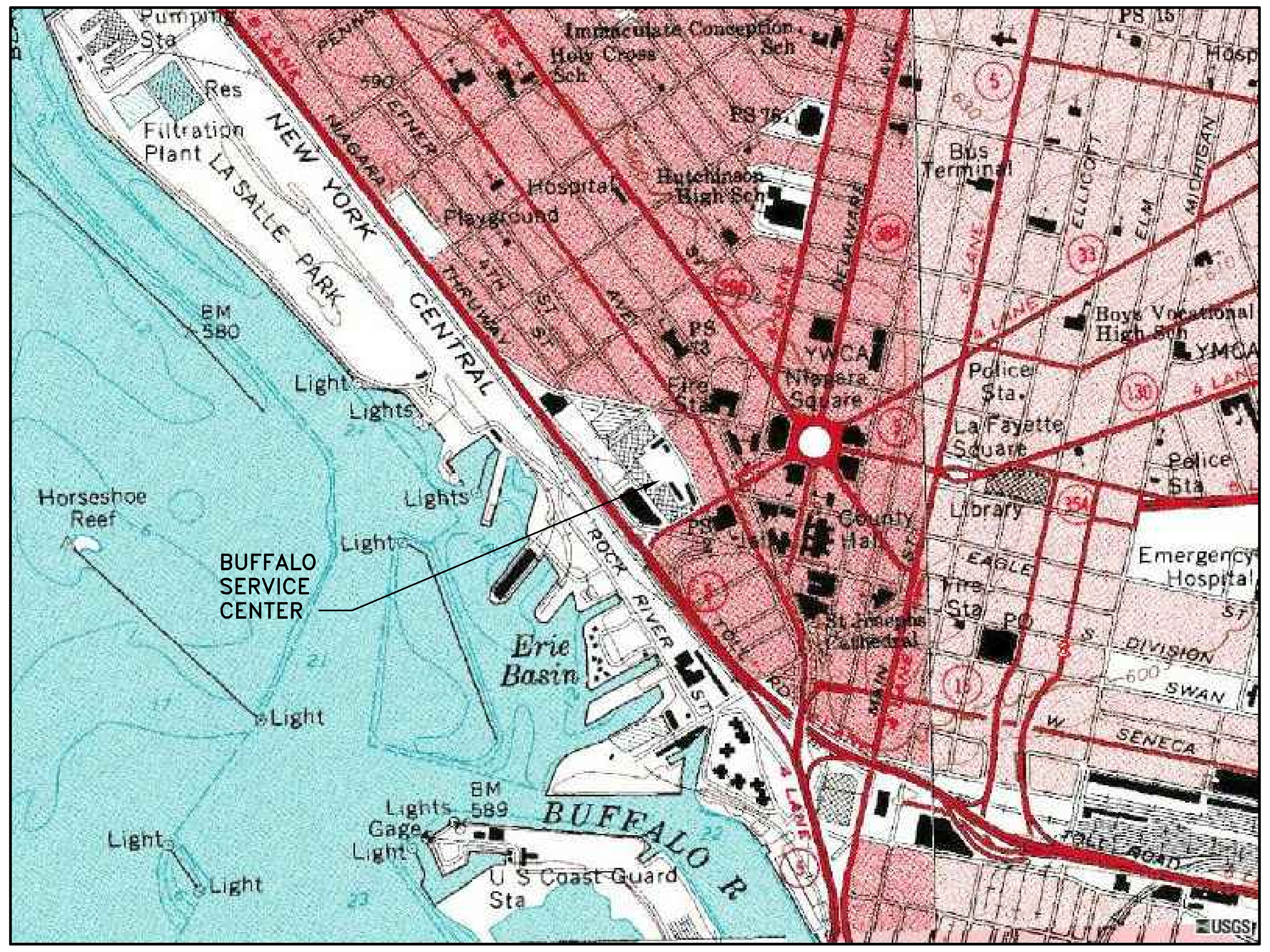
WSP Engineering of New York, P.C. Draft Final Engineering Report Interim Remedial Measure Operable Units OU-2A (School), OU-2B, and OU-2C March 2008

Drawings



SITE LOCATION
NOT TO SCALE

INDEX OF DRAWINGS

DRAWING NUMBER	SHEET NUMBER	DESCRIPTION
00030454-D01	1	TITLE SHEET
00030454-D06	2	EXISTING CONDITIONS
00030454-D03	3	CONCEPTUAL GROUNDWATER TREATMENT SYSTEM
00030454-D05	4	EXCAVATION AND CROSS SECTION

TITLE SHEET

WORK PLAN
FOURTH STREET UTILITY CORRIDOR EXCAVATION

BUFFALO SERVICE CENTER
BUFFALO, NEW YORK

PREPARED FOR

QLT BUFFALO LLC
NEW YORK, NEW YORK

D

REVISIONS
REV | DESCRIPTION

SEAL

DRAWN BY
CHECKED
APPROVED

TITLE SHEET
WORK PLAN
FOURTH STREET UTILITY CORRIDOR EXCAVATION
BUFFALO, NEW YORK
PREPARED FOR
QLT BUFFALO LLC
NEW YORK, NEW YORK

WSP ENGINEERING OF NEW YORK, P.C.
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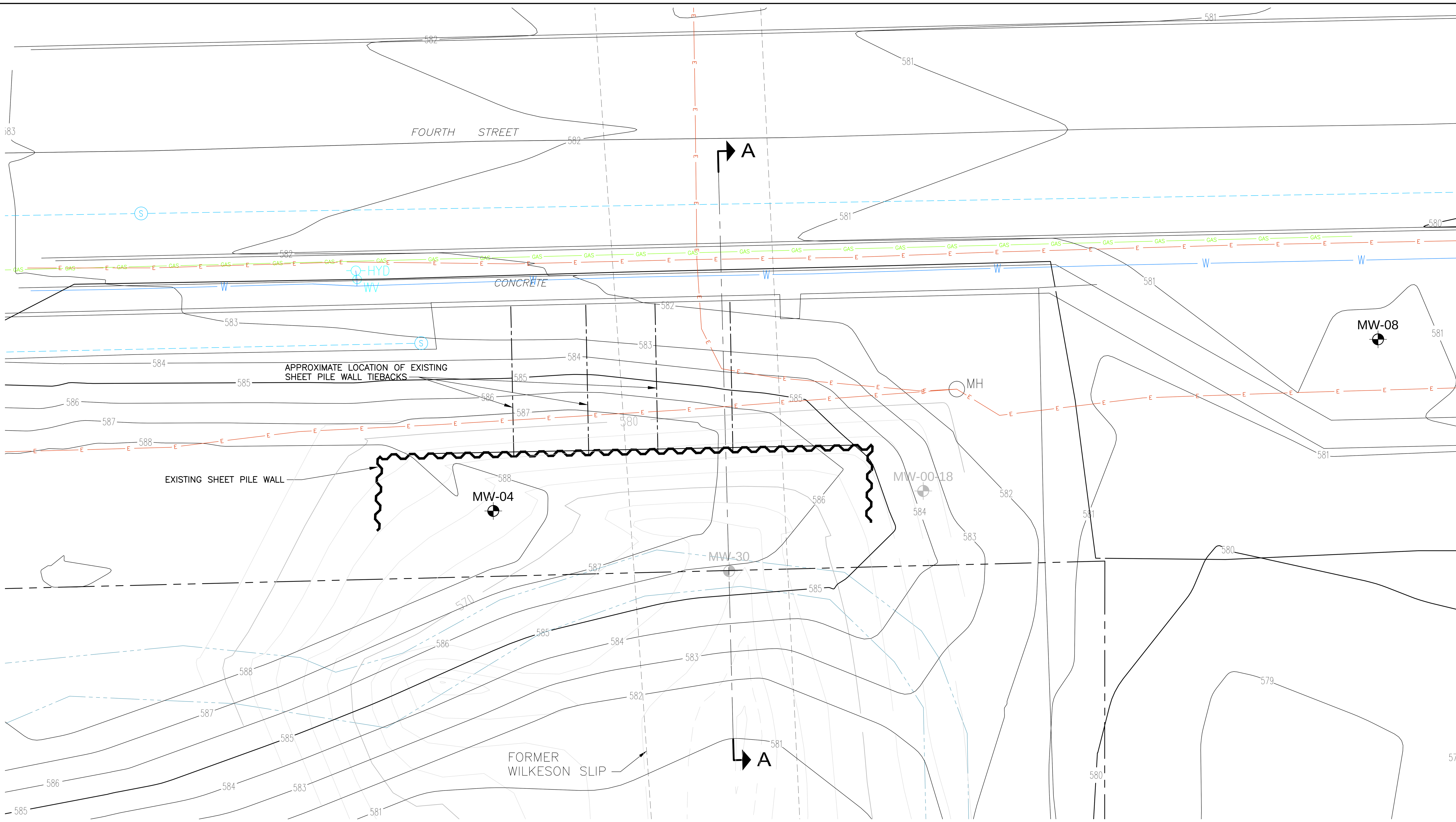
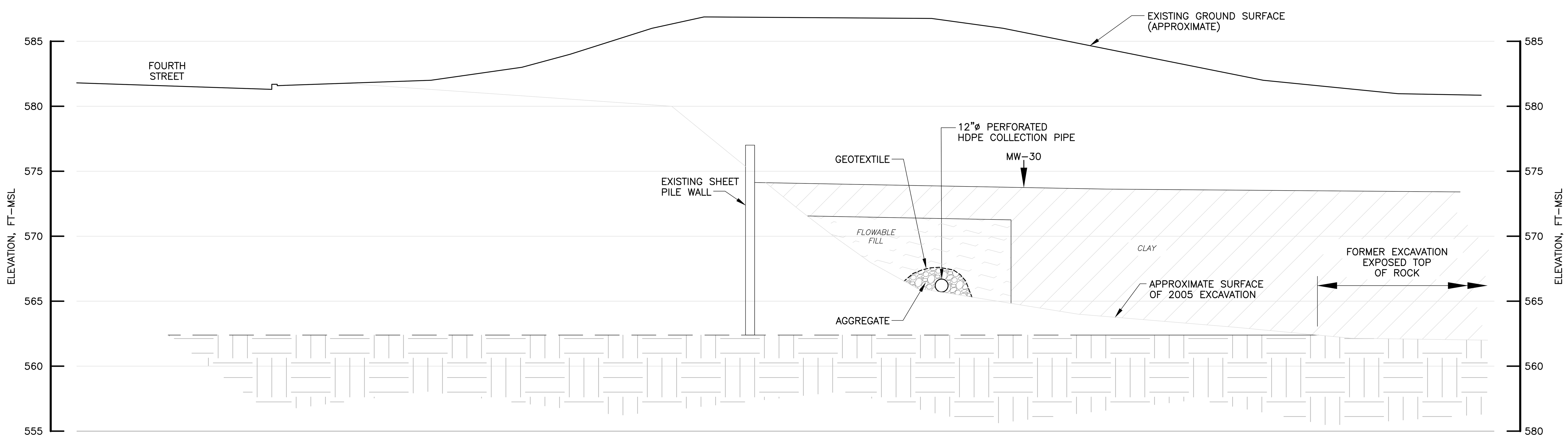
SHEET 1
Drawing Number
00030454–D01



LEGEND

- MW-4 MONITORING WELL
- MW-30 PRE–EXISTING MONITORING WELL
- ELECTRIC LINE
- GAS LINE
- 10" WATER LINE
- 16" SANITARY SEWER LINE
- 5' 2005 EXCAVATION ELEVATION
- 1' 2005 EXCAVATION ELEVATION
- EXISTING 5' GROUND SURFACE ELEVATION
- EXISTING 1' GROUND SURFACE ELEVATION



CROSS SECTION A-A

SCALE IN FEET

NOTE:
TOP OF ROCK, FLOWABLE FILL, COMMON FILL, CLAY, AND GROUND SURFACE ELEVATIONS ARE APPROXIMATE.

REFERENCES:

1. NIAGARA BOUNDARY & MAPPING SERVICES CAD DRAWING TITLED, "MAP SHOWING TOPOGRAPHIC SURVEY OF NATIONAL FUEL SITE, WEST GENESEE & FOURTH STREETS, BUFFALO, NY", SURVEY DATE MAY 2005.
ELEVATIONS AS SHOWN ON THIS MAP ARE BASED ON NGVD 88 DATUM. SOURCE BENCHMARK IS MONUMENT "BUFFALO" PID # NC0370, ELEVATION 602.58. SITE BENCHMARK IS PUNCH MARK IN NORTH RIM OF ELECTRIC MANHOLE LOCATED AT THE SOUTH EAST CORNER OF THIS SITE. NORTH AS SHOWN ON THIS MAP IS GRID NORTH AT 78°35' OF WEST LONGITUDE AS ESTABLISHED BY GPS SURVEY PREPARED BY NIAGARA BOUNDARY AND MAPPING SERVICES.

2. NIAGARA BOUNDARY & MAPPING SERVICES CAD DRAWING TITLED, "MAP SHOWING EXCAVATION OF BUFFALO WATER FRONT SCHOOL, AREA OU2A AND AREA OU2_BC REMEDIAL AREAS", DATED JANUARY 2006, JOB NO. 5822–05.

3. RETEC DRAWING TITLED, "GROUNDWATER ELEVATION, NOVEMBER 2003", DATED 1–20–04, FIGURE 10, CAD FILE GW11–03.dwg.

4. NIAGARA BOUNDARY & MAPPING SERVICES CAD DRAWING TITLED, "MAP SHOWING TOPOGRAPHIC SURVEY OF FOURTH STREET SITE, BUFFALO, NEW YORK", DATED APRIL 3 2012, JOB. NO.: 5822–12.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

SCALE, FEET

REVISIONS

REV	DESCRIPTION

SEAL

DRAWN BY 04/23/2012
CHECKED GER 05/31/2012
APPROVED 05/31/2012

EXISTING CONDITIONS

WORK PLAN
FOURTH STREET UTILITY CORRIDOR EXCAVATION
BUFFALO, NEW YORK

PREPARED FOR
QLT BUFFALO LLC
NEW YORK, NEW YORK

WSP ENGINEERING OF NEW YORK, P.C.
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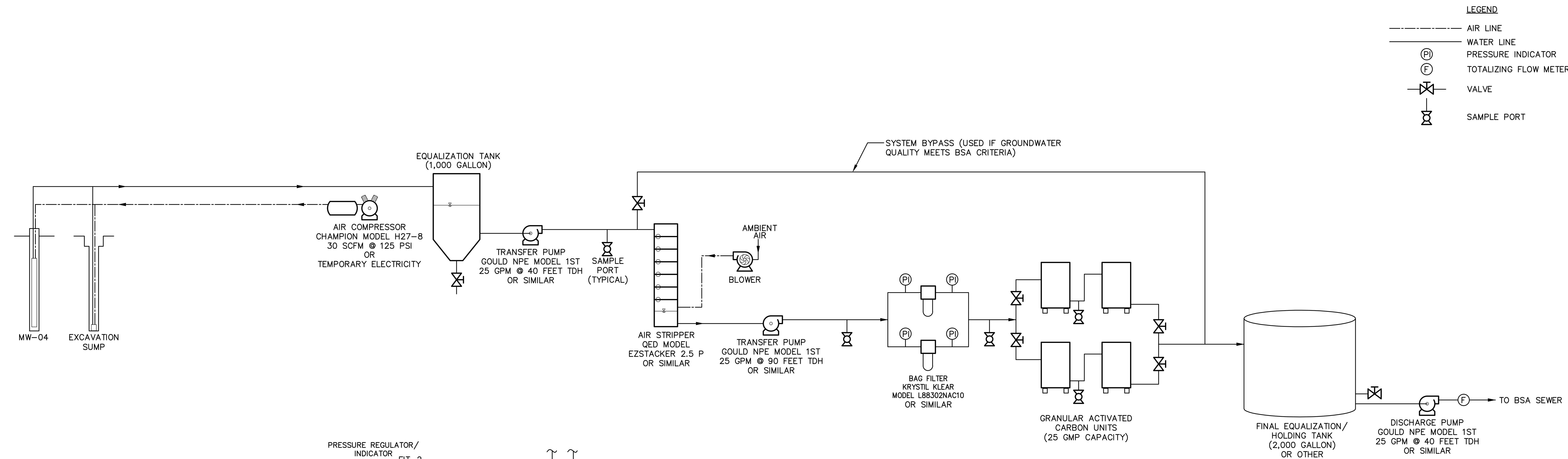
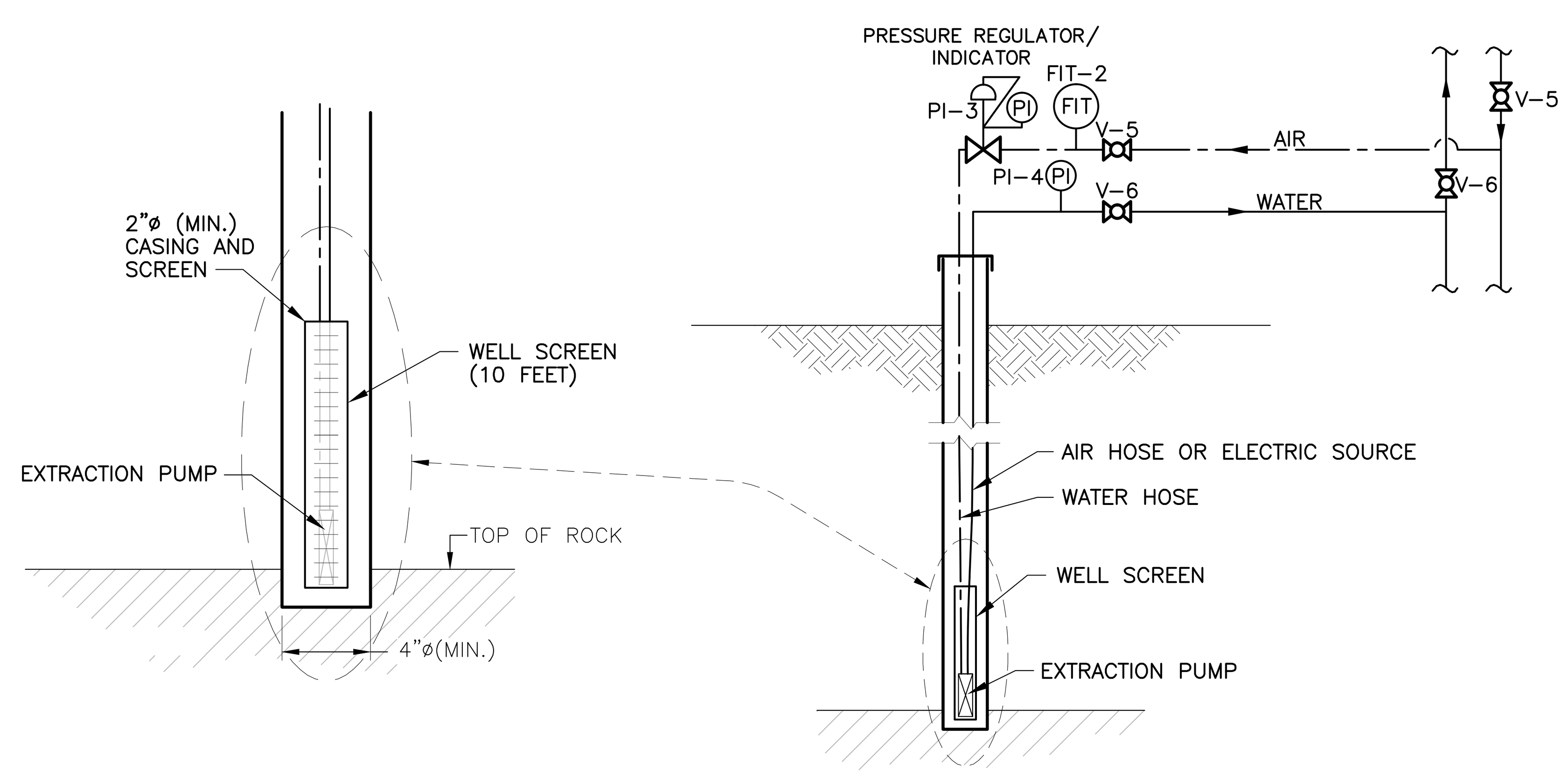
SHEET 2

Drawing Number
00030454–D06

D



NOTE: THE TREATMENT PLANT MAY BE OF DIFFERENT CAPACITY THAN SHOWN.



MW-04 SCHEMATIC (TYPICAL)

NO SCALE

D

REVISIONS

REV	DESCRIPTION

SEAL

DRAWN BY 05/31/2012
CHECKED GER 05/31/2012
APPROVED 05/31/2012

CONCEPTUAL GROUNDWATER TREATMENT SYSTEM

WORK PLAN
FOURTH STREET UTILITY CORRIDOR EXCAVATION
BUFFALO, NEW YORK

PREPARED FOR
QLT BUFFALO LLC
NEW YORK, NEW YORK

WSP ENGINEERING OF NEW YORK, P.C.
11190 Sunrise Valley Drive, Suite 300
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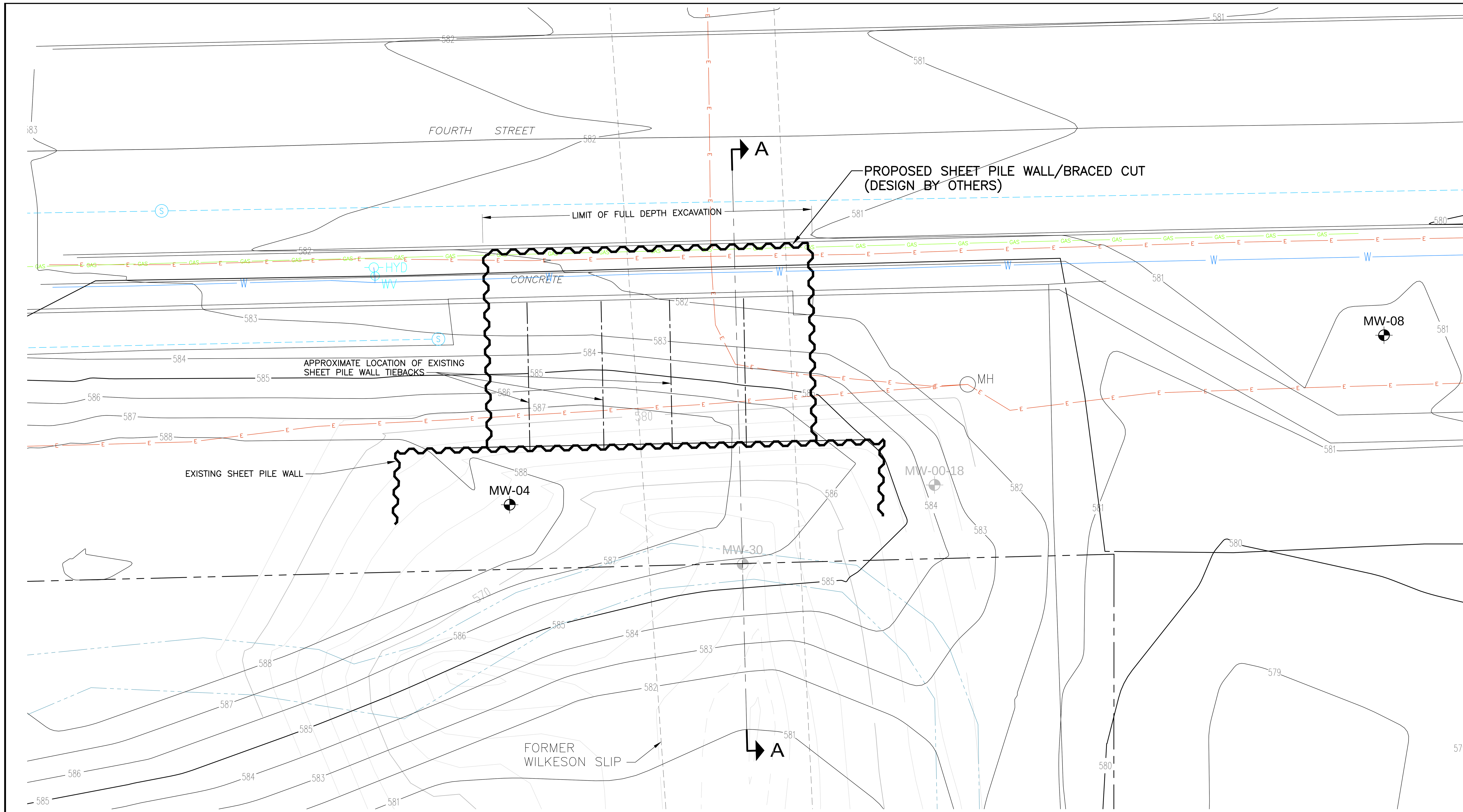
(703) 709-6500
www.wspenvironmental.com/usa

SHEET 3

Drawing Number
00030454-D03



LEGEND

MW-4	MONITORING WELL
MW-30	PRE-EXISTING MONITORING WELL
— E —	ELECTRIC LINE
— GAS —	GAS LINE
— W —	10" WATER LINE
- - -	16" SANITARY SEWER LINE
	5' 2005 EXCAVATION ELEVATION
	1' 2005 EXCAVATION ELEVATION
	EXISTING 5' GROUND SURFACE ELEVATION
	EXISTING 1' GROUND SURFACE ELEVATION

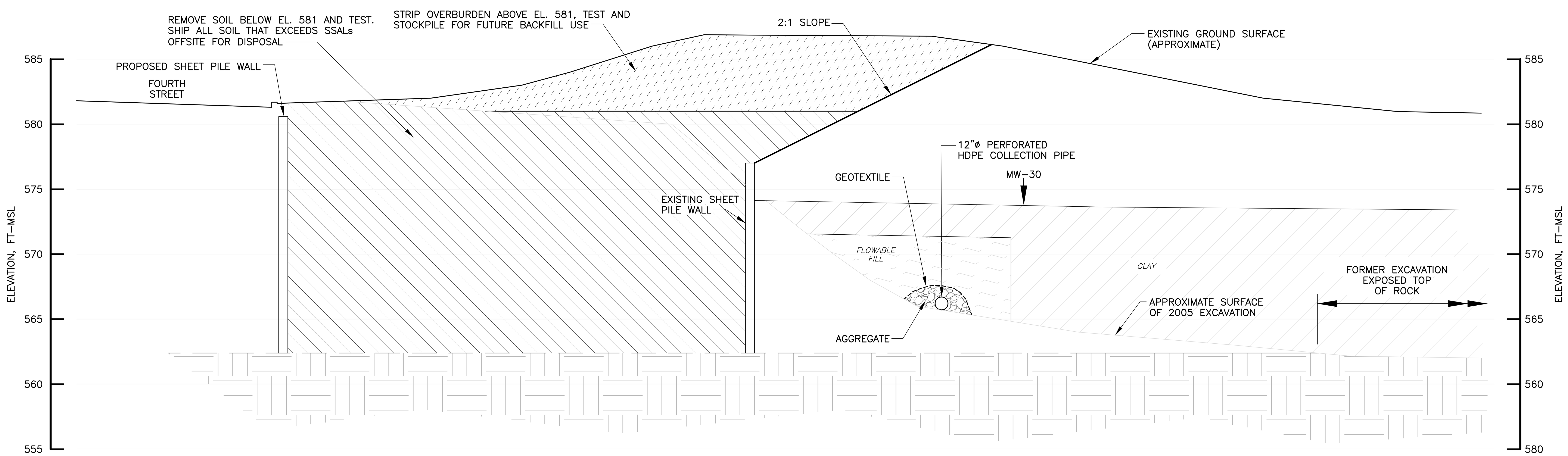
REFERENCES:

1. NIAGARA BOUNDARY & MAPPING SERVICES CAD DRAWING TITLED, "MAP SHOWING TOPOGRAPHIC SURVEY OF NATIONAL FUEL SITE, WEST GENESEE & FOURTH STREETS, BUFFALO, NY", SURVEY DATE MAY 2005.
ELEVATIONS AS SHOWN ON THIS MAP ARE BASED ON NGVD 88 DATUM. SOURCE BENCHMARK IS MONUMENT "BUFFALO" PID # NC0370, ELEVATION 602.58. SITE BENCHMARK IS PUNCH MARK IN NORTH RIM OF ELECTRIC MANHOLE LOCATED AT THE SOUTH EAST CORNER OF THIS SITE. NORTH AS SHOWN ON THIS MAP IS GRID NORTH AT 78°35' OF WEST LONGITUDE AS ESTABLISHED BY GPS SURVEY PREPARED BY NIAGARA BOUNDARY AND MAPPING SERVICES.

2. NIAGARA BOUNDARY & MAPPING SERVICES CAD DRAWING TITLED, "MAP SHOWING EXCAVATION OF BUFFALO WATER FRONT SCHOOL, AREA OU2A AND AREA OU2_BC REMEDIAL AREAS", DATED JANUARY 2006, JOB NO. 5822-05.

3. RETEC DRAWING TITLED, "GROUNDWATER ELEVATION, NOVEMBER 2003", DATED 1-20-04, FIGURE 10, CAD FILE GW11-03.dwg.

4. NIAGARA BOUNDARY & MAPPING SERVICES CAD DRAWING TITLED, "MAP SHOWING TOPOGRAPHIC SURVEY OF FOURTH STREET SITE, BUFFALO, NEW YORK", DATED APRIL 3 2012, JOB. NO.: 5822-12.



CROSS SECTION A-A

0 5 10 SCALE IN FEET

NOTE:
TOP OF ROCK, FLOWABLE FILL, COMMON FILL, CLAY, AND GROUND SURFACE ELEVATIONS ARE APPROXIMATE.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

10 0 10 20
SCALE, FEET

D

REVISIONS

REV	DESCRIPTION

SEAL
STATE OF NEW YORK — JOHN P. BLACK — LICENSED PROFESSIONAL ENGINEER

DRAWN BY	PL 04/20/2012
CHECKED	GER 05/31/2012
APPROVED	JB 05/31/2012

EXCAVATION AND CROSS SECTION

WORK PLAN
FOURTH STREET UTILITY CORRIDOR EXCAVATION
BUFFALO, NEW YORK

PREPARED FOR
QLT BUFFALO LLC
NEW YORK, NEW YORK

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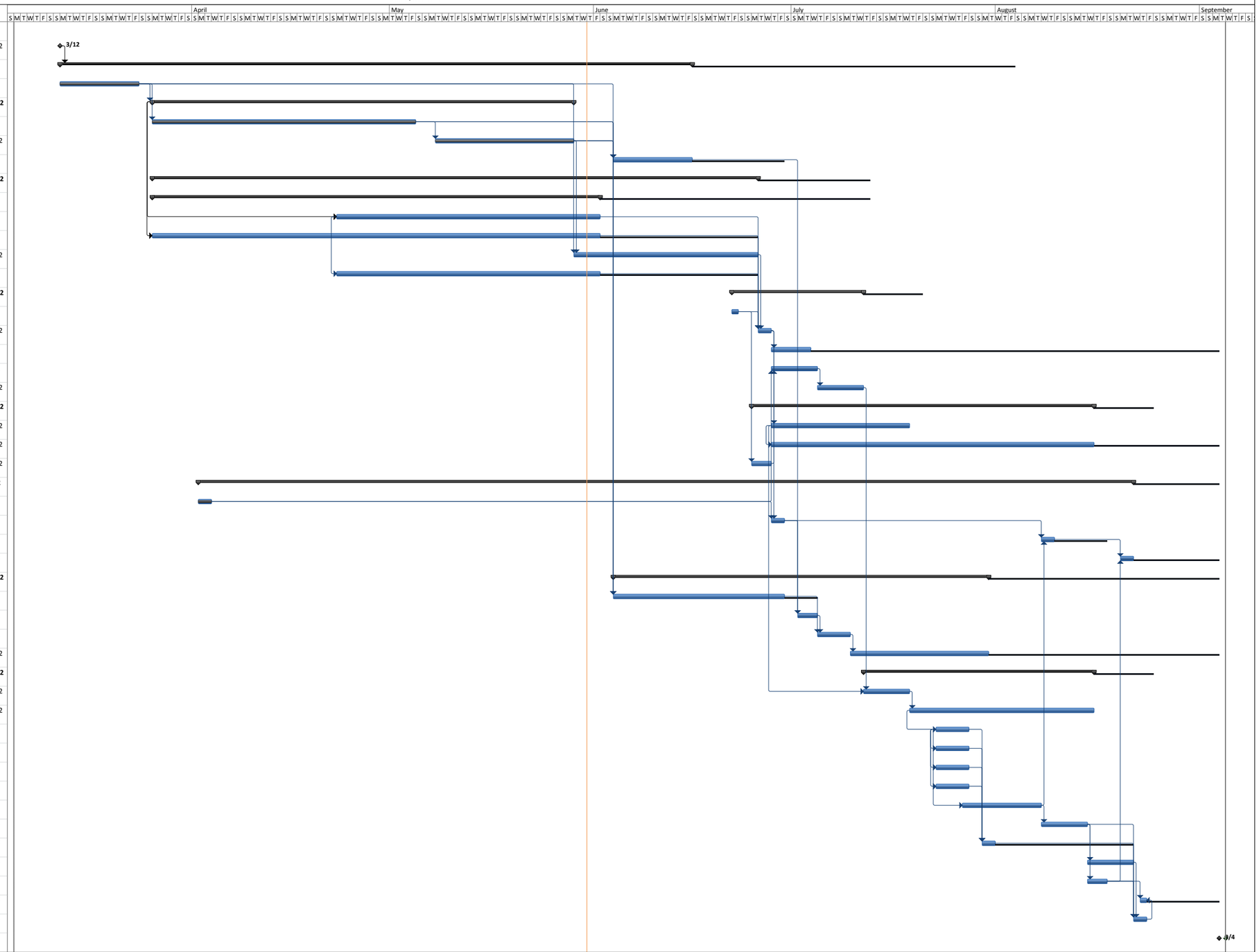
SHEET 4

Drawing Number
00030454-D05

Appendix A – Utility Corridor Excavation Schedule

ID	WBS	Task Name	Duration	Start	Finish
1					
2	1	Meeting with NYSDEC	0 days	Mon 3/12/12	Mon 3/12/12
3	**2**	**Engineering and Work Plan**	**70 days**	**Mon 3/12/12**	**Fri 6/15/12**
4	2.1	Draft Work Plan	10 days	Mon 3/12/12	Fri 3/23/12
5	**2.2**	**Approvals (Client and NYSDEC)**	**46 days**	**Mon 3/26/12**	**Mon 5/28/12**
6	2.2.1	Client and NFG	30 days	Mon 3/26/12	Fri 5/4/12
7	2.2.2	NYSDEC	15 days	Tue 5/8/12	Mon 5/28/12
8	2.3	Health and Safety Plan Preparation and Implementation	10 days	Mon 6/4/12	Fri 6/15/12
9	**3**	**Permits/Approvals**	**66 days**	**Mon 3/26/12**	**Mon 6/25/12**
10	**3.1**	**Access Agreements**	**50 days**	**Mon 3/26/12**	**Fri 6/1/12**
11	3.1.1	City of Buffalo	30 days	Mon 4/23/12	Fri 6/1/12
12	3.1.2	HealthNow/Coles/Duke	50 days	Mon 3/26/12	Fri 6/1/12
13	3.2	BSA Pre-treatment Permit	20 days	Tue 5/29/12	Mon 6/25/12
14	3.3	Roadway Permit	30 days	Mon 4/23/12	Fri 6/1/12
15	**4**	**Mobilization**	**14 days**	**Fri 6/22/12**	**Wed 7/11/12**
16	4.1	School Closes	1 day	Fri 6/22/12	Fri 6/22/12
17	4.2	Utility Survey	2 days	Tue 6/26/12	Wed 6/27/12
18	4.3	Pre-excavation Sampling	4 days	Thu 6/28/12	Tue 7/3/12
19	4.4	Relocate Berm	5 days	Thu 6/28/12	Wed 7/4/12
20	4.5	Temporary Facilities (Traffic Control)	5 days	Thu 7/5/12	Wed 7/11/12
21	**5**	**Site Preparation**	**38 days**	**Mon 6/25/12**	**Wed 8/15/12**
22	5.1	Utility Relocation (Gas, Electric, and Sewer)	15 days	Thu 6/28/12	Wed 7/18/12
23	5.2	Temporary Fence & Security	35 days	Thu 6/28/12	Wed 8/15/12
24	5.3	Erosion and Sedimentation Controls (Set up)	3 days	Mon 6/25/12	Wed 6/27/12
25	**6**	**Surveying Requirements**	**102 days**	**Mon 4/2/12**	**Tue 8/21/12**
26	6.1	Initial Survey	2 days	Mon 4/2/12	Tue 4/3/12
27	6.2	Sheet Pile Wall	2 days	Thu 6/28/12	Fri 6/29/12
28	6.3	Excavation Bottom	2 days	Wed 8/8/12	Thu 8/9/12
29	6.4	Completion	2 days	Mon 8/20/12	Tue 8/21/12
30	**7**	**Sheet Pile Work**	**41 days**	**Mon 6/4/12**	**Mon 7/30/12**
31	7.1	Design	20 days	Mon 6/4/12	Fri 6/29/12
32	7.2	Pre-Excavation	3 days	Mon 7/2/12	Wed 7/4/12
33	7.3	Sheet Piles (Drive)	3 days	Thu 7/5/12	Mon 7/9/12
34	7.4	Cross Bracing	15 days	Tue 7/10/12	Mon 7/30/12
35	**8**	**Excavation**	**25 days**	**Thu 7/12/12**	**Wed 8/15/12**
36	8.1	Water Treatment Set Up	5 days	Thu 7/12/12	Wed 7/18/12
37	8.2	Water Treatment O & M	20 days	Thu 7/19/12	Wed 8/15/12
38	8.3	Excavation and Handling of Contaminated Materials (offsite)	5 days	Mon 7/23/12	Fri 7/27/12
39	8.4	Excavation and Handling of Clean Materials (relocate)	5 days	Mon 7/23/12	Fri 7/27/12
40	8.5	Subtitle D Landfill (T & D), Approved Daily Cover	5 days	Mon 7/23/12	Fri 7/27/12
41	8.6	Subtitle D Landfill (T & D), Waste Material	5 days	Mon 7/23/12	Fri 7/27/12
42	8.7	Sampling and Confirmation	8 days	Fri 7/27/12	Tue 8/7/12
43	8.8	Backfill (flowable fill, stone, clay, common fill)	5 days	Wed 8/8/12	Tue 8/14/12
44	8.9	Equipment Decontamination	2 days	Mon 7/30/12	Tue 7/31/12
45	9	Road Replacement	5 days	Wed 8/15/12	Tue 8/21/12
46	10	Replace Berm	3 days	Wed 8/15/12	Fri 8/17/12
47	11	Tree Planting, Seeding and Mulching	1 day	Thu 8/23/12	Thu 8/23/12
48	12	Demobilization	2 days	Wed 8/22/12	Thu 8/23/12
49	13	Schools Open	0 days	Tue 9/4/12	Tue 9/4/12



Project: Utility Corrodor Excavatio
Date: Thu 5/31/12

Task, Split, Milestone, Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Manual Task, Duration-only, Manual Summary Rollup, Manual Summary, Start-only, Finish-only, Deadline, Critical, Critical Split, Progress, Slack

Appendix B – NYSDOH Generic CAMP

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must 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 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

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